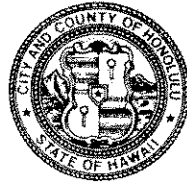


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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JEREMY HARRIS
MAYOR



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ERIC G. CRISPIN, AIA
ACTING DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

'03 JAN 10 P3:04

January 10, 2003

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

2001/ED-17(RY)

Honorable Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

Final Supplemental Environmental Impact Statement (FSEIS) – Chapter 343,
HRS Waimanalo Gulch Sanitary Landfill Expansion
Tax Map Key 9-2-3: 072 and 073, Ewa, Oahu

This is to request publication of the subject FSEIS in the next available edition of The Environmental Notice. Attached please find the following items:

- Four copies of the FSEIS
- The completed OEQC Publication Form
- An acceptance report
- Distribution List
- Distribution Cover Letter to participants

Notwithstanding the unresolved issue described in our acceptance report, we have determined that the Final Supplemental EIS is acceptable under the requirements of Chapter 343, Hawaii Revised Statutes.

If you have any questions, please call Raymond Young of my staff at 527-5839.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Eric G. Crispin".

ERIC G. CRISPIN, AIA
Acting Director of Planning and Permitting

EGC: ry
Attachments
Doc 197480

2002 - Oahu - FEIS -
Waimanalo Gulch Landfill

JAN 23 2003
FILE COPY

Chapter 343, Hawaii Revised Statutes

Final Supplemental Environmental Impact Statement (FEIS)
WAIMANALO GULCH SANITARY
LANDFILL EXPANSION
Waimanalo Gulch, Oahu, Hawaii
TMK: 9-2-03:072 and 073

DECEMBER 2002

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY & COUNTY OF HONOLULU

JAN 10 PM 1:17

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Prepared For:

Department of Environmental Services
City & County of Honolulu
1000 Uluohia Street, 3rd Floor
Kapolei, Hawaii 96707



R. M. TOWILL CORPORATION
SINCE 1930

420 Waiakamilo Rd., Suite 411
Honolulu, Hawaii 96817-4941
(808) 842-1133 • Fax: (808) 842-1937
(RMTIC Ref: 1-18573-0-P)

FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
WAIMANALO GULCH SANITARY LANDFILL EXPANSION
Waimanalo Gulch, Oahu, Hawaii

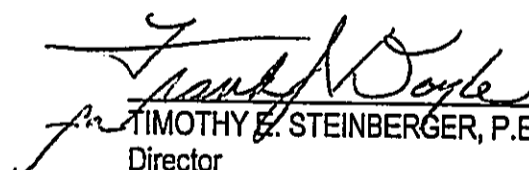
December 2002

Prepared Pursuant to
Hawaii Revised Statutes (HRS), Chapter 343, and
Hawaii Administrative Rules (HAR), Title 11, Chapter 200

By

City and County of Honolulu
Department of Environmental Services (ENV)

December 24, 2002
Date of Approval



TIMOTHY E. STEINBERGER, P.E.
Director
City and County of Honolulu
Department of Environmental Services

This document and all ancillary documents were prepared under my direction or supervision. This information, to the best of my knowledge, fully addresses document content requirements as set forth in HAR, Sections 11-200-17 and 11-200-18, as appropriate.

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PROJECT SUMMARY

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Proposing Agency	City and County of Honolulu Department of Environmental Services 650 South King Street Timothy E. Steinberger, Director
Accepting Authority	City and County of Honolulu Department of Planning and Permitting 650 South King Street Eric Crispin, Acting Director
TMK	9-2-03: 072 and 073
Location	Waimanalo Gulch, Island of Oahu
Project Area	14.9 acres proposed for development within the 200 acres of the Waimanalo Gulch Sanitary Landfill property site.
SEIS Preparers	Waste Management of Hawaii, Inc. 92-460 Farrington Highway Kapolei, Hawaii 96707, and R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Phone: (808) 842-1133 Facsimile: (808) 842-1937
County Zoning	AG-2, General Agricultural District
State Land Use	Agricultural
Existing Land Use	Vacant
Proposed Action	14.9-acre expansion of the existing 86.5-acre landfill. All work will be within the 200 acres of the existing Waimanalo Gulch Sanitary Landfill property.
County Permits Required	State Special Use Permit Amendment
State Permits Required	Department of Health Landfill Operating Permit and National Pollutant Discharge Elimination System (NPDES), Notice of Intent (NOI), for Discharges of Storm Water Associated with Industrial Activities, Covered Source Air Permit (DOH)

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CHAPTER 1
OVERVIEW AND EXECUTIVE SUMMARY

1.1 PROJECT OVERVIEW

Waimanalo Gulch Sanitary Landfill is located in Waimanalo Gulch, Kahe Valley, Oahu (Figure 1-1 and 1-2, Location and Site Maps). The landfill site is owned by the City and County of Honolulu and under jurisdiction of the Department of Environmental Services (ENV). The landfill is operated under contract by Waste Management of Hawaii, Inc. (WMH).

The subject property occupies a total area of approximately 200 acres (Figure 1-3, Properties in Proximity to Proposed Project). Of the 200 acres, 86.5 acres have been in use since the landfill became operational in September 1989. Approximately 22 acres are used for administration and operational support, and approximately 64.5 acres are used for landfilling. The 22 acres used for administration and operational support is sufficient to operate the landfill for the proposed project. The proposed use of 14.9 acres will be for additional landfill capacity. All expansion and development will be completely contained within the 200 acres of the Waimanalo Gulch Sanitary Landfill property.

The landfill currently receives approximately 800 tons of municipal solid waste (MSW) and approximately 600 tons of ash (a residue from the Honolulu Program on Waste Energy Recovery, H-POWER, facility), for a total of 1,400 tons of solid waste daily.

In March 1984, the "Revised Environmental Impact Statement (EIS) for the Leeward Sanitary Landfill at Waimanalo Gulch Site and Ohikilolo Site" was published. In June 2001, the "Revised Draft Supplemental Environmental Impact Statement" was published for the proposed 60.5 acre expansion of the existing Waimanalo Gulch Sanitary Landfill. In May 2002, the City announced the proposed area of expansion would be reduced to 14.9 acres. This Final Supplemental Environmental Impact Statement addresses the reduced area proposed for landfilling.

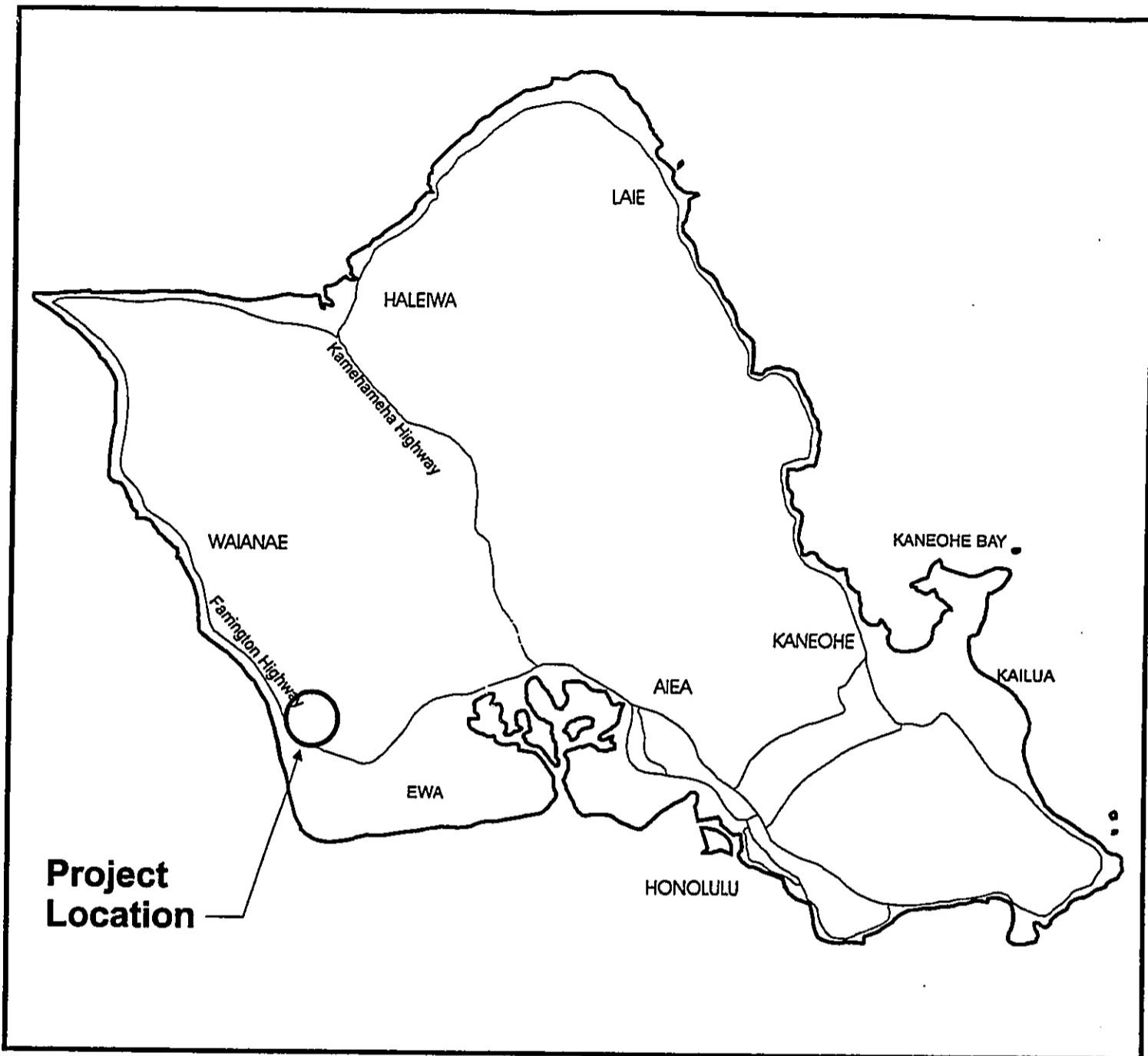
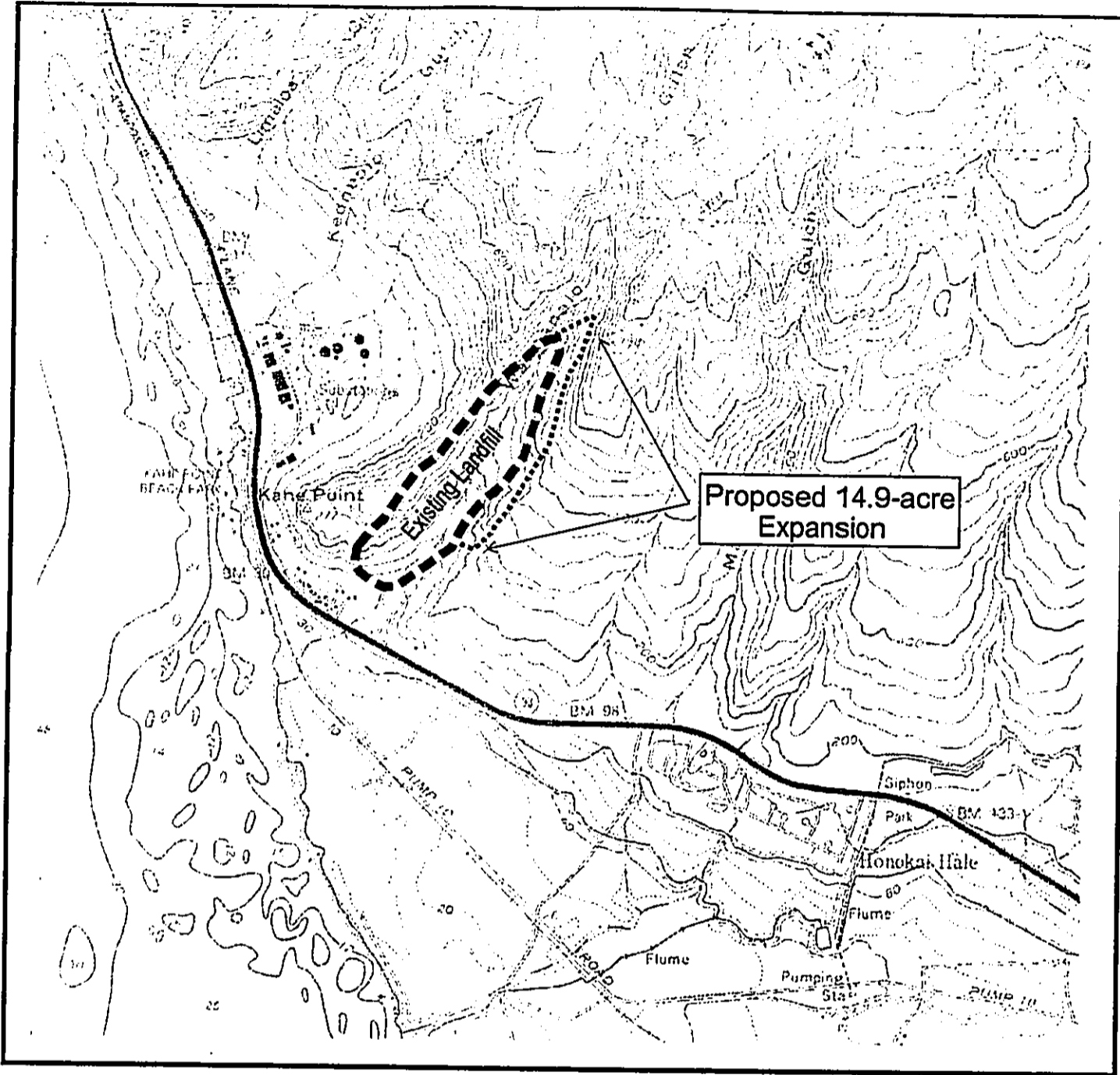


FIGURE 1-1
 LOCATION
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002



Source: C&C Honolulu, ENV 2001

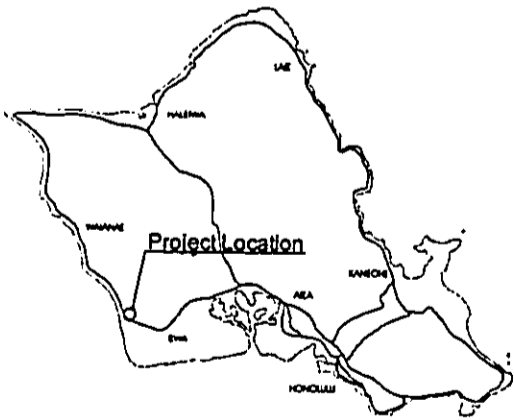
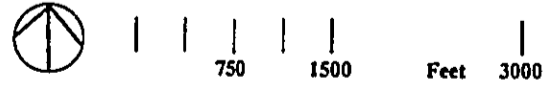


FIGURE 1-2
SITE MAP
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waiānae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

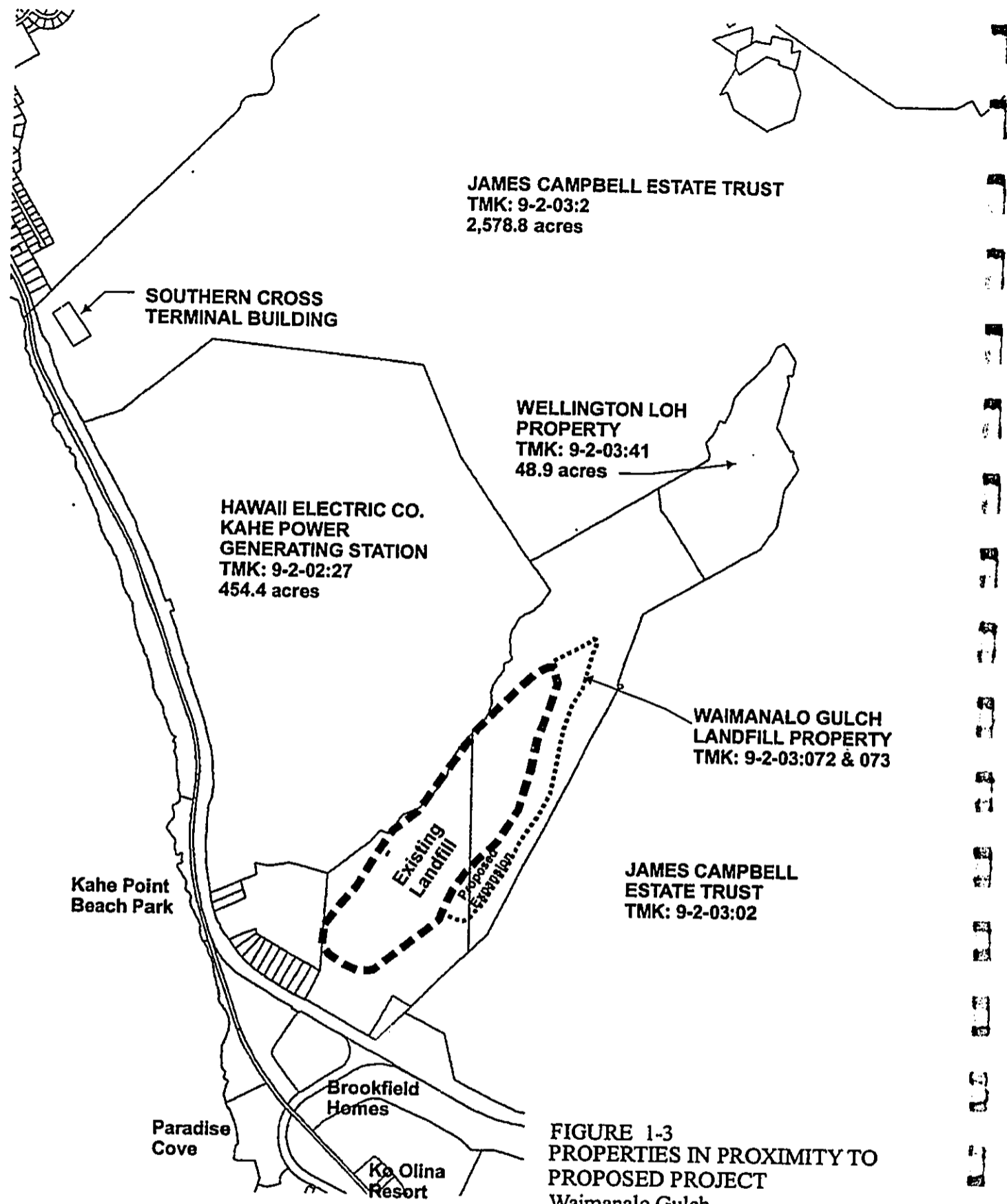
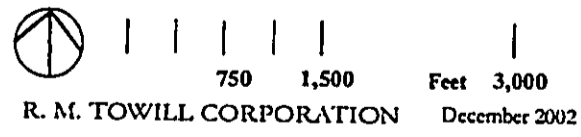


FIGURE 1-3
PROPERTIES IN PROXIMITY TO
PROPOSED PROJECT
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



1.2 PURPOSE OF THE FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

This Final Supplemental Environmental Impact Statement (FSEIS) is prepared for the proposed expansion of the Waimanalo Gulch Sanitary Landfill based on use of City and County of Honolulu land and funds for development. This document is prepared in accordance with Chapter 200, Title 11, Hawaii Administrative Rules (HAR), and Chapter 343, Hawaii Revised Statutes (HRS).

A Supplemental EIS Preparation Notice (SEISPN) was published in the December 8, 1999, issue of the State Department of Health (DOH), Office of Environmental Quality Control (OEQC), Environmental Notice. The Draft SEIS was published in the OEQC Environmental Notice on May 23, 2000. Based on comments and concerns received, it was determined by ENV that additional opportunity for public review and comment should be provided through the publication of a Revised Draft Supplemental EIS (RDSEIS) in June 2001. Comments and concerns received from the RDSEIS resulted in further documentation of environmental conditions, operational practices, and proposed mitigation measures to ensure no negative adverse impacts.

This Final Supplemental Environmental Impact Statement (FSEIS) therefore, addresses the potential for environmental impacts associated with expansion of the existing landfill footprint from 86.5 acres to 101.4 acres (which is an additional 14.9 acres) within the \pm 200-acre landfill property site.

1.3 PURPOSE AND NEED FOR THE PROJECT

1.3.1 OVERVIEW

The current 86.5 acres, which have been in use since 1989, is nearing permitted capacity and will require expansion or replacement to meet Oahu's future refuse disposal needs. The proposed project is intended to utilize existing space within the current landfill property for disposal of MSW for a period of 5 years from the date of receipt of all necessary environmental and land use permits.

In the original planning and design of the Waimanalo Gulch Sanitary Landfill, the 86.5-acre facility was initially forecasted to receive and process solid waste until the year 2004 or until the capacity of the facility was exhausted. The current landfill area is near permitted capacity, with anticipated

exhaustion of space in early 2003¹. ENV and WMH propose to expand the landfill area by approximately 14.9 acres because there is available unused land on the property that is suitable for landfilling.

The City and County of Honolulu has made various efforts to increase public interest and awareness to better utilize resources by reusing and recovering much of the material currently going into disposal facilities. In 1990, Act 324 was enacted, which required the preparation of a plan to achieve a set of solid waste diversion goals. Act 324 calls for the use of source reduction, recycling and bioconversion methods to divert waste from incineration and landfill.

Although aggressive program planning has been and will continue to be implemented to increase recycling and reduce Oahu's waste stream, there will still be a need to provide space for landfilling. Methods such as incineration, recycling and resource recovery, while excellent ways to reduce the amount of solid waste, still require reliance on landfill space for disposal of specific non recyclable materials and for disposal under emergency conditions when H-POWER or the alternative technology facilities are not in operation. Incineration produces an ash byproduct requiring disposal. Recycling and resource recovery result in the production of some non-recyclable and non-processible material. These materials must eventually be disposed of at a permitted landfill facility.

The following provides a description of Oahu's residential waste stream. Current and future methods and programs for waste reduction are described along with discussion of continued need for landfill space in the absence of a viable alternative for disposal of municipal solid waste and ash.

1.3.2 WASTE STREAM ASSESSMENT

The Waimanalo Gulch Sanitary Landfill accepts both MSW as well as ash and noncombustible residue from H-POWER. The waste material can be divided into three major sources: residential, commercial and convenience centers.

Residential waste consists of waste collected by the City Refuse Division. This waste is primarily generated by single and multi-family households, and small businesses. The commercial waste

¹The City has requested permission from the State Department of Health to increase the height of the existing landfill by 30 vertical feet, to 430 feet above mean sea level. The permit was issued in September 2002, and will allow use of the landfill into early 2003.

category consists of waste collected by non-Refuse Division vehicles including private waste haulers, other City agencies, and the public (including individual businesses and residential self-haulers). The majority of these commercial waste generators are businesses, institutions, and condominiums. The last category, Convenience Centers, consists of waste collected at the six drop-off stations operated by the City.

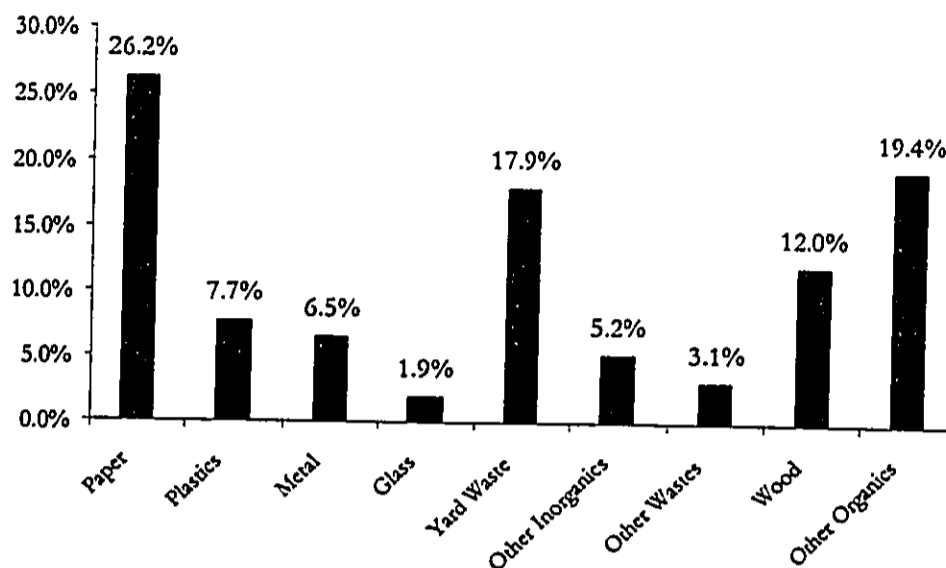
The amount of material delivered to the landfill by each of these sources is shown in Table 1-1. The table provides disposal data for calendar year 2001 and includes the ash and residue from H-POWER and sewage sludge from ENV and private disposers.

Table 1-1
REFUSE DISPOSAL AMOUNTS, TONS IN 2001
CITY AND COUNTY OF HONOLULU

Customer Type	Annual Tons
Residential	93,514
Convenience Center	20,235
Commercial	202,207
Haulers	183,561
Other C&C	16,391
Other Private Parties	2,255
H—POWER Ash	84,421
H—POWER Residue	78,512
Sludge	34,759
C&C Sources	33,090
Other Sources	1,670
Other	605
Total	514,253

In the Oahu Municipal Refuse Disposal Alternatives Study, the overall composition of waste disposed by residential, commercial and convenience center generators (excluding construction and demolition waste) is detailed in Figure 1-4, Waste Composition. As shown in Figure 1-4, paper (26.2%), other organics (19.4%) and yard waste (17.9%) account for over half (63.5%) of the overall waste stream.

Figure 1-4 - Waste Composition, City and County of Honolulu
(percentages may not add to 100 due to rounding)



1.3.3 METHODS OF WASTE STREAM REDUCTION

Methods of waste diversion include reuse, recycling, composting, and incineration. Specific programs being operated by the City include:

- Drop-off recycling bins located around the island. Materials collected include paper, plastic, aluminum cans, and glass;
- Yard waste processing at the Hawaiian Earth Products and near the Kapaa Landfill;
- Advanced disposal fee for all glass containers entering the state;
- Partnership for the Environment (a city-supported organization) comprised of representatives of companies that have extensive commercial recycling activities. The Partnership acts as an information and assistance source for expanding commercial recycling on Oahu;
- A City requirement for recycling of glass containers from bars and restaurants;
- A City requirement for office buildings greater than 20,000 square feet in size to recycle office paper, newspaper and cardboard;
- Restaurants and other facilities that generate food waste are required to recycle that material; and,
- A City requirement for recycling its own office materials.

Reuse of materials and packaging is the least cost method to reduce the waste stream as it avoids the purchase of new materials or processing of materials to be recycled. It is a source reduction strategy, which is to prevent the production of waste. Source reduction includes activities such as using reusable material instead of disposable material (e.g., ceramic coffee cups instead of paper), changing processes to reduce waste generation, creating lighter packaging to reduce the weight disposed, and creating more durable packaging to reduce waste from damaged containers. It is difficult to quantify the benefits of source reduction and reuse in reducing the waste stream, but because of the low cost, they are at the top of the hierarchy of waste management methods (source reduction, recycling, composting and disposal, either at the landfill or at H-POWER).

Recycling is the most common way of diverting material from the waste stream. Recycling is the process of collecting, sorting, cleansing and treating, and remanufacturing materials that would otherwise be solid waste. The programs include residential curbside green waste recycling, multi-family residential recycling, commercial collection, school/community drop-off centers, buy-back centers, City government office paper recycling, and transfer station salvaging programs. The City first established one of the most innovative recycling programs in the nation with the advanced disposal fee for glass containers. The program is now administered by the State and requires payment of a fee of 1.5 cents for each glass container entering the state. The processor that recycles the container is paid 8 cents per pound.

Composting of green waste (also called yard waste) involves use of grass and trimmings from landscape maintenance. These materials are collected from residences by City staff or by commercial landscapers and processed at two composting facilities (located on the leeward and windward sides of the island).

One of the major constraints of islandwide recycling is the lack of adequate secondary materials processing and manufacturing capacity on Oahu. There are only a few companies that process recyclable materials and a few more that consolidate and ship materials to overseas markets.

The City also operates the H-POWER, waste-to-energy facility, that processes over 600,000 tons of waste per year. H-POWER is a resource recovery facility that burns refuse derived fuel (RDF) to produce steam to generate electric power and has been in commercial operation since May 22, 1990.

The facility has a solid waste processing capacity of 2,000 tons per day, a steam production capacity of 500,000 pounds per hour, and a gross generating capacity of 57 megawatts of electricity.

1.3.4 RELIANCE ON LANDFILLS

Although various alternatives exist for the reduction of waste, there are no proven alternatives which can completely eliminate the generation of waste requiring disposal in a landfill. Currently, even if the City were able to obtain 100% cooperation in existing waste reduction programs, there would still be a need for disposal in landfills for residual wastes.

Given that use of landfills will be required for the foreseeable future to meet Oahu's municipal waste and ash disposal needs, City- and government-sponsored policies, plans and programs for waste recycling and reduction are expected to remain an important part of an overall strategy for management of landfills such as the Waimanalo Gulch Sanitary Landfill (WGSL). At the same time, any new initiatives to support waste recycling and reduction will need to be both economically and environmentally feasible. As new technologies are developed and proven, the City could consider: (1) banning selected items from the landfill to encourage recycling and recovery; and (2) developing programs to encourage further diversion of material which would otherwise need to be landfilled. A readily identified example is H-POWER, which has already increased the efficient use of Oahu's landfill space. The City has proposed to increase the capacity of H-POWER by adding a third unit to process combustible materials that are now landfilled. In addition, the City is discussing the issuance of a request for proposal (RFP) for a 200 ton per day plasma arc facility. As discussed in this EIS and in an appendix devoted to reviewing alternatives to the project, plasma arc systems have been used for some time on other waste streams, but not on MSW. By issuing an RFP for a plant, the City will not be able to replace the landfill with a technology that does not produce waste, but will encourage vendors to prove the technology will work on a large scale processing MSW.

The following section provides a summary of potential project impacts and proposed mitigation measures.

1.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

1.4.1 CLIMATE

The climate of the WGS� area is extremely arid due to the "rain-shadow" effect of the Waianae Range. Rainfall is approximately 15 inches per year.

IMPACTS AND MITIGATION

The dry conditions at the landfill have a limiting effect on the generation of leachate. Wind conditions have the potential to carry fugitive dust, odors, and airborne litter from WGS� into neighboring communities. Mitigation currently being implemented and plans for further mitigation are contained in Section 3-7, Air Quality (regarding dust, odor, and litter).

1.4.2 GEOLOGY

The Island of Oahu was formed by the merging of basaltic lava flows from the Waianae and Koolau shield volcanoes. Overlying the volcanic sequences and filling valleys along the coastal plains is a geologic lithology known as "caprock" (RUST, September 1993). Where caprock occurs, rainfall, surface water, and runoff discharge are prevented from percolating into the aquifer.

Two soil associations are primarily found at the project site: Lualualei -Fill Land-Ewa Association, and Rocky Land-Stony Steep Land Association. Soils at the project site mostly consist of Rock Land (rRK) with small amounts of Stony Steep Land (rSY) (U.S. Department of Agriculture, 1972).

IMPACTS AND MITIGATION

The proposed final grading plan includes soil berms of 94,370 cy (cubic yards) and 63,250 cy along the western and northern perimeters of the landfill, and a 113,970 cy soil berm along the southern perimeter of expansion cell E1. The proposed final grading plan results in a total airspace increase of approximately 4 million cubic yards (beyond the currently-permitted grading plan) and meets the minimum vertical separation requirements for the existing overhead power lines (GeoSyntec, 2002).

A slope stability analyses for the 14.9-acre expansion, completed in 2001 by consultant GeoSyntec, was conducted to evaluate stability of site at final grades. The report indicated sufficient stability exists to permit construction of the expansion site.

1.4.3 TOPOGRAPHY

WGSL is located at the southern "toe" of the 20-mile long Waianae Range, in a typically steep, narrow gulch. In the current Municipal Solid Waste disposal area, base grades are fairly steep, and because of the narrowness of the gulch, most of the landfill base area is also steeply sloped. Site elevations vary from a low of about 70 feet relative to mean sea level (msl) in the southeast corner to a high of about 940 feet msl in the northern portion of the property (Rust, 1997).

IMPACTS AND MITIGATION

There will be some alteration of existing topography as a result of the proposed project. The final grading plan meets all requirements of the City and incorporates findings of the geotechnical study (Geolabs, 2000) and slope stability analysis (GeoSyntec, 2001). In addition, the final grading plan features side slope grades and final elevations in the existing ash monofill area that have been reduced from the currently-permitted grading plan to promote slope stability (GeoSyntec, 2002).

1.4.4 SURFACE WATER

The overall WGSL watershed, or region draining into the site, is very elongated, with elevations ranging from near sea level at the outlet to over 2,000 feet at the mauka end (Geolabs, 2002). Three sources of surface water affect WGSL: precipitation (rainfall); surface run-off, which affects generation of leachate; and potable water used for sanitary landfill operations.

The existing WGSL surface drainage system accommodates runoff from areas upslope as well as within the project site. The drainage system directs offsite runoff around the landfill by use of proper slope and grading on the landfill surface. A concrete drainage channel captures runoff and directs the flow around the western perimeter.

IMPACTS AND MITIGATION

The final design of all drainage structures will meet the requirements of the City and County of Honolulu Storm Drainage Standards. Since approximately 80% of the surface water runoff comes from areas upstream of the landfill, the total flow will remain essentially unchanged.

1.4.5 GROUNDWATER

The principal groundwater reservoir in the southeastern portion of the Waianae Range is the middle and lower members of the Waianae Volcanic Series (Takasaki, 1971). Groundwater generally flows from inland areas outward toward the coast. In the vicinity of the existing WGSL, general groundwater flows are altered by caprock. Groundwater found below and surrounding WGSL is not designated as a groundwater recharge area by the City and County of Honolulu, Board of Water Supply. The proposed project is also consistent with the DOH, Underground Injection Control (UIC) program which was established in 1984.

The site's Groundwater and Leachate Monitoring Plan for Waimanalo Gulch Sanitary Landfill, Ewa Beach, Oahu, Hawaii ("Monitoring Plan") meets the groundwater monitoring and corrective action requirements of DOH and Hawaii Administrative Rules (HAR) Chapter 11-58.1, Subchapter 2, Subsection 16 (Appendix B). Monitoring results have indicated that practices and procedures of the existing landfill have been sufficient to ensure non-contamination of groundwater.

IMPACTS AND MITIGATION

The proposed project will incorporate and extend the existing surface drainage control system. Potential for leachate migration will be controlled by (1) a surface drainage system, (2) landfill liner system, (3) a leachate collection system, and (4) final cover and grades. Regularly scheduled monitoring as required by State and Federal regulations will also be implemented.

1.4.6 FLOOD ZONES

The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM), identifies the project site as lying within "Zone D," an area in which flood hazards are undetermined. Although specific flood control measures are not regulated, the project provides a drainage control system within the limits of the landfill property.

IMPACTS AND MITIGATION

The elevation and steep nature of WGSL require that sufficient drainage controls be provided to ensure against flooding. Drainage controls have been designed to accept peak flows from a 100-year design storm from a tributary area of 622 acres.

1.4.7 HURRICANES

The primary impacts of past hurricanes in the WGS� region resulted from high waves. Because WGS� is set so far back from the shoreline and the working face is at a relatively high elevation, waves and/or storm surge from hurricanes would be unlikely to affect the integrity of the landfill. However, high wind conditions would be a concern for any active cells. The operation of the MSW section of the landfill mitigates against widespread wind impacts by only actively filling one cell at a time. Already-exhausted cells are covered by soil and allowed to revegetate to reduce wind impacts.

The ash disposal operation does not require a daily cover. The ungrassed portion of the ash disposal area could be impacted in a ultra-high wind, hurricane situation. The process of compacting the solid waste and soil material increases the stability of the site. In the case of a hurricane, exposed ash and residue would be consolidated and covered with compacted soil.

IMPACTS AND MITIGATION MEASURES

The proposed expansion area will be filled with MSW only. The operation of the landfill mitigates against widespread wind impacts by only actively filling one cell at a time. Already-exhausted cells are covered with soil and allowed to revegetate to reduce wind impacts. Standard operating procedures include covering each day's fill with a cover of soil. This is, in effect, a blanket that reduces the potential for flying debris.

1.4.8 SEISMIC ACTIVITY (EARTHQUAKES)

Seismic stability was evaluated in terms of acceptable levels of seismic deformation. The Resource Conservation and Recovery Act (RCRA) Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities notes that permanent acceptable seismic displacements of up to 12 inches are typical for the design of liner systems (U.S. EPA, 1995). Consultant GeoSyntec estimated seismic deformation and estimated permanent seismic displacements are less than 12 inches for both the MSW and ash disposal areas. Therefore, the proposed expansion design is "acceptable" in terms of potential seismic deformations at the expansion final grades (GeoSyntec 2002).

IMPACTS AND MITIGATION

Seismic risk at the project site is minimal. The design of both the current sanitary landfill and the proposed expansion meets federal standards for stability during a design seismic event. Therefore, no further mitigation measures with regard to seismic activity are required or recommended.

1.4.9 AIR QUALITY

In 1991, the DOH, Air Quality Branch, began regular monitoring at two locations near WGSL, West Beach and Makaiwa. Air quality parameters measured included PM10 (solid particles in the air, an indicator of dust), carbon monoxide, sulfur dioxide and nitrogen dioxide. Since monitoring began, the air quality of the WGSL vicinity has met both State and Federal air quality requirements.

The nature of the materials deposited in a sanitary landfill makes odor a potential negative externality for the surrounding area. Sources of odor are gasses generated within the current landfill and queuing of refuse vehicles along Farrington Highway. Odor mitigation procedures:

- Regular and proactive use of odor misters;
- Regular use of cover material to suppress generation of odors; and
- Early on-site queuing of refuse vehicles.

Landfill-associated gases are monitored on a quarterly basis along the landfill perimeter. Control of explosive methane is provided in all structures within the site through use of an audible gas detection alarm system. A future gas recovery and monitoring system planned for the 2003-2004 timeframe, will further suppress potential for release of explosive and odor bearing gas.

Litter is generally controlled by standard operating procedures calling for consolidation and cover of MSW. However, during high wind conditions, certain types of litter can become airborne. In addition, litter along highways can result from improperly secured loads from refuse vehicles. Current litter controls include placement of cover material as soon as possible within open cells; positioning of permanent and temporary litter fences designed to capture airborne litter; use of a new vacuum device called MadVac™; deployment of on-call work crews on 24-hour, 7-day per week standby to remove airborne litter from off-site; and enforcement of existing rules and regulations with regard to litter control by refuse vehicles.

IMPACTS AND MITIGATION

Airborne dust will be the primary air pollutant produced during the construction and operational phases. During construction, the site will be cleared and grubbed of vegetation. Dust will be generated during site excavation and grading. To mitigate these impacts, the landfill operator will be required to comply with the provisions of HAR Chapter 11-60,1-33, Fugitive Dust.

During operation of the proposed site, dust will be generated from disposal of MSW. Mitigation will involve adherence to dust control practices cited in HAR Chapter 11-60, Air Pollution Control Regulations, which includes scheduled water sprinkling, compacting, and use of intermediate cover. Operation of the proposed project will also result in continued daily traffic of refuse associated vehicles. Exhaust emissions will be mitigated by ensuring that all construction and operation equipment comply with DOH Rules Title 11, Chapter 60-1.

Odor generated from the proposed project will be a function of where an active cell is located. During the initial stages, odor may be more apparent in the lower areas and from Ko Olina to the south. As cells are filled further into the gulch and away from populated areas, the potential for odor impacts will lessen. Odor misters will be moved to the expansion area as cells are opened. Future plans may involve installation of additional odor misters.

Further reduction of landfill odors will be addressed comprehensively through: (1) installation of a landfill gas recovery system; (2) completion (in progress) of a new sludge drying facility at Sand Island Wastewater Treatment Plant; and (3) expansion of H-POWER.

Management of landfill gas for the expansion area will involve expanding the approved practices employed within the existing landfill area as well as installation of the gas recovery system. Litter-control methods described above will be extended to the proposed project. The "permanent" fence will be moved to control litter in expansion cells, temporary fences will be positioned in active cells, and portable fences will be deployed as needed. In addition, vacuum equipment will be utilized to clean litter fences and crews will be deployed when litter has drifted off-site.

1.4.10 NOISE

The proposed project is not expected to result in noise levels greater than produced from current activities. As the existing sanitary landfill space becomes exhausted, construction equipment will be moved from the closed portion of the landfill to the new expansion area.

IMPACTS AND MITIGATION

The source of noise will shift slightly to the northern and eastern boundary of the ±200-acre property where expansion cells are located. Short-term noise impacts will be related primarily to construction. A majority of the noise generated will be during operation and mobilization of heavy construction equipment, particularly during site preparation. To mitigate short-term impacts, compliance with the provisions of HAR, Chapter 11-46, "Community Noise Control," will be implemented. ENV and Waste Management of Hawaii, Inc., will also continue coordination efforts with the surrounding neighborhood on noise mitigation plans or programs, as required, to ensure against potential for negative adverse impacts.

1.4.11 FLORA

A biological field reconnaissance was conducted on August 11 and 12, 1999, for the proposed expansion area. The two vegetation types found were Kiawe scrub and roadside vegetation. Kiawe scrub covers the majority of the site. The majority of the plant species inventoried on the proposed expansion area are introduced exotics or alien species. Of the nine native plants found on the proposed expansion area, none are threatened and endangered, or a species of concern (U.S. Fish and Wildlife Service 1999).

IMPACTS AND MITIGATION

The findings of botanical research and survey indicate there are no reasons to impose any restrictions, conditions, or impediments to the proposed project. The proposed sanitary landfill expansion is therefore not expected to result in potential for adverse impacts to botanical resources.

1.4.12 FAUNA

A fauna field survey was conducted on July 28, 1999, by Phillip L. Bruner, Ph.D, for the proposed expansion. Results of the field survey revealed that (1) no native resident land birds were tallied on the survey; (2) the list of exotic birds recorded on the survey was typical for the area; (3) no endangered mammals were observed; and, (4) the proposed project will likely alter the species composition and relative abundance of introduced birds (e.g., an increase in mice due to the sanitary landfill operation could make the area more attractive to foraging Pueo).

IMPACTS AND MITIGATION

The findings of the faunal field survey indicate that there are no reasons to impose any restrictions, conditions, or impediments to the proposed use of the site. The proposed project is not expected to result in potential for adverse impacts on the mammals and other animals of the project area or surrounding community.

1.4.13 VISUAL RESOURCES

WGSL marks the transition between suburban/rural Waianae Coast communities and the Ewa region. Farrington Highway winds around natural land forms, causing the visual landscape for motorists to change rapidly. Views of the mountain areas from the coast are dominated by a series of barren hillsides. The appearance of the sanitary landfill is dominated by gray-hued ash fill that resembles a quarry. The site is visible in varying degrees from Farrington Highway and surrounding development such as Kai Lani subdivision, Coconut Plantations, Ko Olina Golf Course, and the Marriott Ihilani Resort. Portions of the landfill are also visible from some vantage points along Aliinui Drive within Ko Olina.

The existing sanitary landfill has a 400-foot-wide vegetative buffer strip along the eastern portion of the site with a north-south separation of 800 to 1,000 feet with ongoing landscaping. The approved landfill area has been hydromulched to begin growth of grasses in areas that are already filled. These grasses resemble vegetation on adjoining hillsides; in dry periods they appear brown and during more rainy periods they appear green.

ENV acknowledges that revegetated areas will not visually match the natural hillsides on either side of the gulch without the visual addition of comparable rock outcroppings. Therefore, ENV and Waste Management of Hawaii, Inc., plans to contract with a landscape architect to reproduce the natural hillsides by creating the appearance of horizontal rock outcroppings which have been painted onto rolls of erosion control fabric. The intended result will be a homogeneous hillside view from coastal areas, with the appearance of grassed areas and rock outcroppings throughout.

IMPACTS AND MITIGATION

Although the proposed project will result in an overall increase of area used for landfilling, the eventual closure of the current WGS� area will provide for increased revegetation and recruitment of the same types of plant species as found on the surrounding slopes. Landscaping including revegetation and installation of rock outcropping fabric over filled expansion cells will result in mitigation of short-term visual impacts and will diminishing long-term visual impacts from coastal areas as cells are filled up the gulch and eventually out of view.

1.4.14 TRAFFIC AND ROADWAYS

A Traffic Analysis was conducted for the proposed 14.9-acre expansion. Results of the Traffic Analysis indicate that the current two-lane access road, constructed during the development of the original landfill, will be sufficient to accommodate the proposed 14.9-acre expansion. Public agencies (State Department of Transportation and City and County Department of Transportation Services) concur with this conclusion.

IMPACTS AND MITIGATION

Traffic in and out of the WGS� site is not expected to change materially with the proposed project. The same number of cells will be active at any one time (i.e., the currently active cells will be covered and expansion cells will be opened in a serial fashion).

1.4.15 WASTEWATER

The existing landfill facility is served by two existing cesspools which accommodate domestic flows from the administrative and service buildings of the site. According to Waste Management of Hawaii, Inc., DOH has concurred that continuation of the two cesspools will be adequate.

IMPACTS AND MITIGATION

The proposed project is not anticipated to result in potential for adverse impacts due to wastewater treatment. If the facility is connected to the City wastewater system in the future, there is an existing 8-inch line located in Aliinui Drive. At this time, however, the Makakilo Interceptor Sewer is at capacity and a waiting list has been established to handle new applicants.

1.4.16 POTABLE WATER

The existing facility is served by an underground service line within the project site which connects to Board of Water Supply (BWS) service lines along Farrington Highway.

IMPACTS AND MITIGATION

No major new requirements involving use of water supply will be required. Coordination with BWS indicates that there are no objections to the proposed project, with the exception of a request that waste disposal matters be coordinated with DOH (BWS letters to ENV, January 11, 2000, and July 18, 2001). No additional mitigation measures will be required.

1.4.17 POWER AND COMMUNICATION

Electrical power is provided by Hawaiian Electric Company (HECO) via overhead service lines. Existing transmission lines traverse the middle to upper portions of the existing landfill. The HECO transmission lines will cross portions the proposed landfill expansion. Telephone and telecommunications services are provided by Verizon Hawaii (formerly GTE Hawaiian Tel).

IMPACTS AND MITIGATION

The proposed expansion will maintain the existing 100-foot-wide easements for each of the four transmissions lines and access road easement. Construction of the proposed 14.9-acre expansion will be coordinated with HECO to prevent disruption to services.

1.4.18 POLICE PROTECTION

Honolulu Police Department District 8 encompasses the Waianae Coast, Makakilo, Ewa Plain, and the city of Kapolei. The district headquarters is in Kapolei. A substation is located in Waianae, providing a base of operations for officers patrolling the Waianae Coast (SMS, December 2002). The project site is served by the Waianae and Kapolei Police Stations.

IMPACTS AND MITIGATION

Commenting on the Draft EIS, Honolulu Police Department officials noted that there may be an impact on calls for police service. This is expected for the following reasons:

- There is a call from the public or the landfill operator when there are refuse vehicles with unsecured loads illegally depositing litter along the highway.
- There is vandalism or other public disturbance at the landfill.
- There is a fire or other emergency at the site requiring police assistance.

Illegal dumping from unsecured loads will be monitored during use of the expansion area by Waste Management of Hawaii, Inc., and ENV. Refuse drivers making deliveries will continue to be notified that any infractions for unsecured refuse loads will be cause for refusal to accept loads. If there are continued infractions the police will be notified and appropriate action taken.

Vandalism or other public disturbances will be addressed by continued use of a security guard at the entry to the landfill when the landfill is closed. During normal operating hours vandalism or other public disturbances are not expected because of presence of on-site personnel.

Fire or other emergencies will first be handled by adherence to the WGS� site operations manual, which requires the operator to first assess the situation, followed by an appropriate course of action which may include notifying authorities for assistance.

1.4.19 FIRE PROTECTION

Leeward Oahu is served by the Honolulu Fire Department's Fourth Battalion and includes fire stations at Kapolei (#40) Nanakuli (#28), Waianae (#26), Makakilo (#35) and Ewa Beach (#24).

IMPACTS AND MITIGATION

In their response to the RDSEIS dated July 29, 2001, the Honolulu Fire Department requested that fire apparatus access be maintained throughout the construction site for the duration of the project. Fire apparatus access will be maintained throughout the site to ensure that fire fighting vehicles and equipment are capable of mobilizing to all locations of the working landfill. Fire Department access to the site will be maintained for the duration of the proposed expansion project.

1.4.20 HEALTH CARE AND EMERGENCY SERVICES

Leeward Oahu is served by St. Francis West, a 100-bed hospital outside Waipahu, the Waianae Coast Comprehensive Health Clinic, between Nanakuli and Waianae, and clinics in Kapolei maintained by other health care providers. No major changes in medical services are known to be planned for the region (SMS, December 2002).

Emergency Medical Services Division staff and trucks are located at the Waianae Fire station and at St. Francis West Hospital in Ewa. A quick response unit, with a paramedic and a truck, but without the ability to transport patients, is located at the Navy medical clinic in Barbers Point. Also, it is Fire Department practice to co-respond to calls for emergency services.

IMPACTS AND MITIGATION

The continued use of the site is not anticipated to require additional health care or emergency services beyond those presently available (SMS, December 2002). No project impact is anticipated and no mitigation is required.

1.4.21 EDUCATION

Leeward Oahu has seen growth in school populations and schools in recent years, notably in Kapolei where new middle and high schools have opened. However, no major change is expected in the next few years. Since the market niches to which Ko Olina developers are selling - notably second home buyers and retirees - are likely to have few school-age children, no significant increase in demand for a school in the project area is expected in this decade (SMS, December 2002).

IMPACTS AND MITIGATION

Since the project does not affect school service populations or school sites, no impact is anticipated and no mitigation measures are required.

1.4.22 LIBRARY SERVICES

Hawaii's public libraries are operated by the State Department of Education. Libraries are open in Waianae and Ewa Beach. A new library has been built in Kapolei, but funds for collections were not included in the most recent legislative appropriation. The 2003 Legislature is expected to provide monies for a collection and staffing at Kapolei Public Library (SMS, December 2002).

IMPACTS AND MITIGATION

No project impact on library services is anticipated and no mitigation is required.

1.4.23 PARKS AND RECREATION

No recreational uses are permitted within the WGSL property. Nearby recreational areas are primarily located south of Farrington Highway, and include the Ko Olina Golf Course, tennis courts associated with the Ko Olina Resort and Marriott Ihilani Hotel, hiking trails, parks, and beach parks. The major public recreational areas in the immediate vicinity are beach parks along Kahe Point.

IMPACTS AND MITIGATION

No recreational facilities exist at the site, nor will the site be permitted to be used for recreational purposes for the duration of use of the site for a landfill. Therefore, no impact is foreseen and no mitigation measures are proposed.

1.4.24 SOCIO-ECONOMIC IMPACT ASSESSMENT

In December 2002, a *Socio-Economic Impact Assessment of Waimanalo Gulch Sanitary Landfill Expansion* was completed in support of this FSEIS by SMS Marketing and Research Services, Inc., (SMS).

Demographic Trends

The area of the proposed project is in the Ewa District and encompasses the communities of Makakilo, Kapolei, developments and subdivisions such as Ko Olina and Honokai Hale, and portions of Nanakuli, which is a part of the Waianae Coastline.

Oahu's population growth has been slowing over recent decades, a trend mirrored on the Waianae Coast (SMS, December 2002). As a major site for housing development, the Ewa area saw higher growth in the 1970s and the 1990s.

While population growth has been slowing islandwide over the last two decades, it has increased in Ewa. The Ewa DP area is a major focus for new development and has a young population with above-average incomes. Among the Ewa communities of interest, Ko Olina/Honokai Hale stands out; its population tends to be older and slightly higher than the island median. Most households do not have members younger than 18. The median household income is much higher than in the other communities studied.

The Waianae Coast Sustainable Communities Plan area also has a young age structure (with a median age of 28.5) and even larger households (the median household size is 3.97.) Incomes tend to be below the island median, and dependence on public assistance – 25.5% of households – was high. While commuters' use of public transportation is slightly higher than in Ewa, over 80% of workers still drive to and from work, and mean travel time to work is high (41.9 minutes). Nanakuli Census data are much like the data for the Waianae Coast region. Household sizes are especially large (with a median size of 4.65 persons/household). In three-generation households, grandparents are more likely than elsewhere to be responsible for grandchildren.

IMPACTS AND MITIGATION

The proposed project is not expected to result in adverse impacts to population growth. It is recognized that major growth has occurred in the region since operation of the landfill began in the 1989-1991 time period. However, the overall context for regional development is one which includes a diverse mix of residential, resort, business, commercial, and industrial land uses.

Community Concerns

In the research for the Socio-Economic Impact Assessment, SMS interviewed three stakeholder groups and reviewed records of community concerns from the regions around the project site. Members of the regional community express strong opposition to continuing operation of the Waimanalo Gulch Sanitary Landfill. Others see Waimanalo Gulch as an impediment to the development of Ko Olina as a major resort, and view the project as simply prolonging the problem. While some view a landfill as needed on Oahu, they stress their opposition to continuing this City service in their region.

Environmental specialists, including several people who send special wastes to the landfill, tend to see WGSL as a necessary City facility, and as important for the well-being of the island community. They see the landfill as a valued resource for their firms and the wider community. They see landfill tip charges as reasonable and its operation as professional. They welcome the City's commitment to reduce the waste stream and see the need for increased recycling.

Other members of the islandwide community emphasize the importance of the landfill to Oahu's prosperity. They tend to know little about the details of landfilling, but expect that alternative methods of waste disposal would be costly, and would hence tend to make prosperity harder to maintain and continue.

IMPACTS AND MITIGATION

The project continues an existing City service, rather than developing a completely new project. As such, its impacts lie in (1) continuing existing processes and relationships, (2) providing services over a period in which alternative technologies and further waste stream reduction can be explored, and (3) avoiding the consequences of the No Action Alternative.

Economic Impacts

The total landfill associated workforce income for direct, indirect and induced workers, is \$1.46 million (2001 dollars). No population, housing, or fiscal impacts of the project are anticipated, since no new workforce is involved. Fiscal impacts of continuing operations and City and County costs and revenues of solid waste disposal are expected to result in no new or cumulative impact.

Public Facilities and Services Impacts

SMS considered potential impacts on police, fire, public education, library, medical, emergency, recreation and public transportation services, and found no impact due to the project.

Other Social Impacts

Continued operation of the landfill for another five years, once permits are obtained, will assure effective near-term management of solid waste on Oahu and allow time for development of new waste disposal technologies and/or a municipal solid waste landfill site. Operation of the landfill according to standards outlined in the EIS process should lead to a much lower incidence of problems that have irritated members of nearby communities. Also, improvements in recycling and alternative technologies should lead over time to a reduction in the waste stream.

SMS analyzed the impact of proximity to the Waimanalo Gulch landfill on values of both single family and condominium properties. SMS found no clear empirical basis for asserting that the landfill affects property values negatively.

Stakeholder claims that the southwest corner of Oahu has a disproportionate share of the island's locally unwanted land uses have a fairly evident basis in fact. However, many of the land uses in question are industrial activities in James Campbell Industrial Park, the site of employment for many residents of the region. The current location of the landfill relatively close to the industrial park limits travel distance (hence cost and likelihood of ash or residues falling off trucks) to and from the H-POWER plant. However, the question of whether that efficiency outweighs the high concentration of unwanted land uses and the location of a waste disposal site just inland from a resort will bear review in future landfill siting decisions.

Impacts of Alternative Approaches to the Landfill Problem

The No Action Alternative would force the City or private parties to find new disposal mechanisms immediately. A separate study for this report identifies sites on the Big Island and in California as potential recipients of Honolulu's municipal solid waste (Pacific Waste Consulting Group, 2002).

The Big Island alternative could at best be a short-term solution, since disposal of Honolulu's waste at the West Hawaii landfill would significantly limit Hawaii County's landfill resource. If State authorities demand treatment of wastes to minimize risk of biological harm (e.g., spread of plant

disease or pests), the cost of disposal to the Big Island would be comparable to the cost of sending waste to the US Mainland.

Mitigation Measures

By reducing the proposed expansion to 14.9 acres, the City has already responded to community views, limiting the future life of the landfill. Impacts with potentially adverse effects on social life and the economy could be addressed through controls over irritants (odors, litter) according to plans already being developed and implemented; landscaping of exposed areas to minimize visibility of the landfill; and involvement of community stakeholders in oversight of mitigation activities and in site selection for any future landfill site. In light of current community suspicion, the City and Waste Management of Hawaii, Inc., will not only need to meet agreed-on standards but be seen to do so. Continuing oversight by a community committee will be needed to develop local acceptance and hence to lower potential for adverse impacts.

1.4.25 HISTORIC AND ARCHAEOLOGICAL RESOURCES

An archaeological inventory survey of the project site was conducted by Cultural Surveys Hawaii on July 27, 1999, with a followup site visit on April 10, 2001. The survey scope consisted of an inventory as well as description and mapping of archaeological sites. The survey and followup site visit found no specific documentation of pre-contact or early historic land use within the project area. No archaeological sites, midden, or artifacts of any kind were observed in the proposed landfill expansion area despite the inspection of several small overhang caves which may have offered potential shelter.

IMPACTS AND MITIGATION

The proposed project is not anticipated to result in potential for adverse impacts to historic or archaeological resources in the area. Coordination of the proposed project with the State Department of Land and Natural Resources, Historic Preservation Division, has been completed, with the finding that there are no known historic sites within the expansion area and a request that the archaeological report be revised to indicate that it is an inventory survey (DLNR letter dated January 12, 2000). The archaeological report was revised by Cultural Surveys Hawaii.

1.4.26 TRADITIONAL CULTURAL PRACTICES

At the request of Waste Management of Hawaii, Inc. and the City & County of Honolulu Department of Environmental Services, Refuse Division, Cultural Surveys Hawaii Inc. (CSH) in the fall of 2002, conducted a Cultural Impact Assessment for the proposed project. Hawaiian organizations, government agencies, community members, and cultural and lineal descendants with ties to Waimanalo Gulch were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential impacts within the project area (Cultural Surveys Hawaii, Inc., 2002).

Overview of Archaeological Research and Findings in the Vicinity

On the basis of archaeological studies, informed by historic records, the following was concluded by Cultural Surveys Hawaii, Inc.:

- There are three areas of Hawaiian settlement in the *ahupua`a*: the extensive limestone plain; the rich cultivated lands of Honouliuli *'ili*; and the uplands around Pu`uku`ua (Cultural Surveys Hawaii, Inc., December 2002).
- Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley *ahupua`a*. Surveys at Waimānalo Gulch indicated no evidence of Hawaiian occupation, but the gulch has been impacted in modern times (Bordner, 1983).
- The *makai* slope was not a major thoroughfare, and shows very limited evidence of part-time agriculture (Cultural Surveys Hawaii, Inc., December 2002).
- There is to date no archaeological evidence of high status residence in Honouliuli (Cultural Surveys Hawaii, December 2002).

Waimānalo Gulch potentially offered the Hawaiian population within Honouliuli *Ahupua`a* habitation in good shelter caves and open air sites; localized quantities of adz basalt; limited agricultural potential; and upland zone settlement with limited agriculture and access to forest resources (Cultural Surveys Hawaii, December 2002).

Results of Community Contact Process

Efforts were made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the Waimānalo Gulch. In addition, five kama`aina and *keūpuna* with knowledge of the Waimānalo Gulch area were interviewed for the Cultural Impact Assessment:

- Mr. Shad Kane focused on the relationship of Waimānalo Gulch to the traditional Hawaiian view of the *mauka-makai* land relationship. Specific to the portion of Honouliuli *Ahupua`a* that includes Waimānalo Gulch, Mr. Kane spoke of the relation between Kalaeloa at the shoreline and an undocumented *heiau* above Waimānalo Gulch at Palehua. Mr. Kane spoke of a night marchers path to the ocean that follows along the south ridge of Waimānalo Gulch.
- Mr. Shigeru Yawata spoke of his memories of the area while he lived in the Waimānalo Village from 1927-1937. Mr. Yawata said that he hunted goat and pig in Waimānalo Gulch during this period. At that time he never saw other people going into the gulch for any traditional gathering or other cultural practices. He does not recall seeing any significant cultural sites in the gulch.
- Ms. Nettie Tiffany is employed by Campbell Estate and is the supervisor at Lanikūhōnua, which is a cultural institute. Ms. Tiffany shared her memories about the bird catchers in the Waimānalo Gulch and a cultural site that is undocumented up above the Waimānalo Gulch.
- Mr. Hiram Kamana is a local resident of Nānākuli born in the year of 1938. He was employed by the Hawaiian Meat Company, which gave him the opportunity to work the land up above the Waimānalo Gulch which extends towards Makakilo. He was and still is an avid hunter who would hunt up in the valleys of this area for goat and pig. He also spoke about the traditional gathering of medicinal plants and practices.
- Mr. Glen Kila is a long-time resident of the Wai`anae area and descendent of the Haulele `Ohana which is from Waimānalo `Ewa. Mr. Kila spoke of Chief Kākuhihewa, noting that `ili of Waimānalo was the chief's favorite place to visit and that the ocean *makai* of Waimānalo was famous for surfing. Also, local traditions tell of residents taking care of the *manō* (shark). He mentioned the importance of the springs up in Waimānalo Gulch and how his `Ohana drank the springs' water and used it for religious purposes. His main concerns about the Waimānalo Gulch are: how leaching from the landfill may affect the ocean, fish- such as the `anae, *uhu*, the

manō and the *limu*; and the possibility of burials in the area. He noted that the reinterment of burials removed from Ko Ōlina are higher up in the valley. (Cultural Surveys Hawaii, Inc., 2002).

IMPACTS AND MITIGATION

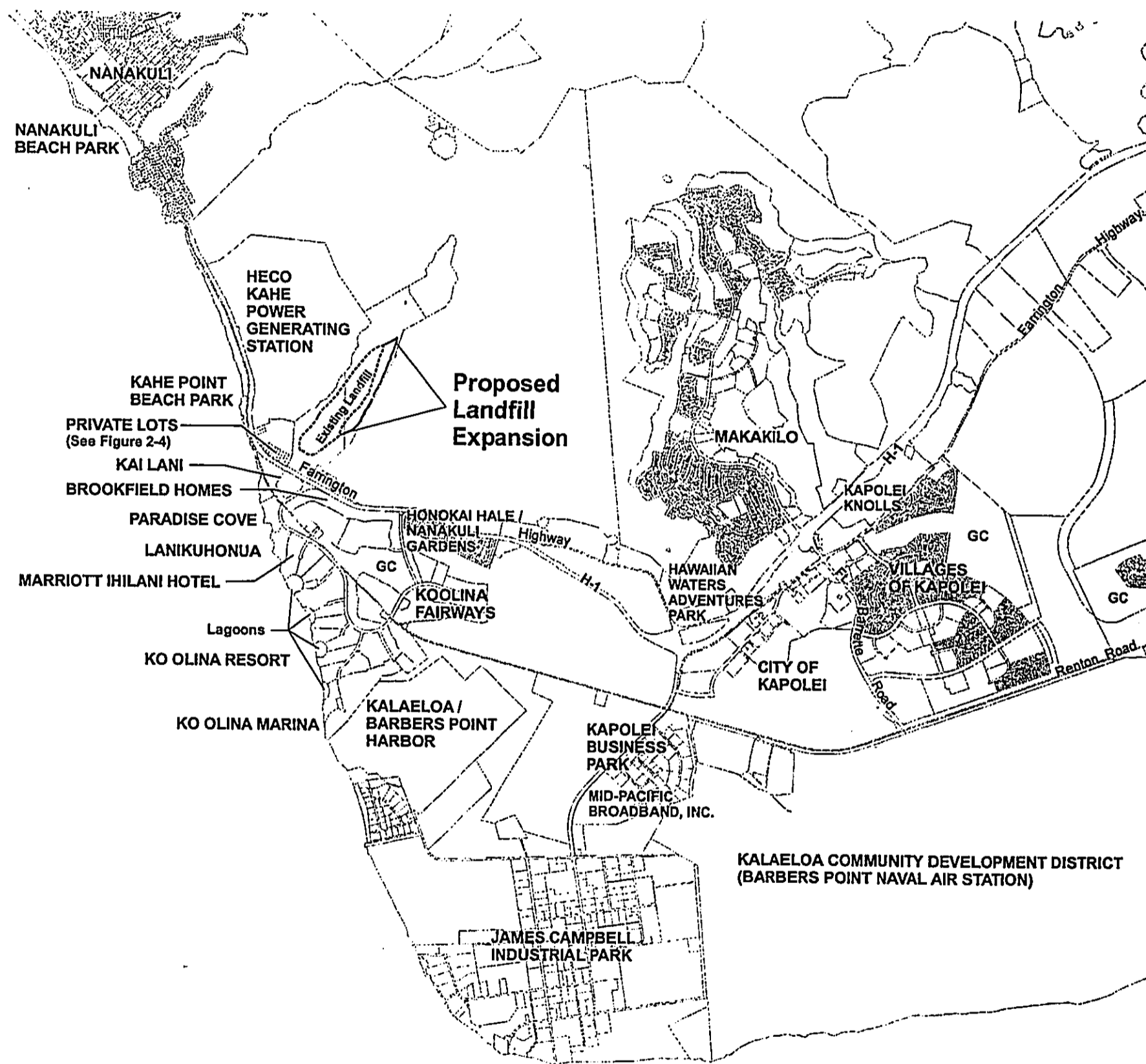
Substantial data were developed on traditional cultural beliefs, customs and practices of the ahupua'a of Honolulu and Waimanalo Gulch. However, no traditional cultural practices were identified whatsoever that were absolutely specific to the 14.9-acre expansion area. The Cultural Impact Assessment concluded that the proposed project will have no impact on traditional cultural practices (Cultural Surveys Hawaii, Inc., 2002). As no effect to traditional cultural practices is anticipated, no mitigation measures are required.

1.5 LAND USE AND OWNERSHIP

1.5.1 REGIONAL LAND USE AND PROPERTIES

The Ewa Region contains a diverse mix of developments including residential, resort, recreational, business, commercial, and industrial uses. Major developments within the Ewa Region include, but are not limited to, the following (see Figure 1-4A, Regional Land Uses):

- Hawaiian Electric Kahe Power Generating Station is a major power plant in the region providing electricity for residential, commercial, business, and industrial uses.
- Kahe Point Beach Park is situated less than half a mile south from the landfill and is open to the general public.
- Paradise Cove is a recreational development that provides luaus and other entertainment on a 12 acre beachside property.
- Lanikuhonua is privately owned by the Estate of James Campbell. The site is used for cultural, recreational and related purposes.
- Hawaiian Waters Adventure Park is a recreational development that functions as a water theme park.
- Ko Olina Lagoons are comprised of four man-made lagoons separated by sandy and coastal beaches. Access and use of the area is provided to guests of the Marriott Ihilani Resort and the general public by the Ko Olina Resort.



GC = Golf Course

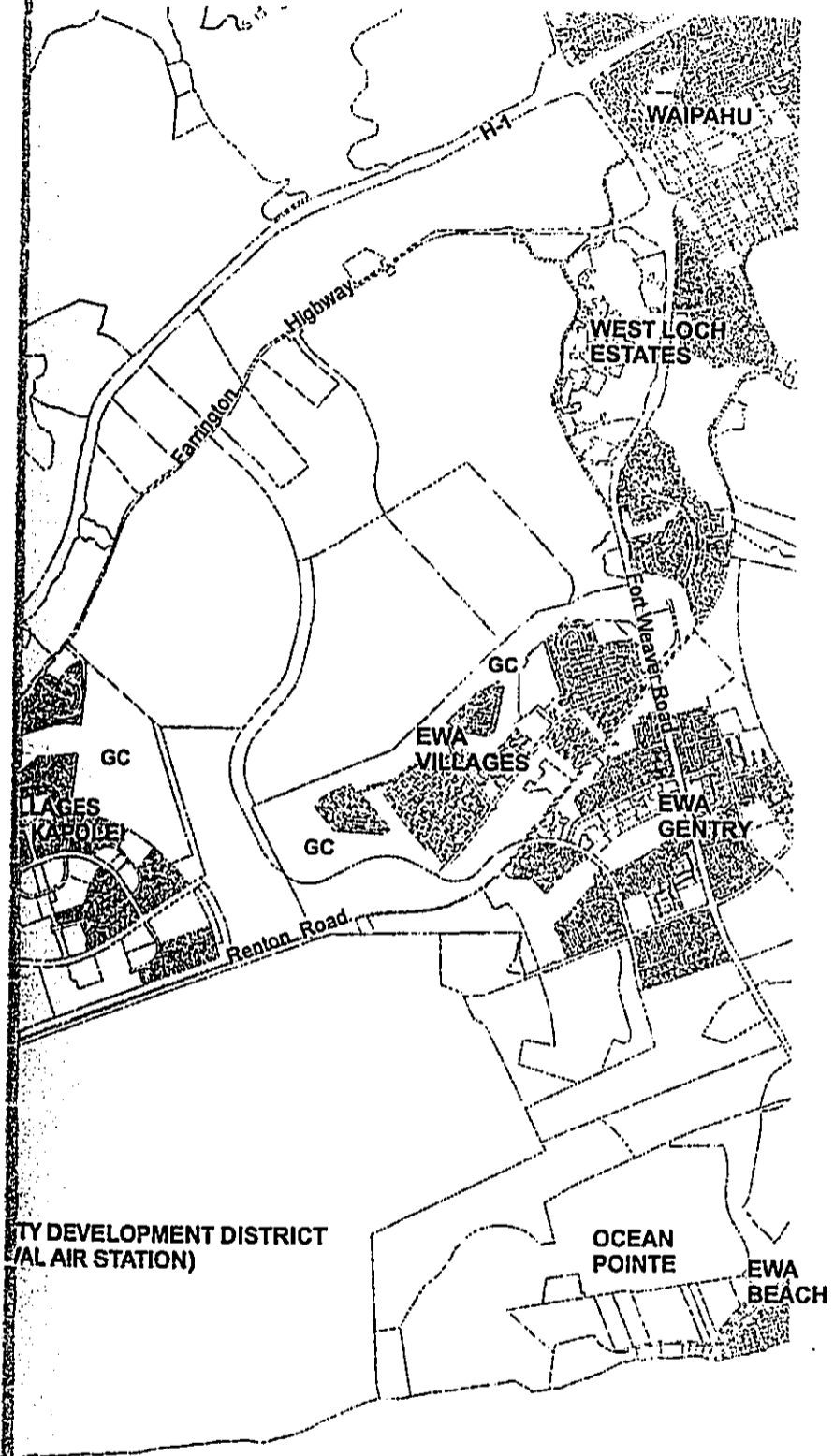


FIGURE 1-4A
REGIONAL LAND USES IN EWA
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



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- Marriott Ihilani Hotel is a resort hotel providing accommodation and amenities for tourists and local residents. In addition to this facility there are other resort hotels that have been planned for development at Ko Olina.
- James Campbell Industrial Park is a commercial and industrial park which contains a number of businesses. The facility is home to H-POWER.
- Kalaeloa/Barbers Point Harbor is a commercial development that has become the second busiest harbor on Oahu. There are future plans to accommodate cruise ships in the area.
- Honokai Hale and Nanakai Gardens subdivisions are residential developments located southeast from the landfill.
- Makakilo is a residential development that was constructed prior to 1962 and developed by Finance Realty.
- Villages of Kapolei includes a number of phased residential developments. This development was initiated by the State of Hawaii.
- West Loch Estates is a residential development initiated by the City and County of Honolulu. The project site is located on the West Loch peninsula of Pearl Harbor.
- Ewa Villages is a combined residential subdivision that incorporates both new and reconstructed housing units.
- Ewa Gentry is a residential subdivision on land that was once under active sugar cultivation.
- Ocean Pointe is a residential development comprised of 400 units that is situated on 1,100 acres of land.
- Kapolei Knolls is a residential subdivision located in the Kapolei area of Ewa.
- Mid-Pacific Broadband, Inc., is a commercial development that will provide telecommunications infrastructure. This establishment is situated within the City of Kapolei east of the landfill.
- Barbers Point Naval Air Station (BPNAS) is a recently closed Department of Defense facility. The site is now known as the Kalaeloa Community Development District.

As noted, additional business and land uses operate in the region.

1.5.2 PROPERTIES WITHIN PROXIMITY TO THE PROPOSED PROJECT

Immediately north of the project site is land owned by Wellington Loh (TMK: 9-2-03:41 - 48.9 acres). Surrounding land along the north and west boundary of the landfill site is owned by the James Campbell Estate Trust (TMK: 9-2-03:2 - 2,578.8 acres). To the east the project site adjoins the Hawaiian Electric Kahe Power Generating Station (TMK: 9-2-02:27 - 454.4 acres) and the James Campbell Estate Trust property (TMK: 9-2-03:2). The eastern boundary of the power plant is immediately adjacent to the western boundary of the landfill. Electrical transmission lines from the power plant traverse the project site at elevations of between 760 and 840 feet. Major portions of the adjoining property remain undeveloped due to steep terrain which has constrained development.

Immediately south of the project site is Farrington Highway (FASP No. S-900(4)) which serves as the primary thoroughfare for the area. Makai of the highway are private parcels under various ownership (Table 1-2).

TABLE 1-2
Selected TMKs Along Farrington Highway

No.	TMK	Ownership
1.	9-2-03:30 (1.6 acres)	Rachel K. Haili etal
2.	9-2-03:31 (0.8 acres)	Philip G. Elisara etal
3.	9-2-03:32 (0.8 acres)	Moses/Iris Rapoza etal
4.	9-2-03:33 (0.8 acres)	Chris Tanaka etal
5.	9-2-03:34 (0.8 acres)	Robert Mitsuyasu
6.	9-2-03:35 (0.8 acres)	Robert Mitsuyasu
7.	9-2-03:36 (0.8 acres)	Robert Mitsuyasu
8.	9-2-03:37 (0.7 acres)	Robert Mitsuyasu
9.	9-2-03:38 (0.6 acres)	Robert Mitsuyasu
10.	9-2-03:39 (0.6 acres)	Florence Richardson
11.	9-2-03:47 (0.8 acres)	Wallace Nakatani etal
12.	9-2-03:49 (0.8 acres)	Kenneth Nakano Trust
13.	9-2-03:13 (21.2 acres)	Betsy Lum etal
14.	9-2-03:45 (1.9 acres)	Betsy Lum etal

Across the highway is the Kahe Point Beach Park (TMK: 9-2-03:15) and Ko Olina Resort (TMK: 9-2-03, 9-1-56, and 9-1-57, various parcels). Kahe Point Beach Park is under jurisdiction of the City and County of Honolulu. Across from Farrington Highway and approximately 200 feet from the

southwest corner of the landfill boundary is the main entrance to the Ko Olina Resort. This same boundary corner of the landfill, when extended to the east, encompasses the northwest corner of the Ko Olina Golf Course and a portion of the Brookfield Homes residential development which will construct approximately 270 multifamily units on approximately 29 acres of land located off of the Ko Olina Golf Course. The new Kai Lani residential development is also under construction and is located immediately southwest across Farrington Highway and the landfill.

Additional properties and developments within Ko Olina adjacent to the proposed landfill expansion area includes: Ko Olina Golf Course, Paradise Cove Luau, Lanikuhonua, Marriott Ihilani Resort, and Ko Olina Fairways. Other land use developments associated with the Ko Olina Resort are present.

IMPACTS AND MITIGATION

Impacts associated with expansion of the Waimanalo Gulch Sanitary Landfill to nearby properties include (further discussion concerning impacts and mitigation may also be found in Chapter 5 - Socio-Economic Environment and Related Impacts):

:

- Potential for odors associated with operations of the landfill including delivery and landfilling of MSW, and potential for leakage of decomposition gasses;
- Potential for windblown litter to become airborne and associated litter to be deposited along the highway by improperly secured loads from refuse delivery trucks; and,
- Potential traffic impacts associated with refuse delivery vehicles.

A number of mitigative measures which are described in this FSEIS will be implemented to address the potential for impacts to adjoining land uses and the community. These measures, however, are expected to require a greater level of cooperation and coordination. This is due to ongoing development which has occurred surrounding the landfill. Constructive coordination activities to further minimize potential for future conflicts or impacts will include:

1. Formal briefings before regularly scheduled meetings of the Makakilo-Kapolei-Honokai Hale Neighborhood Board No. 34 and Waianae Neighborhood Board No. 24. The presentation of information related to work activities, practices, and efforts

by ENV and Waste Management of Hawaii to properly manage waste issues will be provided by the Mayor's Representative, or by a designated representative of ENV or Waste Management of Hawaii, Inc.

2. Efforts by ENV and the WGSJ operator, Waste Management of Hawaii, Inc., will continue to establish a working relationship with the adjoining Ko Olina Resort. A formal monthly meeting involving presentation of information provided to the neighborhood boards should be conducted.

Both venues (Neighborhood Board meetings and community meetings) will allow for the regular dissemination and sharing of information between the community and operators of the landfill. ENV and Waste Management of Hawaii, Inc., is committed to working with the community to ensure against potential for negative impacts. Mitigation measures as described in this FSEIS will be implemented and adjustments and related modifications to landfill operations in the interest of the community will be discussed, considered, and implemented, as required.

1.6 RELATIONSHIP TO LAND USE PLANS AND POLICIES

State and County land use plans, policies, and controls are established to guide development in a manner that enhances the overall environment of Hawaii and to ensure that long-term social, economic, environmental, and land use needs of the people of Hawaii are met. The use of the site for the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill will be consistent with State and County land use plans and policies.

1.6.1 HAWAII STATE PLAN

The Hawaii State Plan, Chapter 226, Hawaii Revised Statutes (HRS), serves as a written guide for the future long range development of the state. The Plan identifies goals, objectives, policies, and priorities for the state. The proposed expansion of the existing Waimanalo Gulch Sanitary Landfill is in conformance with the State Plan objectives and policies for facility systems.

1.6.2 STATE LAND USE LAW

The State Land Use Commission classifies all lands in the State of Hawaii into one of four land use designations: Urban, Rural, Agricultural, and Conservation. The proposed project site is located within the State Agricultural District (Figure 1-5, State Land Use District). Although located within the State Agricultural District, the site is not classified by the Agricultural Lands of Importance (ALISH) to the State of Hawaii system (Figure 1-6, ALISH Map). The ALISH map provides delineation of areas with Prime Agricultural Land, Unique Agricultural Land and Other Important Agricultural Lands. Since the proposed site is located in the State Agricultural District, a State Special Use Permit must be obtained for the proposed expansion through the City and County of Honolulu, Department of Planning and Permitting. The application will be filed by WMH prior to construction. (DPP, August 9, 2001).

1.6.3 CITY AND COUNTY OF HONOLULU

The City and County of Honolulu Ewa Development Plan (DP), adopted in August 1997, depicts the site as within the Preservation District on the plan's illustrative Open Space and Phasing Maps. The Ewa DP discusses the analysis and recommendations of the Solid Waste Integrated Management (SWIM) Plan, prepared by the Department of Public Works and adopted by the Honolulu City Council in 1995. The Ewa DP states that the SWIM Plan identified the Waimanalo Gulch as having potential for expansion; however, siting and/or expansion of sanitary landfills should be analyzed and approved based on islandwide studies and siting evaluations.

The Development Plan Public Facilities Map also depicts a symbol for the existing landfill facility, but does not delineate the boundaries of the existing landfill.

The zoning designation of the project site is AG-2 General Agricultural District (See Figure 1-7, Zoning Map). According to the Land Use Ordinance, the development a landfill is a permitted use in the AG-2 district. Determination of permitting requirements pursuant to zoning of the site was completed by the Department of Planning and Permitting (DPP) by letter dated August 9, 2001. According to DPP, "The existing facility and the proposed expansion is considered a "public use" under the Land Use Ordinance and a Conditional Use Permit is not required."

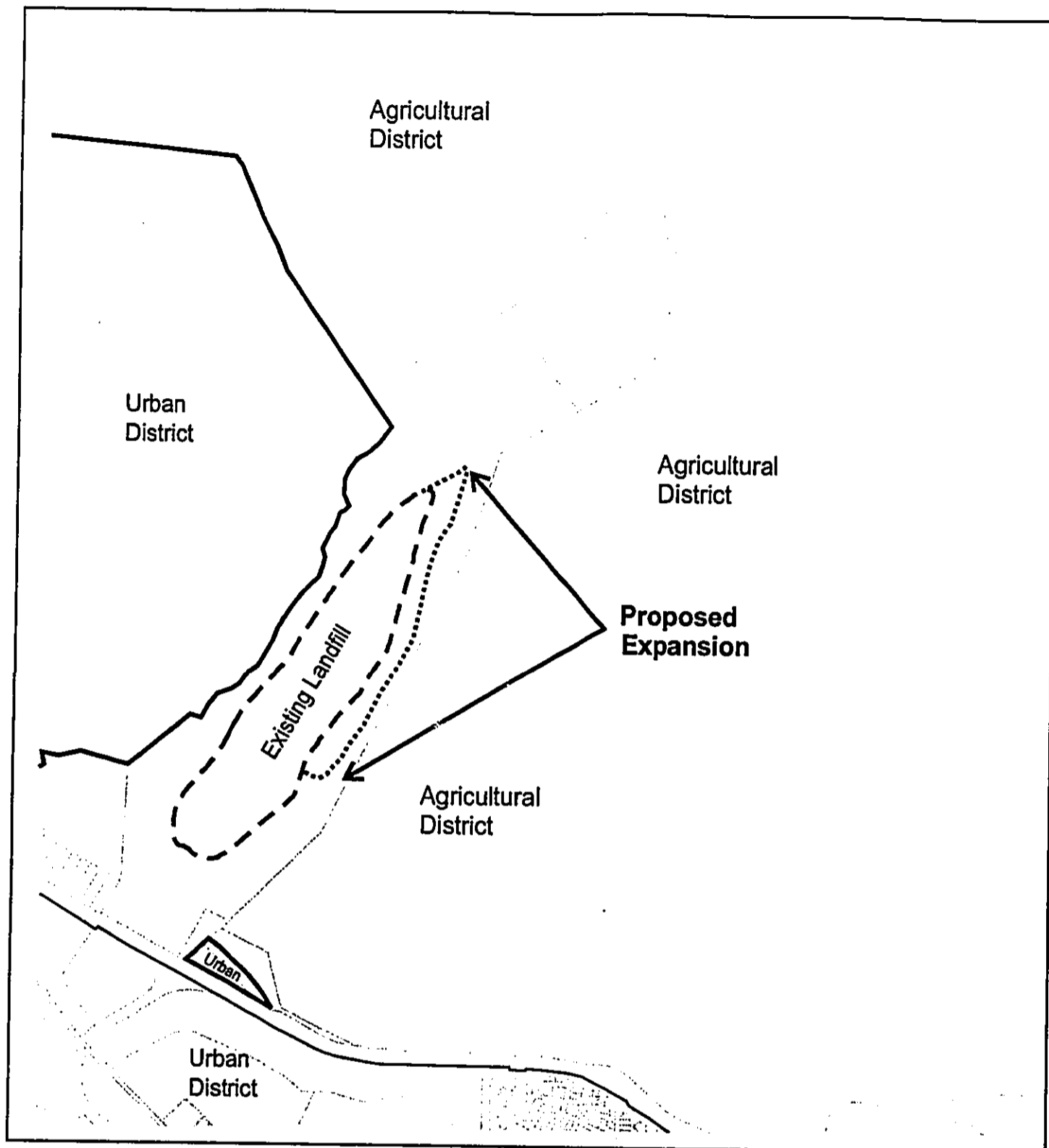
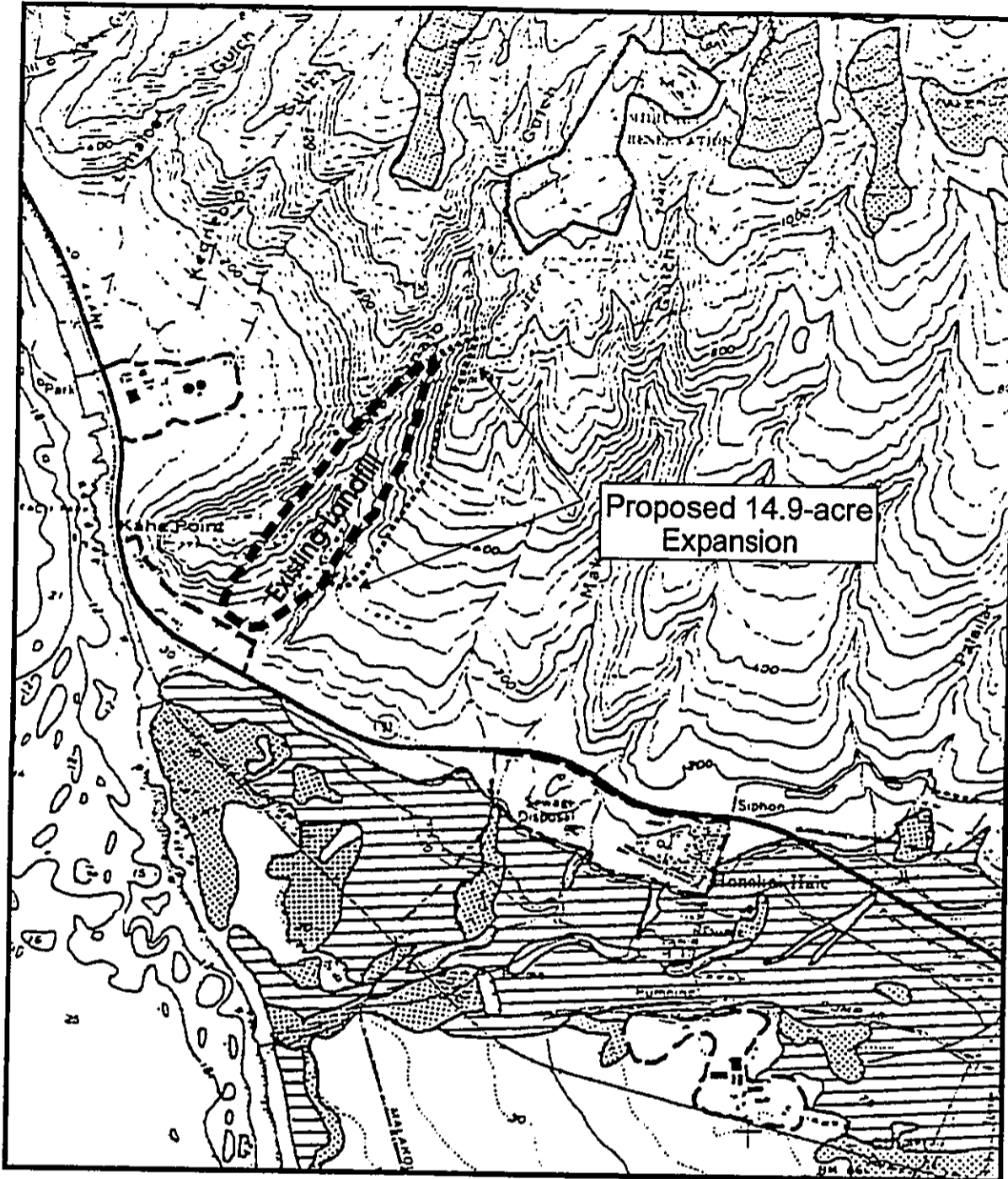


FIGURE 1-5
STATE LAND USE DISTRICTS
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



NO SCALE

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LEGEND




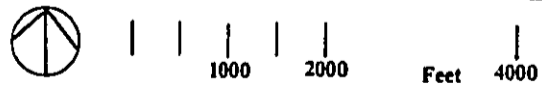
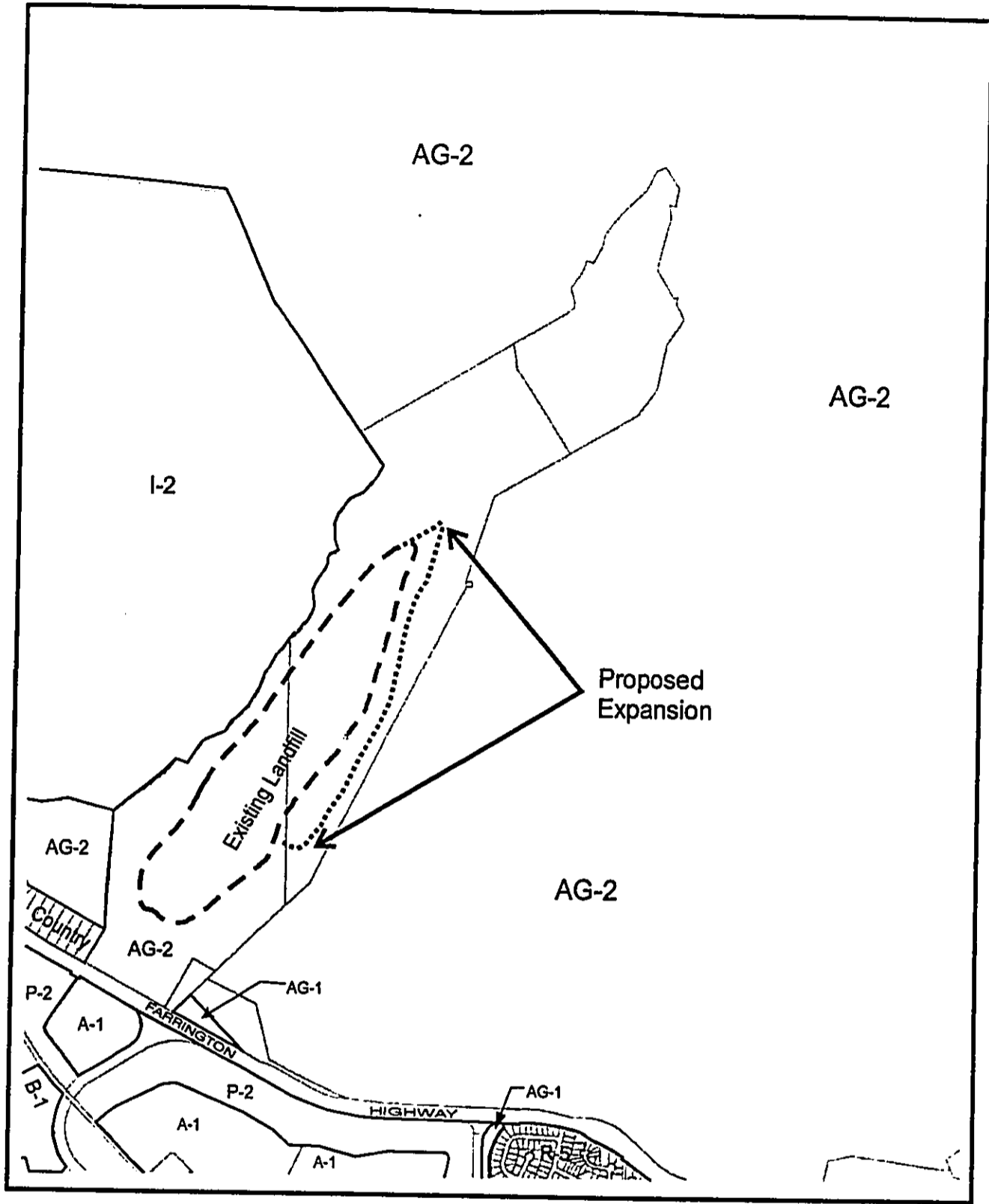
-  PRIME AGRICULTURAL LAND
-  UNIQUE AGRICULTURAL LAND
-  OTHER IMPORTANT AGRICULTURAL LAND

FIGURE 1-6
 ALISH MAP
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



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- Legend**
- A-1 Low-density Apartment District
 - AG-1 Restricted Agricultural District
 - AG-2 General Agricultural District
 - B-1 Neighborhood Business District
 - Country Country District
 - I-2 Intensive Industrial District
 - P-2 General Preservation District
 - R-5 Residential District

FIGURE 1-7
ZONING MAP
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



NO SCALE

1.6.4 SPECIAL MANAGEMENT AREA AND COASTAL ZONE MANAGEMENT

Special controls on development in coastal areas are established to avoid the permanent loss of valuable coastal resources and the foreclosure of management options. Special Management Area (SMA) boundaries are set by the County to delineate coastal zone areas subject to such controls. The City and County of Honolulu SMA Boundary Map for the Ewa area shows the proposed project site to be located outside of the SMA and it is therefore not subject to SMA permit requirements.

The State of Hawaii designates a Coastal Zone Management program to manage the intent, purpose and provisions of Chapter 205A-2 of the Hawaii Revised Statutes, as amended, and federal regulations for the areas from the shoreline to the seaward limit of the State's jurisdiction and any other area which a lead agency may designate for the purpose of administering the Coastal Zone Management program.

The proposed expansion of the Waimanalo Gulch Sanitary Landfill conforms to the Coastal Zone Management Program Objective 1, Recreational Resources, which calls for the provision of adequate, accessible, and diverse recreational opportunities in the Coastal Zone Management area. The proposed facility is not located on the coastline or shoreline and does not involve coastal resources. The site is not in a location to develop new shoreline recreational opportunities or to dedicate shoreline areas with recreational value.

The proposed expansion conforms to the Coastal Zone Management Program Objective 2, Historic Resources, which ensures that new development will protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources that are significant in Hawaiian and American history and culture. The proposed expansion achieves this objective by providing for a location which will not negatively impact the coastline or its resources.

1.7 ALTERNATIVES SUMMARY

1.7.1 INTRODUCTION

In December 2002, the *Alternatives Analysis for Disposal of Municipal Refuse* was completed in support of this FSEIS by Pacific Waste Consulting Group. Alternatives to the proposed project include:

1. Alternative Sites evaluated included:
 - A. The 42 sites previously identified in the Revised Draft SEIS;
 - B. Sites identified in reports provided by private parties to assist the City in preparation of the Expansion EIS (Ameron Kapaa Quarry and Makakilo Quarry), and the Central Oahu site that has been the subject of state legislation in the last two sessions.
 - C. The exporting of waste to one or more sites outside of the island of Oahu.
2. Alternative Technologies evaluated included:
 - A. All of the technologies included in the Revised Draft Supplemental EIS (including plasma arc processing, transformation of waste into a construction material using pressure and a chemical binder, metal recycling, and gypsum [wall board] recycling).
 - B. Additional recycling programs. These programs are not expected to eliminate the need for a landfill, but will reduce the amount of material for which disposal is needed. All will result in some residue that needs disposal. In general, they can be implemented in one to two years.
 - C. Expansion of the H-POWER facility by adding a third boiler. This alternative will reduce the amount of material needing landfill disposal. It should be in operation before the five years elapses. It will require landfill capacity to dispose of ash under present regulations.
3. The No Action Alternative. This alternative would have landfilling at Waimanalo Gulch Sanitary Landfill cease with no alternative site or technology available.

The time generally required for development of any alternative for site selection, permitting, design, and construction, is expected to last at least four years. Many alternatives will require more than five years. Alternatives favored by ENV include those that could be implemented more quickly as they would allow the use of the Waimanalo Gulch Sanitary Landfill for a shorter period of time.

1.7.2 ALTERNATIVE SITES

The evaluation of alternative sites includes the list of sites primarily identified in the RDSEIS. The Federal US EPA exclusionary siting criteria were applied to those sites and the ones that failed the criteria were removed. Several of the sites were also removed from the list because, since the lists

were originally prepared in 1977 and 1979, the landfill site have been converted to relatively high-density residential development.

The Central Oahu site was not considered for evaluation because of its location within the Groundwater Protection Zone and Underground Injection Control Zone. Both zones are established for the future protection and preservation of Oahu potable groundwater resources. ENV has determined that potential for contamination of potable groundwater resources is unacceptable given that it is the only source for municipal water supply on Oahu.

It was previously suggested during the discussion of the Waimanalo Gulch Sanitary Landfill RDSEIS, that the City establish two (or more) landfill sites. Use of two or more landfill sites was considered by ENV, but was not selected for consideration due to the following:

1. Land resources on Oahu are finite and limited.
2. Potential for negative environmental impacts associated with the development of any landfill requires major effort to ensure mitigation. Development of two or more landfill sites would increase potential for negative environmental impacts, and effort and cost necessary to mitigate such impacts.
3. Economies of scale from an appropriately sized facility would generally result in more efficient use of land than two smaller facilities.

Completion of the process for selection of recommended alternative sites involved ranking the sites by capacity and recommending those with 10 or more years. The application of *Screening Criteria* in a process that begins after this EIS is completed will derive the final ranking. The City has indicated it will convene a (Blue Ribbon) Landfill Siting Committee to evaluate potential sites using criteria that reflect local conditions. Further detail will be developed with the understanding that the land use and solid waste permitting process must be finished to gain approval to landfill on a site.

The sites that are suggested for further consideration and their estimated capacity (in years) are listed in **Table 1-3, Sites Suggested For Further Consideration**. According to **Table 1-3**, the Waimanalo Gulch Sanitary Landfill is the preferred site due to its current operational status.

TABLE 1-3
Sites Suggested for Further Consideration

Site	TMK	Years
Kalo	9-2-2, 3, 4	37
Ohikilolo	8-3-1:13	24
Makaiwa	9-2-3	23
Waimanalo South	4-1	21
Nanakuli	8-7-9:1 & 3 and 8-7-21:26	20
Ameron Quarry	4-2-015-001	18
Makakilo Quarry	9-2-003-082	16
Mali	8-7-10:3	14
Waimanalo Gulch Expansion	9-2-3:72 & 73	14
Bellows	4-1-15	11
Makua	8-1-1 & 8-2-1	11
Punaluu	5-3	11
Waikane	4-8	11
Kunia B	9-4-3:por 19	11

Although other alternative landfill sites are suggested, the planning required for development within the timeframe of the proposed project would discount them from further consideration. According to the *Alternatives Analysis for Disposal of Municipal Refuse*, this would include details such as final site selection, preparation of technical studies, preparation of environmental documentation, processing of land use and solid waste permits, and the public review process.

1.7.3 TRANSSHIPMENT OF WASTES OFF-ISLAND

In addition to sites on the island of Oahu, the alternatives analysis also reviewed sites that were located in Altamont, California and on the island of Hawaii. These sites also were the focus of the "No Action Alternative" as disposal at these locations could occur in much less than five years and disposal at the Waimanalo Gulch Landfill could be eliminated.

Off-island shipment of waste is possible, however, the cost would have a major impact on Oahu. The "Socio-Economic Impact Assessment of Waimanalo Gulch Sanitary Landfill Expansion" (SMS Research 2002), includes a calculation that shows the effect on property taxes if all of the increase was not collected at H-POWER, but was partially collected through property taxes. The increase in property taxes would range from 22 to 111 percent, depending on the amount collected through the H-POWER tip fee. For reasons involving extreme difficulty in practical implementation, consideration of waste transshipment was discounted from further consideration.

1.7.4 ALTERNATIVE TECHNOLOGIES

The evaluation of alternative technologies focused on three areas:

- New technologies that could reduce or eliminate landfilling.
- Expansion of H-POWER.
- New or expanded recycling or fee based programs that could reduce, but not eliminate landfilling.

The evaluation of new technologies relied upon past efforts that ENV has conducted to evaluate the reliability, financability, energy production, and operation of the new technologies. The technology most often suggested as a possibility to handle all the material (H-POWER ash included) that is taken to the Waimanalo Gulch Sanitary Landfill is plasma arc.

The City & County of Honolulu commissioned four evaluations on plasma systems since 1999 and sent staff to observe the one plant that was understood to be operating on MSW.

1. The first evaluation recommended plasma systems, but acknowledged that they had not been used to process MSW.
2. The second evaluation looked at two plasma systems and one system that compresses waste into a building material and found that: "None of the three processes has a plant that has been operating on MSW, so all three fail the primary evaluation criterion."
3. The third evaluation was done on the Hawaii Medical Vitrification (HMV) plant in Campbell Industrial Park. The plant operates at a small scale and consumed more than three times the electric energy than it was capable of producing.

4. City staff investigated a system that is planning to process MSW in Utashinai, Japan. The unit has not yet operated on MSW and was not at full capacity.

The most recent ENV documented evaluation of plasma systems was done by R.W. Beck in December 2002. The evaluation indicated that disposal of MSW using plasma technology is just beginning. There are no continuously operating facilities in the United States and only two operating in the rest of the world. These two facilities have an average throughput of less than 100 tons per day and the oldest facility has been operating since 1999.

The City is considering issuing a request for proposals to assess interest from plasma vendors. While current studies suggest plasma systems are not ready for scale up, the issuance of a request for proposal will offer the opportunity for vendors to bring innovation and financial strength to the processing of Oahu's waste stream. However, it is unlikely that the majority of the systems can be operational within a five year timeframe. This alternative while possible for future application, therefore, cannot be considered viable for the timeframe required for the proposed project.

1.7.5 OTHER ALTERNATIVES

The other alternatives included H-POWER expansion with a third boiler, Expanded Curbside Residential Green Waste, Establish User Fees, Curbside Recycling Beverage Container Deposit Program, Metal Recovery at the Landfill, Metal Recovery from Residents, Enhanced Enforcement of Landfill Bans and Restrictions, Increased Disposal Fees at the Landfill, Recovery of Wood from the Landfill, and Beneficial Uses of H-POWER Ash. None of the programs have the potential to eliminate need for the landfill. Some need to have a market for the material proven before initiation. Another, the beneficial use of the ash, is precluded by the regulatory agency DOH.

The City and County of Honolulu will continue to pursue these other alternatives as a useful supplement to reducing disposal of waste in a landfill. However, these alternatives by themselves will not address the proposed five year timeframe of the project.

1.7.6 NO ACTION ALTERNATIVE

This alternative describes what would occur if the City and County of Honolulu did nothing regarding extension of the Waimanalo Gulch Landfill permit, which is due to expire. This alternative would have landfilling at the Waimanalo Gulch Landfill cease with no alternative site or technology available. The potential public health, safety and economic impact of the No Action Alternative is unacceptable.

1.8 UNRESOLVED ISSUES

1.8.1 DETAILED LANDFILL PHASING AND ENGINEERING PLANS

The detailed final landfill phasing and engineering plans are currently under development by Waste Management of Hawaii, Inc., for an overall site requirement of approximately 14.9 acres. Final landfill boundary areas will be examined to ensure that sufficient slope and grades can be designed within appropriate engineering parameters to ensure site stability. All final plans and specifications will be reviewed and approved for conformance with Federal, State, and City and County of Honolulu regulations and laws.

1.8.2 VOLUME OF AGGREGATE TO BE RELEASED FROM SITE

Excavation and grading associated with use of the proposed expansion area will result in the generation of soil, cobbles, and boulders. Soils from onsite grading will be stockpiled and later used for landfill cover. The landfill cover will be used for establishment of vegetative cover, landscaping, intermediate cover, and eventual final covering of the completed landfill surface.

Although the specific volume of aggregate to be generated from the site has not been determined, a preliminary estimate can be made based on the anticipated volume of soils to be excavated from the project site. The project volumes would be as follows:

<u>Cubic Yards</u>	<u>Explanation</u>
±1.0 M	Anticipated volume of soils excavated from the site
±0.4 M	Soils reused onsite for landscaping and other purposes including use for fill, construction of stability berms, etc.

±0.6 M	Remaining volume of soils with aggregate recovery rate of approximately 50% (total aggregate recovery of ±300,000 cubic yards).
±60,000	Estimated average annual generation of aggregate for a 5 year period

1.8.3 FUTURE LANDFILL REQUIREMENTS AFTER EXHAUSTION OF SITE

Current Strategy

The City and County of Honolulu waste management system involves use of a number of programs for the safe and efficient collection, reuse, and disposal of municipal refuse. These strategies over the five-year timeframe of the landfill will include:

- The proposed expansion of H-POWER to increase capacity and reduce periods of landfill diversion due to H-POWER maintenance and repair.
- Implementation of new, but proven technologies to further process waste streams which would otherwise require landfilling.
- Development of the Alternative Waste Disposal Technology Park. The site has been purchased and development is in the planning stage.
- On-going recycling, reuse, and waste reduction programs of ENV will continue and will be expanded as needed.

Future Landfill Requirement

Although the current five-year strategy will address near term management of Oahu's municipal refuse, there are a number of reasons why landfilling will continue to be required for the foreseeable future:

1. Recycling and reuse technologies, while a positive means of reducing waste, will not by itself completely eliminate the generation of waste or waste by-products requiring landfilling.
2. Newly emerging plasma arc and other waste processing technologies all result in the generation of by-products which cannot be further reused or recycled.
3. Transshipment of refuse off-island would eliminate the need for landfills on Oahu, but would by itself generate major political and financial impacts.

Given the difficulty of developing the proposed landfill, a sufficient period of time to develop a new landfill should be pursued. It is suggested that early incorporation of community issues and concerns be incorporated into the process through establishment of a (Blue Ribbon) Landfill Siting Committee, comprised of persons appointed by the Mayor to represent both regional and islandwide interests.

The decision to select and develop a new landfill site should commence as soon as possible because an increase in the rate at which waste is generated could have a negative effect on use of the site for the proposed period of five-years, pending receipt of all necessary environmental and land use permits. Two examples where the rate of MSW could increase involve: (1) Future economic recovery, and associated development in Hawaii. Although increased economic activity would provide for renewed public and private sector employment and spending, there would be an accompanying need for disposal of goods and materials; and, (2) A potential natural disaster such as a hurricane, earthquake, tsunami, or flood, which would generate refuse from major clean up activities.

The net effect of either occurrence is that current projections of waste disposal capacity would be reduced. Although emerging new technologies which are not now considered viable, may produce future feasible waste reduction breakthroughs, it would be unwise to rely solely on their future development.

1.9 NECESSARY PERMITS AND APPROVALS

1.9.1 STATE OF HAWAII

- Department of Health, Solid Waste Management Permit
- National Pollutant Discharge Elimination System (NPDES), Notice of Intent (NOI), for Discharges of Storm Water Associated with Industrial Activities
- Department of Health, Covered Source Air Permit

1.9.2 CITY AND COUNTY OF HONOLULU

- State Special Use Permit (Amendment)

CHAPTER 2
PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND SITE CHARACTERISTICS

The Waimanalo Gulch Sanitary Landfill is located in Waimanalo Gulch, Kahe Valley, Oahu (Figure 2-1, Location Map). The ±200-acre property is aligned in a north-south configuration. The proposed 14.9-acre expansion area is planned in a vacant area within the southern and eastern boundary of the landfill property (Figure 2-2, Site Map).

Immediately north of the project site is land owned by Wellington Loh (TMK: 9-2-03:41 - 48.9 acres). Surrounding land along the north and west boundary of the landfill site is owned by the James Campbell Estate Trust (TMK: 9-2-03:2 - 2,578.8 acres). To the east the project site adjoins the Hawaiian Electric Kahe Power Generating Station (TMK: 9-2-02:27 - 454.4 acres) and the James Campbell Estate Trust property (TMK: 9-2-03:2). The northernmost boundary of the Campbell Estate property is also the location of the Southern Cross Terminal Building, a telecommunications facility. (Figure 2-3, Properties Within Proximity to the Proposed Project).

Immediately south of the project site is Farrington Highway (FASP No. S-900(4)) which serves as the primary thoroughfare for the area. Mauka of the highway, adjoining the project site are parcels under various ownership (Figure 2-4, Selected TMKs Along Farrington Highway):

No.	TMK	Ownership
1.	9-2-03:30 (1.6 acres)	Rachel K. Haili etal
2.	9-2-03:31 (0.8 acres)	Philip G. Elisara etal
3.	9-2-03:32 (0.8 acres)	Moses/Iris Rapoza etal
4.	9-2-03:33 (0.8 acres)	Chris Tanaka etal
5.	9-2-03:34 (0.8 acres)	Robert Mitsuyasu

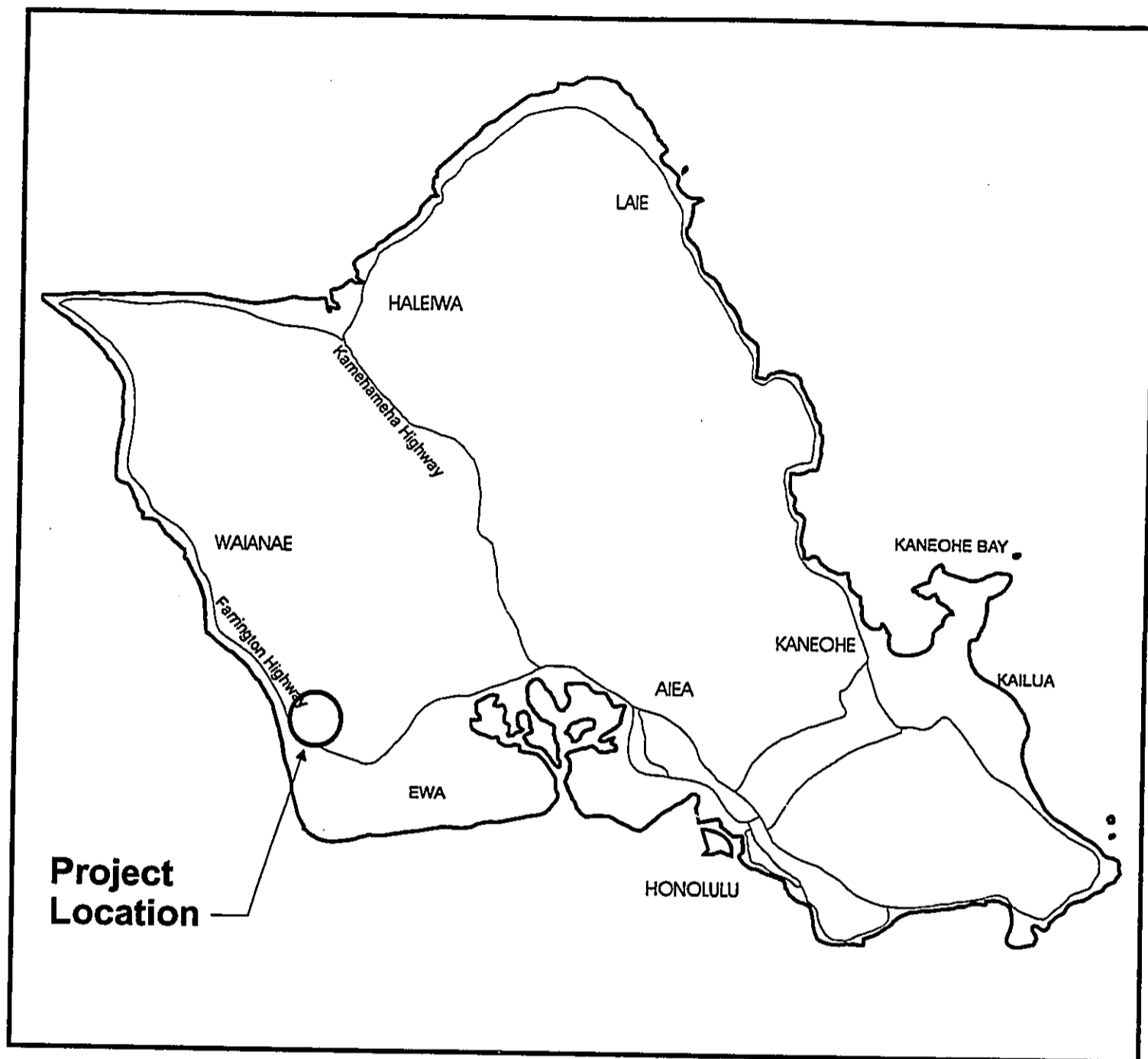
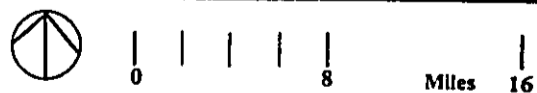
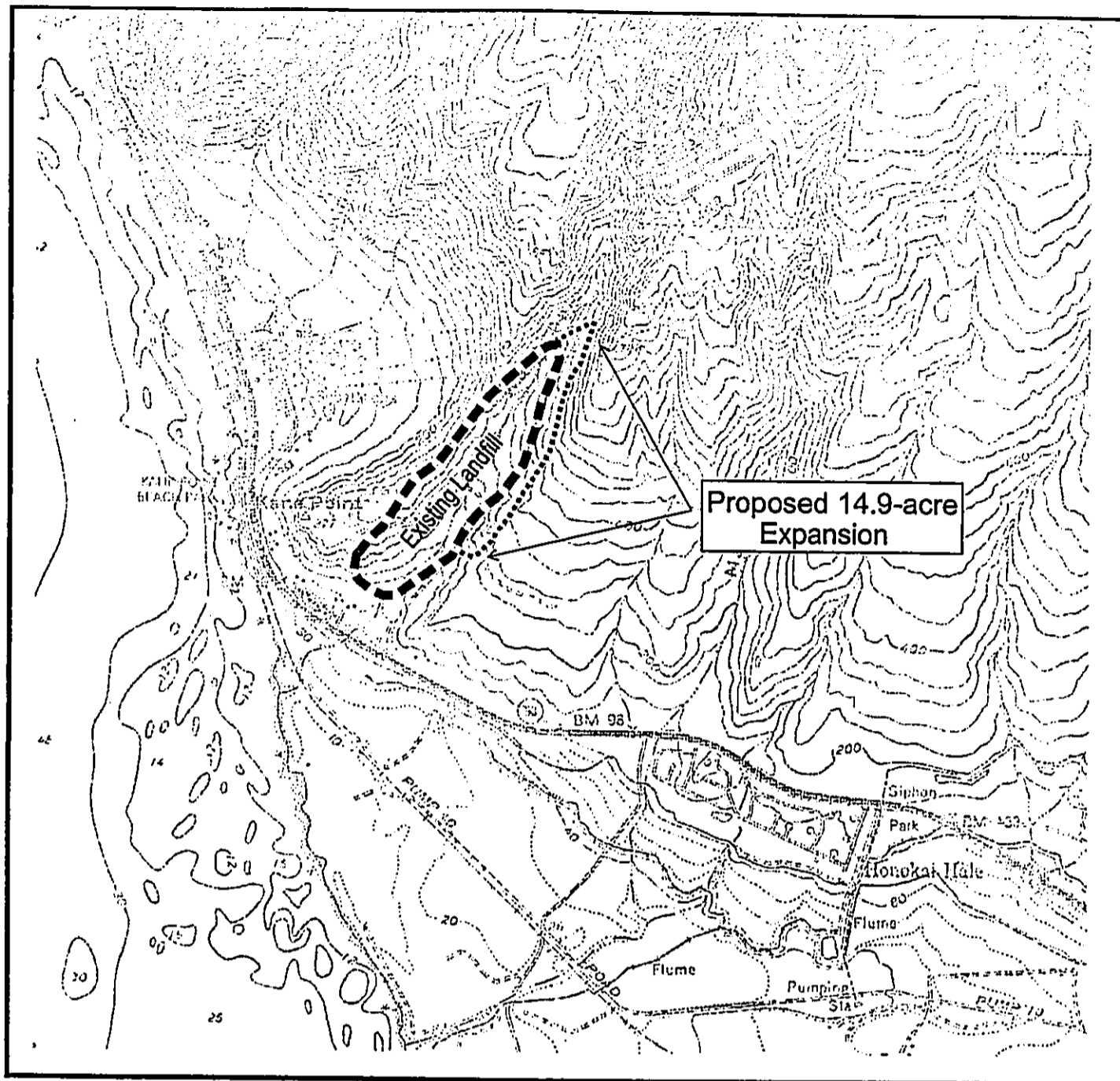


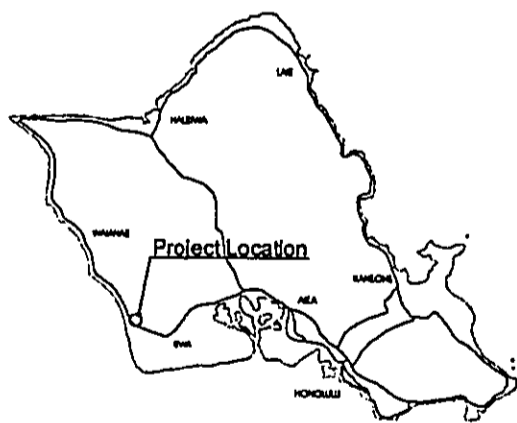
FIGURE 2-1
 LOCATION
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002



Source: C&C Honolulu, ENV 2001

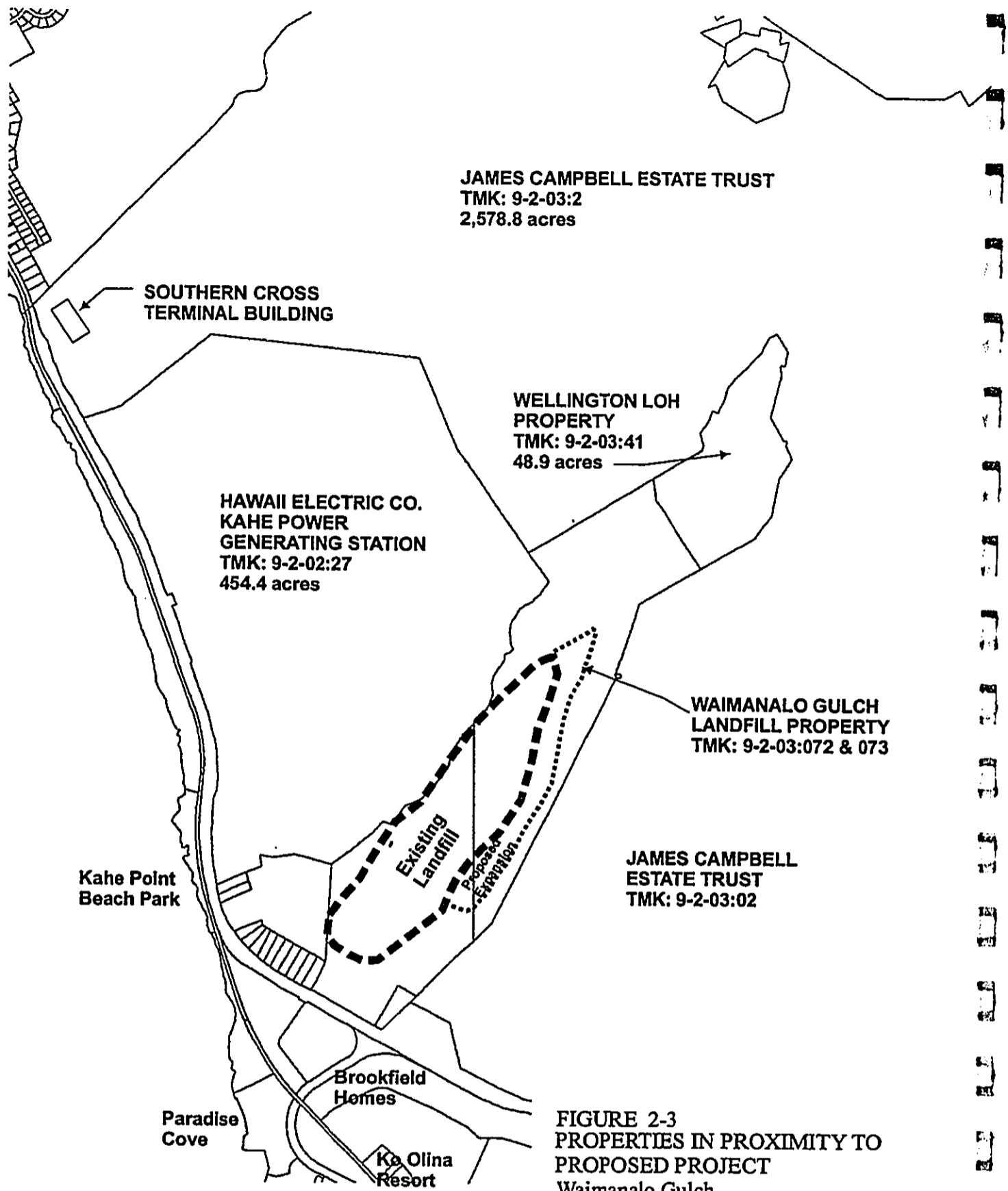


**FIGURE 2-2
SITE MAP
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii**



750 1500 Feet 3000

R. M. TOWILL CORPORATION December 2002



JAMES CAMPBELL ESTATE TRUST
 TMK: 9-2-03:2
 2,578.8 acres

**SOUTHERN CROSS
 TERMINAL BUILDING**

**WELLINGTON LOH
 PROPERTY**
 TMK: 9-2-03:41
 48.9 acres

**HAWAII ELECTRIC CO.
 KAHE POWER
 GENERATING STATION**
 TMK: 9-2-02:27
 454.4 acres

**WAIMANALO GULCH
 LANDFILL PROPERTY**
 TMK: 9-2-03:072 & 073

**Kahe Point
 Beach Park**

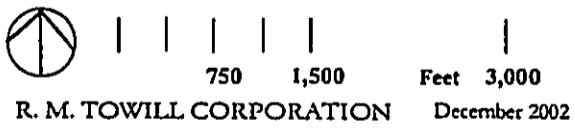
**JAMES CAMPBELL
 ESTATE TRUST**
 TMK: 9-2-03:02

**Paradise
 Cove**

**Brookfield
 Homes**

**Ka Olina
 Resort**

FIGURE 2-3
PROPERTIES IN PROXIMITY TO
PROPOSED PROJECT
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



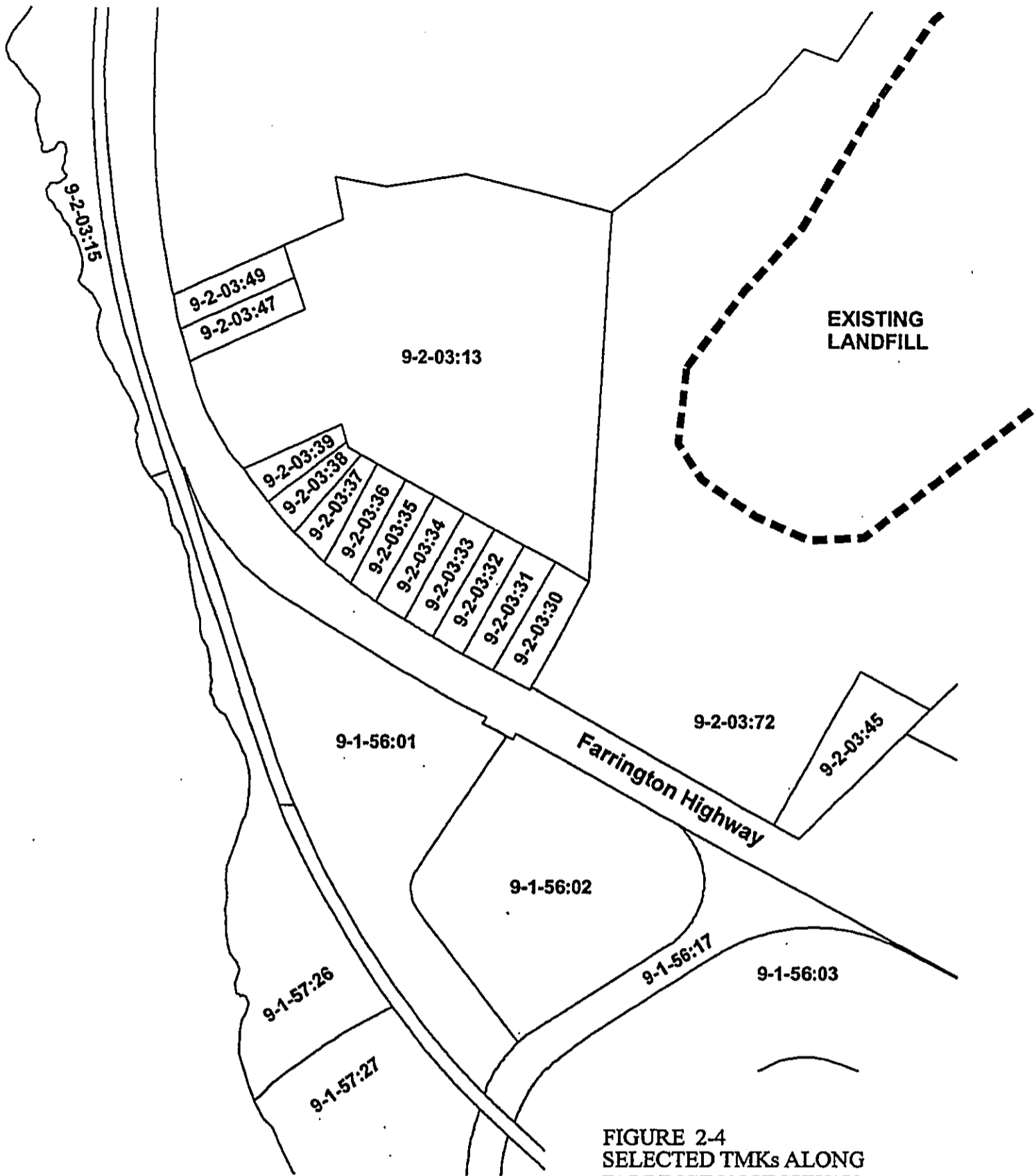
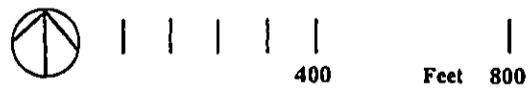


FIGURE 2-4
 SELECTED TMKs ALONG
 FARRINGTON HIGHWAY
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

6.	9-2-03:35 (0.8 acres)	Robert Mitsuyasu
7.	9-2-03:36 (0.8 acres)	Robert Mitsuyasu
8.	9-2-03:37 (0.7 acres)	Robert Mitsuyasu
9.	9-2-03:38 (0.6 acres)	Robert Mitsuyasu
10.	9-2-03:39 (0.6 acres)	Florence Richardson
11.	9-2-03:47 (0.8 acres)	Wallace Nakatani etal
12.	9-2-03:49 (0.8 acres)	Kenneth Nakano Trust
13.	9-2-03:13 (21.2 acres)	Betsy Lum etal
14.	9-2-03:45 (1.9 acres)	Betsy Lum etal

Across and makai of the highway is the Kahe Point Beach Park (TMK: 9-2-03:15) and Ko Olina Resort (TMK: 9-2-03, 9-1-56, and 9-1-57, various parcels). Kahe Point Beach Park is under jurisdiction of the City and County of Honolulu. Properties and developments within Ko Olina adjacent to the proposed landfill expansion area include: Kai Lani Homes and Brookfield Homes (also known as Coconut Plantations, with both developments under construction), Ko Olina Golf Course, Paradise Cove Luau, Lanikuhonua, Marriott Ihilani Resort, and Ko Olina Fairways. Other land use developments associated with the Ko Olina Resort are also present.

Further to the west is the Honokai Hale and Nanakai Gardens subdivision located at TMKs: 9-2-18 and 9-2-06, various parcels. The westernmost boundary of the Honokai Hale and Nanakai Gardens subdivision is located approximately 3,000 to 4,000 feet from the existing Waimanalo Gulch Sanitary Landfill site.

2.2 FACILITY CHARACTERISTICS

The Waimanalo Gulch Sanitary Landfill has been in operation since September 1989. The facility accepts MSW, ash, and noncombustible residue from H-POWER. The facility accepts MSW from the City and County of Honolulu, private collection companies, residential and commercial self-haulers, non-hazardous industrial solid waste generators, and treated sewage sludge from wastewater treatment plants.

SECTION 2.1 - ADDENDUM
PROJECT LOCATION AND SITE CHARACTERISTICS

The following provides additional information concerning TMK: 9-2-003: parcel 002, owned by the James Campbell Estate Trust:

Makaiwa Hills is a proposed residential development located immediately east of the Waimanalo Gulch Sanitary Landfill (WGSL). According to the Makaiwa Hills website, the project is planned to develop 1,875 homes, an elementary school, a regional commercial center, parks, an 18-hole championship golf course, and extensive ridge and valley open spaces on 1,915 acres (www.menne.com/maka.htm, Bryan Menne & Associates, 2002). The project was granted State Land Use Commission (LUC) redistricting to the State Urban District under LUC Docket No. A92-687, in 1993.

According to Campbell Estate by letter (2002 Annual Report, Docket No. A92-687), to the State LUC dated October 22, 2002, Campbell Estate is exploring various ways to develop the project and will provide the required notice to prospective buyers of the project in accordance with Condition No. 19, of the Docket which states:

- "19. Petitioner shall notify all prospective buyers of property in the Project of the potential odor, noise, and dust pollution resulting from surrounding Agricultural District land, Hawaiian Electric Company's Kahe Power Plant, and the City and County of Honolulu's Waimanalo Gulch Sanitary Landfill."

The sanitary landfill is the only facility on the island of Oahu that meets requirements for Resource Conservation and Recovery Act (RCRA) Federal Regulations Subtitle D which includes regulations on leachate and gas collection. RCRA Subtitle D includes sanitary landfill location, facility design standards, operating requirements, groundwater monitoring and corrective action, closure, and post-closure care, and financial assurance. The regulations governing location restrict the siting of a municipal sanitary landfill near airports or in ecologically or geographically sensitive areas (e.g., flood plains, fault lines, seismic zones, and unstable terrain). Operating requirements include prohibiting regulated hazardous waste, applying daily cover, controlling disease vector populations, monitoring methane gas, restricting public access, controlling storm water run-off, protecting surface water from pollutants, and keeping appropriate records. Design standards require the sanitary landfill to have a composite liner made of a synthetic flexible membrane over a compacted clay layer. All sanitary landfills must have groundwater monitoring wells, and landfill operators are responsible for cleaning up any contamination if it does occur. Upon closure, the sanitary landfill owner/operator is responsible for capping the sanitary landfill and monitoring groundwater, methane gas, and leachate for a period of 30 years. Landfill owners/operators must also prove financial capability to cover the costs of closure, post-closure care, and if necessary, clean-up activities.

The facility receives approximately 800 tons per day (TPD) of MSW and approximately 600 tons per day from H-POWER. The MSW is received from the entire island of Oahu and consists of materials not directed to H-POWER. The ash and noncombustible residue received from H-POWER has been processed and reduced by combustion to create electricity as a by-product.

Waimanalo Gulch Sanitary Landfill is open to receive solid waste seven days a week, from 7:00 am to 4:30 pm. As required, H-POWER generated ash and residue is delivered twenty-four hours a day. Yard lighting is provided to facilitate ash delivery after regular working hours. A work crew is available on standby to assist with off-site clean up activities, as required.

Security is provided at the site twenty-four hours a day.

The proposed project will involve use of land within the boundary of the existing landfill property which is owned by the City and County of Honolulu. Although lands within the property are also

unused and undeveloped, it is not included in the proposed expansion project. The proposed expansion area is comprised of heavily weathered boulder and cobble rubble with a generally thin soil cover.

2.3 CONSTRUCTION ACTIVITIES

2.3.1 GENERAL

Construction activities for the expansion of the landfill will include mobilization of equipment, clearing, grubbing, excavation, and grading. During mobilization, ground disturbance shall be held to the minimum area necessary to accommodate movement of heavy equipment and materials required for construction. Clearing and grubbing of rocks and vegetation will be required for initial delineation of the expansion area and to accommodate the establishment of cells.

2.3.2 STORMWATER POLLUTION PREVENTION

Stormwater pollution prevention measures will involve use of management and structural practices, including but not limited to, the following:

Management Storm Water Control Measures

- Construction will be phased according to use of landfill cells. Areas of one phase will be stabilized before another phase can be initiated. Stabilization will be accomplished by temporarily or permanently protecting disturbed soil surfaces from rainfall impacts and runoff.
- Erosion and sediment control measures will be in place and functional before earth moving operations begin. These measures will be properly constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day, but will be replaced at the end of each work day.
- All storm water control measures will be checked and repaired as necessary. During prolonged periods of rainfall greater than 0.5 inches in a 24 hour period, storm water measures will be checked daily.

Structural Storm Water Control Measures

- Storm water flowing toward construction areas shall be diverted using appropriate control measures.
- Erosion control measures shall be designed according to the size of the disturbed or drainage areas to detain runoff and trap sediment.
- Storm water must be discharged so that the discharge does not cause erosion.

2.3.3 EXCAVATION AND GRADING

Excavation and grading of the expansion area will include the removal of larger rocks from the excavated earth to obtain material satisfactory for use as intermediate cover material. The excavated earth is stockpiled within the landfill property for future use. The excavation shall also shape, compact and prepare the bottom of the landfill to insure proper functioning of the leachate collection system. Approximately 1.0 million cubic yards of soil will be excavated for the landfill operation.

Construction activities will include mobilization, clearing, grading and landscaping. During mobilization, ground disturbance during clearing and grading will be held to the minimum area necessary to accommodate movement of heavy equipment and materials. This will be to ensure protection of the site from storm generated run-off and erosion. Staging and stockpile areas shall be prepared as necessary with appropriate storm water discharge pollution prevention features, fugitive dust containment, and parking areas for workers.

Final grading will not exceed the maximum permitted elevation of approximately ± 510 feet (GeoSyntec, 2002). The top deck will be graded at a minimum 5 percent slope. Final grades for the slope will be designed at a 3:1 maximum ratio with terrace drains located at varying intervals down the slope face. The stability of the final fill slopes for both MSW and ash fill have been verified by a slope stability analysis. The slope stability analysis involves the laboratory testing of MSW and ash to determine physical characteristics and design limitations regarding slope. The results of the analysis indicate the proposed final grade slopes as acceptable.

Fugitive dust associated with construction activities will be managed through adherence to Hawaii Administrative Rules (HAR), Chapter 11-60.1-33, concerning fugitive dust.

2.3.4 LEACHATE MANAGEMENT

A landfill liner system will be installed to mitigate the potential for leachate migration into adjacent areas and non-potable groundwater zones. The liner system will consist of approximately 6-12 inches of compacted clay overlaid with a geosynthetic clay liner (GCL) and a high density polyethylene (HDPE) liner. A synthetic geotextile is then installed directly on the HDPE liner and approximately 12-inches of granular drainage media (gravel) is placed atop to provide drainage of storm water.

Leachate is the liquid formed as water passes through refuse, picking up contaminants. Signs of leachate production usually appear years after the landfill has been in operation and continue after the landfill has been closed. Monitoring for leachate will be employed for the duration of landfill operations and for a period of 30 years following closure of the facility. Monitoring wells used for the existing landfill area will be used for monitoring of the expansion area. Locations of the existing monitoring wells: 1) are beneath the landfill property to determine background water quality; and, 2) at a relevant point downgradient of the site to determine compliance with applicable Federal and State regulations. If required, new monitoring wells and a sump collection system will be installed, as required by DOH in their review of the Solid Waste Permit for the facility. The location of monitoring wells, sump collection, system operating characteristics, and groundwater monitoring program must be certified as adequate by a qualified ground-water scientist in conjunction with the State Department of Health (DOH) and Federal Environmental Protection Agency (EPA).

Modifications to the leachate management system will be performed by the landfill operator, Waste Management of Hawaii, Inc., as required in coordination with DOH and EPA requirements.

2.3.5 LANDFILL LINER SYSTEM

Installation of the landfill liner will involve the placement of HDPE plastic liner with a thickness of 60 mils. The liner sheets are contained on rolls 15 feet wide by 900 feet in length. The liner sheets are placed over compacted clay overlaid with a GCL liner. Suitability of liner interface strength will be verified with direct shear tests conducted under peer-reviewed methods and under the general guidance of ASTM D5321 and D6243. Shear strengths should meet or exceed the strength parameters used in the stability analysis performed for the site (GeoSyntec, 2002).

Overlapping HDPE sheets placed at the landfill are sealed with a specialized portable field unit capable of heat welding a positive seal. Once the seams are welded they are inspected. The inspection procedure calls for independent testing of liner integrity by qualified QA/QC (Quality Assurance/Quality Control) personnel. The inspection procedure includes a visual inspection and vacuum leak test. A written report of the integrity of all liner seams and quality of installation is submitted to the City and County of Honolulu, ENV. Following installation of the HDPE liner, synthetic geotextile and granular drainage media is placed for drainage of storm water.

If cuts or tears in the liner are discovered during the inspection procedure, repairs are carried out. The damaged section is cut out and replaced with a new section of 60 mil material. Edges are heat welded and again inspected for integrity with a vacuum leak test. The landfill bed is available for disposal of refuse only after the liner system is satisfactorily installed and tested.

2.3.6 FIRE CONTROL

The project development will include fire fighting vehicle and equipment access throughout the construction site. A fire fighting vehicle and equipment access lane will be maintained during operation of the proposed landfill expansion area. The location of the fire access lane or fire break road will be determined prior to site development.

A Fire Safety Plan is maintained at the Administrative Office of the Waimanalo Gulch Sanitary Landfill. The Fire Safety Plan identifies procedures to follow in the event of a fire and includes

notification of the fire department by calling 911, and use of fire extinguisher equipment if the fire is small. Progressively heavier equipment is used if the fire is larger. Water trucks can be employed to spread water, and bulldozers may be used to break up and smother the fire with moist soil.

An on-site emergency coordinator is tasked with overall fire control management and is responsible for carrying out specific actions during the event. This includes proper notification to authorities including the Honolulu Fire Department and Honolulu Police Department.

2.3.7 HECO UTILITY EASEMENT

The existing 100-foot-wide power line easement for each of the four HECO power transmission lines will be accommodated by the proposed project. The minimum vertical clearance from the surface of the completed landfill to the transmission lines is 34 feet. The purpose of the clearance is to ensure against obstructions and to provide sufficient safety clearance in the unlikely event of fires.

The proposed project will meet or exceed the HECO vertical clearance requirement.

2.3.8 SITE RESTORATION

Upon completion of construction activities, Waste Management of Hawaii, Inc., shall restore the project site as appropriate. This will include, but is not limited to, the following:

- Existing utilities, such as power lines or water sources, shall be restored or relocated according to requirements of the landfill operation and respective utility service provider.
- Roadways providing access to the site and surrounding areas shall be cleared of construction debris. Any damage to roadways from construction traffic will be repaired. Gates and/or fencing removed to provide access to the site shall be restored.
- All areas damaged by construction staging shall be restored. Exposed ground areas shall be seeded or hydro-mulched as appropriate.

2.3.9 CLOSURE OF EXISTING LANDFILL AREA

Upon closure of the existing landfill area, final cover will be installed and final grades will be established. The final cover is designed to minimize infiltration of rainfall into the landfill, which will reduce the amount and volume of leachate to be collected and treated. The final cover, designed in accordance with Section 40 of the Code of Federal Regulations (CFR), Part 258, will consist of a layer of compacted soil overlain by an impermeable HDPE flexible membrane liner. A vegetative/erosion control layer will be placed over the infiltration barrier layer in all areas of the landfill. Material for the revegetation layer will come from previously stockpiled materials or onsite excavation.

Final grading of the municipal solid waste section of the existing landfill will not exceed the maximum permitted elevation of 430 feet at the ridge of the top deck¹. The top deck is graded at a minimum 5 percent slope to accommodate proper drainage in anticipation of future settlement. Final grades for slopes are designed at a 3:1 maximum ratio with 15-foot-wide terrace drains located at 40-foot intervals down the slope face (vertical height).

The ash fill section will have a high point of approximately 270 feet on a top deck that is graded at a minimum 5 percent slope. Final grading for slopes are designed at a 2:1 maximum ratio with 15-foot-wide terrace drains located at 40-foot intervals down the slope face.

2.3.10 FINAL COVER, GRADING AND CLOSURE ACTIVITIES FOR EXPANSION AREA

The closure of the proposed landfill expansion area will follow procedures similar to the closure of the existing landfill area. As the cells of the proposed expansion area are filled to capacity a final cover will be installed. The final cover will be designed to minimize infiltration of rainfall into the

¹The City has requested permission from the State Department of Health to increase the height of the landfill by 30 vertical feet, to 430 feet above mean sea level. The permit was issued in September 2002 and will allow use of the landfill into early 2003.

landfill in accordance with Section 40 of CFR Part 258. A vegetative/erosion control layer will be placed over the infiltration barrier layer in all areas of the landfill.

Landscaping will be developed in conjunction with the vegetative/erosion control layer. Final surface vegetative cover will consist of plants similar to those found surrounding the landfill property. This will include koa haole, and related low lying plant species that are drought resistant. Soils used for final cover will also be selected to match the surrounding hills adjacent to the project site.

The proposed landfill will maintain final grades with terrace drains located at intervals down the slope face. Once closed and revegetated, the site will continue to be monitored for gas and leachate for a period of 30 years.

Upon completion of construction activities, the contractor will restore the project site as much as possible to pre-project conditions. This will include, but is not limited to, the following:

- Modifications to existing utilities, such as power lines or water sources, shall be restored to their pre-existing condition.
- Roadways providing access to the site and surrounding areas shall be cleared of construction debris. Any damage to the road system from construction traffic will be repaired. Gates and/or fencing removed to provide access to the site shall be replaced and/or repaired.
- All areas damaged by construction staging shall be restored. Exposed ground areas shall be seeded or hydro-mulched as appropriate.

2.4 PROJECT SCHEDULE AND COST

Construction for the proposed expansion is scheduled to begin once all permits are obtained. Each cell of the expansion area will be developed on an as needed basis, therefore, construction activities will be limited to work on one cell at a time, except during periods of transition involving the closure of one cell and the establishment and use, of another. The closure of the final cell is planned to be completed at the end of 5 years from start of use of the expansion area. The preliminary

construction and operation cost estimate for the project will be approximately \$5 million per year.
Funding for the project will be provided by the refuse operating budget of ENV.

CHAPTER 3
ENVIRONMENTAL SETTING AND RELATED IMPACTS

This chapter assesses the environmental consequences of the proposed action. Existing conditions at the WGS� are described from a number of perspectives, and potential impacts of the 14.9-acre expansion are described and evaluated. Mitigation measures are also proposed to reduce or eliminate the potential for negative environmental impacts of the expansion.

3.1 CLIMATE

3.1.1 CLIMATE

The climate of the WGS� area is extremely arid due to the "rain-shadow" effect of the Waianae Range. According to an on-site rain gauge, average rainfall is approximately 15 inches per year. Annual precipitation within the sanitary landfill expansion area ranges from approximately 15 to 20 inches, based on prior sanitary landfill rainfall data and the elevation of proposed working grades.

The Waianae weather station, at an elevation of 10 feet msl (above mean sea level), has registered extreme temperature records of 45° F (Fahrenheit) and 96° F (DBEDT, 1996). The proposed landfill expansion site is located at an elevation of approximately ±400 feet above msl, so average temperature would likely be several degrees cooler than the lower elevation.

Although tradewinds normally have a northeasterly origin, the Waianae and Koolau Mountains tend to sweep the air masses along the Nanakuli coastline in a roughly southeast to northwest direction at an average annual speed of ±10 knots. Between October and April, Hawaii may come under the influence of southerly winds associated with Kona storms or of southerly winds that precede cold fronts (Juvik and Juvik, 1983).

3.1.1 IMPACTS AND MITIGATION

The dry conditions at the landfill have a limiting effect on the amount of leachate formed within the landfill. The wind conditions have the potential to carry fugitive dust, odors, and airborne litter from WGS� into neighboring communities, such as Ko Olina. The mitigation currently being implemented and plans for further mitigation of these impacts are contained in Section 3-7, Air Quality (regarding dust, odor, and litter).

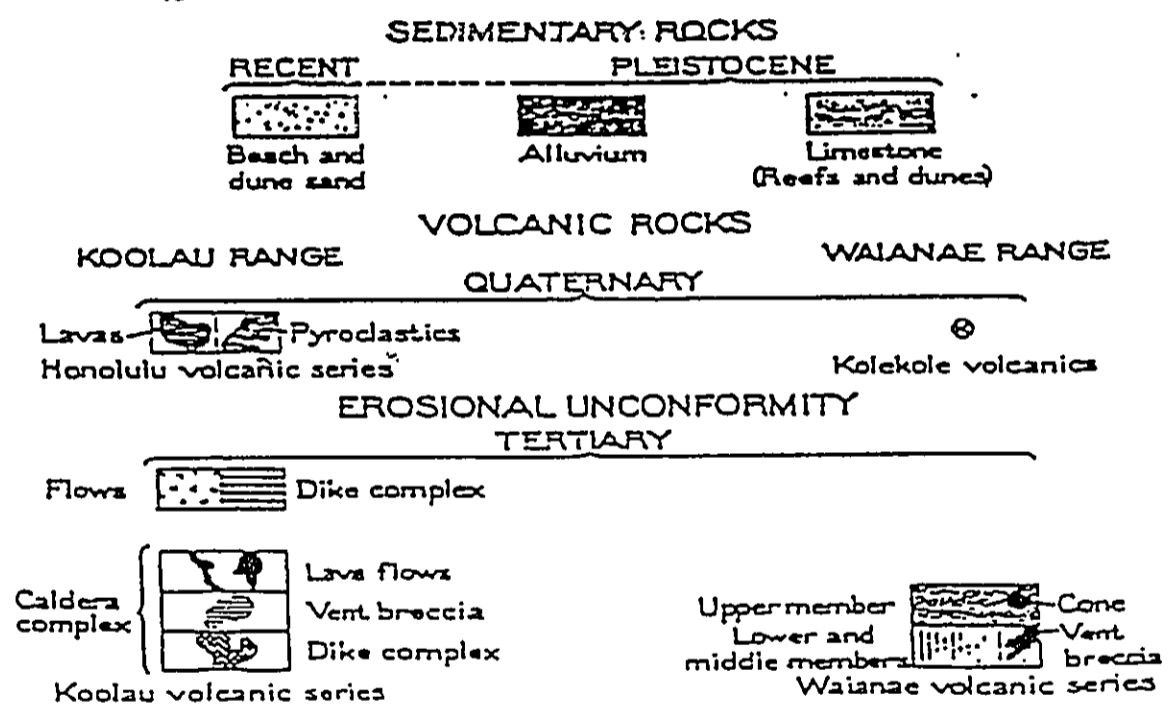
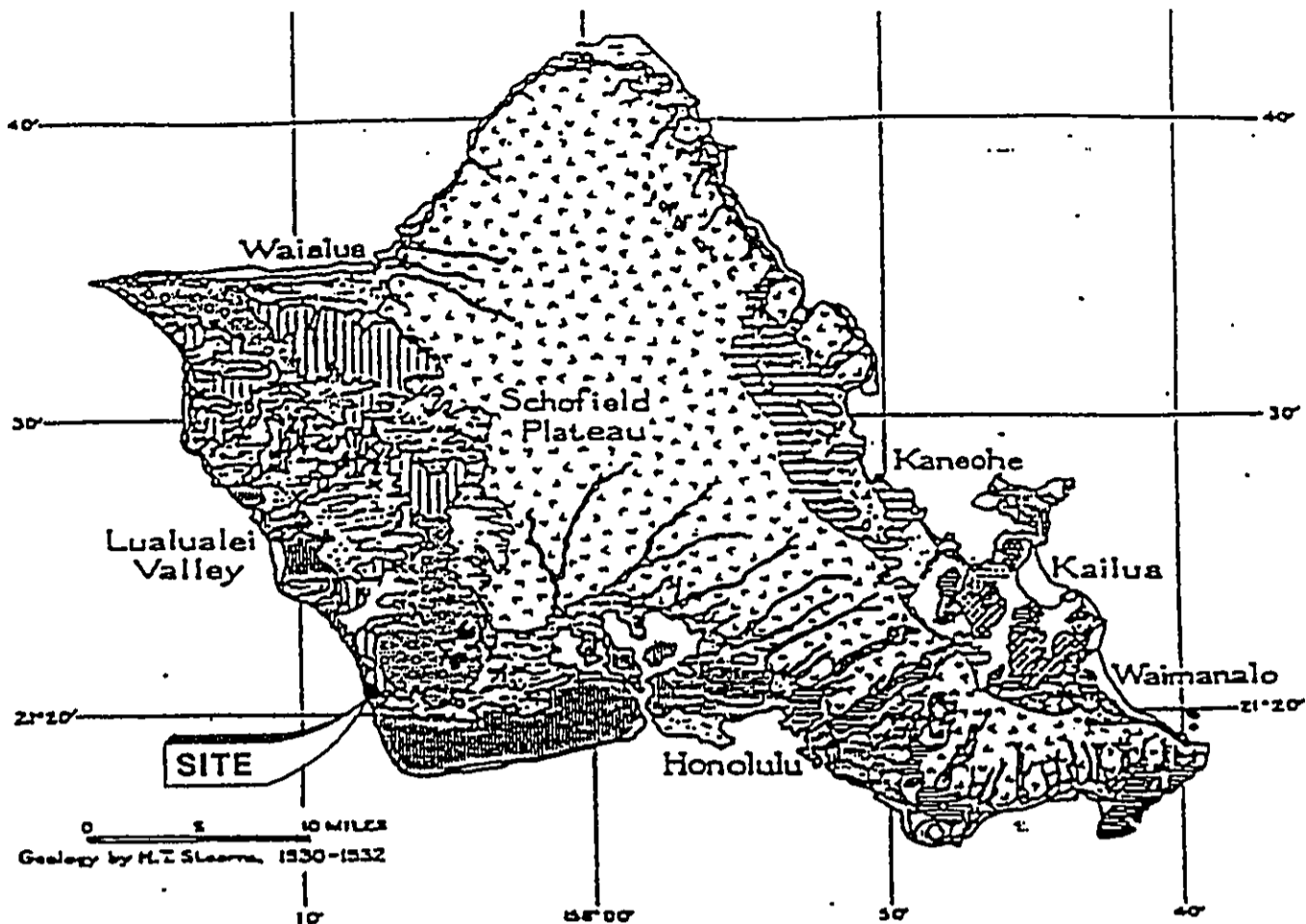
3.2 GEOLOGY

3.2.1 REGIONAL GEOLOGIC SETTING

Covering approximately 604 square miles of land area, the Island of Oahu was formed by the merging of basaltic lava flows from the Waianae and Koolau shield volcanoes. The Waianae Range contains the older basalt-rock formations on the island. The project site is located within one of a series of parallel trending gulches that drain from the upper reaches of the southwest portion of the Waianae Range down towards the southwest-facing coastline (Geosyntec, 2002).

The Koolau volcano was active after the Waianae volcano became dormant, and its flows backed against the Waianae volcano shield to form the Schofield Plateau. After a long quiescent period during which erosion cut canyons several thousand feet deep, another series of lava flows, the Honolulu Volcanic Series, formed cinder and tuff cones primarily along the southeastern portion of the island (Rust, 1997).

The Waianae Volcanic Series was formed during the tertiary period and encompasses the majority of the Waianae Range lithology (volcanic formations) (Figure 3-1). This series is divided into lower, middle and upper "members".



Source: Stearns, 1932

FIGURE 3-1
 ISLAND GEOLOGY
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



NO SCALE

- The lower member of the Waianae Volcanic Series is comprised of the lava flows and associated pyroclastic rocks (formed by or involving fragmentation due to volcanic action) that built the main portion of the Waianae shield volcano. Lower member thicknesses of up to 2,000 feet have been documented (Takasaki, 1971). The rocks of this member are mostly thin-bedded pahoehoe that has been largely dike-intruded in the southwestern portion of Oahu (Takasaki, 1971).
- The middle member of the Waianae Volcanic Series consists of rocks that accumulated in the caldera and, as such, are thick (on the order of 2,000 feet) and generally horizontally bedded (Macdonald, 1940). This member resembles the lower member but contains more a'a flows. The middle member is mostly dike-intruded in the southwestern portion of Oahu and is in unconformable contact (non-continuous contact because of a period of weathering or erosion) with the lower member (Takasaki, 1971).
- The upper member of the Waianae Volcanic Series is about 2,300 feet thick, and is mostly massive a'a flows that issued from large cinder cones (Takasaki, 1971). Flows in this member are sparsely intruded by dikes in the southwestern portion of the island.

Erosion has removed most of the western slope of the Waianae shield and exposed the internal structure of the volcano. The shield was built by eruptions that took place along three rift zones. The two principal rift zones trended northwestward and southeastward from the summit, while a lesser one trends northeastward (Takasaki, 1971). A rift zone of an active volcano is characterized by parallel to subparallel fissures and a line of cinder and spatter cones. These features are absent in older, dormant volcanoes such as the Waianae, where rift zones are identified by erosion-exposed dike complexes (Takasaki, 1971).

- Many of the dikes mapped elsewhere in the Hawaiian chain occur as blade-like intrusions into the surrounding host rock, emanating from a central magma core (Rubin and Pollard, 1987).
- The dikes are generally basalts and diabases and are aphanitic or have only a small content of phenocrysts (volcanic crystal forms). Very small-sized olivine, augite and plagioclase are the most common types of phenocrysts present (Walker, 1987). The dikes typically have glassy chilled margins and show a gradual steady increase in grain size from rim to center.

- Near-surface lava in Hawaii typically contains high numbers of cooling joints, vesicle partings, flow-unit boundaries, rubble layers and other planes of weakness (Walker, 1987). Dikes cutting these features are highly irregular in shape.
- Dikes intrude most of the volcanic rocks in the western and southwestern Waianae Range.
- Dikes are sparse in the less permeable, massive, thick-bedded flows of the upper member and are numerous in the highly permeable, thin-bedded flows of the Waianae Volcanic Series (Takasaki, 1971).

Along the lower southeastern slope of the Waianae Range is a row of five very late cones: Puu Kuua, Puu Kapuai, Puu Makakilo, Puu Palailai and Puu Kapolei. At Puu Palailai, former quarrying activities have removed most of the former crater-fill consisting of a varied mixture of cinder, spatter and lava flows. The valleys of the Waianae Range typically contain moderately thick deposits of alluvium and colluvium.

Overlying the volcanic sequences and filling valleys along the coastal plains is a geologic lithology known as "caprock." Caprock forms a cover overlying the volcanics along much of the Oahu coastline, and is generally only about 1/500th as permeable as the main island volcanic aquifers (Hufen and others, 1980). The caprock consists primarily of alluvium, terrigenous and marine clays, and fossilized coral reef with associated detritus (rock fragments or organic particles that result directly from coral disintegration) (RUST, September 1993). Where caprock occurs, rainfall, surface water, and runoff discharge are prevented from percolating into the aquifer.

3.2.2 SITE GEOLOGY AND SOILS

In 1991, U. S. Geological Survey personnel identified a near-vertical dike striking between about 15 and 20 degrees west of north, located at the approximate midpoint of the WGS� property (Figure 3-2). This dike is composed of relatively dense, gray, slightly vesicular basalt that disrupts the otherwise sub-horizontal layering of the surrounding lower member basalt flows. The trend of the dike was found to extend to the southeast between two groundwater wells located along Farrington Highway that show groundwater levels offset by about 10 feet. The dike was therefore identified as

the boundary between the aquifer to the east, where head levels are in the range of 14 feet msl, and the aquifer to the west, where head levels are approximately 3 to 4 feet msl (Rust, 1997).

The primary rock type encountered in borings and exposed in construction cuts at the currently-permitted area of WGS� is of the lower member of the Waianae Volcanic Series (TNWRE 1991, 1993). This unit is described in boring logs as a'a and pahoehoe flows, with coloring of the rock material varying from gray to reddish gray to red, and the texture varying widely from highly vesicular (clinker) to dense and fine-grained (TNWRE, 1993).

In 2002 consultant GeoLabs, Inc., performed geotechnical and geological investigations of the 14.9-acre expansion area. The work included a review of local geologic maps, a field walk, visual observation of existing cut slopes and a seismic refraction survey. Geolabs reported:






"The subgrade at the site consists of alternating layers of relatively dense lava flow followed by more fractured and porous clinker seams. The layers dip gradually down toward the coastline. The rock materials appear to be uniformly weathered throughout the height of the exposed hill slopes. Very few alluvial/colluvial soil deposits were observed. However, a 3 to 5-ft thick dark brown clayey soil deposit was noted at the ground surface along the top of the exposed hillslopes. No significantly-sized lava tubes or cave features were observed at the site." (Geolabs, 2002).

According to the Soil Survey of Islands of Kauai, Oahu, Hawaii, Molokai, and Lanai, State of Hawaii (U.S. Department of Agriculture, 1972), there are primarily two soil associations found at the current WGS� and proposed 14.9-acre expansion: Lualualei-Fill Land-Ewa Association, and Rocky Land-Stony Steep Land Association.

- Lualualei-Fill Land-Ewa Association: consists of deep, nearly level to moderately sloping, well-drained soils that have a fine textured or moderately fine textured subsoil or underlying material, and areas of fill land, on coastal plains. This soil association is primarily located from coastal areas to approximately $\pm 1,500$ feet mauka of Farrington Highway, within the landfill property.

A
SOUTH

LEGEND

-  AA BASALT W/ INTERMITTENT CLINKERS ZONES
-  PAHOEHOE BASALT
-  ALLUVIUM
-  FILL/REFUSE
-  DIKE AS IDENTIFIED BY GEOPHYSICS

VERTICAL EXAGGERATION = 4X
EXCEPT IN LOWER SECTION,
WHERE VERTICAL SCALE
INCREASES TO 1" = 40'

A'

BEND IN SECTION

CURRENT TOPOGRAPHIC SURFACE

REFUSE

SUBGRADE

DIKE

MONITORING
WELL 07

ASH

MSW

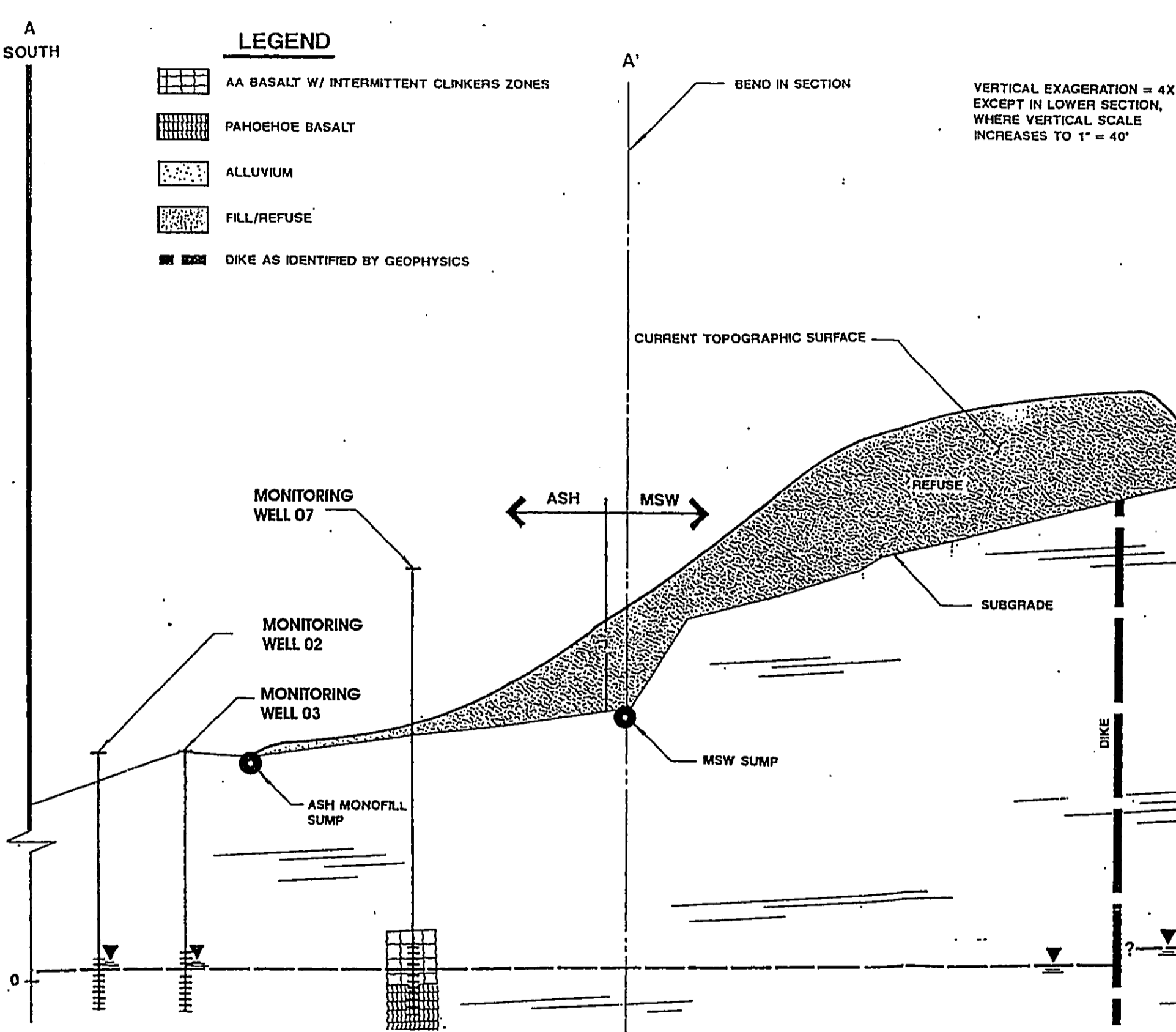
MONITORING
WELL 02

MONITORING
WELL 03

ASH MONOFILL
SUMP

MSW SUMP

0



VERTICAL EXAGGERATION = 4X
EXCEPT IN LOWER SECTION,
WHERE VERTICAL SCALE
INCREASES TO 1" = 40'

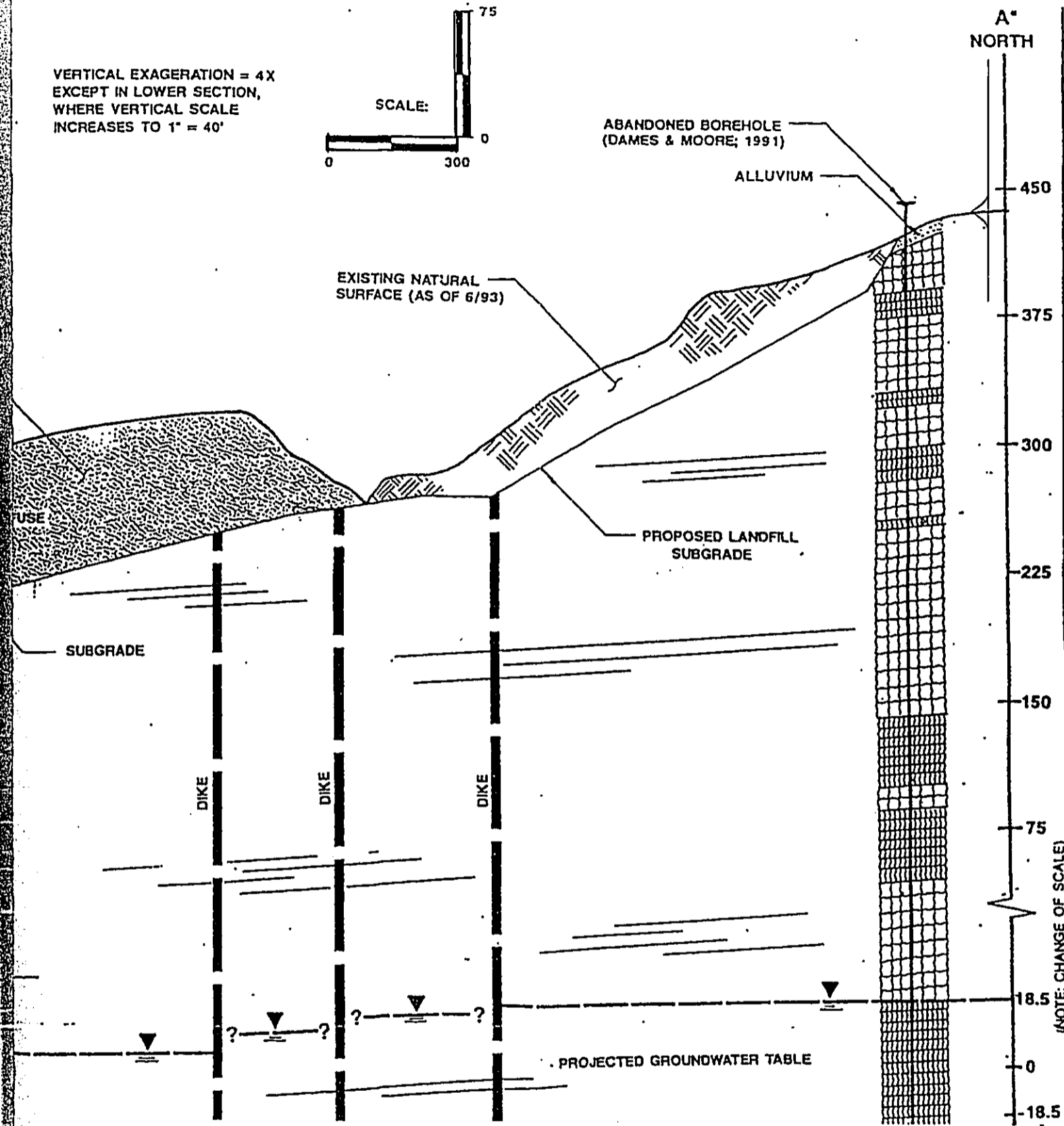
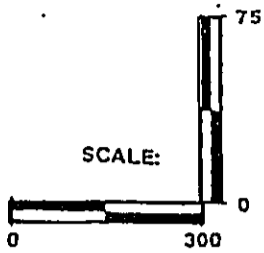


FIGURE 3-2
SITE GEOLOGY
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

R. M. TOWILL CORPORATION December 2002

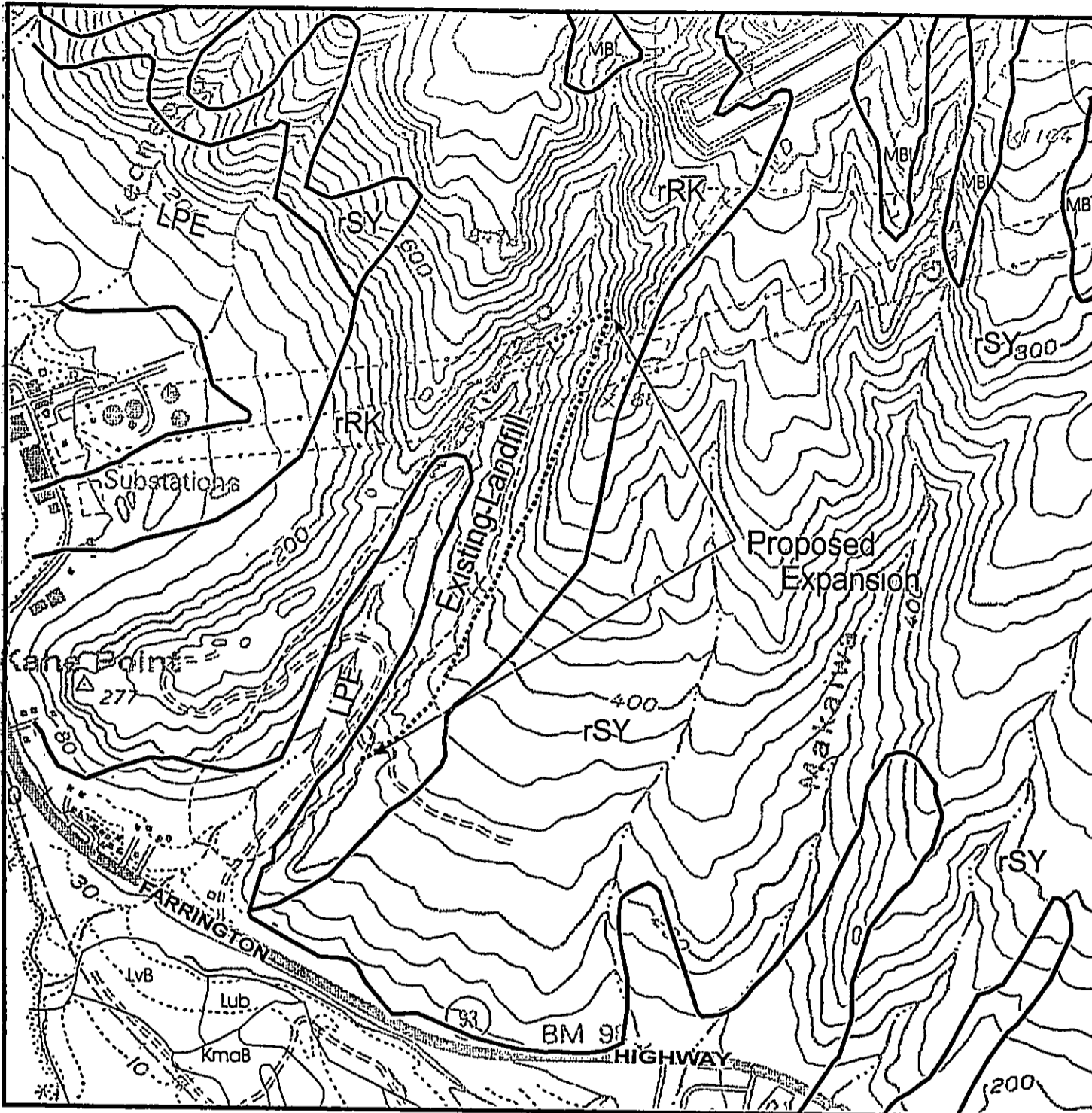
- Rocky Land-Stony Steep Land Association: Consists of steep to precipitous, well-drained to excessively drained, rocky and stony land. This soil association is located within the remainder of the ±200 acre landfill property (USDA, 1972).

Most of the soil at the project site consists of Rock Land (rRK) with small amounts of Stony Steep Land (rSY) (Figure 3-3, Soils Map).

- Rock Land (rRK), is a type of soil where exposed rock covers 25% to 90% of the surface. Rock outcrops and very shallow soils are the main characteristics. The rock outcrops are comprised primarily of basalt and andosite. This land type is nearly level to very steep. Soil materials associated with the rock outcrops are very sticky and very plastic, and have a high shrink-swell potential when moisture-laden.
- The slopes generally range from 40 to 70 percent with elevations of 100 to 1,500 feet. Stones and boulders usually cover 50 to 90 percent of the surface. There are usually small amounts of soil among the stones that provide a foothold for plants. The natural vegetation consists of kiawe, koa haole, and grasses.
- Rock land soil properties are not conducive to urban development, as they can cause buildings to slide and foundations and retaining walls to crack when the soil becomes saturated with water. Intensive land use development on this soil type is therefore usually difficult and costly because of construction restraints and requirements. Foundations for buildings and structures require additional construction effort to achieve a stable base for development, which are provided for the administrative buildings within the existing landfill site. (U.S. Department of Agriculture, 1972)

3.2.3 IMPACTS AND MITIGATION

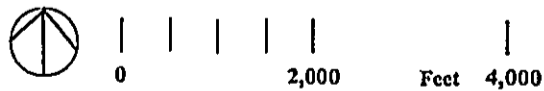
Rust (1994, 1995a, 1995b) developed and obtained approval for the final grading plan for the existing landfill area. The permitted grading plan for the WGSL includes eight ash disposal cells and eleven MSW (Municipal Solid Waste) disposal cells with various base liner designs (GeoSyntec, 2002).



Legend

- CR - Coral Outcrop
- KmaB - Keaau Stony Clay, 2%-6% slopes
- LPE - Lualualei Extremely Stony Clay, 3%-35% slopes
- LuB - Lualualei Clay, 2%-6% slopes
- LvB - Lualualei Stony Clay, 2%-6% slopes
- MBL - Mahana-Badland Complex
- McC2 - Mahana Silty Clay Loam, 6%-12% slopes
- McE2 - Mahana Silty Clay Loam, 20%-35% slopes, Eroded
- rRk - Rock Land
- rSY - Stony Steep Land

FIGURE 3-3
SOILS MAP
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

The proposed 14.9-acre final grading plan (Figures 3-4) includes soil berms of 94,370 cy (cubic yards) and 63,250 cy along the western and northern perimeters of the landfill, and a 113,970 cy soil berm along the southern perimeter of expansion cell E1. The proposed final grading plan results in a total airspace increase of approximately 4 million cubic yards (beyond the currently-permitted grading plan) and meets the minimum vertical separation requirements for the existing overhead power lines (GeoSyntec, 2002).

Based on observations of the exposed basalt rock, and experience with similar site conditions, a geotechnical consultant concluded that excavation slopes for the 14.9-acre expansion area should be stable at 2H (horizontal):1V (vertical) or flatter. They concluded:

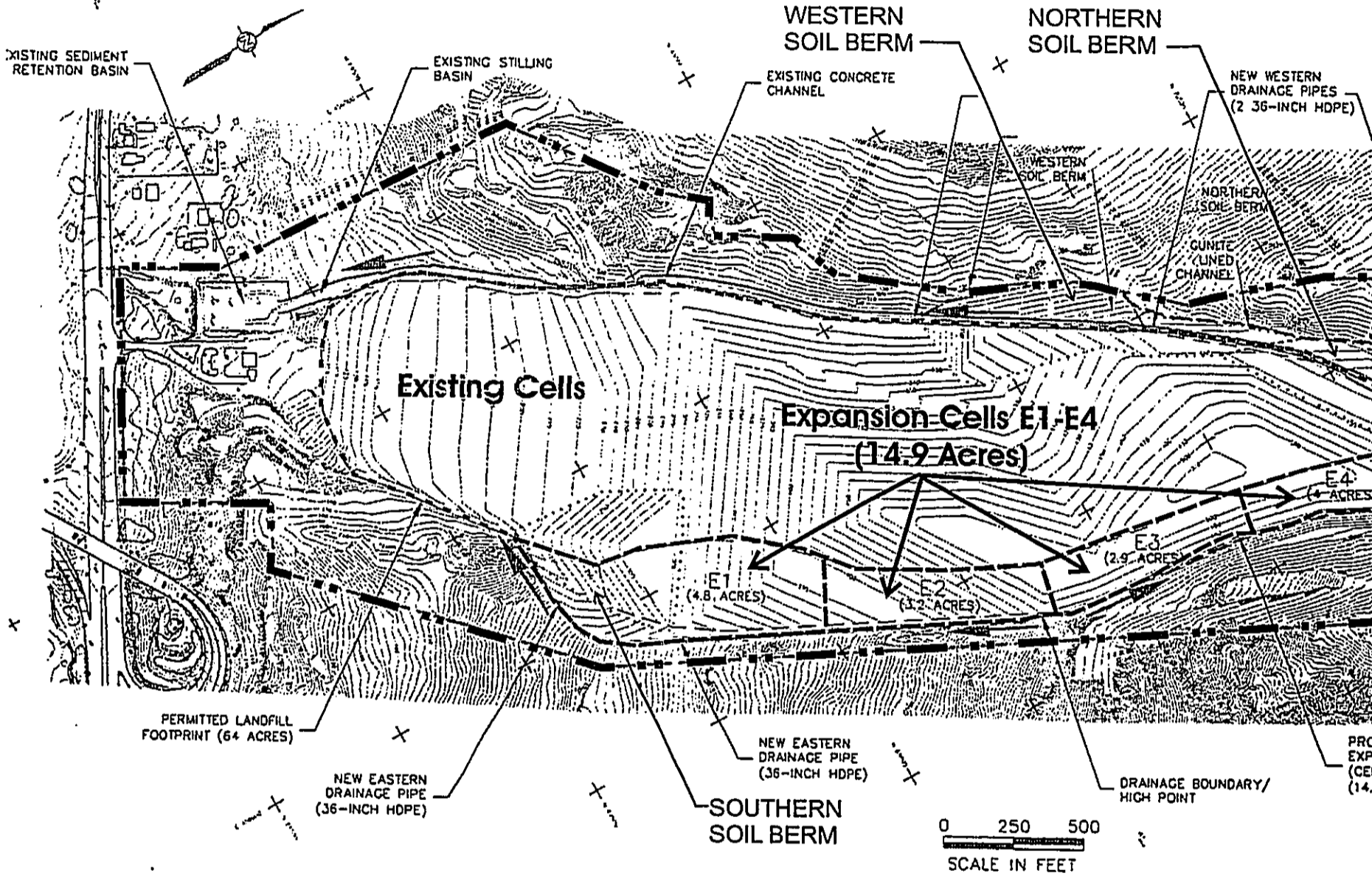
- The proposed vertical cuts of up to 20 feet in height associated with the proposed benches are feasible for the short-term stability of the rock slopes.
- The planned cuts of 1/2H:1V inclination located at the top of the cut slope adjacent to the eastern property boundary should be feasible for the long-term stability of the rock slope. However, in cases where alluvial/colluvial soil and boulder deposits are discovered along the crest of the cut slope, the excavation should be flattened to a 2H:1V slope.
- All excavated slope faces should be inspected during and after excavation to observe the condition of the exposed rock materials to confirm or modify these recommendations.
(Geolabs, 2000)

In the final grading plan (Figure 3-4), the fill slopes are flatter than 3H:1V, i.e., significantly flatter than the 2H:1V recommended by geotechnical consultants, and the maximum elevation reached is approximately 510 feet msl. A soil buttress is required along the western side and the southern limit of new MSW cell E1 (GeoSyntec, 2002).

A soil stabilization study is included in the 14.9-Acre Expansion Master Plan (GeoSyntec, 2002). SEC Donahue (1992), Harding-Lawson (1993), and RUST (1995a and 1995b) evaluated the slope stability of the landfill for the permitted final grades. RUST (1995a) performed a seismic stability analysis following the requirements of Subtitle D. All analyses were completed assuming waste and base liner interface strengths found in the literature at that time or were based on the consultant's previous project experience.

A slope stability analyses for the 14.9-acre expansion, completed in 2001 by GeoSyntec, was conducted to evaluate if the expansion design is stable at final grades in terms of acceptable static factors of safety and estimated permanent seismic displacements. Rust (1994) presents the permitted final cover design for the current ash monofill and MSW disposal areas. The slope stability study for the 14.9-acre expansion area concluded:

- The first two proposed expansion cells, E1 and E2, can be built without modifying the existing western, concrete drainage channel and without building the soil stabilization berm (Rust, 1994).
- A new 36-inch, HDPE drainage pipe is required along the eastern perimeter of the new cells.
- The construction of cells E1, E2, and E3 will require temporary soil berms to contain and divert surface water runoff from the eastern slopes while the cells are filled. The ponded runoff water will be either pumped up and around the expansion cells and into the new eastern drainage pipe, or pumped to the detention basin.
- Temporary berms and pumps will not be required after the construction of cell E4 is completed.
- The surface water runoff from the eastern slopes will be directed to inlets discharging into the 36-inch HDPE drainage pipe along the eastern perimeter of cells E1 and E2 or toward a perimeter ditch along the eastern perimeter of E3 and E4.
- Soil stabilization berms will be required along a portion of the western and northern perimeter of the landfill and along the southern perimeter of cell E1. Figure 3-5 (Fill Grades) shows the size and extent of the required soil stabilization berm for the landfill at final grades. Construction of the western berm should commence prior to placement of any waste materials in expansion cell E3 or above the grades shown in the cross-sections 1 and 2 in Figure 3-6 in the existing landfill. Timing of the construction of the berm along the southern limit of cell E1 will be determined based on the rate of filling E1. Construction of the berm along the northern limit of the landfill, actual construction sequencing of the berm, and waste filling will be finalized as part of final design.
- The required berm sizes under interim waste filling grades will be evaluated with the stability analyses performed as part of the final construction-level design for each expansion cell. (GeoSyntec, 2002)



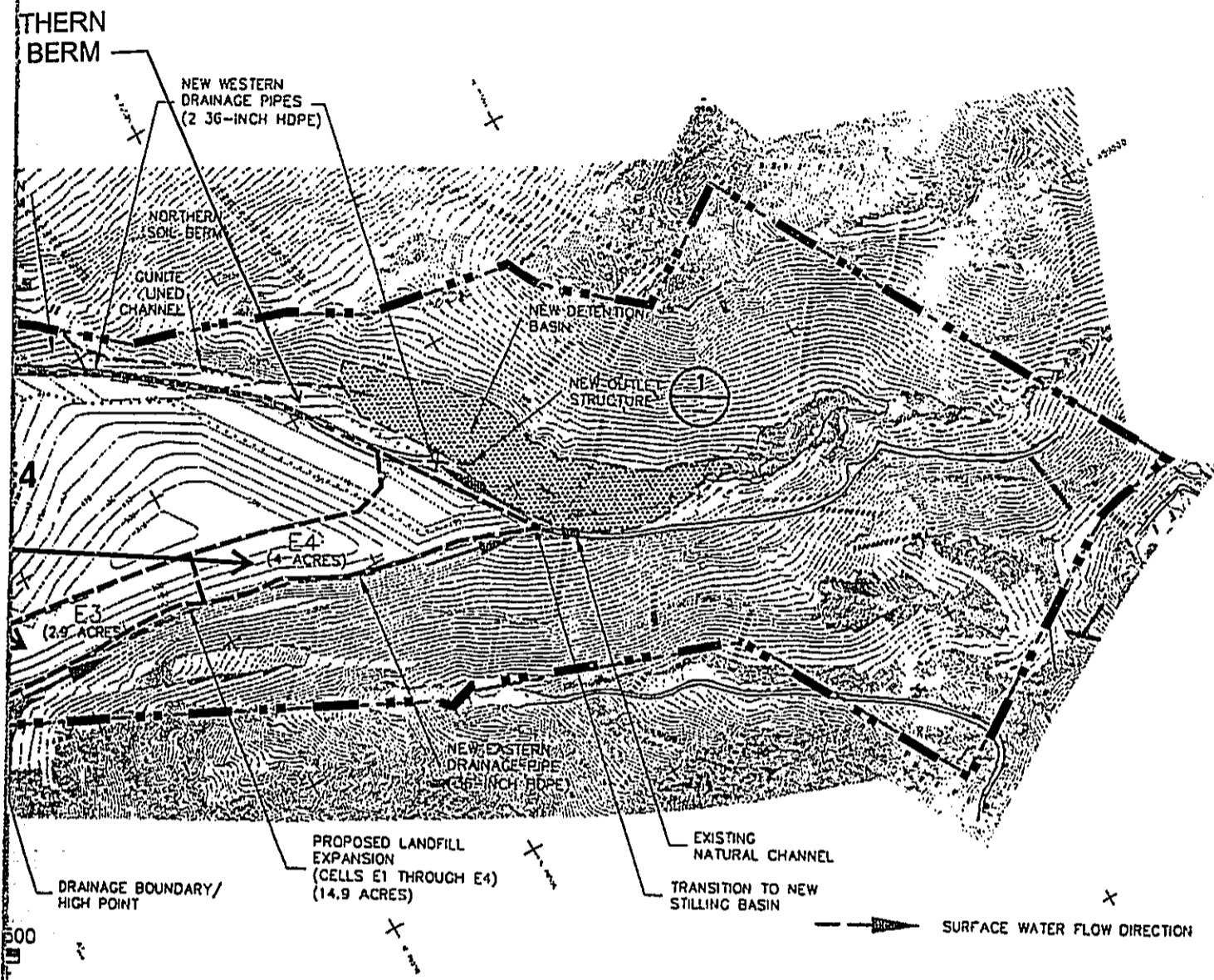
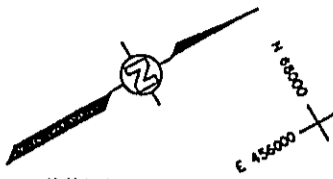


FIGURE 3-4
 FINAL GRADING PLAN
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



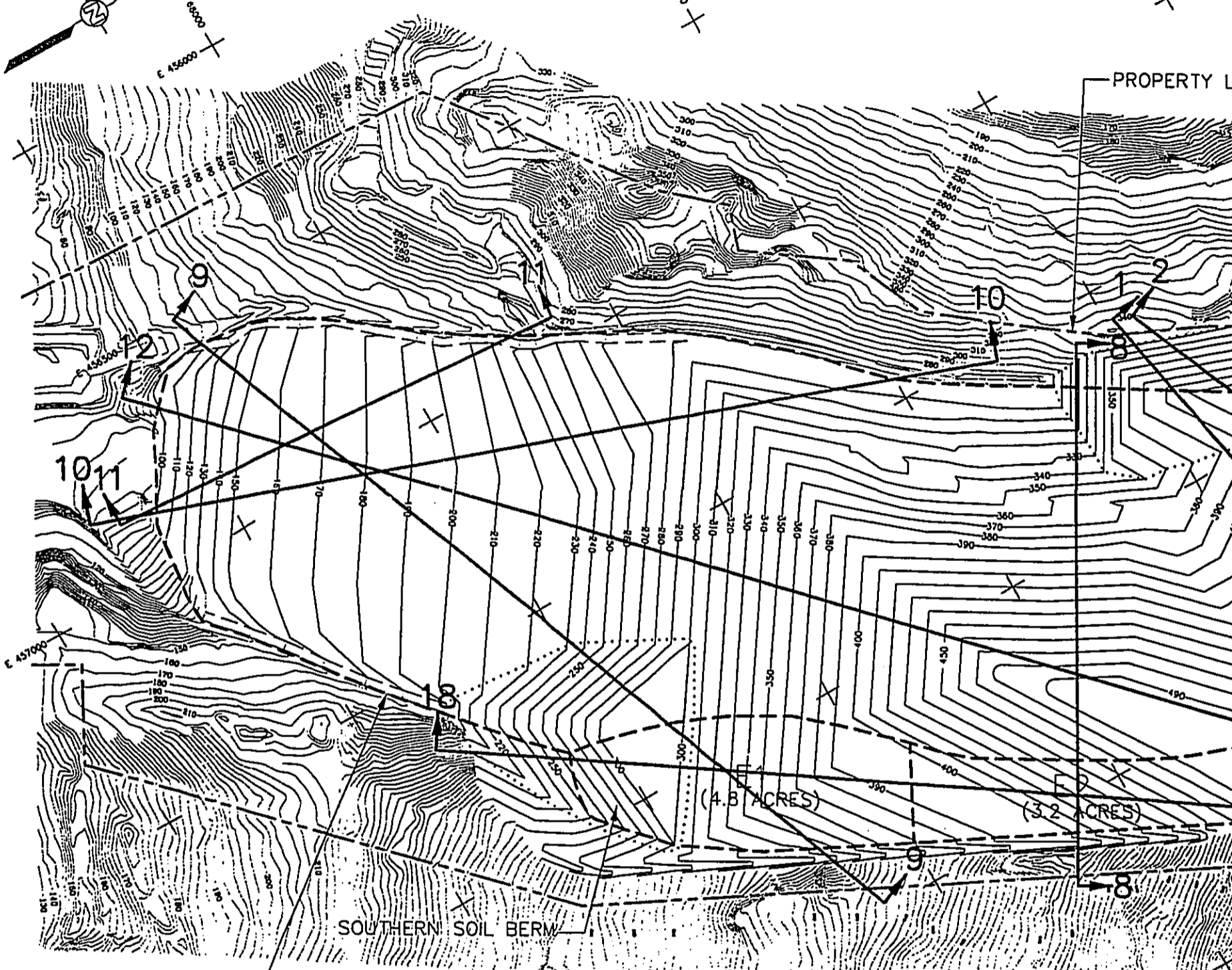


N 60000

E 455000

N 60000

משרד המבחן והתכנון - מחלקת תכנון ובנייה - ת.ד. 10170 - ירושלים



PROPERTY L

PERMITTED LANDFILL
FOOTPRINT (64 ACRES) X

SOUTHERN SOIL BERM

(4.8 ACRES)

(3.2 ACRES)

N 60000

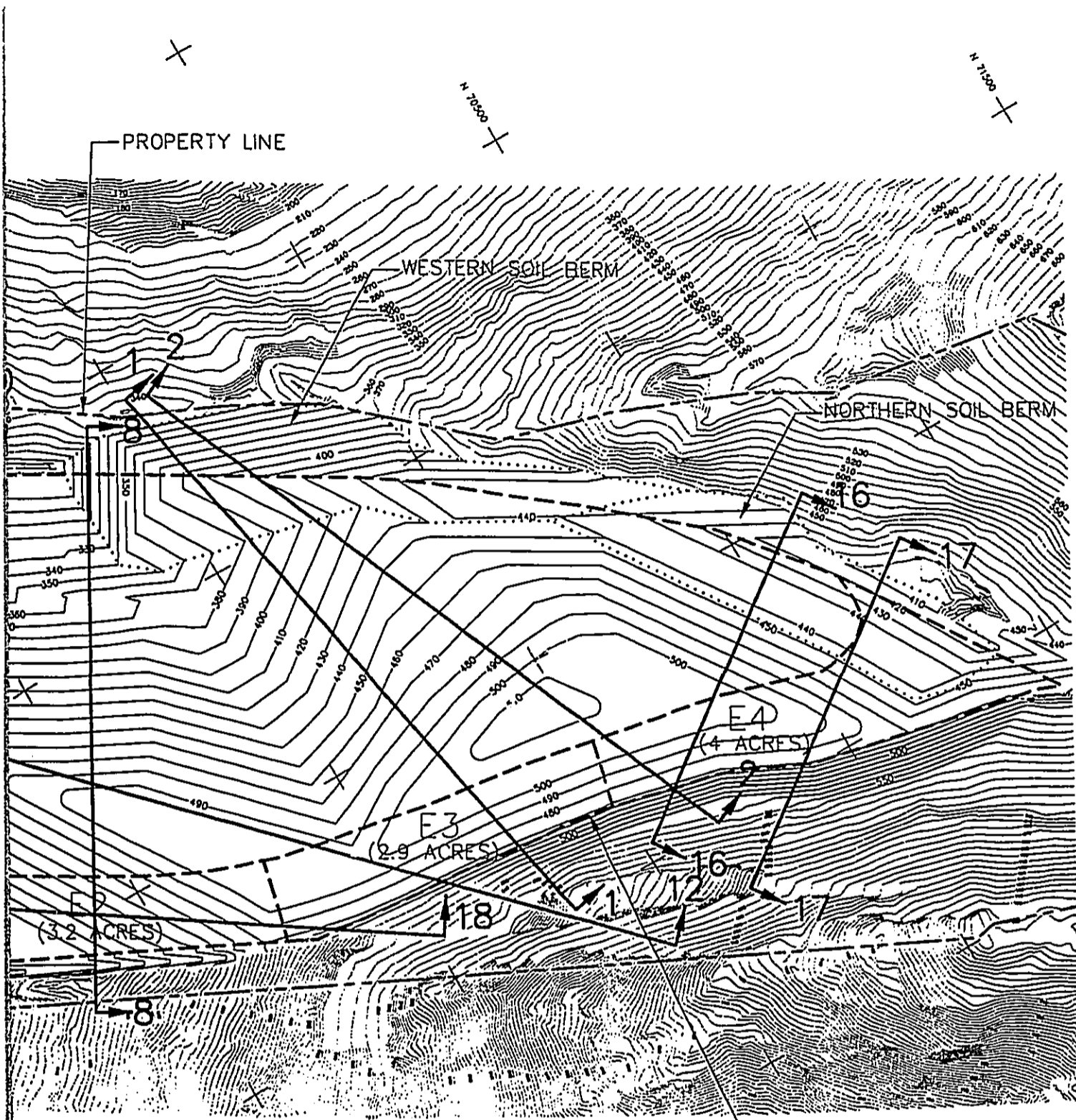
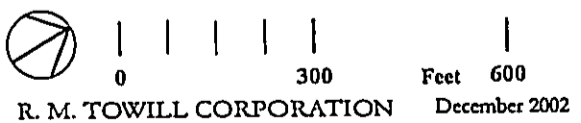


FIGURE 3-5
 FILL GRADES
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



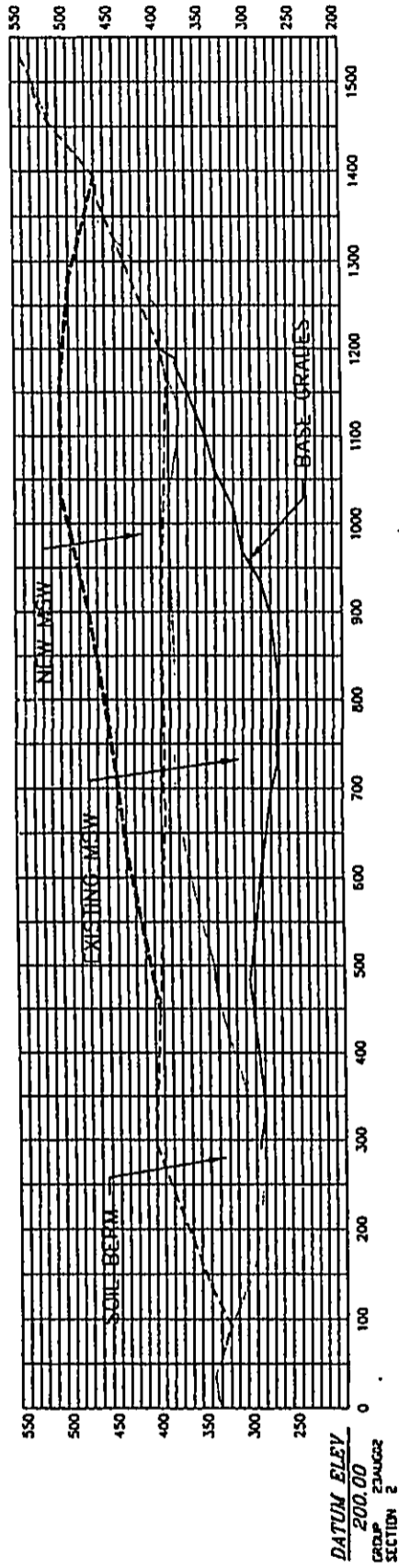
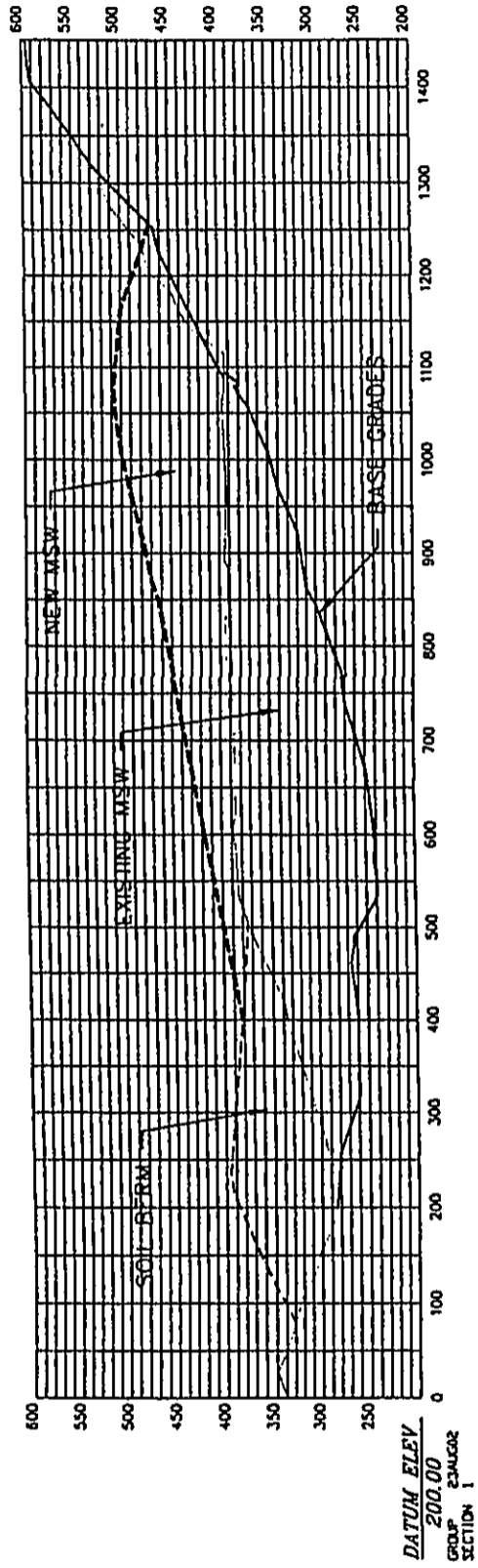


FIGURE 3-6
CROSS SECTIONS 1 & 2
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii

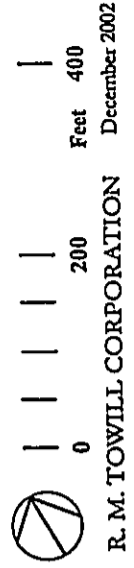


Figure 3-7 illustrates the preliminary design for the expansion area final cover. As can be observed, the proposed foundation layer consists of ash. An optional soil monocover design is also presented. The required thickness and soil type of the optional monocover will be evaluated by the WGSL operator, Waste Management of Hawaii, Inc., as part of the final closure plan for the landfill.

No phreatic sources (subterranean sources supplying wells) were assumed to exist within the bedrock. Leachate levels above the base liner were assumed to be less than 12-inches based on the EPA Subtitle D requirements (GeoSyntec, 2002). GeoSyntec concluded that for the 14.9-acre expansion, sections 1 and 2 are conservative compared to results presented originally for the previously planned 60-acre expansion (GeoSyntec, 2002).

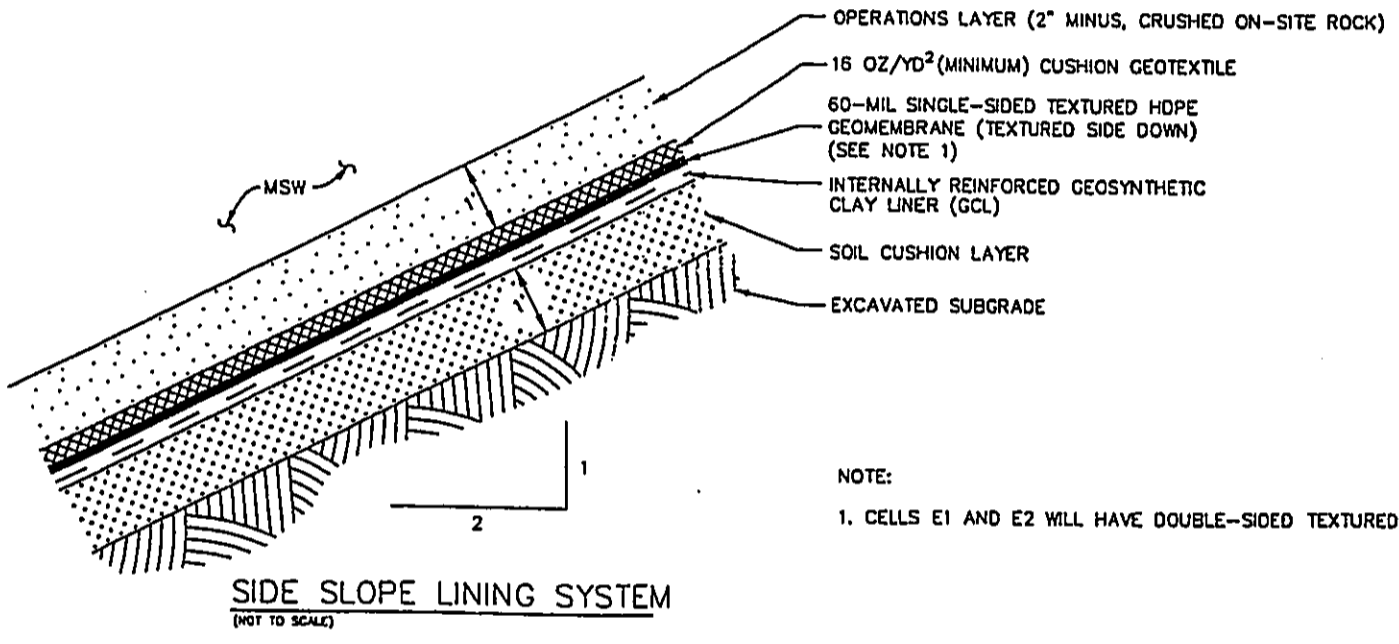
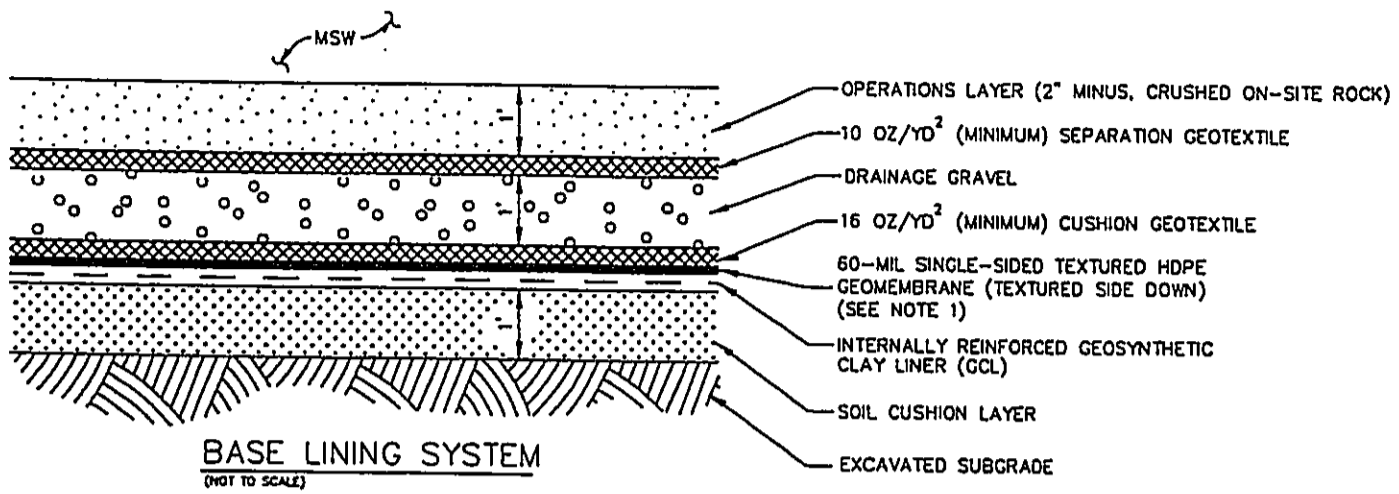
Figure 3-4 above shows soil stabilization berms placed along portions of the western and northern edges of the landfill, and along the southern border of expansion cell E1. GeoSyntec assumed that the soil berms will be constructed from on-site excavated material as the waste is placed in the different cells. Specifications for this material will be presented in the final construction-level design.

3.3 TOPOGRAPHY

3.3.1 REGIONAL TOPOGRAPHY

The WGSL is located at the southern "toe" of the 20-mile long Waianae Range, in a typically steep, narrow gulch. Elevations along the main mountain ridge-line from about 1,000 to 3,600 feet msl. Elevations drop dramatically away from the main ridge-line. Lateral slopes along the Waianae Range are asymmetrical, with steeper slopes to the west (Rust, 1997).

Typical slopes on the sides of the range drop some 2,600 feet in distances of two miles or less. The coastal areas of southwest Oahu are typical of the Hawaiian chain. Broad shoreline areas gradually slope upward toward the inland mountains or intervening valleys and are typified by subdued local topography. This low-lying topographic character of the coastal areas is broken in places where dikes or dike complexes have produced resistant, elevated ridge remnants, or where there was small-scale volcanic activity on the flanks of the main volcanoes (Rust, 1997).



NOTE:
1. CELLS E1 AND E2 WILL HAVE DOUBLE-SIDED TEXTURED HDPE.

FIGURE 3-7
FINAL COVER DETAILS
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii

NO SCALE

R. M. TOWILL CORPORATION December 2002

3.3.2 SITE TOPOGRAPHY

Near the WGSL site, the mountains of the Waianae Range transition to the low-lying coastal plains, abruptly diminishing from 2,300 feet msl at Puu Manawahua to sea level within a lateral distance of two miles. Site elevations at the WGSL vary from a low of about 70 feet msl in the southeast corner to a high of about 940 feet msl in the northern portion of the property (Rust, 1997). The most recent available site topography is shown in Figure 3-8.

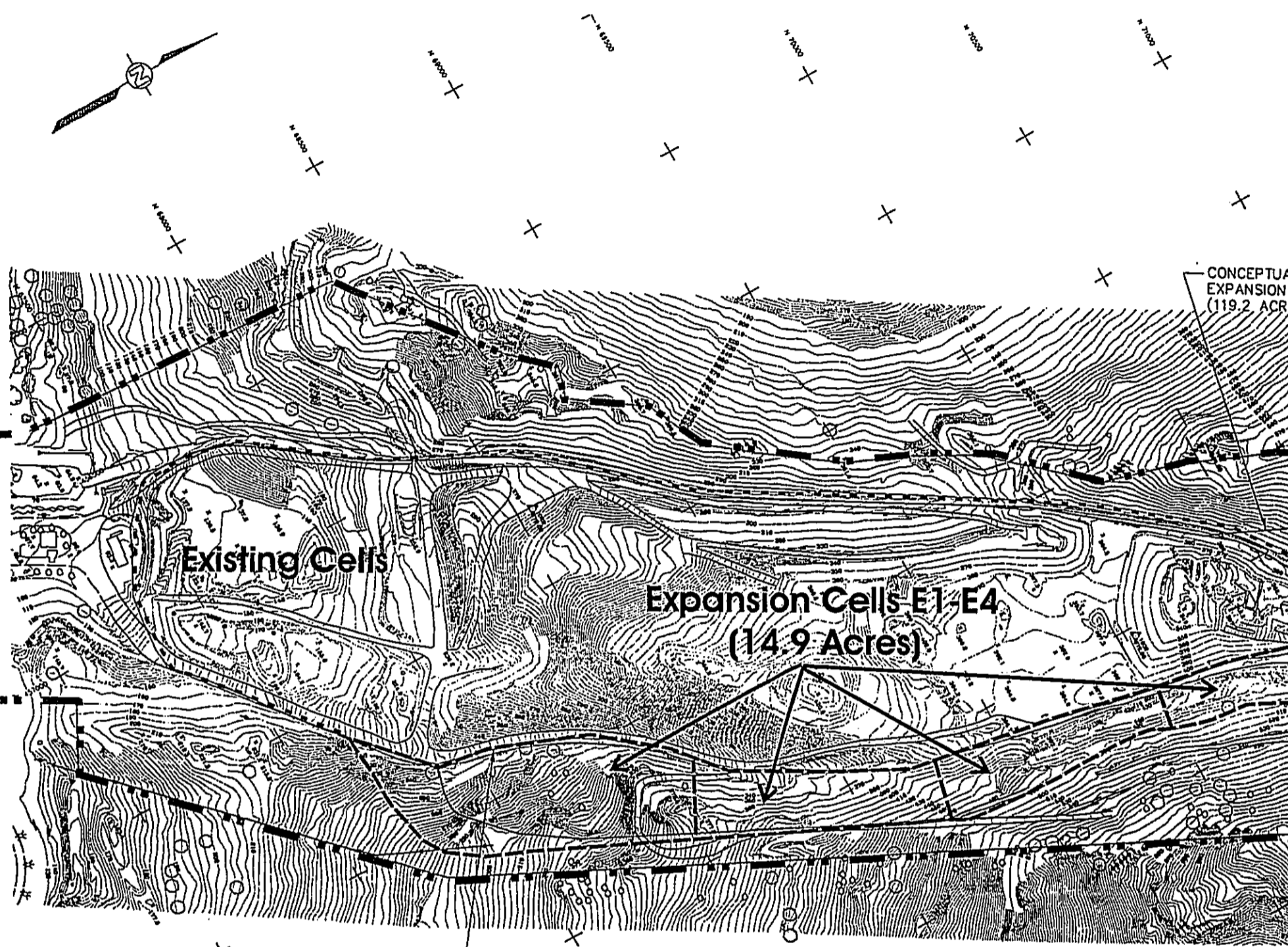
The current MSW area base grades are fairly steep, with minimum grades of 3.4%, and because of the narrowness of the gulch, most of the landfill base area is steeply sloping with (2H:1V) side slopes (GeoSyntec, 2002).

3.3.3 IMPACTS AND MITIGATION MEASURES

There will be some alteration of the existing land topography as a result of the proposed 14.9-acre expansion. The changes and final topography of the expansion area are represented above in Figure 3-5, Fill Grades. The final grading plan was designed to meet all requirements of the City and County of Honolulu and incorporates findings of the geotechnical study (Geolabs, 2000) and slope stability analysis (GeoSyntec, 2001) for the 14.9-acre expansion area. In addition, the final grading plan features side slope grades and final elevations in the existing ash fill area that have been reduced from the currently-permitted grading plan to promote slope stability (GeoSyntec, 2002).

3.4 SURFACE WATER

The WGSL is located within the Waimanalo Gulch. The overall watershed, or region draining into the site, is very elongated, with elevations ranging from near sea level at the outlet to over 2,000 feet at the mauka end. (Geolabs, 2002).



Existing Cells

Expansion Cells E1-E4
(14.9 Acres)

CONCEPTUAL
EXPANSION
(119.2 ACRES)

PERMITTED LANDFILL FOOTPRINT
(64 ACRES)

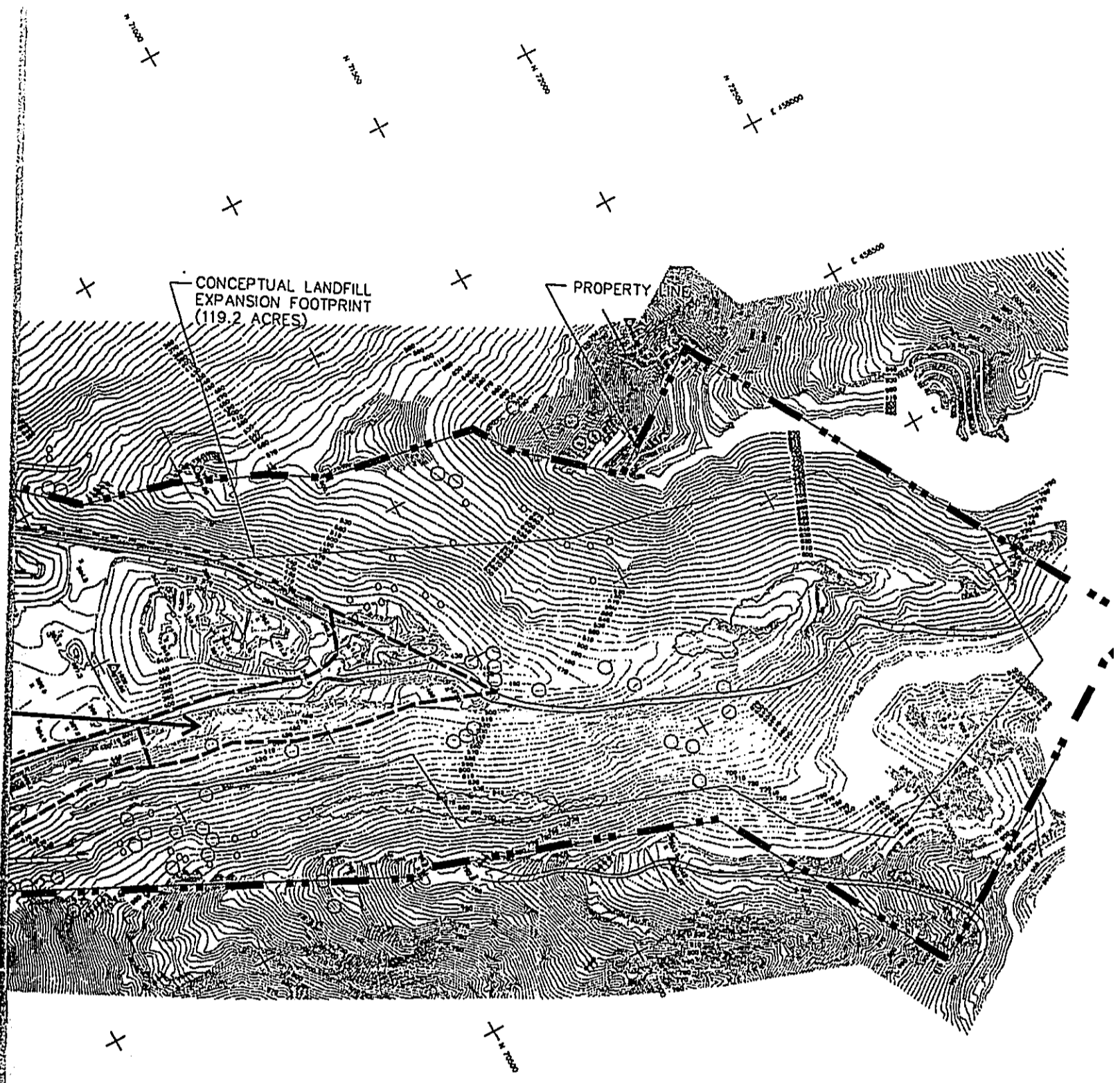
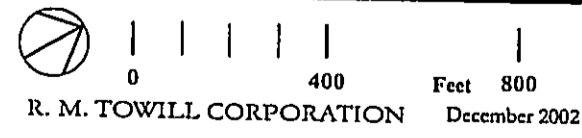


FIGURE 3-8
 EXISTING TOPOGRAPHY
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



3.4.1 SURFACE WATER SOURCES

Three sources of surface water affect WGSF: precipitation (rainfall); surface run-off, which affects generation of leachate; and potable water used for sanitary landfill operations.

1. Precipitation at the project site reflects extremely arid conditions, with maximum annual rainfall of approximately 20 inches.
2. Approximately 80% of the surface water runoff comes from areas upstream of the landfill (Questa Engineering, 2001). Therefore, surface water flow patterns will remain similar with or without the 14.9-acre expansion area (GeoSyntec, 2002).
3. The sanitary landfill process requires some water sprinkling to control fugitive dust, and for compacting and daily placement of intermediate cover on waste materials.

3.4.2 SURFACE WATER DRAINAGE FACILITIES

The existing surface drainage system accommodates runoff from areas upslope as well as within the project site. The drainage system directs offsite runoff around the landfill by use of proper slope and grading on the landfill surface. The surface drainage control system is designed for a 25-year recurring storm event with a one-hour rainfall intensity. An on-site silt basin with major hydraulic structures is designed for rainfall runoff resulting from a peak discharge over a 622-acre drainage area with a 100-year probable storm recurrence interval.

Currently, a concrete drainage channel captures this water runoff and directs the flow around the western perimeter of the landfill. The concrete channel directs the flow into a sedimentation pond near the entrance to the facility. Flow from the sedimentation pond drains through three large culverts beneath the highway and eventually discharges into the ocean. Surface water runoff from the western rock slopes surrounding the landfill is currently directed into the concrete channel. Surface water runoff from the eastern rock slopes is directed into a drainage ditch along the edge of the eastern perimeter access road (GeoSyntec, 2002). Other drainage features include diversion ditches located along the eastern perimeter access road, temporary culverts, and berms. All drainage

facilities have been designed and constructed to efficiently manage surface water run-off and to minimize surface water run-on to the refuse area.

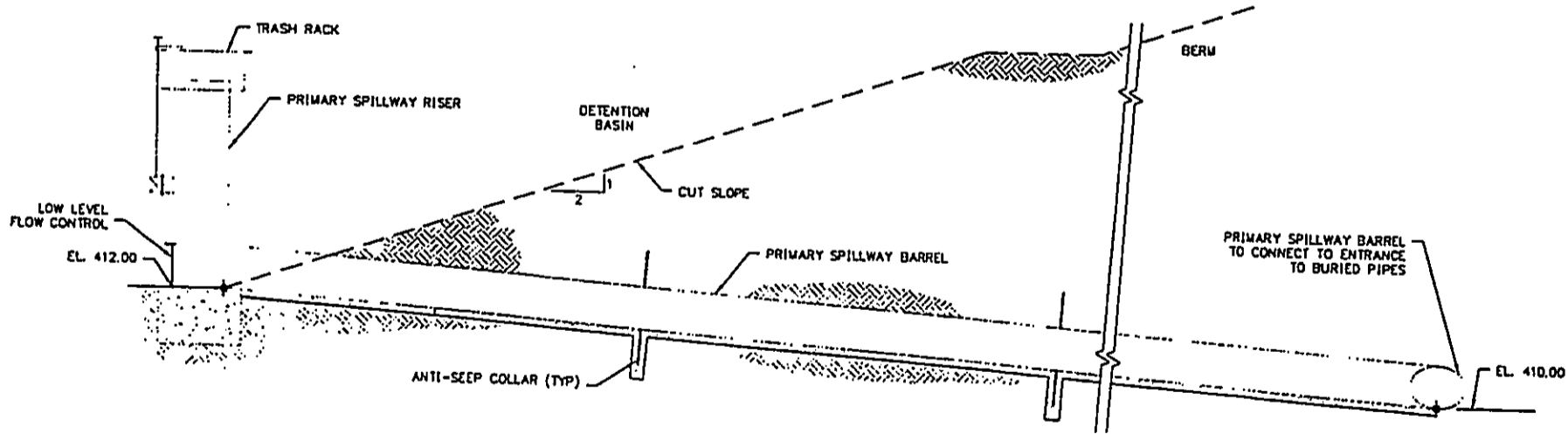
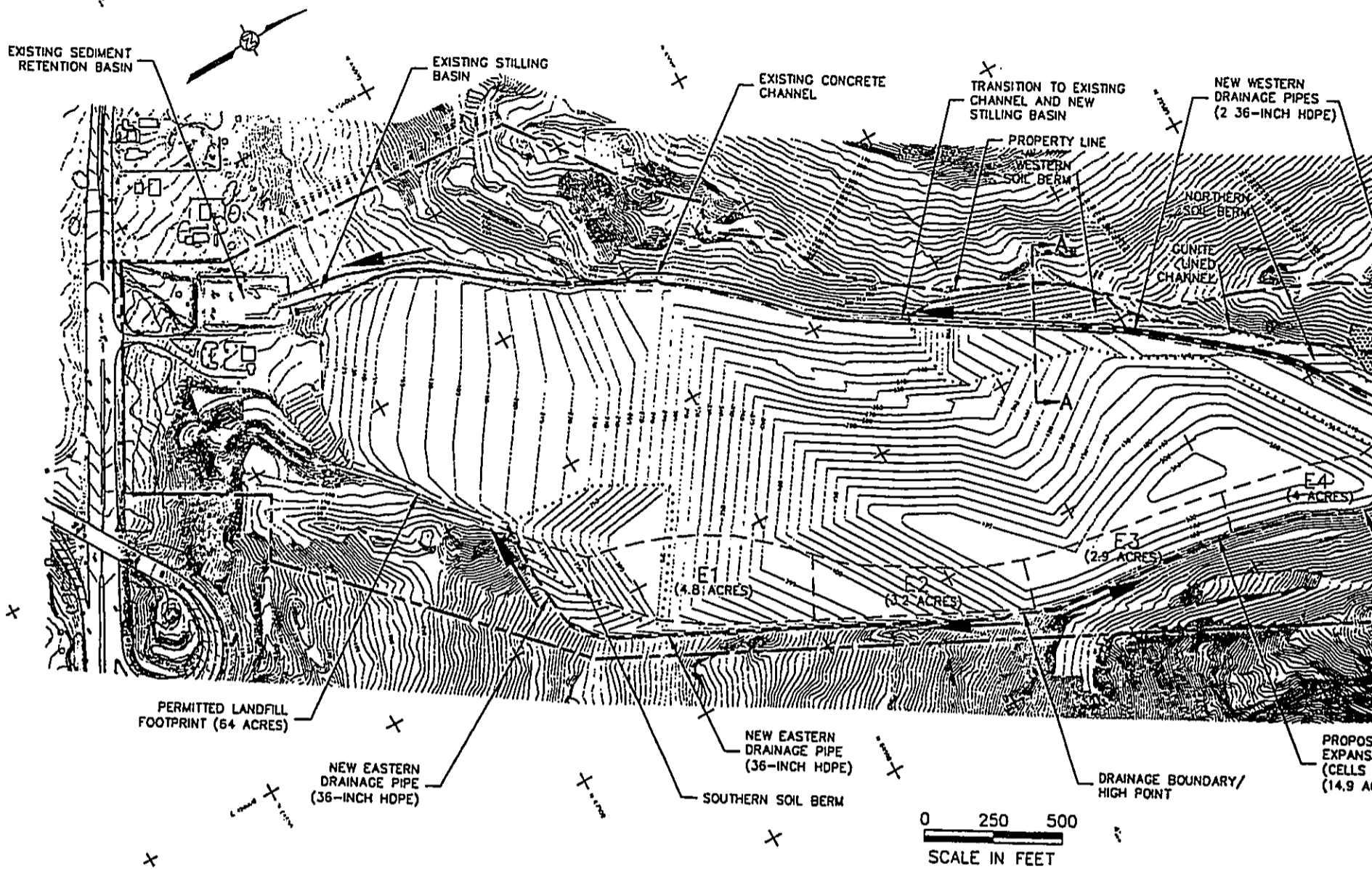
3.4.3 IMPACTS AND MITIGATION

The expansion area will be used only for MSW, i.e., it will not be used for disposal of ash fill. The final design of all drainage structures will meet the requirements of the City and County of Honolulu Storm Drainage Standards and will be completed after approval of the 14.9-acre expansion is obtained.

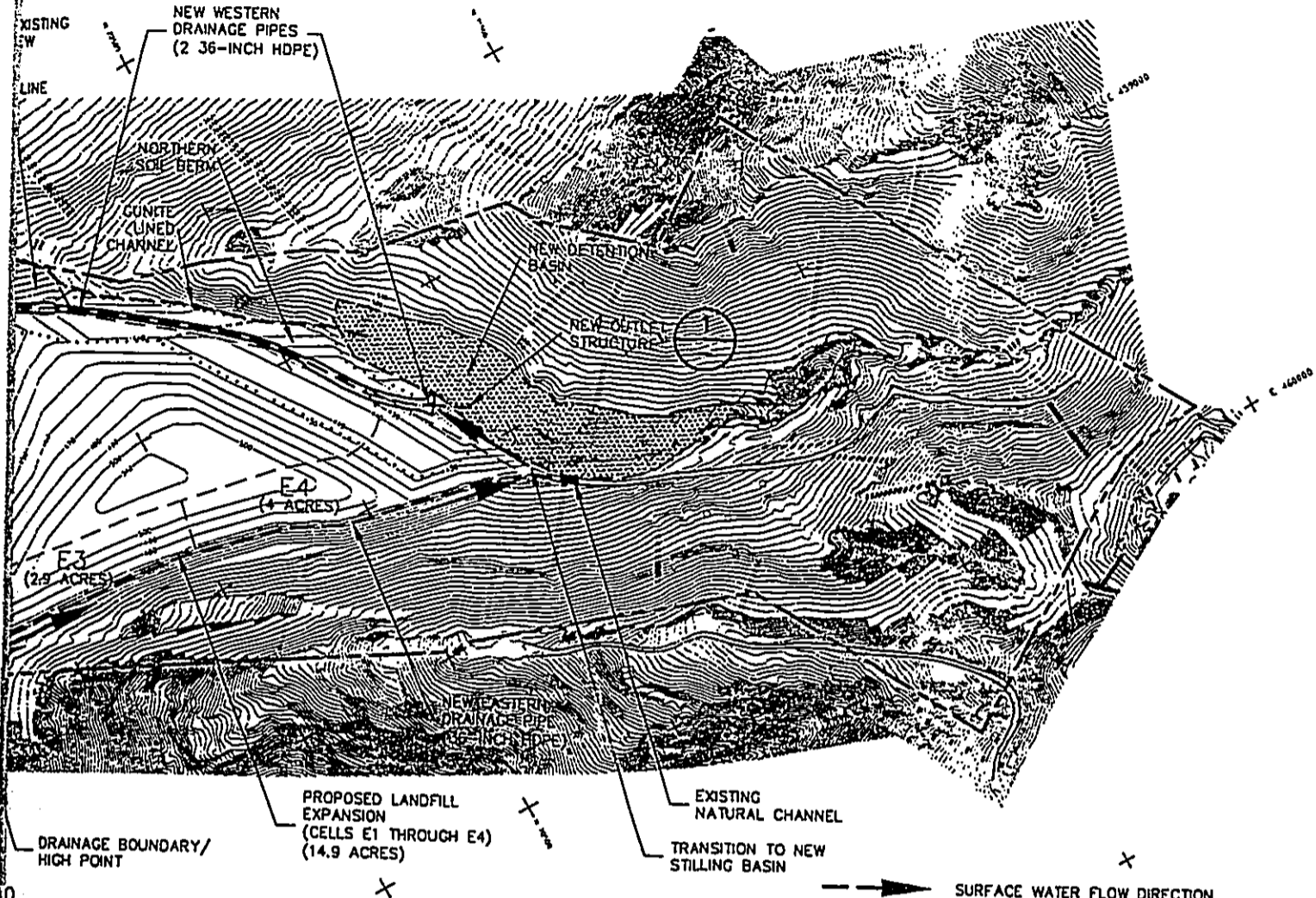
Since approximately 80% of the surface water runoff comes from areas upstream of the landfill, the total flow will essentially remain unchanged despite the expansion. Also, the surface water flow patterns will remain similar (Questa Engineering, 2001). To size the proposed surface water drainage structures for the expansion area, consultants evaluated the surface water regime with the expansion grades and followed City and County of Honolulu Drainage Standards (dated January 2000). Three different drainage areas were labeled as the central, eastern, and western drainages. See Figure 3-9.

The following drainage features are planned to accommodate surface water flows in the 14.9-acre expansion area. Details of the various drainage structures for the 14.9-acre expansion area will be sized during the final design stage.

- The expansion requires constructing a soil stabilization buttress along the western and northern perimeter of the landfill. The stabilization buttress will cover a portion of the existing western drainage channel. The landfill will require soil for the construction of various berms to maintain slope stability. Therefore, if the size of the detention basin is increased for additional capacity, excavated material from the detention basin will be used to construct the berms. If required, imported clean fill will be used.

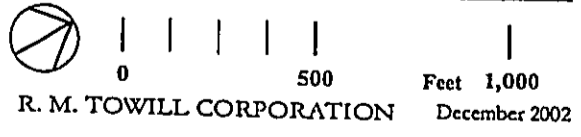


TYPICAL OUTLET STRUCTURE



- NOTES:
1. SEE FIGURE 9 FOR SECTION A-A.
 2. SIZING OF ALL SURFACE WATER CONTROL FACILITIES WILL BE FINALIZED WHEN CONSTRUCTION DRAWINGS ARE PREPARED.

FIGURE 3-9
 WATER MANAGEMENT PLAN
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



- To manage the surface runoff from upstream of the landfill, which constitutes the majority of the western drainage flows, (a) a detention basin will be constructed upstream of the landfill, (b) two new 36-inch diameter HDPE (high density polyethylene) pipes will be laid along the covered portion of the existing western drainage channel, and (c) a stilling basin will be constructed where the HDPE pipes directly flow into the remaining portion of the western drainage channel. This system will convey the upstream runoff beneath the western soil berm and into the existing sedimentation basin and allow the continued utilization of a portion of the existing concrete channel. In addition, the construction of this proposed drainage system will eliminate the need to constantly re-align and move the drainage structures as the soil buttress is constructed.
- The upstream detention basin will be constructed by excavating into the rock in the general location to a depth of approximately 30 feet.
- Figure 3-9 also shows the typical outlet structure proposed for the upstream detention basin. This typical outlet structure will control the water flowing into the pipes. The detention basin is sized assuming a flow of 1,700 cubic feet per second; the resulting detention basin will have a capacity of at least 142 acre-feet. Final design of the detention basin features will be completed once approval for the landfill expansion has been granted. In the final design stage, any changes in flow patterns and quantities will be accommodated by appropriately sizing the detention basin.
- Figure 3-10 shows a cross section depicting the location of the proposed western drainage pipes with respect to the waste area and the soil berm. The drainage features include the upstream detention basin, the pipes, and the stilling basin located where the pipes drain into the remaining concrete channel.
- The central drainage will continue to collect runoff with temporary drainage structures from terraces and sub-basins in the center of the landfill. All flow from the central drainage system will continue to be directed toward the remaining western concrete drainage channel.
- The eastern drainage will continue to be directed to perimeter 36-inch diameter HDPE pipes. Catch basins or drainage inlets along the eastern perimeter of the site will direct runoff into the pipes.

- Excavation of the expansion cells will require the construction of a series of temporary drainage ditches and/or pipes to capture runoff from the exposed slopes. As the cells are developed, temporary drainage ditches/pipes will direct the surface water runoff to the existing facilities.
- A drainage ditch proposed along the toe of the western and northern buttresses will also act as an emergency (overflow) spillway and will eventually discharge into the downstream concrete channel. (GeoSyntec, 2002).

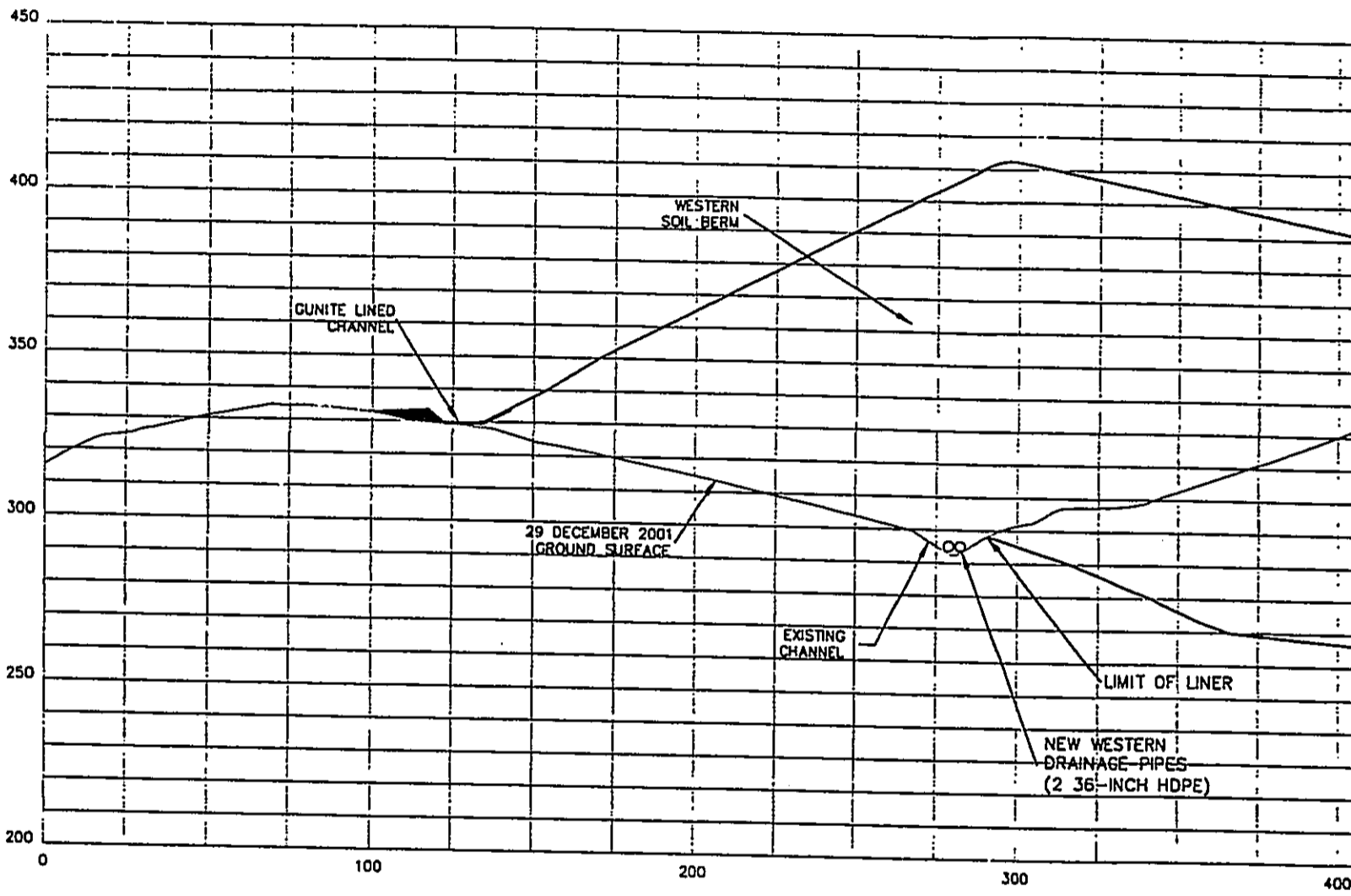
3.5 GROUNDWATER

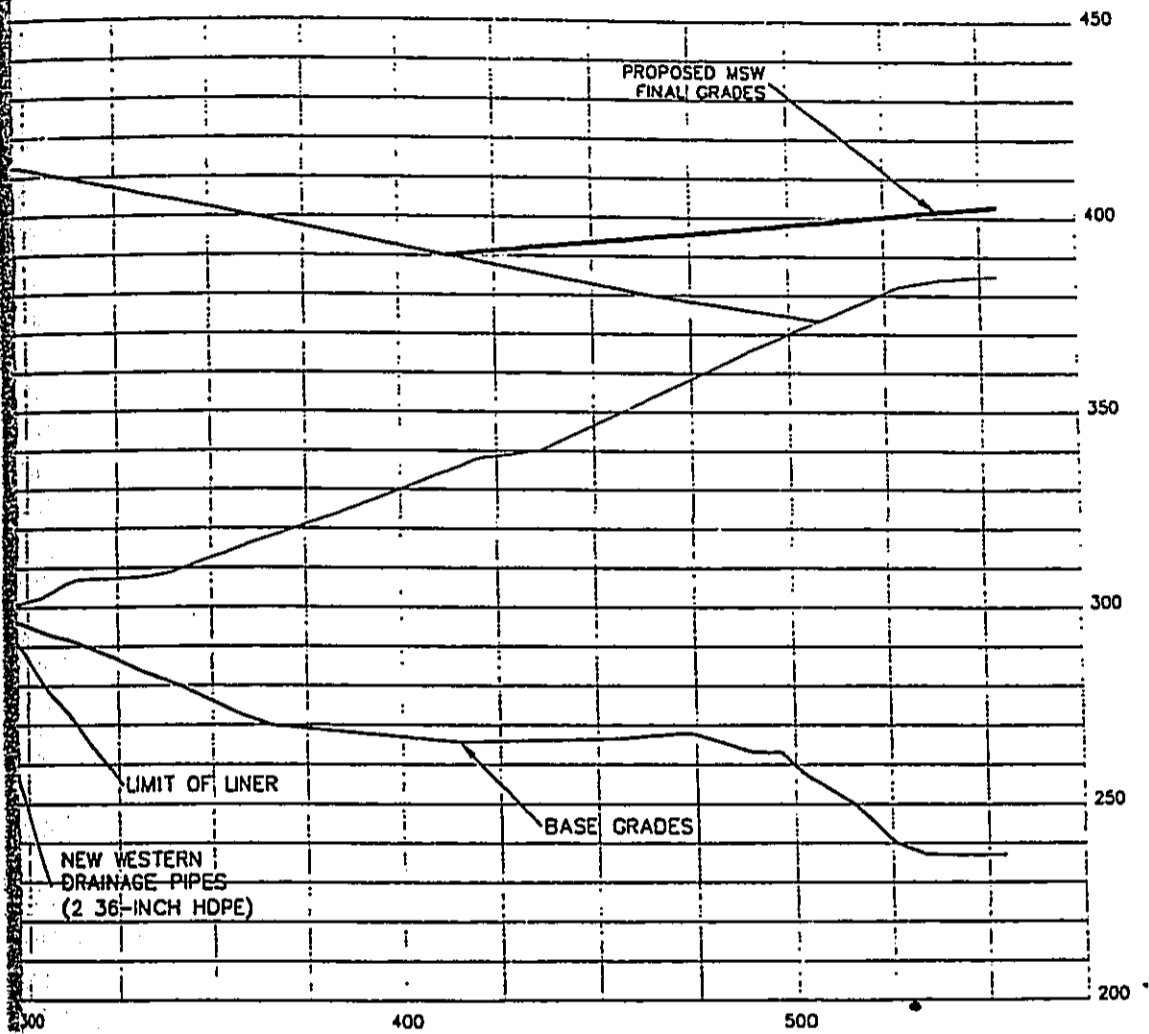
3.5.1 REGIONAL GROUNDWATER HYDROGEOLOGY

The principal groundwater reservoir in the southeastern portion of the Waianae Range is the middle and lower members of the Waianae Volcanic Series (Takasaki, 1971). The volcanic aquifers are recharged by infiltration of rainfall and surface runoff originating in the Waianae and Koolau Ranges (Rust, 1997). (See Figure 3-1)

Flows of the upper member of the Waianae Volcanic Series are largely above the water table and contain only a small perennial supply (Takasaki, 1971). The groundwater reservoir in the volcanic aquifer is large, extending from a few feet near the coast to more than 1,800 feet in elevation near the crest of the Waianae Range (Takasaki, 1971). Volcanic aquifer permeabilities are generally very high, but are variable due mostly to the presence of dikes and breccia deposits. Groundwater gradients in the southern Waianae Range have been shown to be step-like rather than smooth due to the presence of dikes that act as dams to groundwater flow (Takasaki, 1971; Hufen and others, 1980).

The quality of groundwater in the volcanic aquifers is generally good, except where proximity to the ocean produces high salinity (Takasaki, 1971). Other sources of lower-quality groundwater include leaching of hydrothermally-altered volcanic rocks in the central vent area and of carbonate rocks, i.e., caprock, above or adjacent to the volcanic aquifer (Takasaki, 1971).

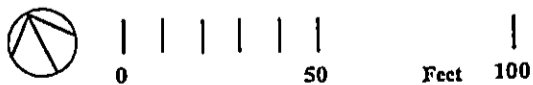




NOTE:

1. SEE FIGURE 8 FOR LOCATION OF SECTION A-A.

FIGURE 3-10
 WESTERN DRAINAGE - SECTION
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

3.5.2 SITE GROUNDWATER HYDROGEOLOGY

Groundwater generally flows from inland areas outward toward the coast. In the vicinity of the existing WGS�, this general groundwater flow direction is altered by caprock, a variably-thick cap of calcareous and non-calcareous sedimentary lithology that overlies the volcanics along much of the coastal portions of Oahu. The caprock acts as a no-flow boundary to groundwater occurring in adjacent basaltic rock, and the typical Ghyben-Herzberg lens¹ is altered by increasing the thickness of basal groundwater in areas of sufficient recharge (Hufen and others, 1980). This caprock is effective at preventing the free discharge of groundwater to the ocean, and causes a diversion of groundwater flow parallel to the coastline in the southwestern portion of the island. That is, because of the caprock, the groundwater flows generally to the west rather than to the south into the ocean (Rust, 1997).

The caprock unit trending east-west in this area deflects southward-flowing groundwater within the fractured basalt to the west. The groundwater beneath the WGS� is ultimately discharged to the ocean near Kahe Point, where the caprock is absent (Waste Management of Hawaii, Inc., 1998). Complicating the groundwater situation are the near-vertical dikes trending diagonally across Waimanalo Gulch about midway up the WGS� property. The dikes produce a damming effect on the local groundwater table, offsetting water levels on either side by about 10 feet (Figure 3-2) (Rust, 1997).

Salinity measurements of ocean water along this stretch of coastline performed by the U. S. Geological Survey and TNWRE² in 1991 confirm that dramatic basal groundwater discharge is occurring at this location. This information, along with the established westward groundwater flow occurring in this portion of the island, plays an important role in the location of WGS� groundwater monitoring wells (Rust, 1997).

¹Basal groundwater in regional aquifers on Oahu occurs similarly to the so-called Ghyben-Herzberg lens, where the groundwater floats on and displaces sea water in a lens-like configuration (Hufen and others, 1980). The fresh water lens generally thins towards the edges of the island (at sea level), and is thickest at the center of the island (Harding ESE, 2001).

²Tom Nance Water Resource Engineering

Data from site groundwater monitoring wells confirmed that, on the western side of the dikes (i.e., in the 3 to 4-foot head aquifer, down-gradient of the WGSL), groundwater is moving toward the vicinity of Kahe Park west of the landfill. This local groundwater flow direction roughly coincides with the regional groundwater flow direction that exists to the east of the dikes in the 14-foot head aquifer (TNWRE, December 5, 1991), and also supports the conclusions of the geochemistry study (Rust, 1997).

3.5.3 WGSL SITE IN RELATION TO PROTECTED GROUNDWATER AREAS

Groundwater found below and surrounding the WGSL is not designated as a groundwater recharge area by the City and County of Honolulu Board of Water Supply. **Figure 3-11, BWS Groundwater Protection Zones**, indicates areas with brackish water supply and additional areas identified by BWS which may be acceptable for sanitary landfill development.

Prior to 1987, groundwater recharge areas for Oahu were identified by BWS. Since 1987, DOH has administered the No Pass Program. The 14.9-acre expansion area and adjacent existing sanitary landfill facility are outside the groundwater recharge zone, in the area designated as "Pass Zone." The Pass Zone is an area where sanitary landfills and shallow waste disposal systems are generally permitted. (The areas designated as "No Pass Zone" are areas where sanitary landfills and waste disposal systems are not permitted.)

The proposed 14.9-acre expansion is also consistent with the State Department of Health (DOH), Underground Injection Control (UIC) program which was established in 1984. Rules for the UIC program are promulgated in Hawaii Administrative Rules (HAR), Chapter 11-23. The purpose of the program is to protect the State's potable groundwater resources from pollution by subsurface wastewater disposal. The program regulations are accompanied by UIC maps which demarcate a WGSL boundary line known as the "UIC Line." Lands that are makai of this line are not restricted from subsurface wastewater disposal by underground injection (**Figure 3-12, UIC Line**).

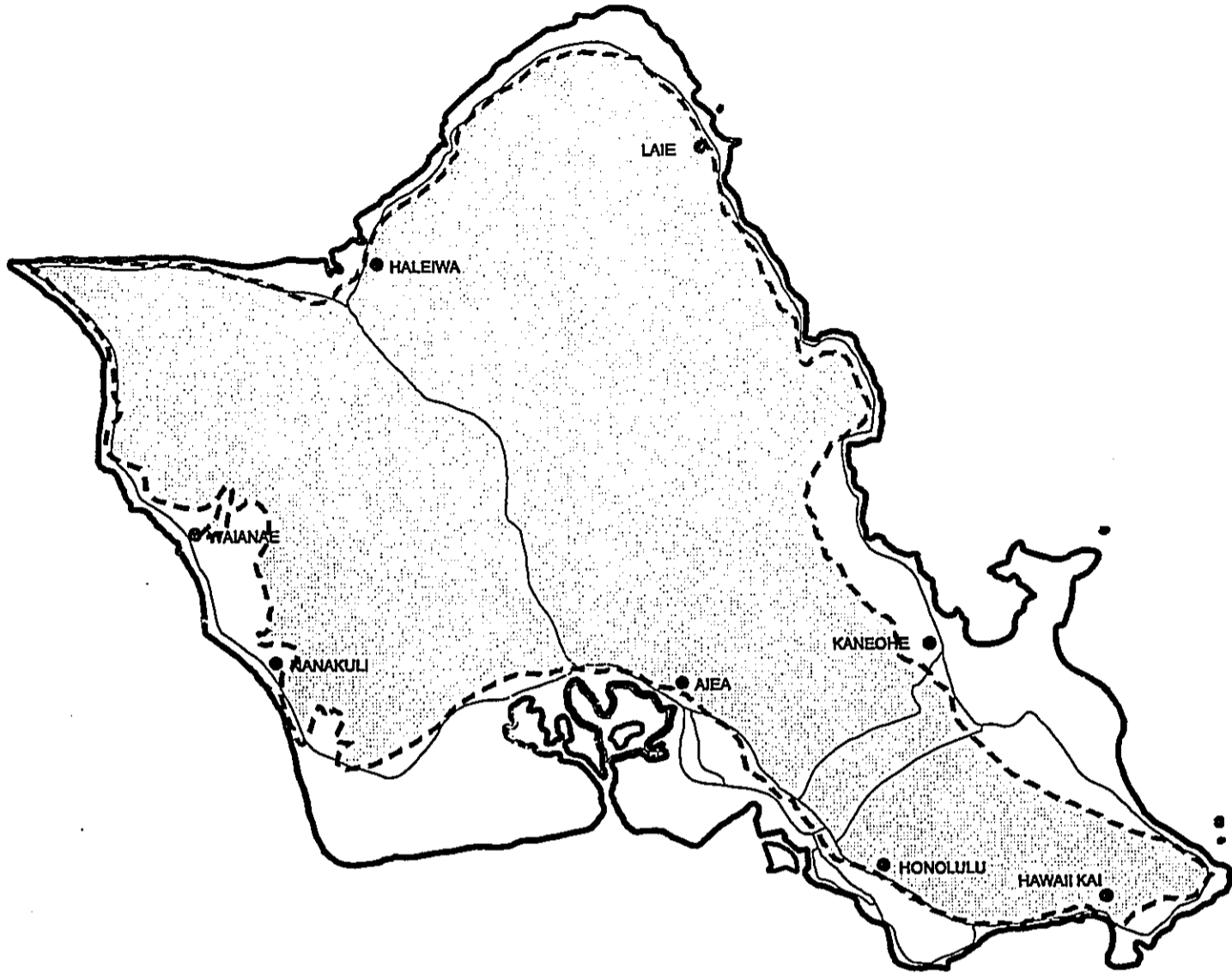


FIGURE 3-11
 BWS GROUNDWATER
 PROTECTION ZONES
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



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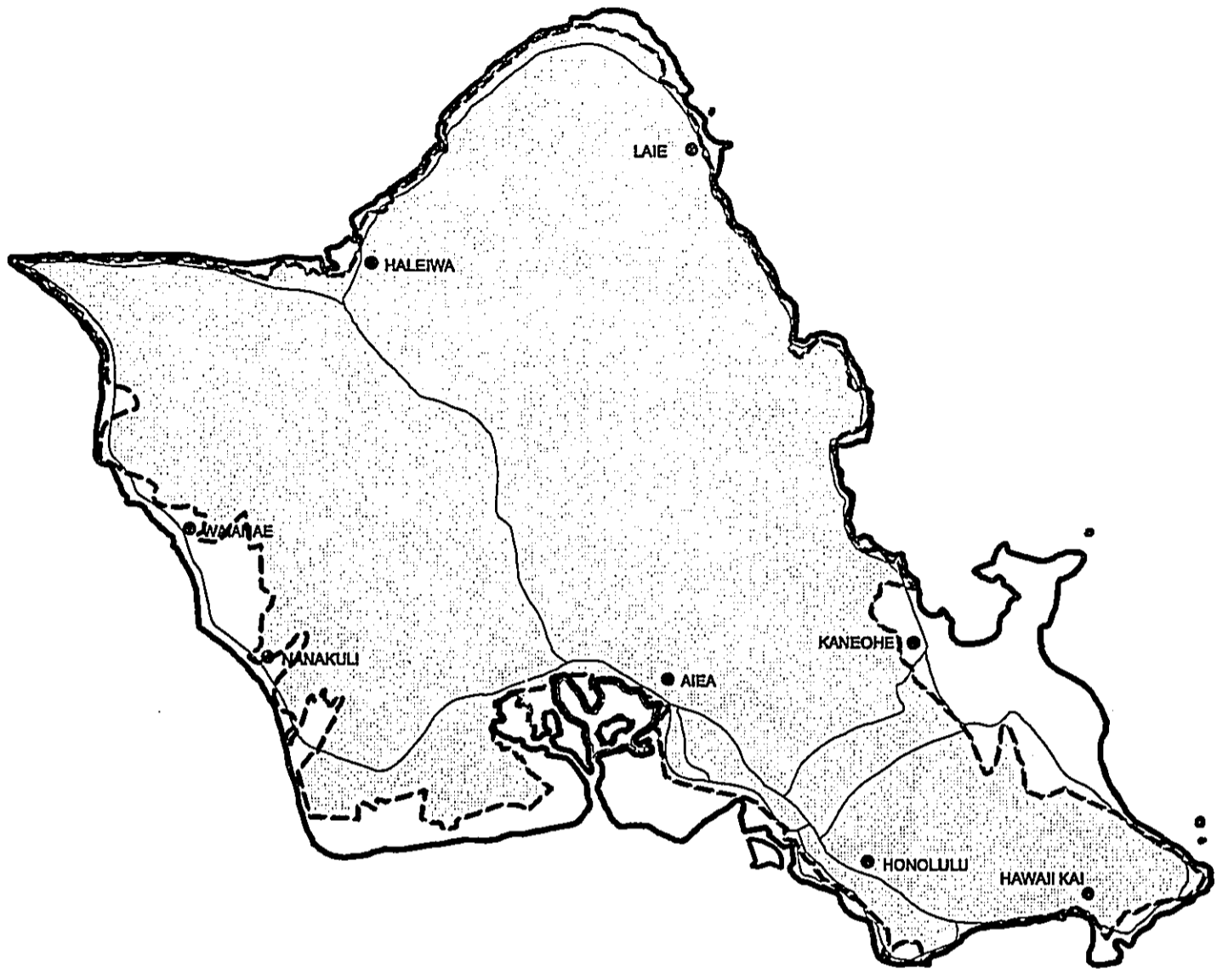
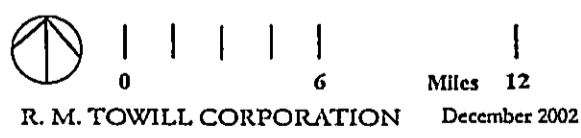


FIGURE 3-12
 UIC LINE
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



3.5.4 GROUNDWATER AND LEACHATE MONITORING PLAN

The site's Groundwater and Leachate Monitoring Plan for Waimanalo Gulch Sanitary Landfill, Ewa Beach, Oahu, Hawaii ("Monitoring Plan") was first prepared in accordance with Special Condition II of WGSL's Solid Waste Facility Permit (Permit No. LF0063-93, Appendix A) issued on June 28, 1993 by DOH, Environmental Management Division. The DOH facility permit required implementation of the Monitoring Plan by October 9, 1996, which was accomplished. The Monitoring Plan was revised in 1997 by Rust Environmental and Infrastructure ("Rust"), for the use of WGSL operator Waste Management of Hawaii, Inc. The Monitoring Plan meets the groundwater monitoring and corrective action requirements of the HAR Chapter 11-58.1, Subchapter 2, Subsection 16 (Appendix B).

Monitoring of groundwater and leachate was performed by regional support staff of Waste Management of Hawaii, Inc. until mid-1998. At the request of DOH Clean Water Branch, the WGSL operator began using independent consultants to perform groundwater and leachate monitoring as of the second semi-annual reporting period of 1998.

Implementation of the Monitoring Plan continues to be the principal means of measuring the quality of water and any effects the sanitary landfill site could have on groundwater in the vicinity of the site. Included in the Monitoring Plan are:

- (1) Site Groundwater Monitoring;
- (2) Site Leachate Monitoring;
- (3) Monitoring Constituents;
- (4) Sampling and Analysis Procedures; and
- (5) Monitoring and Reporting Schedule.

These components of the Monitoring Plan, and their implementation at the WGSL, are discussed in sections (1) - (5) below.

(1) Site Groundwater Monitoring

WGSL uses four groundwater wells for routine monitoring (Figure 3-13 and Table 3-1) that range from 50 to 217 feet bgs (below ground surface) and are constructed of 2-inch diameter PVC well materials, with appropriate seals and filter packs.

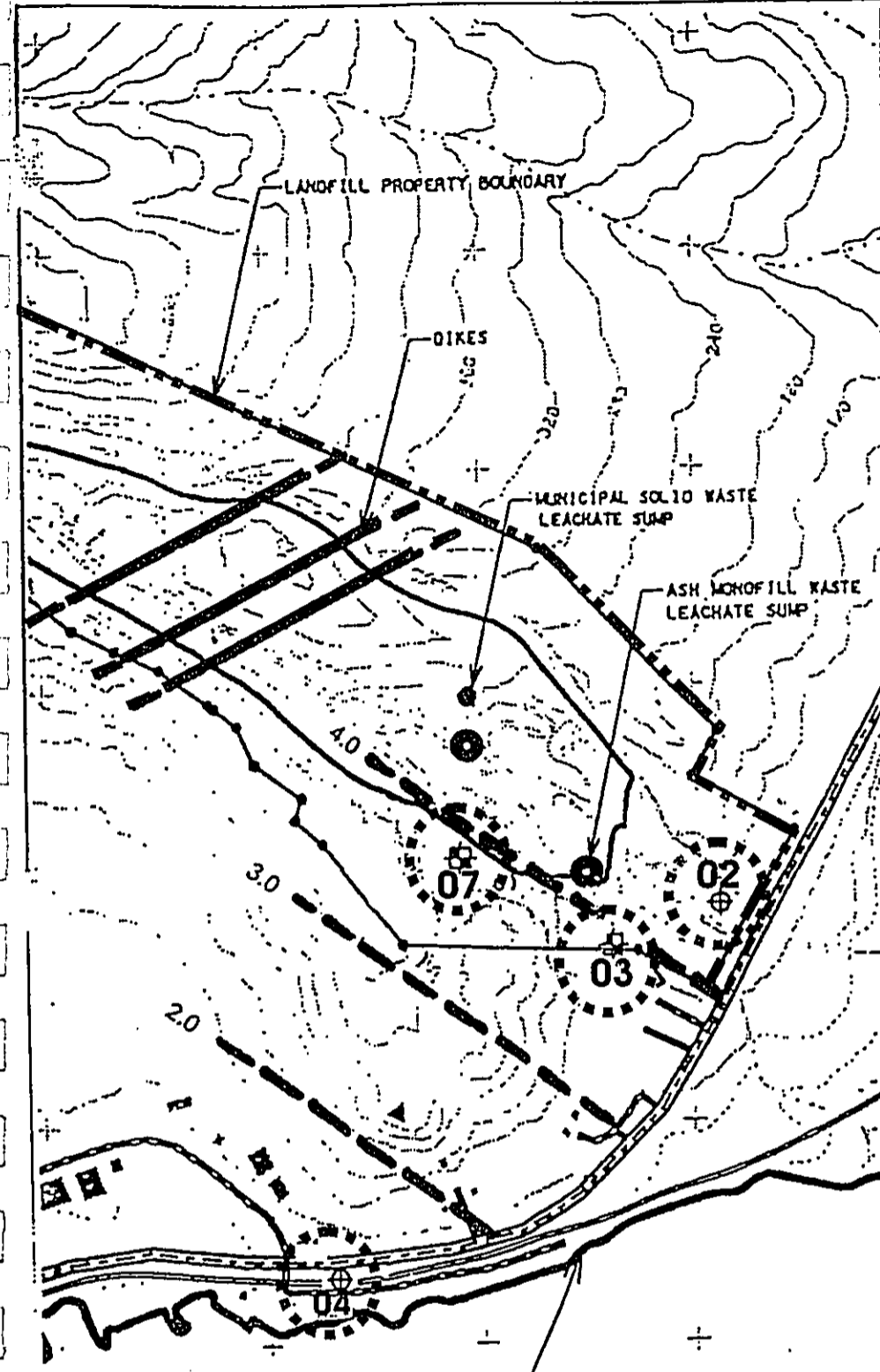
- Well 02M is located cross (side)-gradient of the ash fill unit, near the facility entrance. It is the closest of the site's monitoring wells to the cap rock, located very near the caprock's inferred northern boundary (Harding ESE, 2002).
- Wells 03M and 07 are located along the northwestern margin of the facility, approximately 500 feet and 1,200 feet from the cap rock, respectively (Waste Management of Hawaii, Inc., 1998). These detection wells are down-gradient of the ash fill and solid waste leachate pumps, respectively (Earth Tech, 1999).
- Well 04M is an offsite well located at Kahe Point approximately 1,600 feet northwest of the WGSL. This well was installed within about 100 feet of the Pacific Ocean along a portion of the coastline where the caprock is absent (Waste Management of Hawaii, Inc., 1998).

As required by the governing permits, the WGSL operator is responsible for maintaining the integrity of each groundwater monitoring well. The conditions of each well and its surrounding area are observed periodically and recorded on the Field Information Form by the groundwater sampling team upon their arrival at a well station.

TABLE 3-1
Groundwater Monitoring Well Network
Waimanalo Gulch Sanitary Landfill

Detection Monitoring Well	Elevation of Top of Well Casing (In feet above msl)	Comments
02M	73.82	Monitoring well cross-gradient of ash fill used for groundwater elevation semi-annually and detection monitoring annually.
03M	77.14	Detection monitoring well down-gradient of the ash fill.
04M	25.26	Off-site monitoring well used for groundwater elevation only.
07	202.38	Detection monitoring well down-gradient of MSW leachate pumps.

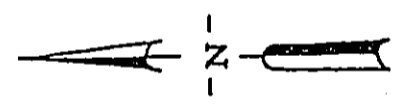
Source: Harding ESE, 2002



LEGEND

	40		INTERMITTENT STREAMS
	10		40 FT. INTERNAL TOPOGRAPHIC CONTOUR
			10 FT. INTERNAL TOPOGRAPHIC CONTOUR
			DIRT ROAD
			PAVED ROAD
			RAILROAD TRACKS
			LANDFILL FOOTPRINT
			LANDFILL PROPERTY BOUNDARY
			INTERMITTENT STREAMS
			EXISTING LEACHATE SUMP LOCATION
			EXISTING GROUNDWATER MONITORING WELL LOCATION AND NUMBER
	2.0		GROUNDWATER ELEVATION CONTOURS (FT MSL)
			DIKE

REFERENCE: WASTE MANAGEMENT INC.
 SEPT. 6, 1995, "GROUNDWATER MONITORING
 REPORT - SECOND QUARTER 1995 SAMPLING
 EVENT"



PACIFIC OCEAN SHORELINE

+ # 70,000 + # 69,000 + # 68,000 + # 67,000
 + + + +

FIGURE 3-13
GROUNDWATER MONITORING
WELLS
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii

NO SCALE

(2) Site Leachate Monitoring

Water is introduced into a sanitary landfill by infiltration. When the net water infiltration exceeds the absorptive and/or retentive ability of the refuse, leachate is produced. The amount of leachate, which contains organic and inorganic matter in suspended and dissolved form, is dependent upon the amount of excess water. Federal and State regulations prohibit the accumulation and/or storage of leachate within a landfill. Subtitle D regulations require that leachate not be allowed to accumulate on the landfill base liner to a depth of more than 12 inches, not including that contained in collection sumps.

Dual, independent collection and monitoring systems are employed to control the generation of leachate from both the ash fill and MSW sections of the existing landfill. The MSW unit includes a leachate collection and removal system and a sump within cell 4B (Rust, 1997). The leachate collection and removal system includes the drainage layer within the liner system of the landfill cells, supplemented by perforated 6-inch diameter PVC (polyvinyl chloride) pipe. The landfill liner system is designed in accordance with Environmental Protection Agency (EPA) requirements for the two sources of wastes, ash fill and MSW. The existing liner system will be applied to management and monitoring of the proposed landfill expansion area.

- The liner system is comprised of approximately 6 to 12 inches of compacted clay overlain with a geosynthetic clay and HDPE (high density polyethylene) liner. The HDPE liner thickness is 60 mils.
- A synthetic geotextile is then placed directly on the HDPE liner and 12 inches of granular drainage media (gravel) is placed atop to provide drainage in the event of generation of leachate. (Rust, 1997).

The MSW leachate collection system consists of a 6-inch diameter, schedule 80 perforated PVC pipe placed in a 2 feet deep x 1 foot wide graded trench, bedded with a specified drain rock. The design of the trench includes placement of non-woven geotextile fabric to maintain separation between the drainage system meters and the drain rock. A system similar to the existing leachate MSW collection system will be applied to the proposed landfill expansion area (Rust, 1997).

Monitoring of leachate sump for the MSW area is performed manually through the use of a steel tape which is lowered down the leachate extraction riser. If liquids are detected at any time during the monthly checks, monitoring frequency is increased to weekly until it is determined that liquid levels stabilized or evacuation of liquids is required. Generally, liquids extraction will take place when more than approximately three feet of depth is noted within the sump. This allows for approximately 1 foot of additional capacity within the sump before liquids would begin to accumulate on the liner (4-foot total sump depth). Any liquids extracted are re-circulated within the landfill at the active face. To date no leachate/liquids have accumulated within the MSW sump to a depth requiring extraction (Rust, 1997).

In the ash fill section, the bottom of the leachate sump/manhole is located several feet below the outlet of the leachate collection pipe. This pipe drains into the sump, allowing for significant accumulation within the sump delaying any backup of liquids onto the liner (Rust, 1997).

The ash fill leachate sump is also monitored monthly, as well as following significant rainfall events, by lowering a steel tape to the bottom and checking liquid level. Leachate monitoring and sump evacuation procedures for the ash fill are similar to MSW landfill. In the existing operating area of the ash landfill, a manhole serves as the leachate collection system sump (ash cell 1). During the operational history of the landfill, the ash fill sump has accumulated leachate only after significant rainfall events. When encountered, the leachate is pumped from the manhole and reintroduced into the active ash fill face (Rust, 1997).

(3) Monitoring Constituents

HAR, Chapter 11-58.1, subsection 16 (d)(1) describes the required monitoring parameters for detection monitoring programs at municipal solid waste landfills. Specifically, this section requires that each facility monitor for all Appendix I parameters (defined as all those parameters listed in Appendix I to 40 CFR, Part 258), unless an alternate list of monitoring parameters is approved by the State Department of Health.

Monitored constituents fall into several categories. The Appendix I list contains 47 volatile organic compounds (VOCs) to be used as organic "indicator parameters" and 15 trace metals to be used as

inorganic "indicator parameters." Indicator parameters generally provide the earliest indication of a leachate release from a sanitary landfill unit. Reportable levels are based on State of Hawaii parameters for safe drinking water.

- *Volatile Organic Compounds (VOCs)*. The performance of VOCs as indicator parameters for sanitary landfills is widely recognized. VOCs fulfill the most important characteristics of ideal indicator parameters. VOCs:
 - (1) Are relatively mobile in groundwater systems;
 - (2) Are relatively persistent in groundwater systems;
 - (3) Are analytically sensitive (i.e., they can be detected at relatively low concentrations);
 - (4) Are common constituents of MSWLF leachate; and
 - (5) Provide a clear contrast between leachate and non-leachate impacted groundwater, due to their absence in natural groundwater.
- *Trace Metals*. The use of trace metals as inorganic indicator parameters is generally suspect for sanitary landfill units. A list of trace metals tested for is included in each semi-annual groundwater monitoring and leachate monitoring report.
(Rust, 1997)

(4) Water Quality and Leachate Sampling and Analysis Procedures

All water quality and leachate monitoring wells are appropriately purged prior to collection of samples. Samples are preserved immediately after collection. An independent laboratory is used for groundwater and leachate analyses conducted for WGSL. Analytical data is maintained by the laboratory indefinitely.

Groundwater monitoring reports must be filed within 90 days of the water quality sampling events, and are filed at the project site. In the event of a verified, statistically significant increase over background concentration in one or more of the modified Appendix I constituents list, the WGSL operator implements provisions of HAR, Chapter 11-58.1. This includes notifying the State of the statistically significant change within 14 days of such a finding, and evaluating of the cause of the statistically significant change within 90 days of such a finding. If the evaluation successfully demonstrates that the statistically significant change is not related to a release, then detection

monitoring is resumed. If, however, the evaluation indicates that a release has occurred, an assessment monitoring program is implemented in accordance with Chapter 11-58.1 (Rust, 1997).

(5) Monitoring and Reporting Schedule

Detection monitoring at WGSL is performed semiannually in accordance with HAR, Chapter 11-58.1. The semiannual monitoring and reporting periods are as follows.

- The first semiannual monitoring period is January 1 through June 30 of each monitoring year. Sampling generally occurs in the latter half of the monitoring period (i.e., April - June).
- The second semiannual monitoring period is July 1 through December 31 of each monitoring year. Sampling occurs in the latter half of the monitoring period (i.e., October - December) (Rust, 1997).

3.5.5 GROUNDWATER AND LEACHATE MONITORING RESULTS, 1996-2002

Results of water quality monitoring reports have indicated that practices and procedures associated with operations of the existing landfill have been sufficient to ensure non-contamination of the underlying non-potable groundwater. Records of monitoring analysis and results, on file at the WGSL per DOH regulations, provided the basis for a summary of water quality and leachate monitoring results from 1996-2001 (Table 3-2). During this period, water quality standards were at no time exceeded.

3.5.6 IMPACTS AND MITIGATION MEASURES

The proposed expansion area will incorporate and include expansion of the existing surface drainage control system in accordance with applicable Federal, State, and City and County of Honolulu regulations governing development and operation of a sanitary landfill facility. Potential for leachate migration into adjacent lands and non-potable groundwater zones will be controlled by use of four preventive measures, which are already incorporated in the existing landfill site: (1) a surface drainage system, (2) landfill liner system, (3) a leachate collection system, and (4) final cover and grades. The following design considerations have been recommended for the 14.9-acre expansion area:

TABLE 3-2
Semi-Annual Groundwater and Leachate Monitoring Results Summary, 1996-2001
Waimanalo Gulch Sanitary Landfill

Monitoring Period	Date of Report	Monitoring Contractor	VOC or Semi-VOC Found?	Any Exceedance of Drinking Water ¹ Standards or Other Evidence of Leachate Impacts to Groundwater?	Inconsistent with Previous Groundwater Monitoring Results?	Inconsistent with Previous Leachate Monitoring Results?
Second Semi-Annual 1996 (Groundwater)	2/4/97	Waste Mgmt. of Hawaii, Inc.	No	No	No	N/A (Groundwater only)
First Semi-Annual 1997 (Groundwater)	7/14/97	Waste Mgmt. of Hawaii, Inc.	No	No	No	N/A (Groundwater only)
Second Semi-Annual 1997 (Groundwater)	2/27/98	Waste Mgmt. of Hawaii, Inc.	No	No	No	N/A (Groundwater only)
First Semi-Annual 1998 (Groundwater)	10/14/98 (addendum)	Waste Mgmt. of Hawaii, Inc.	No	No (after resampling of monitoring well 03M)	No	N/A (Groundwater only)
First Semi-Annual 1998 (Leachate)	9/27/98	Waste Management Hydrogeology Group	No	No (after resampling of monitoring well 03M)	N/A (Leachate only)	No
Second Semi-Annual 1998 (Groundwater)	3/31/99	Earth Tech	No	No	No	N/A (Groundwater only)
Second Semi-Annual 1998 (Leachate)	3/12/98	Earth Tech	No	Yes - barium and total cyanide was found just above the reporting limit	N/A (Leachate only)	No
First Semi-Annual 1999 (Groundwater)	9/16/99	Harding Lawson Associates	No	No (returned to acceptable limits)	No	N/A (Groundwater only)
Second Semi-Annual 1999 (Groundwater)	3/27/00	Harding Lawson Associates	No	No	No	N/A (Groundwater only)
First Semi-Annual 2000 (Groundwater)	10/30/00	Harding ESE	No	No	No	N/A (Groundwater only)

Monitoring Period	Date of Report	Monitoring Contractor	VOC or Semi-VOC Found?	Any Exceedance of Drinking Water ¹ Standards or Other Evidence of Leachate Impacts to Groundwater?	Inconsistent with Previous Groundwater Monitoring Results?	Inconsistent with Previous Leachate Monitoring Results?
Second Semi-Annual 2000 (Groundwater)	3/8/01	Harding ESE	No	No	No	N/A (Groundwater only)
Second Semi-Annual 2000 (Leachate)	3/8/01	Harding ESE	No	No	N/A (Leachate only)	No
First Semi-Annual 2001 (Groundwater)	10/8/01	Harding ESE	No	No	No	N/A (Groundwater only)
Second Semi-Annual 2001 (Groundwater)	2/25/02	Harding ESE	No	No	No	N/A (Groundwater only)
Second Semi-Annual 2001 (Leachate)	2/25/02	Harding ESE	No	No	N/A (Leachate only)	No

¹Hawaii State and Federal (Title 40 CFR, Part 256) Maximum Contaminant Levels

- The daily and intermediate cover at the WGSL minimizes infiltration from direct precipitation and runoff and decreases the potential for leachate generation. Portions of the intermediate cover can be scraped back and stockpiled for reuse when filling is to proceed over the same area. This prevents generation of landfill-associated leachate and gas, and maintains the soil cover balance. This practice current will be extended to the proposed 14.9-acre expansion site.
- The final cover and grades for the 14.9-acre expansion will be designed to minimize infiltration of rainfall and minimize run-on of rainfall into the landfill. The final cover will consist of a minimum of compacted soil overlain by an impermeable HDPE flexible membrane liner. A vegetative erosion control layer will be placed over the infiltration barrier layer in all closed cells.
- For four expansion cells, E1 through E4, base and side slope liner systems of the existing and expansion waste disposal cells will be integrated to provide a continuous barrier beneath the landfill. The proposed expansion sequence will begin at cells E1 and E2 along the southeastern perimeter of the site, and subsequently work up the canyon. The exact size of

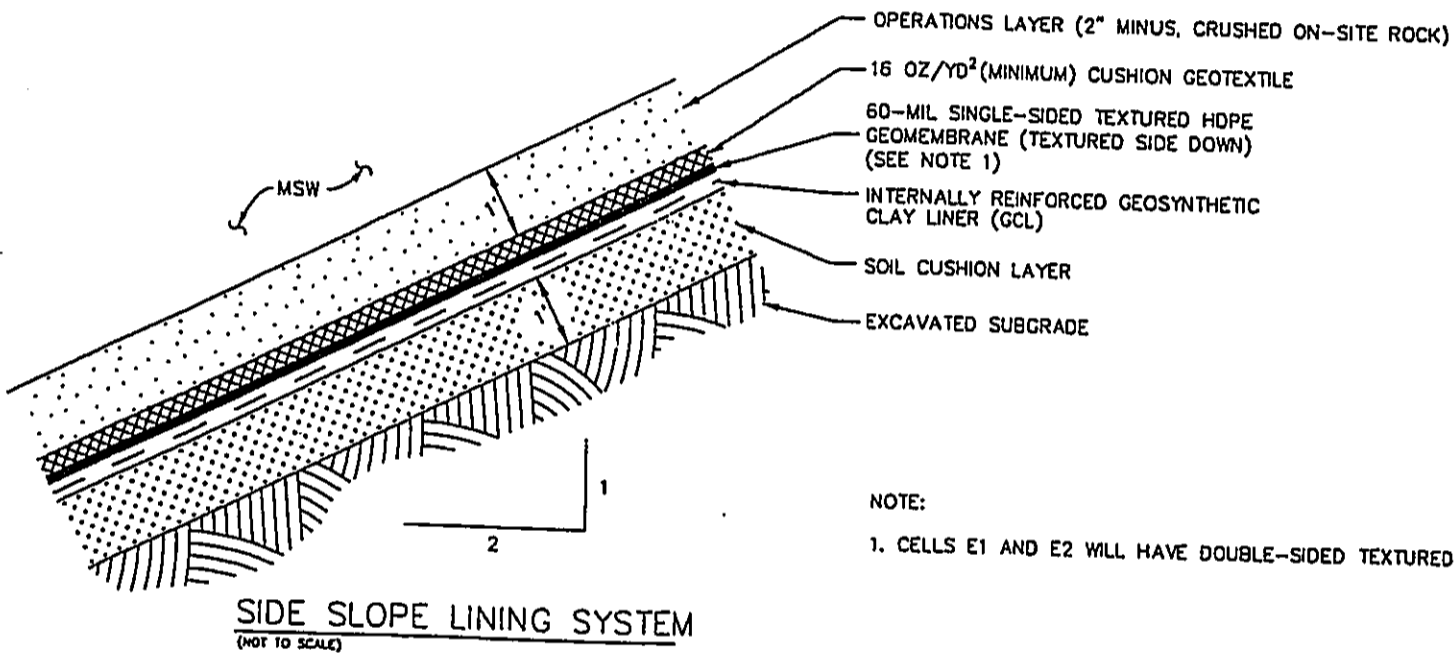
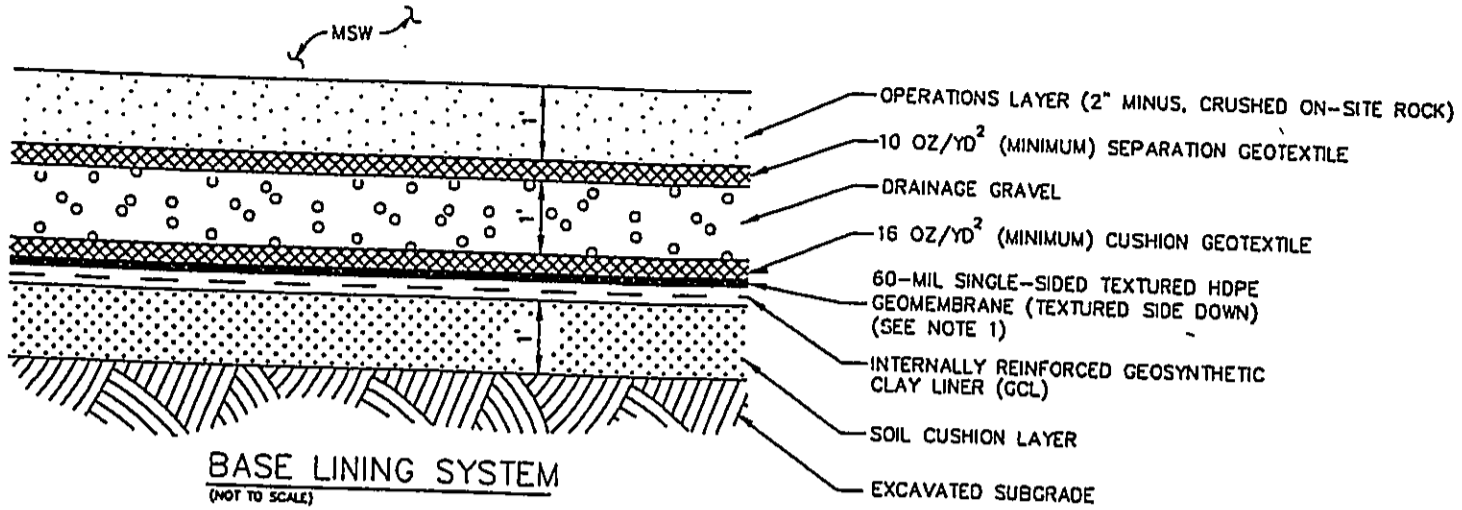
each expansion cell will be determined by the operator based on anticipated waste disposal needs for the site and the availability of soil to construct the buttress berms (GeoSyntec, 2002).

- The materials used in construction of the expansion cells will meet or exceed the minimum shear strength properties (sliding force required to break a bond, divided by its cross-sectional area). For Expansion Cells E1 and E2, a double-sided textured HDPE geomembrane is required; the assumed strengths for this liner system are 900 psf (pounds per square foot); 1,000 psf; and 1,200 psf at normal loads of 2,500 psf; 5,000 psf; and 10,000 psf, respectively. 2) An undrained strength 2,800 psf was assumed for the clay liner under seismic conditions (GeoSyntec, 2000).

Figure 3-14 illustrates the proposed base and side slope lining systems for the landfill expansion. Figure 3-15 shows a typical anchor trench for the lining system. The proposed design consists of a geosynthetic clay liner (GCL) overlain by a 60-mil HDPE geomembrane. In cells E1 and E2, the geomembrane will be double-sided textured. The proposed lining system is consistent with the currently-permitted design presented by RUST (1994) for MSW disposal cells at the landfill. The lining system by RUST (1994) is an engineered alternative that meets the regulatory requirements of RCRA³ Subtitle D (40 CFR Part 258) and the State of Hawaii requirements for MSW disposal cells.

The LCRS (Leachate Control and Removal System) for the expansion consists of a 1-foot thick, gravel drainage layer at the base of the expansion areas. A perforated, HDPE collection pipe will be placed within a trench in the drainage layer. The leachate will drain down the lined canyon cells toward a new sump furnished with a riser and clean-out pipe at the toe of expansion cell E1. Figure 3-16 shows the locations of the LCRS collection system (GeoSyntec, 2002). Adverse impacts on groundwater from the 14.9-acre expansion are not anticipated. The standard operating procedures for water quality and leachate monitoring will be extended to include the proposed 14.9-acre expansion area. Protection of groundwater resources will be maintained through extension of the existing groundwater and leachate management system, including:

³ The Resource Conservation and Recovery Act (RCRA), 1976, gave the Environmental Protection Agency (EPA) the authority to control hazardous waste from "cradle-to-grave." RCRA covers the generation, transportation, treatment, storage, and disposal of hazardous waste and provides a framework for the management of non-hazardous wastes (FEMA, U.S. Fire Administration, 2002).



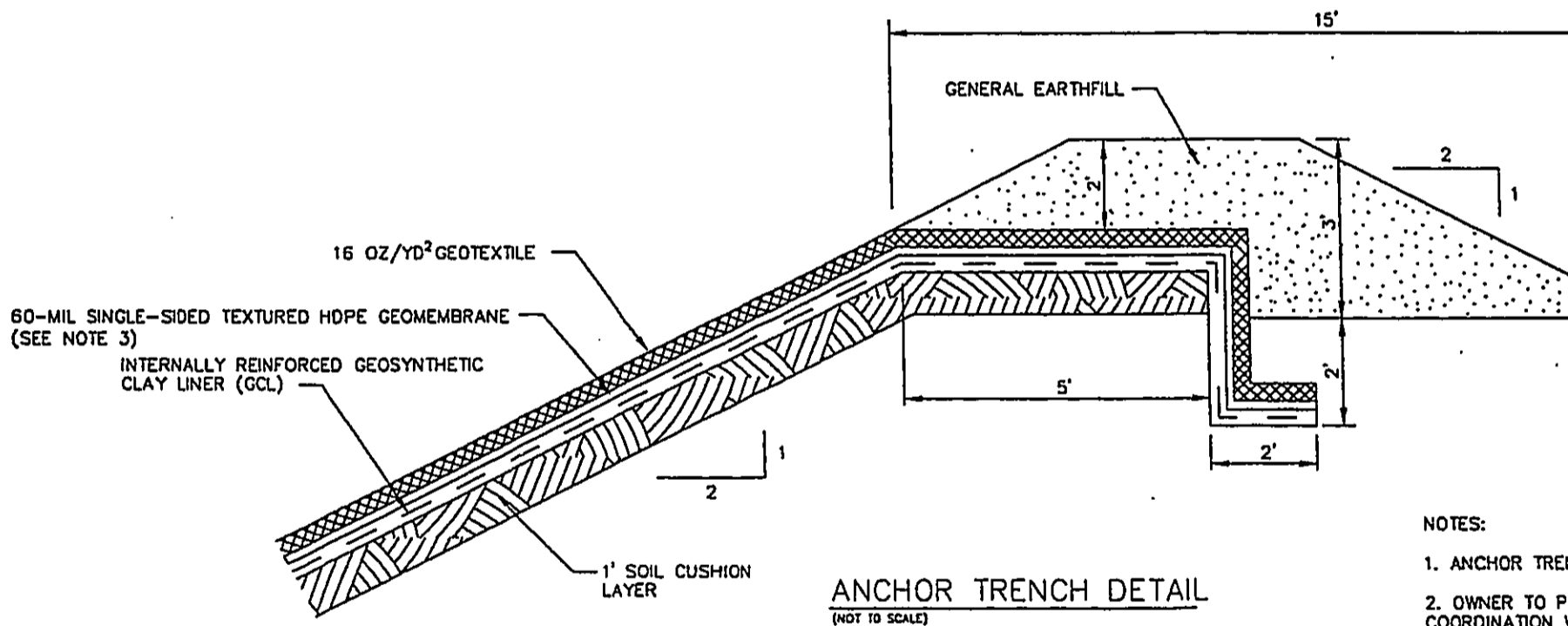
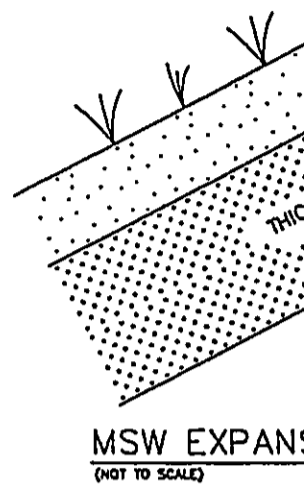
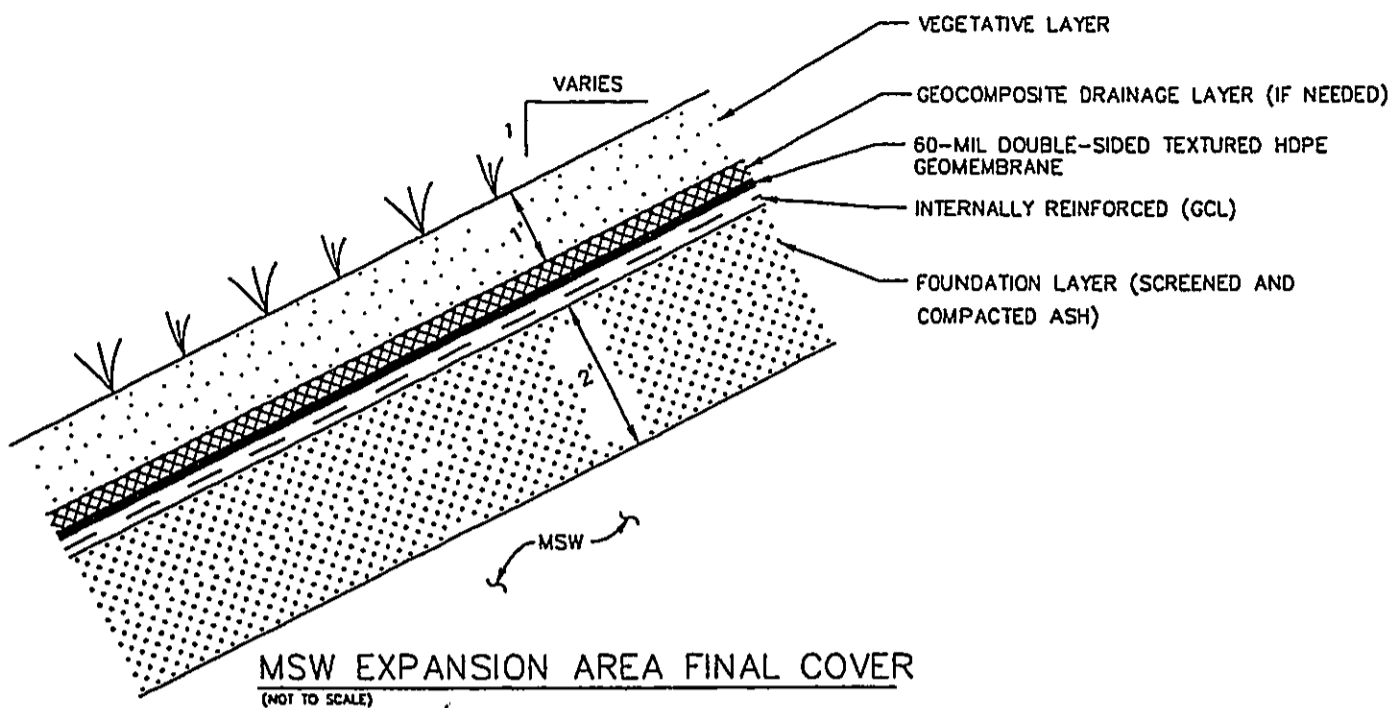
NOTE:
1. CELLS E1 AND E2 WILL HAVE DOUBLE-SIDED TEXTURED HDPE.

FIGURE 3-14
BASE LINING SYSTEM DETAILS
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii

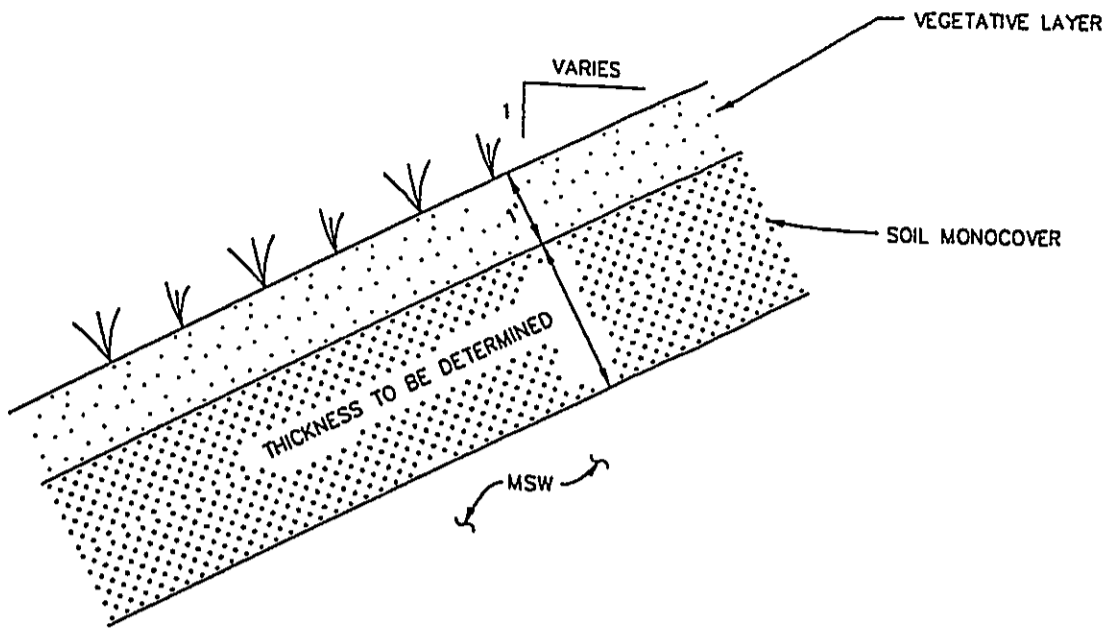


NO SCALE

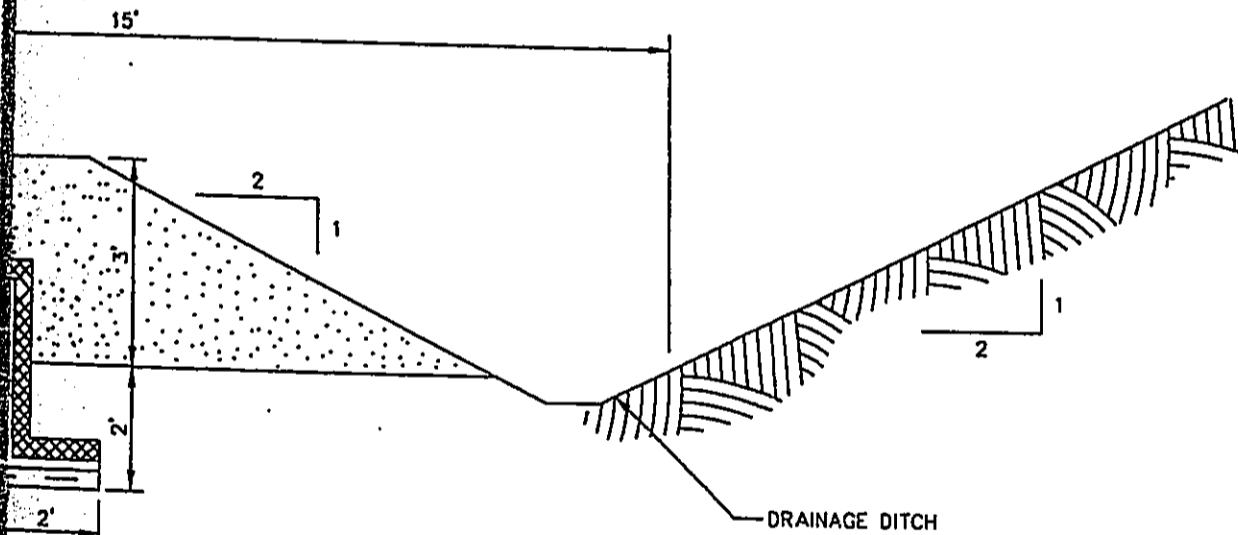
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- NOTES:
1. ANCHOR TRENCH
 2. OWNER TO PROVIDE
 3. COORDINATION WITH
 - CELLS E1 AND E2



MSW EXPANSION AREA FINAL COVER – OPTIONAL MONOCOVERT
(NOT TO SCALE)



NOTES:

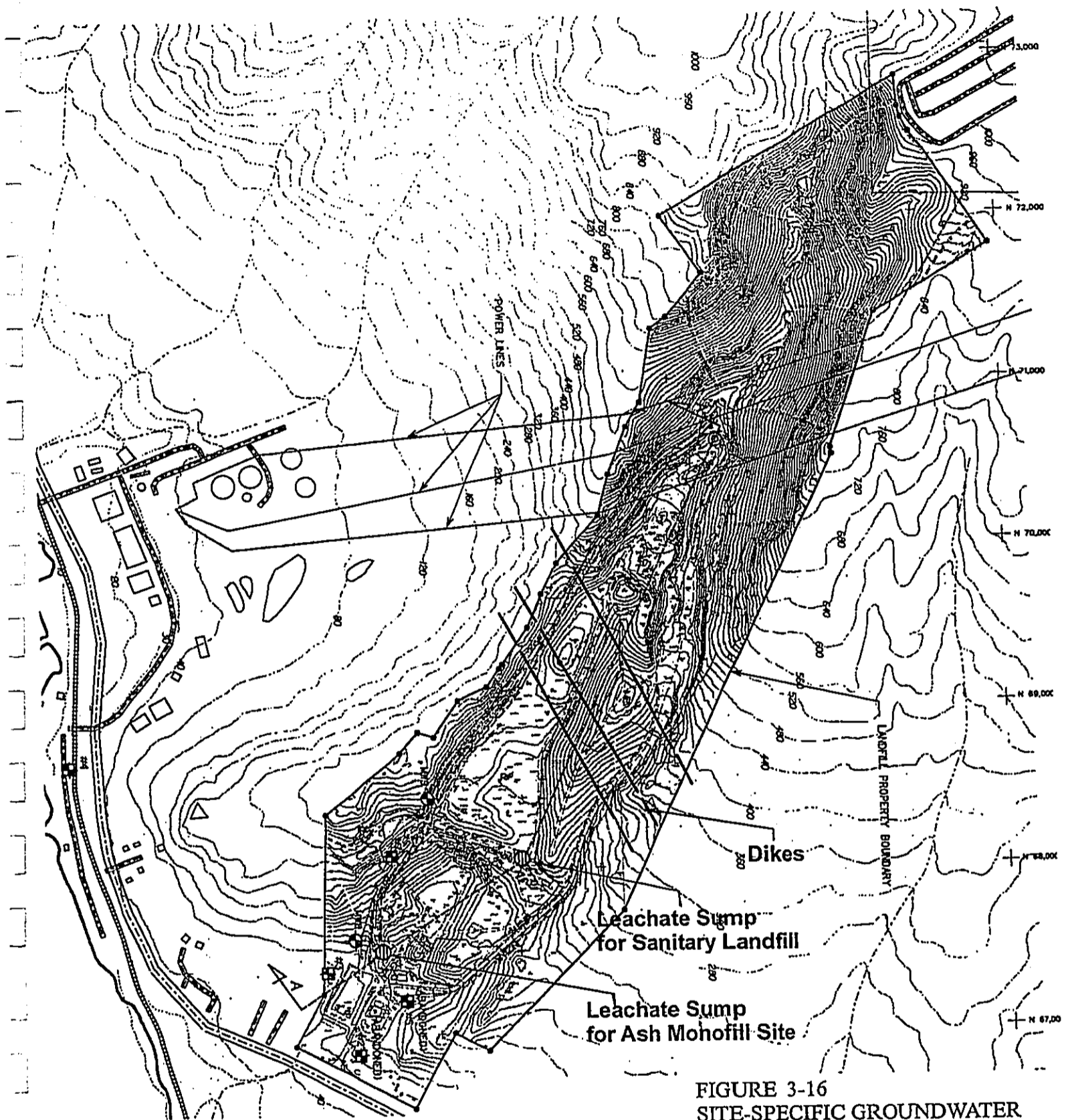
1. ANCHOR TRENCH WILL BE DESIGNED AS PART OF FINAL DESIGN.
2. OWNER TO PLACE OPERATIONS LAYER SOIL ON SIDE SLOPE IN COORDINATION WITH MSW PLACEMENT.
3. CELLS E1 AND E2 WILL HAVE DOUBLE-SIDED TEXTURED HDPE.

FIGURE 3-15
ANCHOR TRENCH DETAILS
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



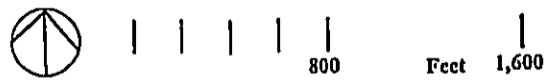
NO SCALE

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Source: Waste Management Hawaii, Inc.
September 29, 1995

FIGURE 3-16
SITE-SPECIFIC GROUNDWATER
MONITORING PLAN
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



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Visual Inspection Program

The visual inspection program at the WGSL will be extended to include the proposed 14.9-acre expansion. This program ensures that a potential release is detected at the earliest possible time. The visual inspection program includes physical examination to determine any visible signs of leachate migration (i.e., leachate seeps), potential water table mounding beneath the waste management unit, and any other change to the environment due to the waste management unit (Harding Lawson Associates, 1999).

Groundwater and Leachate Monitoring

Monitoring procedures outlined above will be extended to operations of the proposed expansion area. Existing groundwater monitoring wells have been placed in appropriate locations to assess water quality: (1) beneath the expansion site before it has passed the landfill boundary to determine background water quality; and, (2) at a point down-gradient of (down the slope from) the expansion area to assess compliance with Federal and State of Hawaii water quality standards including HAR, Chapter 11-54, Water Quality Standards.

Detection and Assessment Monitoring Compliance

Groundwater monitoring of the existing landfill indicates that operational practices and procedures used since startup of landfill operations in 1989 have been effective at ensuring against potential for negative adverse impacts due to infiltration of leachate (Table 3-2).

Detection and monitoring of groundwater will continue to include analysis of specified water quality constituents under 40 CFR Part 258. State Department of Health regulations governing water quality also apply and include an itemized list of water quality parameters, detection limits, and action levels that would require remediation and clean up.

Corrective Action Program

If the results of the groundwater quality monitoring program for the 14.9-acre expansion indicate abnormal or deviant levels of contaminants, corrective action will be implemented to: (1) ensure that the source of the contamination is the landfill and not other potential sources; (2) ensure that the source of the contamination is isolated and does not result in potential for negative adverse impacts

to adjoining lands; (3) provide a program of clean-up; and (4) review operational practices and procedures to correct the cause of the contamination. During corrective action the operator of the landfill will be required by EPA/ DOH to continue monitoring of groundwater. Once a remedy to cleanup the contamination has been selected the operator of the facility will be responsible for carrying it out. The corrective action will continue until compliance with the clean-up standard has been met for a period of three consecutive years or as determined by EPA and DOH.

3.6 NATURAL HAZARDS

3.6.1 FLOOD ZONES

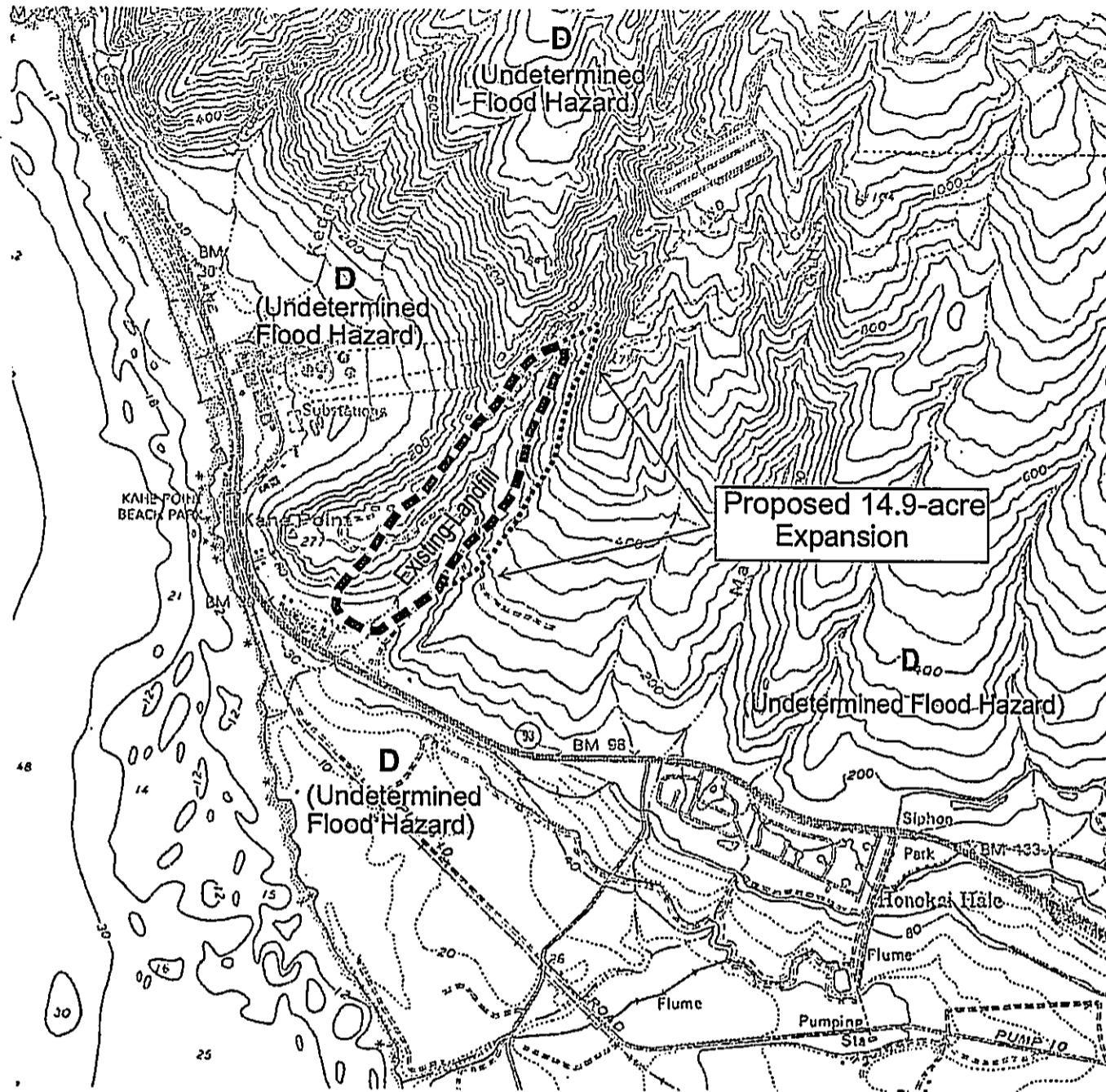
The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) identifies the proposed 14.9-acre expansion as lying within "Zone D," an area in which flood hazards are undetermined (Figure 3-17, Flood Map). Although specific flood control measures are not regulated, the project provides a drainage control system within the limits of the landfill property.

3.6.2 IMPACTS AND MITIGATION

The elevation and steep nature of WGSL require that sufficient drainage controls be provided to ensure against flooding. Drainage controls at the existing site have been designed to accept peak flows from a 100-year design storm from a tributary area of 622 acres. This is consistent with requirements for control of storm water runoff by the State and City and County of Honolulu.

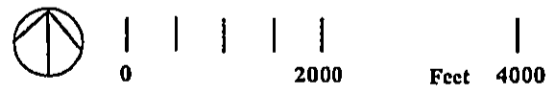
3.6.3 HURRICANES

Hawaii's annual "hurricane season" occurs June through November. The Hawaiian Islands have felt the full effects of five hurricanes since 1949. The first (Hiki, 1950) moved from east to west, north of the islands. The other four, Nina, (1957), Dot (1959), Iwa (1982) and Iniki (1992) all traveled on more-or-less northerly headings and affected the Waianae Coast with high winds and storm surge. Except for Hiki, the storms moved across, or very close to, the island of Kauai, approximately 90 nmi (nautical miles) west-northwest of Oahu.



Source: Federal Emergency Management Agency
Flood Insurance Rate Map

FIGURE 3-17
FLOOD MAP
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



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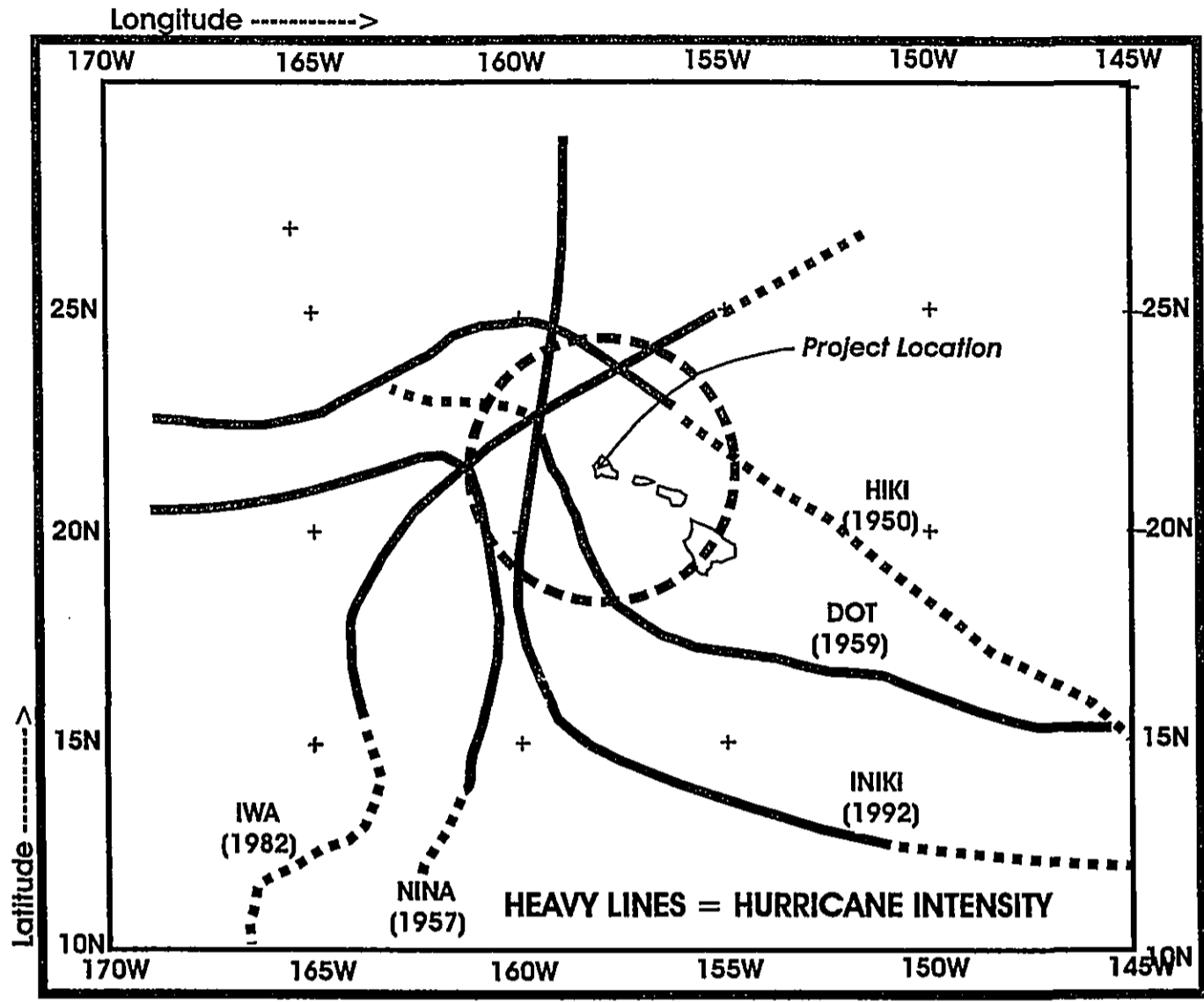
Nina remained southwest and west of the islands. Figure 3-18 depicts the tracks of the five hurricanes while in the vicinity of the Hawaiian Islands (U.S. Navy, 2002).

The primary impacts of past hurricanes in the WGSL region resulted from high waves. Because the WGSL facility is set so far back from the shoreline and the working face is at a relatively high elevation, waves and/or storm surge from future hurricanes would be unlikely to affect the integrity of the landfill. However, high wind conditions would be a concern for any active cells. The operation of the MSW section of the landfill mitigates against widespread wind impacts by only actively filling one "cell" at a time. Already-exhausted cells are covered by soil and allowed to revegetate to reduce wind impacts. Standard operating procedures include covering each day's fill with a cover of soil. This is, in effect, a blanket that reduces the potential for flying debris.

The ash fill operation does not require a daily cover. The ungrassed portion of the ash fill area could be impacted in a ultra-high wind, hurricane situation. The rate of disposal and the routine 24 hour a day deliveries make daily cover operation impractical. The consistent characteristics of the ash material being deposited exhibit good handling and compaction properties. The material arrives on site with a relatively high moisture content and is uniformly spread out for drying. The drying process is impaired if the ash is frequently covered. Intermediate cover is placed over suitable cell areas that are not being actively worked. Intermediate cover is compacted to a minimum of one (1) foot and graded to promote runoff in a controlled manner. The process of compacting the solid waste and soil material increases the stability of the site. In the case of a hurricane, exposed fill would be consolidated and covered with compacted soil.

3.6.4 IMPACTS AND MITIGATION MEASURES

Since the expansion area will be filled with municipal solid waste only, potential ash fill disturbance as a result of a hurricane is not applicable. The impacts and mitigation measures for a potential hurricane are the same for the 14.9-acre expansion area as those presented above for the currently-active area.



Tracks of the five hurricanes that have brought damaging winds, waves and/or storm surge to the Hawaiian Islands since 1949. The circle encompasses a 180-mile radius around Pearl Harbor.
 Source: www.cnmoc.navy.mil

FIGURE 3-18
 HURRICANE TRACKS MAP
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



NO SCALE

3.6.5 SEISMIC ACTIVITY (EARTHQUAKES)

Seismic stability was evaluated in terms of acceptable levels of seismic deformation. The RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities notes that permanent acceptable seismic displacements of up to 12 inches are typically used in practice for the design of liner systems (U.S. EPA, 1995). GeoSyntec followed two approaches to estimate seismic deformations using the procedures developed by Newmark (1965) as modified by Makdisi and Seed (1978). Using each method, the estimated seismic deformation and estimated permanent seismic displacements are less than 12 inches for both the MSW and ash disposal areas. Therefore, the proposed expansion design is "acceptable" in terms of potential seismic deformations at the expansion final grades (GeoSyntec 2002).

The Island of Oahu is an emergent portion of several basaltic shield volcanoes that rise from the ocean floor. Some the earthquakes that strike Oahu are related to the injection of magma into the volcanic edifice (shape of the volcano), whereas others maybe due to gravitational collapse of the flanks of the volcano (Yeats et al., 1997). In general, the earthquakes that impact Oahu are relatively shallow crustal (shallow, in the earth's crust) events (GeoSyntec, 2002).

The Uniform Building Code scale is rated from Seismic Zone 0 through Zone 4, with 0 the lowest level for potential seismic-induced ground movement. All of the WGSL site is designated in Seismic Zone 2a (United States Geological Survey, 1997).

In 2002, consultant GeoSyntec evaluated the seismic hazard at the 200-acre WGSL site using the most recent United States Geologic Survey (USGS) probabilistic seismic hazard maps for the State of Hawaii (Klein et al., 1998). Such seismic-hazards analysis combines:

- Earthquake rates known from the historical record;
- Information about how strong ground shaking dissipates with increasing distance from the earthquake; and
- Determination of the probabilities that specified levels of ground motion will occur in a specified time period (U.S. Geological Survey, 1997).

As required by the State of Hawaii regulations, the seismic-hazards analysis considered seismic motions with a 2 percent probability of being exceeded in 50 years (Note: this is equivalent to 10 percent probability of exceedance in 250 years). The consultant established the "design earthquake" (strength of an earthquake that WGSLS is designed to withstand) for the site to have a 7.0 MW (moment magnitude) (GeoSyntec, 2002).

To select representative earthquake analyses (called "accelerograms") for use in design, GeoSyntec screened the database of acceleration time histories for the western United States to find events that were similar in magnitude, tectonic environment, and PHGA (peak horizontal ground acceleration). GeoSyntec selected the following analyses from the catalog of shallow crustal earthquakes in the western United States for the site:

- To represent a local, low-magnitude event, GeoSyntec selected the 27 June 1966, Magnitude 6.3 Parkfield, California earthquake.
- To represent a far-field (distant from site), high-magnitude event, GeoSyntec selected the 29 November 1975, Magnitude 7.2 Island of Hawaii earthquake.
- To represent both the local and distant design events due its large magnitude and short site-to-source distance, GeoSyntec selected the 28 June 1992, Magnitude 6.7 Big Bear, California earthquake. (GeoSyntec, 2002).

As required by Subtitle D (40 CFR Part 258), a "seismic deformation" (change in topographic form as a result of seismic activity) analysis was performed to assess the performance of the landfill under the 7.0 MW "design earthquake."

The seismic site response of the landfill was evaluated using the equivalent-linear, seismic response program SHAKE91 developed by Schnabel et. al. (1972) and Idriss and Sun (1992). The waste/base liner/bedrock profile at the site was modeled using three earthquake time histories to represent the design ground motions at the site. For each seismic ground motion time history, the SHAKE91 model was used to generate shear stress time histories at the level of the base liner and to determine the maximum acceleration along the top of the landfill (u_{max}). The landfill was modeled as consisting of:

- A 90-foot high ash column to represent the ash fill disposal area; and
- 150-foot and 200-foot high MSW columns to represent the MSW cells (GeoSyntec, 2002).

3.6.6 IMPACTS AND MITIGATION MEASURES

Seismic risk at the project site is minimal. The design of both the current sanitary landfill and the proposed 14.9-acre expansion meets the EPA Subtitle D (40 CFR Part 258) standard for stability. Therefore, no further mitigation measures with regard to seismic activity are required or recommended.

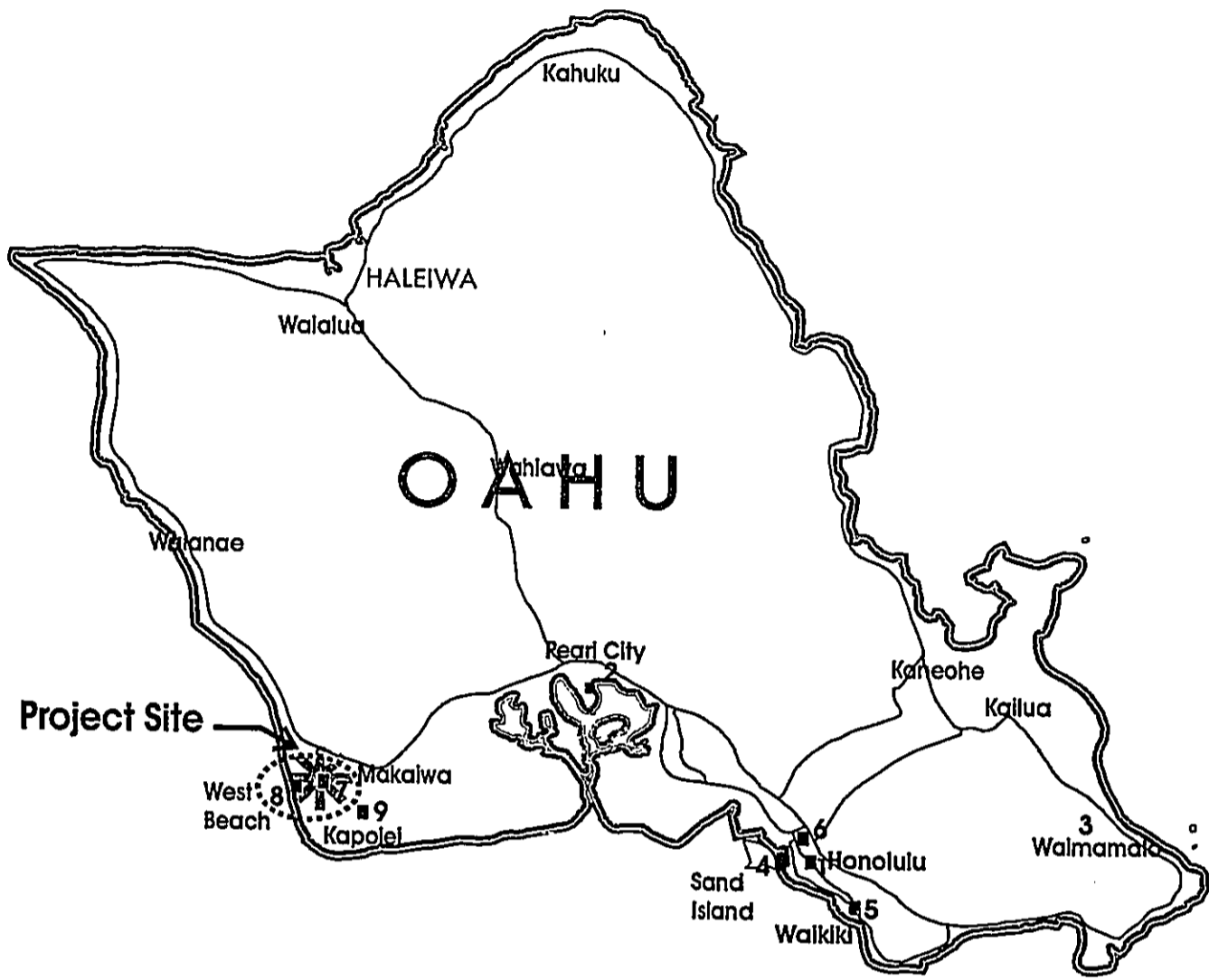
3.7 AIR QUALITY

The discussion of existing conditions pertaining to air quality at WGSL is presented in four sections:

- Overall air quality;
- Landfill-associated odor;
- Landfill-associated gas emissions; and
- Landfill-associated litter.

3.7.1 OVERALL AIR QUALITY

In 1991, the Department of Health, Air Quality Branch began regular monitoring at two locations near WGSL, West Beach and Makaiwa (Figure 3-19). The air quality parameters measured at these stations include PM10 (solid particles in the air, an indicator of dust); carbon monoxide, sulfur dioxide and nitrogen dioxide.



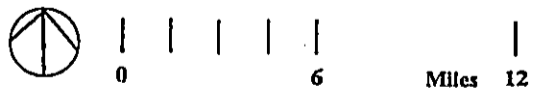
Air Quality Monitoring Station	Site Name	Description	Items Monitored	Start Date
1	Honolulu	City Center/Commercial	PM10, CO, S	4/71
2	Pearl City	Suburban/Residential	PM10	4/71
3	Waimanalo	Rural/Agricultural	PM10	7/89
4	Sand Island	City Center	O3	1/81
5	Waikiki	City Center	CO	2/81
6	Lihua	City Center	PM10	1/84
7*	Makaiwa	Rural/Industrial	SO2	7/89
8*	West Beach	Rural/Industrial	PM10, CO, SO2, NO2	2/91
9*	Kapolei	Rural/Industrial	PM10, CO, SO2, NO2	2/91

* Air quality monitoring stations of interest to WCSL, particularly West Beach because of its close proximity to the currently used landfill and proposed 14.9-acre expansion. Each of these facilities is included in the State and Local Air Monitoring Stations of Oahu.

Source: State of Hawaii, Department of Health, 2002 (summarized)
 See also: Figure 3-17, Air Quality Monitoring Stations on Oahu, and Table 3-5, Air Quality Monitoring Results, 1991-2001

Legend: PM10 = Particulate Matter; CO = Carbon Monoxide; SO2 = Sulfur Dioxide; NO2 = Nitrogen Oxide

FIGURE 3-19
 AIR QUALITY MONITORING
 STATIONS ON OAHU
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

Since monitoring began, the air quality of the WGSL vicinity has continually met both State and Federal air quality requirements. The results of air quality monitoring and the West Beach and Makaiwa sites are presented in Table 3-3 below.

TABLE 3-3
Annual Summary of Air Quality Monitoring Results
West Beach and Makaiwa Monitoring Stations, 1991-2001

<u>Year</u>	<u>Air Quality Standards Met?</u>	<u>Air Quality Standards Met?</u>
	<u>West Beach Monitoring Station (#7)</u> <u>(PM10, CO, SO2, NO2)</u>	<u>Makaiwa Monitoring Station (#8)</u> <u>(SO2)</u>
1991	Y	Y
1992	Y	Y
1993	Y	Y
1994	Y	Y
1995	Y	Y
1996	Y	Y
1997	Y	Y
1998	Y	Y
1999	Y	Y
2000	Y	Y
2001	Y	Y

Source: State of Hawaii, Department of Health, Clean Air Branch, *Annual Summary - Air Quality Data (1991 to 2001)*.

Standard WGSL operating procedures control dust from MSW disposal through 1) regular watering down of active work areas; 2) covering municipal refuse placed in open cells with fill material at the end of each work day; and 3) mid-day "intermediate fill" when wind conditions warrant more aggressive measures.

WGSL has also complied with federal and state regulations by requiring all ash and residue delivered by H-POWER to be of a suitable moisture content to prevent dispersal of particulates into the air. A study conducted in 2002 demonstrated that H-POWER combined ash did not create measurable

fugitive dust (City and County of Honolulu, ENV, March 2002). This analysis, entitled Risk Assessment, Use of H-Power Combined Ash as Daily Cover, Waimanalo Gulch Sanitary Landfill, Ewa, Oahu, Hawaii, was first conducted under the auspices of the Department of Health. The risk assessment demonstrated that the use of H-POWER combined ash (approximately 70% bottom ash and 30% fly ash) as an alternate daily cover at the landfill does not pose adverse health impacts.

3.7.2 LANDFILL-ASSOCIATED ODOR

The nature of the materials deposited in a sanitary landfill makes odor a potential negative externality for the surrounding area. Sources of odor are anaerobic decomposition within the current landfill and queuing of loaded refuse vehicles along Farrington Highway.

Odor mitigation procedures employed at WGSL include:

- Regular and proactive use of odor misters;
- Regular use of cover material to suppress generation of odors; and
- Early on-site queuing of refuse vehicles.

Regular and Proactive Use of Odor Misters

Effective odor-neutralizing solvents and deployment systems, such as those manufactured by Benzaco Scientific, Inc., are applied on-site to reduce or eliminate any odor caused by refuse. Odor misters, which distribute odor-neutralizing agents, are activated both automatically and manually at the WGSL. The daily schedule of odor misting, operated by means of a timer, is from midnight to 1 a.m., 3-4 a.m., and 6-8 a.m.

Odor misters are also deployed proactively under the following conditions:

- H-POWER shutdowns - When H-POWER refuse incineration equipment is shut down for maintenance or repair, the MSW disposal at WGSL increases, as well as the potential for odor.
- Disposal of sewage sludge during maintenance of equipment - Sewage sludge is regularly disposed of at WGSL. Sludge is normally heat-treated at wastewater treatment plants through a process that stabilizes and pasteurizes the material and facilitates control of odor.

During periods when heat treatment equipment is being maintained or repaired, an alternate method using polymers and odor control liquid additives is used to control sludge odor and water content. Sludge thus treated is known to carry stronger odor than heat-treated sludge.

- Shift in prevailing wind conditions - The prevailing northeasterly trade winds normally dissipate traces of odor associated with the existing landfill. However, odors emanating from WGSF can become more pronounced during Kona (southerly) winds as well as in cool morning and early evening hours.
- Notice from members of the public regarding an odor problem generated by the landfill - Odor misters can be operated and/or repositioned in response to a public complaint from a particular location.

Use of Cover Material to Reduce Odor Potential

As soon as possible after MSW delivery, cover material is placed over the refuse to isolate odors which could be generated within the landfill. In addition, any emerging surface cracks within the landfill material are filled to reduce potential for release of odors.

On-Site Queuing of Refuse Vehicles

The normal business hours at Waimanalo Gulch are 7:00 a.m. to 4:30 p.m. Refuse vehicles are permitted to queue at the area fronting the landfill scale house prior to 7 a.m. This has led to a major reduction of vehicles queuing along Farrington Highway and reduced potential for odor along the roadway and at nearby Ko Olina Resort. In addition, landfill management exercises the right to refuse entry to vehicles with particularly odor-ridden loads.

3.7.3 LANDFILL-ASSOCIATED GASES

Gas Formation at Sanitary Landfills

Landfill-associated gases are generated from aerobic and anaerobic decomposition of organic materials that occurs in four phases, generating CO₂ (carbon dioxide) and CH₄ (methane), with lesser amounts of N₂ (nitrogen), and occasional traces of H (hydrogen).

- The first phase, involving aerobic conditions, ranges from several days to weeks. Oxygen present at the time of waste disposal is used for decomposition. CO₂ is produced during this stage.
- During the second phase, anaerobic conditions occur, since free oxygen has been depleted. At the onset of anaerobic decomposition, significant amounts of CO₂ and some N₂ and H are produced.
- The third phase is characterized by the first formation of CH₄, a reduction in CO₂ production, and depletion of hydrogen.
- In the fourth phase, gas production and composition approach steady-state conditions. At this stage, the percentage of CH₄ in the gas may range from 50-70%, and CO₂ from 30-50%.

Carbon dioxide is a colorless, odorless, noncombustible gas and is highly soluble in water at atmospheric pressure. The solubility of CO₂ in one liter of water at 1 atmosphere is 1,688 milligrams per liter (mg/l). This can increase acidity, corrosivity, and hardness of the water. CO₂ in excess of 20 parts per million (ppm) affects iron, steel, and concrete. There is relatively little concern for the corrosive effects of CO₂ on groundwater or surface water at WGSL, since little to no water quality degradation is attributable to CO₂ gas (City and County of Honolulu, 1977).

Methane gas is generated by the action of methane-producing bacteria on organic components of refuse in the last phases of decomposition. CH₄, an odorless hydrocarbon, is the principal constituent of natural gas and has an average heat content of 1,000 British Thermal Units (BTUs) per standard cubic foot (SCF). Since approximately 50% of the sanitary landfill gas composition is methane, the heat content produced by a sanitary landfill is approximately 500 BTUs per SCF. Because methane is highly combustible in concentrations between 5 and 15 percent by volume in air, the uncontrolled release of methane may produce potential hazards including combustion or explosion in confined spaces.

Gas Monitoring and Control Measures

Sanitary landfill-generated gases are currently monitored by barhole probing or boring on a quarterly basis along the perimeter of the landfill. The monitoring holes are approximately 3-6 inches in

diameter with an average depth of 3 feet from grade. Upon completion of sampling and testing the monitoring holes are refilled with soil material to prevent moisture infiltration.

Control of explosive methane is provided in all landfill structures within the site. Combustible gas accumulation is monitored within confined areas such as corners, along baseboards, crawl spaces, attics, underground facilities, drainage structures including drains, toilets, sumps, or any area where air movement is restricted. Currently, the landfill structures are equipped with an electronic audible alarm landfill gas detection system.

Because methane is lighter than air, it tends to rise and exit through landfill cover. A cover of clay is relatively impermeable and restricts the vertical exit of gas. Rainfall can render any type of soil less permeable, encouraging lateral migration of gas. Precipitation can also infiltrate into landfill areas, increase moisture of refuse, and stimulate the rate of waste decomposition and gas production. Decreased permeability of cover and increased gas production may cause a significant increase in lateral gas migration during the rainy season. It is possible for up to approximately 80% of landfill gas to exit through soil cover.

A proposed gas recovery and monitoring system will provide a new management tool to improve management of the site and the surrounding area (see IMPACTS AND MITIGATION below).

3.7.4 LANDFILL-ASSOCIATED LITTER

Litter is generally controlled by standard operating procedures calling for the consolidation and cover of MSW. However, during high wind conditions, certain types of litter can become airborne and lodge in the site's litter fences or even drift off-site onto neighboring properties. In addition, litter along highways results from improperly secured loads in refuse vehicles making deliveries to WGSL.

Current measures for litter control at WGSL include:

- Placement of cover material as soon as possible within open cells to reduce windblown litter;
- Positioning of permanent and temporary litter fences designed to capture airborne litter on-site;
- Use of a new vacuum device, called MadVac™, which reduces the time needed for workers to clean up litter;
- Deployment of on-call work crews on 24-hour, 7-day per week standby to remove airborne litter from areas that migrate off-site; and
- Enforcement of existing rules and regulations with regard to litter control.

Placement of Cover Material within Active Cells to Reduce Windblown Litter

The primary method of litter control at the existing landfill site involves delivering refuse to landfill cells using bulldozers and covering waste with soil fill material. Under normal operating conditions, this practice is adequate to ensure containment of refuse within the site. During high wind conditions, the fill material in active cells is covered with an intermediate layer as a "mid-day" cover, rather than waiting for the required end-of-day soil cover.

Positioning of Litter Fences

Litter fences are the most effective way of capturing airborne litter on-site and preventing it from drifting off-site. The facility utilizes three types of fencing for litter control: permanent fences, portable fences, and temporary fences.

- The primary on-site litter control measure is approximately 520 linear feet of permanent, 30-foot tall, fabric-lined fences designed to catch airborne litter. They are currently located at the base of the ash fill area, which is downhill from the MSW cells.
- The current operating permit with the State requires the use of portable litter fences within active cells and along the existing concrete drainage facility. Portable, machine-movable fences of 7-12 feet in height are designed to be readily repositioned in active working cells as required during delivery of refuse loads, and during changes in wind patterns.

Approximately 100 linear feet of portable fences are used to contain airborne litter in spot locations. Portable fences are fabricated on-site.

- Temporary litter fences are designed to improve capture of windblown litter and debris along the perimeter of the landfill and at selected cell sites. The WGSL operator uses approximately 250' linear feet of temporary fencing (chicken wire) to capture on-site litter.

Use of Vacuum Equipment

In 2002, the WGSL operator purchased MadVac™ vacuum litter-collection equipment that performs litter removal approximately four times faster than manual labor. This equipment is trailer-mounted to facilitate movement around the facility. More frequent cleanup and maintenance of the fencing has increased efficiency of litter control and reduced visual impacts of litter deposited on the fencing surface.

Deployment of On-Call Work Crews to Remove Off-Site Litter

During occasional high wind conditions, lightweight materials can become temporarily airborne and drift past existing litter fencing to adjoining properties. Current procedures call for mobilization of work crews to clean up off-site windblown litter whenever 1) WGSL management personnel observe that there is windblown litter drifting beyond the landfill property which may adversely affect adjoining properties, and/or 2) a complaint regarding off-site litter is received by landfill management.

Enforcement of Existing Rules and Regulations

ENV has advised refuse trucking firms of the objectionable nuisance caused by litter falling along the highways from their trucks and its impact on travel along portions of Farrington Highway and areas adjacent to the landfill. WGSL management is enforcing the rule requiring all loads entering the landfill to be secured by use of a tarp, cover, or enclosure of the load to ensure against loss of refuse which may litter the highway and surrounding area. Refuse delivery operators and drivers have been issued warnings at the landfill weigh station that improperly-secured loads will be prohibited from entering the landfill.

Additional enforcement actions include the following:

- The WGSL operator has asked the Honolulu Police Department (HPD) to actively enforce provisions of State and City and County of Honolulu laws and regulations governing littering from vehicles, by issuing citations to offenders.
- Commercial and City refuse vehicles leaving the landfill are inspected prior to leaving the landfill so any refuse remaining in vehicle beds is not swept onto the highway.

3.7.5 IMPACTS AND MITIGATION

The discussion of air quality impacts for the 14.9-acre expansion, as well as any cumulative impacts and associated mitigation measures, are presented in the following sections:

- Impacts and mitigation during construction of expansion cells;
- General air quality;
- Impacts and mitigation of landfill-associated odor;
- Impacts and mitigation of landfill-associated gases; and
- Impacts and mitigation of landfill-associated litter.

Impacts and Mitigation During Construction of Expansion Cells

Airborne dust will be the primary air pollutant produced during the construction and operational phases of the landfill expansion. During construction of the 14.9-acre expansion area, the site will be cleared and grubbed of vegetation. Dust will be generated during site excavation and grading. To mitigate these impacts, the Contractor will be required to comply with the provisions of Hawaii Administrative Rules, Chapter 11-60,1-33, Fugitive Dust. For example, dust levels will be controlled by use of standard water tanker trucks, or extended sprinkler systems from the existing sanitary landfill area. During dry weather and windy conditions, water sprinkling may be increased to mitigate and minimize generation of dust.

General Air Quality

During operation of the proposed 14.9-acre expansion area, dust will continue to be generated from disposal of MSW. The proposed expansion will adhere to dust control practices according to Air

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Pollution Control Regulations Title 11 (Chapter 60) of the State Department of Health, which includes scheduled water sprinkling, compacting, and intermediate cover.

Impacts and Mitigation of Landfill-Associated Odor

Operation of the proposed expansion area will result in continued daily traffic of municipal compactor trucks, transfer trailers, commercial vehicles, and public self-haul vehicles. Air pollution emissions from these vehicles collectively are anticipated to be similar to existing on-site conditions and insignificant. Exhaust emissions will be mitigated by ensuring that all construction and operation equipment comply with DOH Rules Title 11, Chapter 60-1, regarding Air Pollution Control.

The expansion area will be located on the west and southern faces of the gulch. Odor from the expansion area will be a function of where the active cell is located. During the initial stages of expansion, this is likely to make odor more apparent in the lower areas and from Ko Olina to the south. As cells are filled mauka (up the gulch) and away from populated areas, the odor impact will gradually lessen. Odor misters will be moved to the expansion area as those cells are opened. Future plans may involve installation of odor misters between the area of the scale house and the perimeter fence to provide treatment of refuse loads entering the landfill.

Further reduction of landfill odors will be addressed comprehensively by ENV through a long-term odor management plan to: (1) install a landfill gas recovery system at the landfill site; (2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; and (3) expand H-POWER.

(1) Install a Landfill Gas Recovery System at the Landfill Site

A landfill gas recovery and monitoring system is currently under development by Waste Management of Hawaii, Inc. The system will be designed to capture methane, non-methane, and anaerobic decomposition gases within the landfill to ensure against inadvertent atmospheric releases. The system is being designed in compliance with Title V, EPA regulations governing the operation of municipal sanitary landfills.

The proposed new system will require the installation of new piping within existing landfill cells to supplement the existing gas collection and venting system. The piping will be routed to a centrally located pump station which will house collection and monitoring equipment. The gas monitoring equipment will enable measurement of gas composition, temperature, pressure, and pH. The system will provide additional information on the performance of the landfill and will allow continuous evaluation of gases which could be used in the future generation of energy.

Since the existing landfill-generated gases will be of an insufficient quantity or quality for energy production, the gas will be vented or flared (if required). The lower thermal efficiency of the gas may be due, in part, to relatively dry conditions at the site, low volume of putrescible waste being landfilled, and the relatively short time span of use of the site. Installation of the gas monitoring system, however, will enable WGS� operator Waste Management of Hawaii, Inc., to assess changes in gas composition and determine if use for energy production may become feasible in the future. A potential future user of the gas is the HECO Kahe Power Plant, located immediately to the north of Waimanalo Gulch.

Venting or flaring of landfill gas will be automatically controlled from a pump station through use of electronic monitoring and control equipment and will occur when a sufficient volume of gas has been collected. The pump station will be located based on the efficient routing of manifold piping within the landfill. It is expected that this will be within a completed portion of the existing landfill, mauka of the ash fill section.

(2) Develop a New Sludge Drying Facility at Sand Island Wastewater Treatment Plant

ENV plans to change the method of treating sewage sludge (from the current heat treatment method) at its largest plant beginning in 2004. The new technology will greatly reduce the amount of sewage sludge disposed of at WGS�, recycle sludge into a usable commodity (fertilizer pellets), reduce processing of sludge by Zimpro heat treatment, and therefore reduce odors associated with having to landfill sewage sludge when the Zimpro equipment is "down."

The Andritz [sewage sludge] Dryer technology to be employed at Sand Island Wastewater Treatment Plant is a proven product of Andritz-Ruthner, Inc., of Arlington, Texas. The firm custom-designs and manufactures such systems worldwide for industrial and municipal process industries worldwide, with 5 plants in operation or under construction in the USA out of 40 installations worldwide. The Andritz system uses a design proven in practice to be thermally efficient and to produce a hard, durable, uniform granule [of fertilizer) with no dust. Operation of the Andritz equipment meets requirements of EPA CFR regulations.

(3) Expand H-POWER

ENV's plans for expansion of H-POWER will divert a major source of MSW. The attendant increased production of ash fill will not affect the 14.9-acre expansion area because the expansion cells will only accept MSW.

Impacts and Mitigation of Landfill-Associated Gases

Operation of the proposed expansion area will involve the generation of additional gases, generated under aerobic and anaerobic decomposition of organic materials in the landfill. The proposed 14.9-acre expansion of the landfill is expected to generate the same types of gases associated with operation of the current sanitary landfill site. The primary gas components are carbon dioxide (CO₂) and methane (CH₄).

The migration of methane to the sanitary landfill edge and into surrounding soils or overlying structures occurs by two processes: convection, which is the movement of gas in response to pressure gradients; and diffusion, where the gas moves from areas of high concentration to areas of lower gas concentration. Gas flow is higher in materials with large pore spaces and permeability, such as sand and gravel, and lower in materials of lower permeability, such as clays. Generally, there is greater vertical and lateral movement of gases in a sand-gravel medium than in a clay medium. Since the soils are rocky and clayey at the WGSL site, methane migration is expected to be limited.

The management of sanitary landfill gas for the expansion area will involve expanding the approved practices employed within the existing sanitary landfill area. The control of sanitary landfill gas will include one or a combination of the following:

- Placement of impervious liner materials to block the flow of gas;
- Selective placement of granular materials and piping for gas venting and/or collection (gas recovery and monitoring system); and
- Evacuation and venting of gas from the sanitary landfill (gas recovery and monitoring system).

Impacts and Mitigation of Landfill-Associated Litter

The litter-control methods described above will be extended to the 14.9-acre expansion area. The “permanent” fence will be moved to control litter in expansion cells, temporary fences will be positioned in active cells, and portable fences will be deployed as needed. In addition, vacuum equipment will be utilized to clean litter fences and crews will be deployed when notice is received that litter has drifted off-site.

3.8 NOISE

3.8.1 NOISE

The proposed sanitary landfill expansion is not expected to result in noise levels greater than produced from current activities. This is because as the existing sanitary landfill space becomes exhausted, construction equipment will be moved from the closed portion of the landfill, to the new expansion area. The source of the noise will shift slightly to the northern and eastern boundary of the ±200 acre property where expansion cells are located.

3.8.2 IMPACTS AND MITIGATION

Short-term noise impacts will be related primarily to construction activities. A majority of the noise generated will be during operation and mobilization of the heavy construction equipment, particularly during site preparation. To mitigate short-term construction impacts, compliance with the provisions of HAR, Chapter 11-46, “Community Noise Control,” will be required.

SECTION 3.8.1 - ADDENDUM: NOISE

There is an existing rock crushing operation which is located to the rear of the operating landfill. The existing rock crusher is generally operated during daytime hours only. Equipment and operating noise is typically not noticeable within and outside of the landfill property. This is because of the following: (1) the rock crushing equipment is situated relatively low within excavated portions of the landfill. Noise is therefore muffled by the surrounding terrain and slopes of the landfill; and, (2) the location of equipment is generally nearby the interior portions of working cells.

The proposed project is expected to require the use of rock crushing equipment to provide aggregate for landfill cover, fill, landscaping, and other purposes. Use and operation of rock crushing equipment will be located in proximity to nearby landfill cells for the proposed expansion area.

SECTION 3.8.2 - ADDENDUM: IMPACTS AND MITIGATION

Short-term noise impacts will be related primarily to use and operation of the rock crushing equipment. To mitigate potential for short-term impacts, compliance with the provisions of HAR, Chapter 11-46, "Community Noise Control," will be employed. Longer term measures to ensure noise abatement for rock crushing associated with the 14.9-acre expansion site will include the following:

- All equipment will be properly muffled with noise attenuation equipment in good operating condition.
- Rock crushing will be scheduled during normal landfill operational hours, to avoid possible disturbance to surrounding neighbors.
- As noted, landscaping will be used for visual cover and soil stabilization. Some noise reduction may occur with use of trees and other plantings at the site.

Expansion of the existing measures to reduce noise from ongoing sanitary landfill activities will be employed at the 14.9-acre expansion site. Mitigation measures will include the following:

- Construction vehicles and internal combustion powered machinery will be properly muffled with noise attenuation equipment in good operating condition.
- Construction activities involving use of heavy equipment will be scheduled during the normal operational hours of 7:00 am to 4:00 pm daily, to avoid possible disturbance to surrounding neighbors.
- Landscaping will be used for visual cover and soil stabilization. Some noise reduction may occur with use of trees and other plantings at the site.

ENV and Waste Management of Hawaii, Inc., will also continue coordination efforts with the surrounding neighborhood on noise mitigation plans or programs, as required, to ensure against potential for negative adverse impacts due to noise.

3.9 FLORA

3.9.1 FLORA

Plant species found within and surrounding the sanitary landfill site consist primarily of introduced, non-native plant species. Consequently, rare, threatened, and endangered species are not anticipated to be discovered. This is reflected in the vegetation within and surrounding the area which includes Kiawe trees, koa haole and various grasses.

A biological field reconnaissance was conducted on August 11 and 12, 1999 for the proposed expansion area (Appendix A- Botanical Survey). The objectives of the study were to (1) provide a description of the vegetation; (2) inventory the flora; (3) search for threatened and endangered species as well as species of concern; and (4) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

The two vegetation types that are recognized on the sanitary landfill expansion area are Kiawe scrub and roadside vegetation. Kiawe scrub covers the majority of the site. The general physiognomy of the vegetation is very open kiawe forest, with 10 to 20% tree cover, and a somewhat dense cover of

Guinea grass between trees. Scattered here and there are shrubs of koa haole and klu. Smaller shrubs or subshrubs of hoary abutilon and 'ilima are common. Other plants found include sourbush, castor bean, cocklebur, lantana, and two ferns ('okupukupu and wood-fern). The endemic wiliwili tree is also found along the bottom of the gulch.

Along the lower portion of the expansion site, where it lies adjacent to the paved road and existing sanitary landfill, the soil is somewhat deeper with fewer rock outcrops. In this area, the grass cover is a mixture of buffelgrass and pili grass. Scattered, smaller patches of pitted beardgrass are common. Guinea grass is occasional and occurs as scattered clumps.

The access road supports a few scattered patches of plants, primarily Guinea grass and a number of weedy, mostly annual species. Weedy annuals include spiny amaranth, *trianthema portulacastrum*, coatbuttons, slender amaranth, field bind-weed, fuzzy rattlepod, and apple of Peru. One small liliko'i vine and a few cherry tomato plants are also found on the road.

The majority of the plant species inventoried on the proposed expansion area are introduced exotics or alien species. Of the nine native plants found on the proposed expansion area, none are threatened and endangered, or a species of concern (U.S. Fish and Wildlife Service 1999). Other botanical studies conducted for the sanitary landfill site (Environmental Impact Study 1983; City and County of Honolulu, Department of Public Works 1984) and for the adjacent Makaiwa Hills residential development (Char 1990) also recorded similar vegetation types and findings.

3.9.2 IMPACTS AND MITIGATION

The findings of the botanical research and survey indicate there are no botanical reasons to impose any restrictions, conditions, or impediments to the proposed use of the site. The proposed sanitary landfill expansion is therefore not expected to result in potential for negative adverse impacts to botanical resources.

3.10 FAUNA

3.10.1 FAUNA

Birds commonly found in and surrounding the existing sanitary landfill facility include barred dove, lacenecked dove, cardinal, common mynah, Japanese white-eye, cattle egret and house finch.

Mammals found within the project site include an occasional mongoose or cat. There are field mice within the project area, but little to no evidence of rats.

A fauna field survey was conducted on July 28, 1999, by Phillip L. Bruner, Ph.D, for the proposed expansion within the existing Waimanalo Gulch Sanitary Landfill (*Appendix B - Survey of the Avifauna and Feral Mammals*). The objectives of the study were to (1) document the bird and mammal species on the property; (2) provide baseline data on the relative abundance of each species; (3) make the primary focus of the survey an investigation of the presence or likely occurrence of any native fauna, particularly those that are listed as "Endangered" or "Threatened"; and, (4) determine if the property contains any special or unique resources important to native wildlife.

Results of the field survey revealed that (1) no native resident land birds were tallied on the survey; (2) the list of exotic birds recorded on the survey was typical for this area and compared favorably with the data obtained from similar properties; (3) no endangered mammals were observed; and, (4) the expansion of the sanitary landfill into this portion of Waimanalo Gulch will likely alter the species composition and relative abundance of introduced birds (e.g., an increase in mice due to the sanitary landfill operation could make the area more attractive to foraging Pueo).

3.10.2 IMPACTS AND MITIGATION

The findings of the faunal field survey indicate that there are no reasons to impose any restrictions, conditions, or impediments to the proposed use of the site. The proposed sanitary landfill expansion is therefore not expected to result in potential for negative adverse impacts on the mammals and other animals of the project area or surrounding community.

3.11 VISUAL RESOURCES

3.11.1 VISUAL RESOURCES

The vicinity of WGSL marks the transition between suburban/rural Waianae Coast communities and the Ewa region. The most dominant landmark in the area is the Hawaiian Electric Company (HECO) Kahe Power Generating Station, located directly north of WGSL. The plant's smokestack can be seen from both north and south of Kahe Point.

Farrington Highway winds around natural land forms, causing the visual landscape for motorists to change rapidly. Views of the mountain areas from the coast are dominated by a series of barren hillsides. The mountainsides adjoining Waimanalo Gulch are covered by Kiawe Scrub vegetation, which consists of shrubs, Guinea grass and other dryland grasses that grow between large horizontal rock outcrops that stretch across the hillside. During the rainy months the hills turn green when seeds of the existing weeds germinate, and are otherwise brown due to the extremely arid climate.

A small wooden sign on Farrington Highway announces the location of WGSL, and its administration building is screened from Farrington Highway. The appearance of the sanitary landfill from the ground level below is dominated by gray-hued ash fill that resembles a quarry. The daily soil cover on active landfill cells contributes to the uniform coloration of the hillside. Also visible is the existing concrete drainageway that lines the northwest rim of the valley. From the seaward areas, refuse vehicles can sometimes be seen queuing to deposit their loads on the hillside. Caterpillar tractors may also be visible moving refuse around within cells of WGSL. The permanent litter fence is visible from Farrington Highway. Plastic bags can become tangled in tree branches along the valley rims, a situation which is monitored and mitigated by WGSL management. Infrequent queuing of refuse vehicles along the WGSL access road during peak periods makes the presence of the sanitary landfill more apparent to Farrington Highway motorists.

The WGSL site is visible in varying degrees from Farrington Highway and surrounding development such as Kai Lani subdivision, Coconut Plantations townhomes, Ko Olina Golf Course, and the Marriott Ihilani Resort. Portions of the landfill are also visible from some vantage points along Alii Drive within Ko Olina.

Figure 3-20 shows the approximate view planes towards WGS� from nearby development. The figure illustrates that Kahe Point blocks views of the gulch from the northwest and gulch walls block the view from the southwest along Farrington Highway up to the Waimanalo Stream crossing.

Figure 3-21 shows the view of WGS� from the Kai Lani Subdivision. Even without vegetation, the WGS� area looks much like the surrounding terrain during the predominantly dry weather conditions.

Figure 3-22 is taken at ground level between two units of the Coconut Plantations subdivision with the Ko Olina Golf Course beyond. From this vantage point, a partial side view of WGS� is visible along the horizon.

Figure 3-23 shows the WGS� from the second floor of a model home in the Coconut Plantations multi-family housing subdivision. From this vantage point, only a portion of WGS� is visible along the horizon.

Figure 3-24 shows the view of WGS� from the top floor of the Marriott Ihilani Resort. Due to its multi-story height, the landfill is more visible than from lower elevations where residential, recreational, pedestrian and related uses are located.

ENV and the WGS� operator have actively managed visual impacts of the current WGS� site within the constraints of active landfill operations. The existing sanitary landfill has a 400-foot-wide vegetative buffer strip along the eastern portion of the site with a north-south separation of 800 to 1,000 feet with ongoing landscaping. The approved landfill area has been hydromulched to begin growth of grasses in areas that are already filled. These grasses resemble vegetation on adjoining hillsides; in dry periods they appear brown and during more rainy periods they appear green. Hydromulching is complete on the entire west-facing (toward Farrington Highway) slope of the landfill, up to the area immediately above and below the permanent litter fence. The top half of the Honolulu- and Waianae-facing slopes has also been hydromulched. Hydromulching of the top half of the ash fill area is tentatively scheduled for the first quarter of 2003. Portions of a concrete drainageway on the Waianae side of the gulch have been painted to blend in with colors in the surrounding terrain.

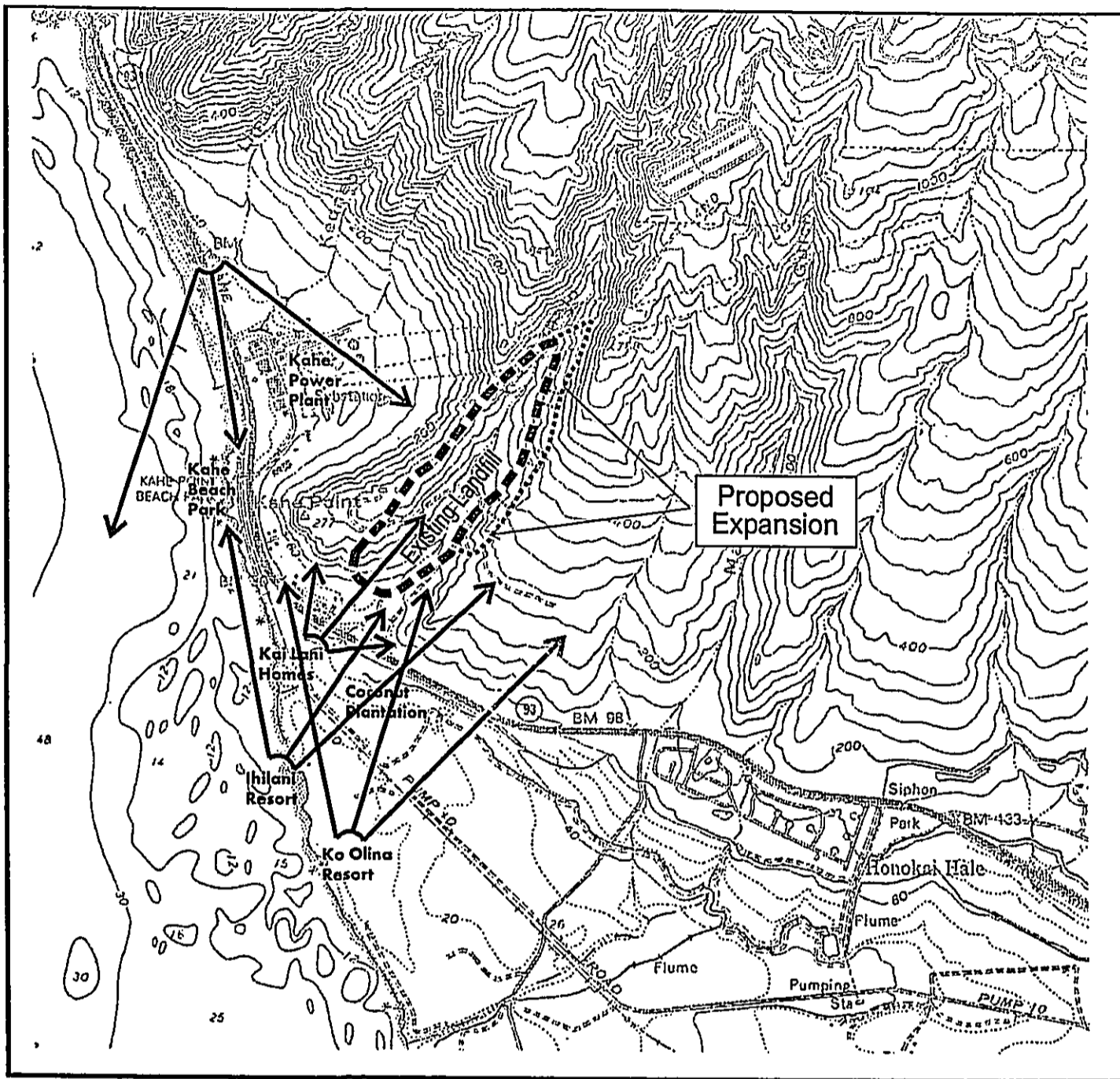
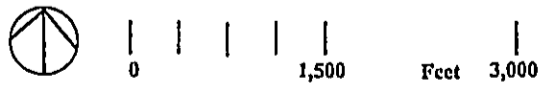


FIGURE 3-20
 VIEW PLANES
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



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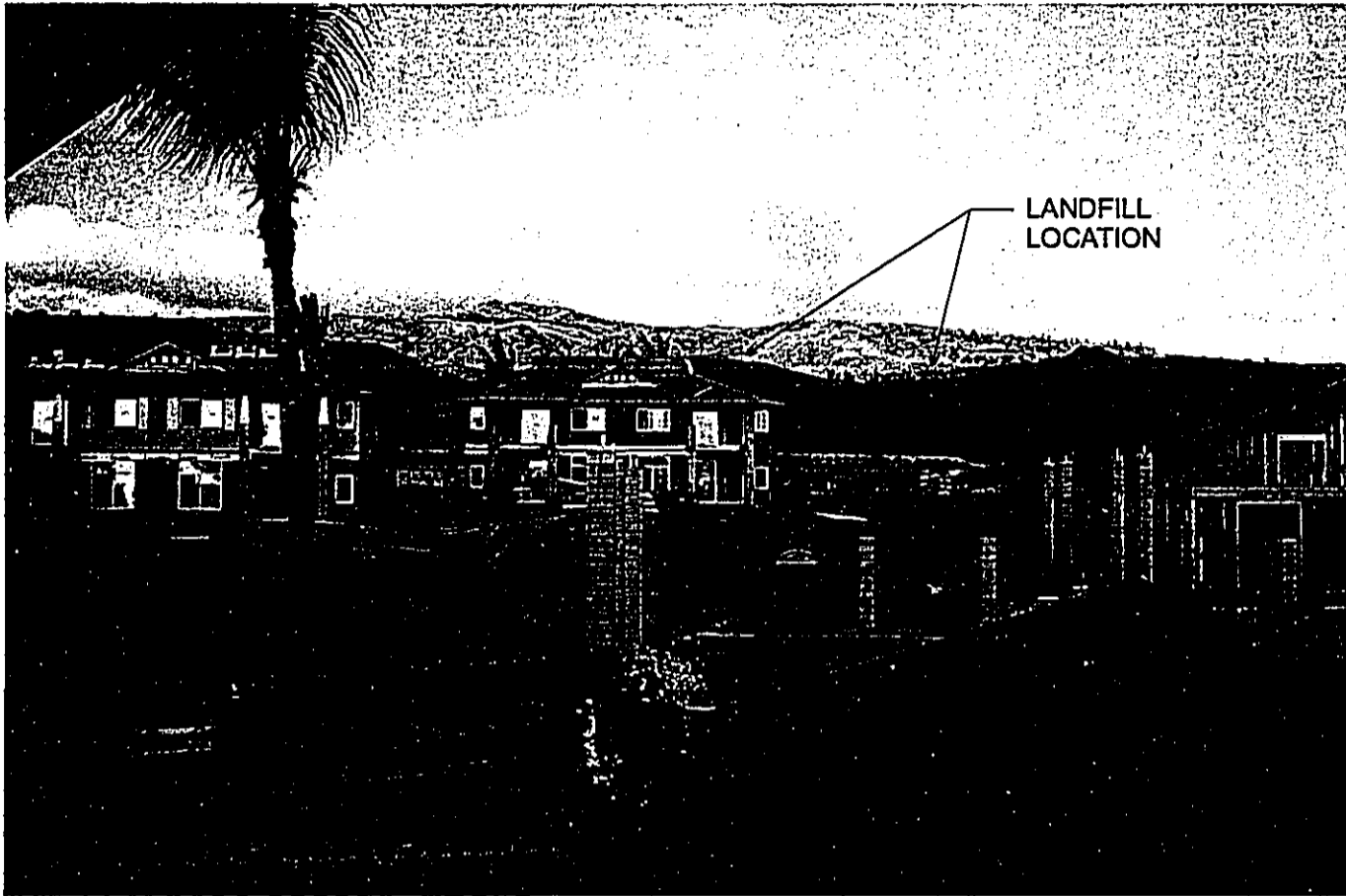


FIGURE 3-21
VIEW FROM KAI LANI SUBDIVISION
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

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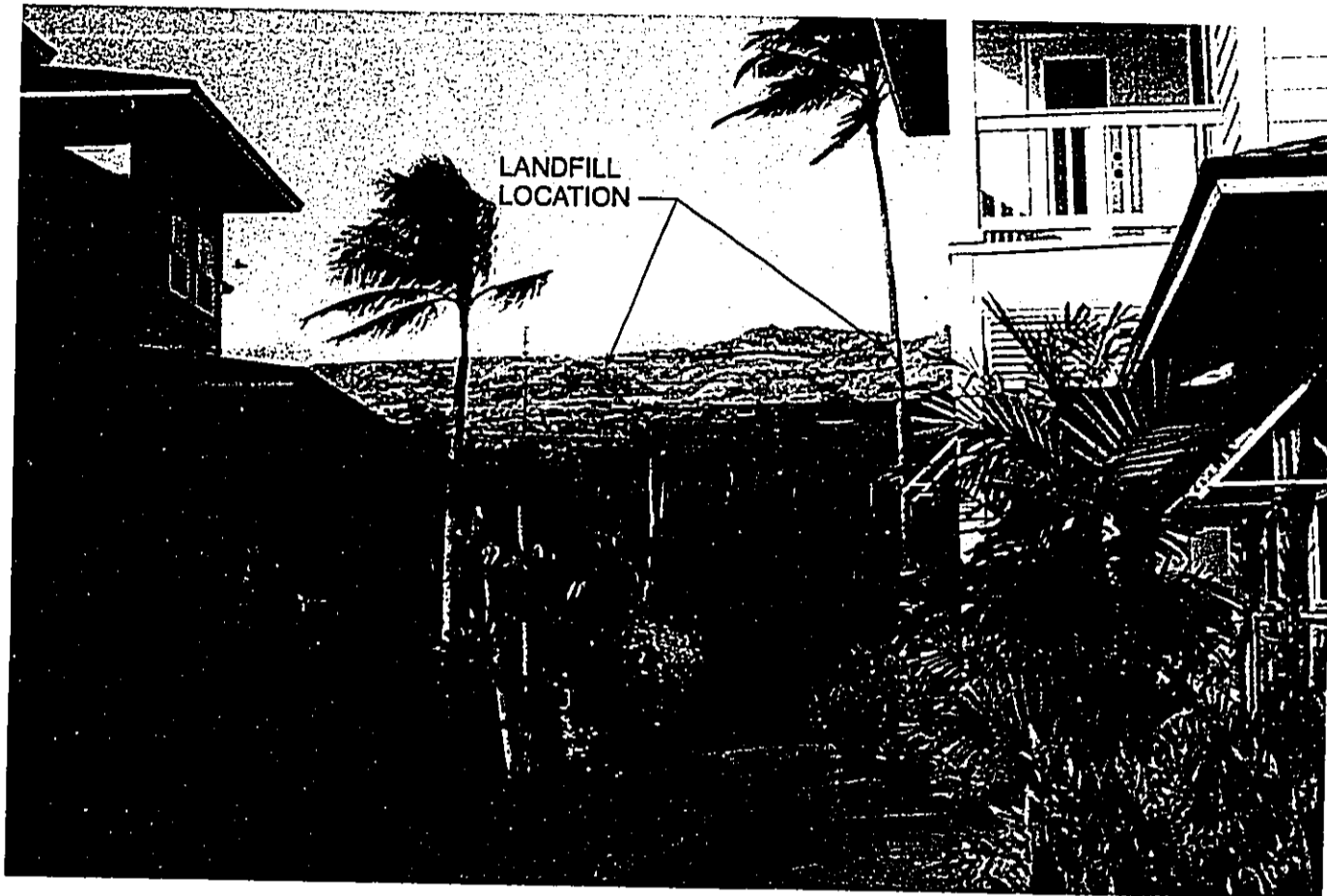


FIGURE 3-22
GROUND LEVEL VIEW FROM
COCONUT PLANTATION SUBDIVISION
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

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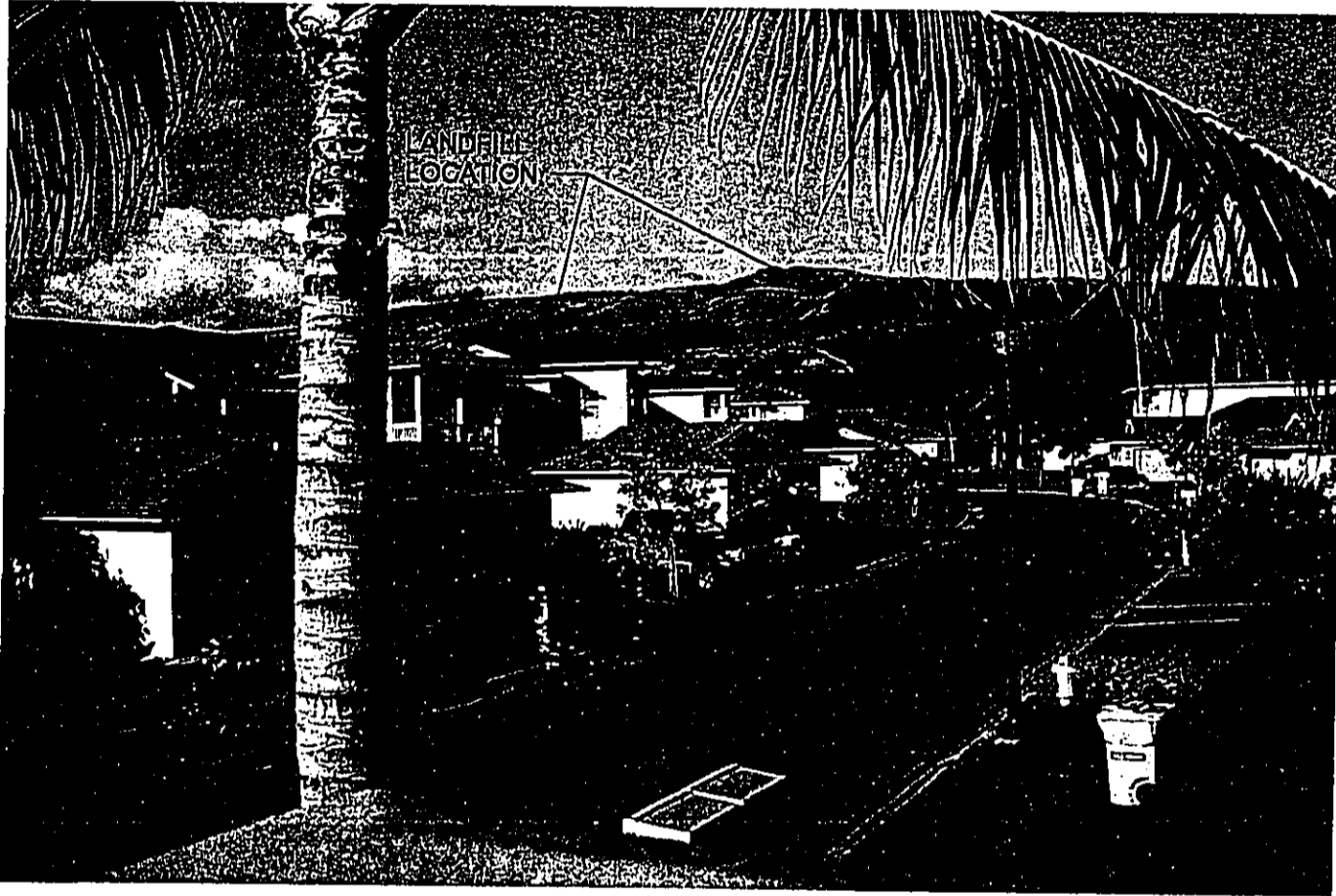


FIGURE 3-23
SECOND FLOOR VIEW FROM
COCONUT PLANTATION SUBDIVISION
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

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RECEIVED AS FOLLOWS

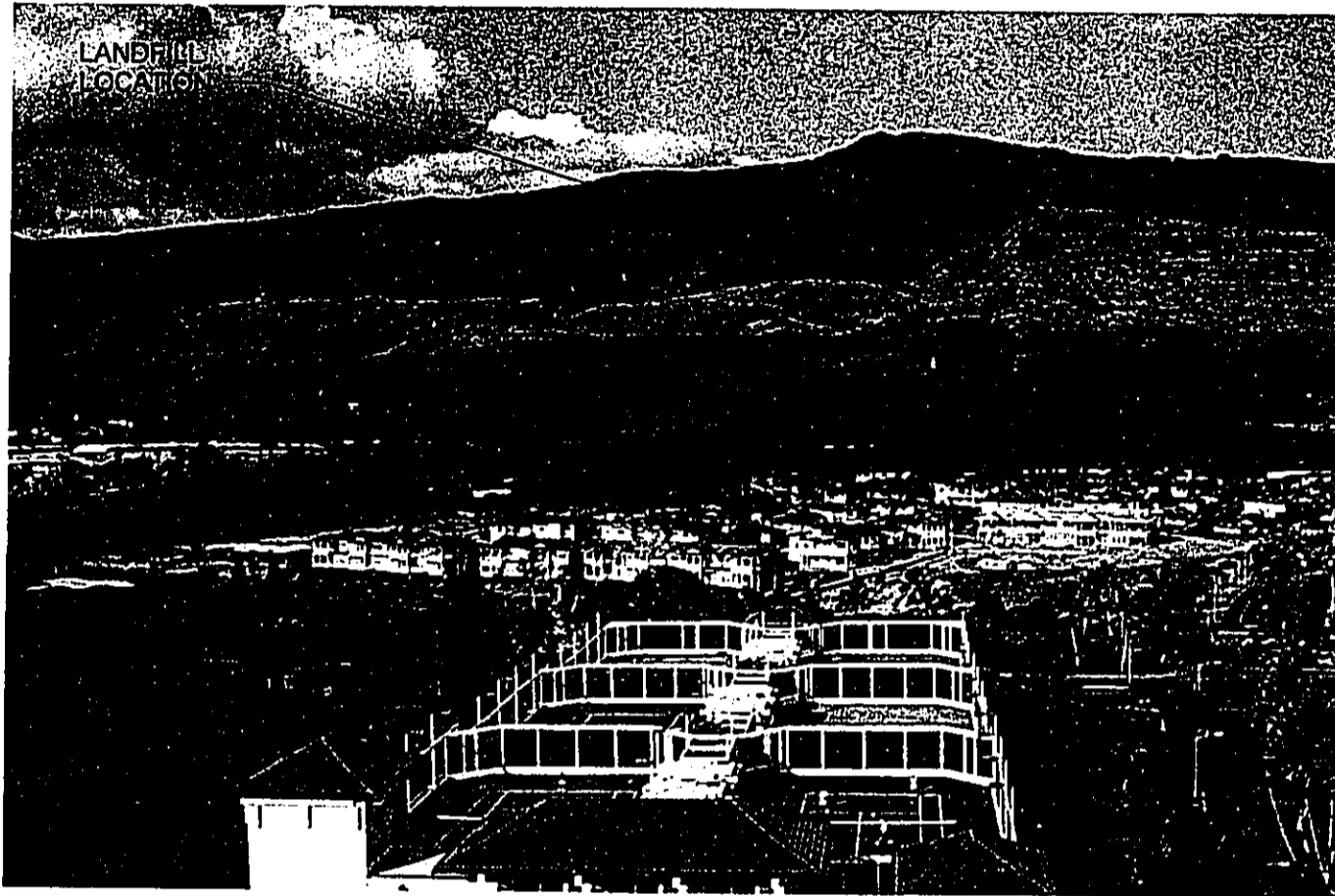


FIGURE 3-24
VIEW FROM IHILANI HOTEL
TOP FLOOR
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianac, Oahu, Hawaii



NO SCALE

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ENV acknowledges that revegetated areas will not visually match the natural hillsides on either side of the gulch without the appearance of comparable rock outcroppings. Therefore, ENV and Waste Management of Hawaii, Inc., plans to contract with a landscape architect to reproduce the natural hillsides by creating the appearance of horizontal rock outcroppings which have been painted onto rolls of erosion control fabric. The intended result will be a homogeneous hillside view from the coastal areas, with the appearance of grassed areas and rock outcroppings throughout. The painted fabric will be strategically applied to the slopes and surrounding ground area will be hydromulched to create groundcover. The groundcover grasses will germinate in the rainy season and dry out as the dry weather sets in, following the cycle of the surrounding vegetation. The fabric will have a special backing to inhibit weeds, and pre-emergent herbicides will be applied to the front of the mat if weeds do appear.

3.11.2 IMPACTS AND MITIGATION

The 14.9-acre landfill expansion will not be visible from Waianae or from Kahe Point. The view from Ko Olina will be limited to expansion cell E1. The footprint of the expansion area from the fifth floor of the Marriott Ihilani Resort will approximate Figure 3-25. The WGSL will be visible from limited sections of Farrington Highway as it passes in front of the landfill. The view of the proposed expansion from Farrington Highway is depicted in Figure 3-26.

Although the proposed 14.9-acre expansion will result in an overall increase of area used for landfilling, the eventual closure of the current WGSL area will provide for increased revegetation and recruitment of the same types of plant species as found on the surrounding slopes. Visual impacts from the expansion area will be most pronounced during the filling of cell E1 (Personal communication, Mr. Steven Casullo, Waste Management of Hawaii, Inc., November 2002). Filling of subsequent expansion cells will result in diminishing visual impacts from coastal areas as the filling proceeds up the gulch and eventually out of view.

ENV will employ the following mitigative measures during development of the 14.9-acre expansion area to minimize adverse visual impacts (the existing site landscaping plan will supplement the proposed mitigation measures):

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- Grading to establish expansion cells will be completed in accordance with a phasing plan and will be performed in compliance with the City and County of Honolulu Grading Ordinance. This will result in the incremental loss of some portions of naturally vegetated areas within the expansion area which will be revegetated as cells are filled.
- An additional landscape buffer will be established along the expansion cells, similar to the existing 400-foot wide buffer strip along the eastern portion of the landfill property.
- Completed landfill cells will be revegetated and provided with the outcropping fabric covers for visual continuity with existing areas of the landfill.



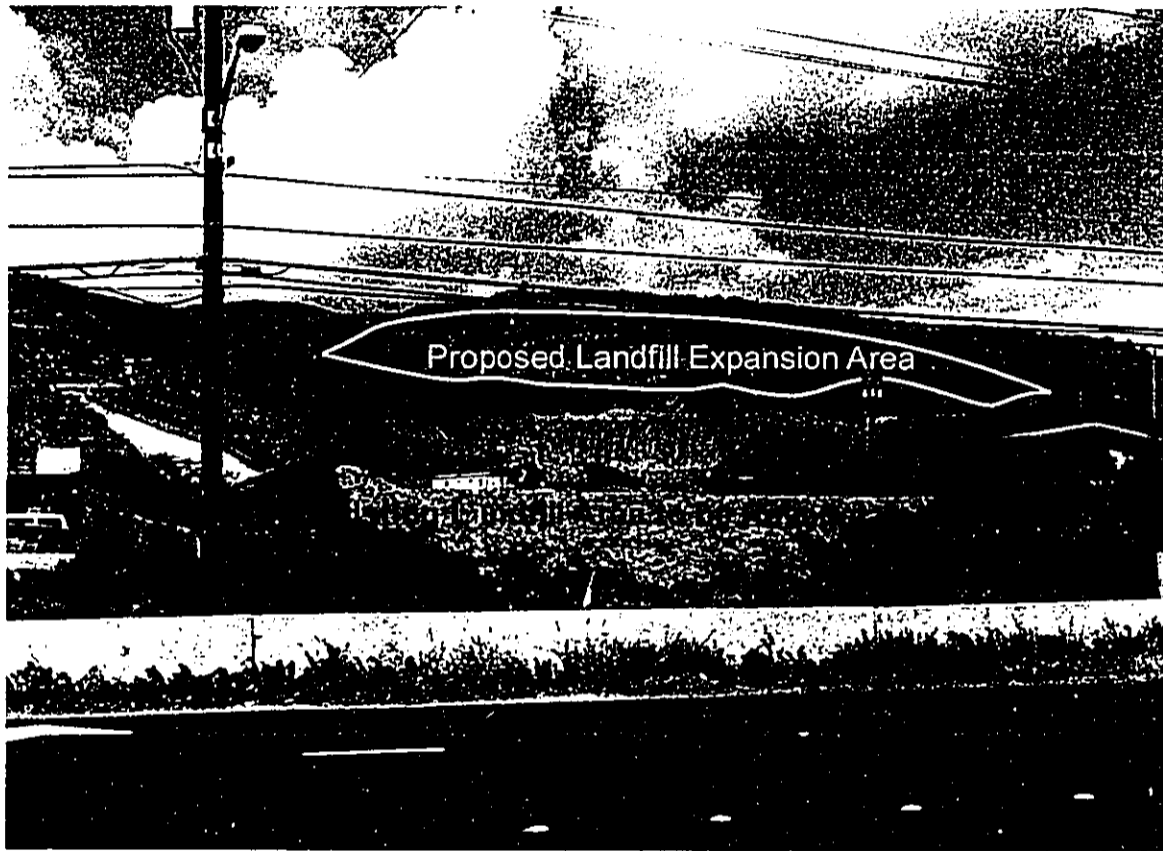
Approximate Elevation of Proposed Landfill Expansion
View from Ihilani Resort (northwest corner of the Hotel)

FIGURE 3-25
VIEW FROM IHILANI RESORT
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

RECEIVED AS FOLLOWS



Approximate Elevation of Proposed Landfill Expansion
View along Farrington Highway (500 feet west of landfill gate)

FIGURE 3-26
VIEW ALONG FARRINGTON HWY
Waimanalo Gulch
Sanitary Landfill Expansion FSEIS
Waianae, Oahu, Hawaii



NO SCALE

R. M. TOWILL CORPORATION December 2002

CHAPTER 4
PUBLIC SERVICES AND RELATED IMPACTS

4.1 TRAFFIC AND ROADWAYS

4.1.1 TRAFFIC AND ROADWAYS

Farrington Highway is the primary arterial highway serving the Waianae Coast and is under the jurisdiction of the State Department of Transportation. At its intersection with the project site, the highway is a four-lane facility consisting of two 24-foot-wide travelways with a 24-foot-wide grassed median. The posted speed limit is 45 miles per hour.

The WGS� access road intersects Farrington Highway at the stem of a "T" intersection. The intersection is channelized: vehicles approaching the highway from the landfill are controlled by a stop sign prior to crossing the Waianae-bound lanes of the highway to turn left and proceed Honolulu-bound. Field observations and research indicate that the intersection of Farrington Highway and the landfill access road operates at acceptable conditions.

Acceleration and deceleration lanes provide entry and exit from the landfill.

- Left turns onto the highway are made across gaps in the Waianae-bound traffic stream into an acceleration lane in the highway median. This traffic must then merge with Honolulu-bound traffic. A yield sign controls vehicles making right turns from the landfill access road into Waianae-bound Farrington Highway traffic.
- An auxiliary lane between the on-ramp from the Ko Olina interchange and the landfill access road serves as a deceleration lane for Waianae-bound traffic turning right into the landfill site. A separate left turn deceleration lane is provided within the highway median for Honolulu-bound traffic turning left into the landfill site.

Current traffic volumes on Farrington Highway vary with the day of the week, with the highest volumes occurring on Fridays. Weekday peak hours typically occur from 6:15 -7:15 a.m. in the Honolulu-bound lanes and between 3:30-4:30 p.m. in the Waianae-bound lanes. Estimated volume

on the landfill access road is 70 vehicles per hour (total of entering and exiting traffic), during midday hours when highway volumes are approximately two-thirds of the peak hourly volumes.

Peak hours and travel direction peaks for Farrington Highway traffic and WGSL traffic do not coincide. During the peak Farrington Highway morning and afternoon periods, traffic volumes in and out of the landfill are about half of the maximum WGSL hourly volumes. Gaps in the highway traffic streams resulting from the traffic signals at Laaloa and Piliokahi Streets provide periodic opportunities for landfill traffic to cross or enter Farrington Highway.

According to long-range projections from the Oahu Regional Transportation Plan (OMPO, 1995), morning peak traffic along Farrington Highway at Kahe Point will increase from the current 2,000 vehicles per hour to 2,880 vehicles per hour, or from 36,000 to 70,000 vehicles per day (about 45%).

Traffic volume into the landfill has decreased over time. Between calendar years 1997 to 1999, the available data indicate a 21% decrease in vehicle volume entering the landfill:

<u>Year</u>	<u>Total Loads Received</u>	<u>Percent Change</u>
1997	102,052	
1998	84,646	
1999	80,460	-21%

4.1.2 IMPACTS AND MITIGATION

Traffic in and out of the WGSL site is not expected to change materially with the 14.9-acre expansion, because the same number of cells will be active at one time (i.e., the currently active cells will be covered and expansion cells will be opened in a serial fashion).

A Traffic Analysis was conducted for the proposed 14.9-acre expansion (Appendix C - Traffic Assessment and Recommendations). Results of the Traffic Analysis indicate that the current two-lane access road, constructed during the development of the original landfill, will be sufficient to accommodate the proposed 14.9-acre expansion. Public agencies concur with this conclusion.

- In reviewing this the RDSEIS, the State Department of Transportation (DOT) stated, "The proposed expansion is not anticipated to have a significant impact on our State highway facilities." (August 30, 2001; see Comments and Responses to the RDSEIS).
- Concurrence from the City Department of Transportation Services (DTS) was also received in response to the RDSEIS: "As stated in our August 21, 2000 memorandum regarding the subject project, the proposed project does not affect streets under City jurisdiction. For this reason, we have no objection to the proposed project." (September 26, 2001; see Comments and Responses to the RDSEIS).

According to the Traffic Analysis, vehicle movements in and out of the project site which stop or yield to Farrington Highway traffic will be more difficult with the forecast 45% increase in Farrington Highway peak hour traffic volumes. Delays for Farrington Highway traffic are expected to increase as the number of acceptable gaps in the highway traffic stream decreases. The Traffic Analysis for the proposed 14.9-acre expansion cited the possibility of installing traffic signals at the intersection of the landfill access road and Farrington Highway to decrease future delays. However, minor street volumes at the intersection will likely not meet the *minimum* volumes needed to satisfy any of the volume warrants for traffic signals. Proper timing of the nearest signals at Piliokahi Avenue (2.2 miles to the west) and at Waiomea Street (0.8 mile to the east) could provide sufficient gaps in traffic to enable movements into and out of the landfill access road with minimal delay.

Although the Traffic Analysis indicates there will be sufficient capacity at the existing intersection of the landfill access road with Farrington Highway, overall traffic conditions at the project site, ENV will monitor and assess the need for a traffic signal or other traffic control measure in the future.

4.2 WASTEWATER

4.2.1 WASTEWATER

The existing landfill facility is served by two existing cesspools which accommodate domestic flows from the administrative and service buildings of the site. According to the WGSL operator Waste Management of Hawaii, Inc., the State Department of Health has concurred that continuation of the two cesspools will be adequate.

4.2.2 IMPACTS AND MITIGATION

The proposed project is not anticipated to result in potential for negative adverse impacts due to wastewater treatment. The project will not require upgrades to municipal wastewater service lines or to the Honouliuli Wastewater Treatment Plant.

If the facility is connected to the City wastewater system in the future, there is an existing 8-inch line located in Aliinui Drive. A Sewer Connection Application Form for sewer capacity reservation, and payment of a Wastewater System Facility Charge, would be required for the connection. At this time, however, the Makakilo Interceptor Sewer is at capacity and a waiting list has been established to handle new applicants.

4.3 POTABLE WATER

4.3.1 POTABLE WATER

The existing facility is served by an underground service line within the project site which connects to Board of Water Supply (BWS) service lines along Farrington Highway.

4.3.2 IMPACTS AND MITIGATION

The proposed project will be served by existing BWS service lines along Farrington Highway. No major new requirements involving use of water supply will be required to accommodate the proposed 14.9-acre expansion.

Coordination with BWS indicates that there are no objections to the proposed project, with the exception of a request that waste disposal matters be coordinated with the State Department of Health (DOH) (BWS letter to ENV, January 11, 2000, and July 18, 2001). All plans for the proposed project will therefore conform to applicable provisions of DOH rules and regulations governing waste disposal.

No additional mitigation measures will be required for the proposed project.

4.4 POWER AND COMMUNICATION

4.4.1 POWER AND COMMUNICATION

Electrical power is provided by Hawaiian Electric Company (HECO) via overhead service lines. Existing transmission lines owned by HECO traverse the middle to upper portions of the existing landfill site. The transmission lines are located within an existing easement which allows for the overhead crossing of the landfill. An easement across the existing landfill access road is also held by HECO to allow for periodic maintenance of the high tension lines. The HECO transmission lines will cross portions the proposed landfill expansion.

Telephone and telecommunications services are provided by Verizon Hawaii (formerly GTE Hawaiian Tel) via use of overhead service lines along Farrington Highway. Provision of power and communications services are adequate and are expected to remain sufficient for the foreseeable future.

4.4.2 IMPACTS AND MITIGATION

The proposed expansion will maintain the existing 100-foot-wide easements for each of the four transmissions lines and access road easement. As required by the State of Hawaii General Order No. 6 (Rules for Overhead Electric Line Construction in Hawaii), the conductor-to-ground clearance for landfill operations must be at least 30 feet for areas traversed by vehicles and 25 feet for areas accessible to pedestrians only. The proposed project will maintain a current 34-foot minimum vertical clearance below each of the four transmission lines.

Construction of the proposed 14.9-acre expansion will be coordinated with HECO to prevent disruption to services. Existing utilities will be restored or relocated according to requirements of Waste Management of Hawaii, Inc., and HECO. Protection of the high voltage transmission lines will also be provided by installation of portable and permanent litter fences along the working face of the landfill in relation to prevailing trade winds. Portable litter fences will be used to address periodic Kona winds or storms. This will deter windblown litter from interfering with the HECO transmission lines. At the end of each working day, the landfilled refuse will be compacted and

covered with approximately six inches of soil material to reduce problems associated with windblown litter as well as potential vector, odor, and fire problems.

The Palehua Solar Observatory, operated by the U.S. Air Force, is located approximately 10 miles to the northeast, and could be affected by maintenance or installation of new power lines. The U.S. Air Force will be contacted to ensure appropriate coordination regarding avoidance of potential impacts to sensitive electronic equipment contained at the observatory.

4.5 POLICE PROTECTION

4.5.1 POLICE PROTECTION

Honolulu Police Department District 8 encompasses the Waianae Coast, Makakilo, Ewa Plain, and the city of Kapolei. The district has a total land area of 128 square miles and approximately 35 miles of coastline. District 8 has 18 beats. The district headquarters is in Kapolei. A substation is located in Waianae, providing a base of operations for officers patrolling the Waianae Coast (SMS, December 2002). The project site is served by the Waianae and Kapolei Police Stations.

4.5.2 IMPACTS AND MITIGATION

Commenting on the Draft EIS, Honolulu Police Department officials noted that there may be an impact on calls for police service in the area while the landfill is being expanded (letter of June 29, 2000, from Lee. D. Donohue, Chief of Police, to Kenneth E. Sprague, in R.M. Towill, 2001). In their response to the RDSEIS dated July 27, 2001, the Police Department indicated the proposed project may have an impact on calls for police service. Calls for police service are anticipated to occur for the following reasons:

- There is a call from the public or the landfill operator when there are refuse vehicles with unsecured loads illegally depositing litter along the highway.
- There is vandalism or other public disturbance at the landfill.
- There is a fire or other emergency at the site requiring police assistance.

Construction of a lined sanitary landfill is a continuing process, conducted on-site, which does not bring additional large trucks to the project site. The police concern was, in effect, that landfill operations could lead to calls from neighbors (due to litter, odors or other irritants) and hence increase demand for limited police time. Failure to control irritants, then, would have an impact on the ability of the Department to respond to other demands. Again, if mitigation of problems with litter on the highways calls for police to witness trash falling off trucks, to cite the offender, and to spend time in court, this activity would make demands on police officers' time, when they need to deal with other issues (SMS, December 2002).

Illegal dumping from unsecured refuse loads will be monitored during use of the expansion area by Waste Management of Hawaii, Inc., and ENV. Refuse drivers making deliveries to the landfill will continue to be notified that any infractions will be cause for refusal to accept loads. If there are continued infractions by the same refuse vehicle carrier/driver, the police will be notified and appropriate action taken.

Vandalism or other public disturbances will be addressed by continued use of a security guard at the entry to the landfill when the landfill is closed. During normal operating hours vandalism or other public disturbances are not expected because of presence of on-site personnel. However, if required, police will be contacted.

Fire or other emergencies will first be handled by adherence to the WGS� site operations manual, which requires the operator to first assess the situation, followed by an appropriate course of action which may include notifying authorities for assistance.

4.6 FIRE PROTECTION

4.6.1 FIRE PROTECTION

Leeward Oahu is served by the Honolulu Fire Department's Fourth Battalion. The Kapolei Fire Station, Station 40, also serves as the headquarters for Battalion 4. The headquarters building houses an engine and a ladder truck. Station 28, in Nanakuli, has an engine and a tanker. Station 26, the Waianae Fire Station, also has an engine and tanker. Also housed in this fire station are the

Waianae EMS units. The Makakilo Fire Station (No. 35) has a single engine. Station 24, the Ewa Beach Fire Station, has one fire engine (SMS, December 2002).

4.6.2 IMPACTS AND MITIGATION

In their response to the RDSEIS dated July 29, 2001, the Fire Department requested that fire apparatus access be maintained throughout the construction site for the duration of the project. Fire apparatus access will be maintained throughout the site to ensure that fire fighting vehicles and equipment are capable of mobilizing to all locations of the working landfill. Fire Department access to the site will be maintained for the duration of the proposed expansion project.

City and County of Honolulu fire fighting personnel will be called on to assist whenever there is an emergency. On-site fire protection will consist of earth stockpiles near the working face, fire breaks, and utilization of a 6,000-gallon water truck. Daily cell construction, involving the compacting of refuse and covering with approximately six inches of soil material, has proven effective in fire prevention. Site personnel have been instructed in the most efficient fire fighting procedures. The appropriate use of heavy compacting equipment will also be effective in preventing oxygen from penetrating the landfill and promoting combustion. Equipment storage and maintenance fires will be handled with fire extinguishers. One 20-pound fire extinguisher will be supplied with each landfill work vehicle. All on-site fire fighting equipment will be regularly maintained and inspected to ensure optimum operating efficiency.

Some interviewees for the Socio-Economic Assessment expressed concern that landfill debris could tangle electric lines running from the Hawaiian Electric Plant at Kahe and risk a fire or loss of power. Neither Fire Department nor Hawaiian Electric staff raised the issue, and Waste Management staff are confident that the lines in question are well insulated, making any risk of fire minimal (SMS, December 2002).

No impact on fire protection services is anticipated, therefore no mitigation is planned.

4.7 HEALTH CARE AND EMERGENCY SERVICES

4.7.1 HEALTH CARE AND EMERGENCY SERVICES

Leeward Oahu is served by St. Francis West, a 100-bed hospital outside Waipahu, the Waianae Coast Comprehensive Health Clinic, between Nanakuli and Waianae, and clinics in Kapolei maintained by other health care providers. No major changes in medical services are known to be planned for the region (SMS, December 2002).

Emergency Medical Services Division staff and trucks are located at the Waianae Fire station and at St. Francis West Hospital in Ewa. A quick response unit, with a paramedic and a truck, but without the ability to transport patients, is located at the Navy medical clinic in Barbers Point. Also, it is Fire Department practice to co-respond to calls for emergency services. The Division is considering funding applications to establish a new unit in Nanakuli and to upgrade its capability at Barbers Point to a full unit (personal communication, Assistant Chief Donald Gates, December 2002). No changes in staffing and facilities have been approved (SMS, December 2002).

4.7.2 IMPACTS AND MITIGATION

The proposed expansion will result in the continued use of the site, within a smaller footprint of 14.9 acres. The continued use of the site is not anticipated to require additional health care or emergency services beyond those presently available (SMS, December 2002).

No project impact is anticipated and no mitigation is required.

4.8 EDUCATION

4.8.1 EDUCATION

Leeward Oahu has seen growth in school populations and schools in recent years, notably in Kapolei where new middle and high schools have opened. Availability of primary school space remains a problem. (When space became available at Barbers Point Elementary as Navy families left

nearby housing, many Makakilo families objected to assignment of their children to an older school, located several miles downhill from their homes.) (SMS, December 2002)

No major change is expected in the next few years. Continued development of Kapolei High School is planned. A possible new primary school in Ko Olina has been discussed for some time, and developers' plans show a location for a school. However, the site has not been accepted by the Department of Education, and it is smaller -- six acres rather than twelve -- than DOE planners prefer. No funds have been requested, much less obtained, for such a school, and current school-age populations are not large enough to justify new construction (SMS, December 2002).

Since the market niches to which Ko Olina developers are selling - notably second home buyers and retirees - are likely to have few school-age children, no significant increase in demand for a school is expected in this decade (SMS, December 2002).

4.8.2 IMPACTS AND MITIGATION

Since the project does not affect school service populations or school sites, no impact is anticipated and no mitigation measures are required.

4.9 LIBRARY SERVICES

4.9.1 LIBRARY SERVICES

Hawaii's public libraries are operated by the State Department of Education. Libraries are open in Waianae and Ewa Beach. A new library has been built in Kapolei, but funds for collections were not included in the most recent legislative appropriation. The 2003 Legislature is expected to provide monies for a collection and staffing at Kapolei Public Library (SMS, December 2002).

4.9.2 IMPACTS AND MITIGATION

No project impact on library services is anticipated and no mitigation is required.

4.10 PARKS AND RECREATION

4.10.1 PARKS AND RECREATION

No recreational uses are permitted within the WGSL property. Nearby recreational areas are primarily located south of Farrington Highway, and include the Ko Olina Golf Course, tennis courts associated with the Ko Olina Resort and Marriott Ihilani Hotel, hiking trails, parks, and beach parks. The major public recreational areas in the immediate WGSL vicinity are the beach parks along Kahe Point. The beach parks support surfing, swimming, picnicking, skin diving, boating, and related uses.

District III of the City and County of Honolulu Parks and Recreation Department encompasses the 23 parks on the leeward side of Oahu. There are parks situated in each of the major residential zones. Also, beach parks are located along the Waianae Coast, at the tip of Barbers Point (in the Campbell Industrial Park) and in Ewa Beach. At Barbers Point NAS, White Plains and Nimitz Beach were popular. These are under joint Navy and Parks Department control.

After the closure of Barbers Point, much of the Navy land was conveyed to the City and County of Honolulu for eventual redevelopment as recreation and sports facilities. Funds for significant new development have not yet been allocated, so major changes are not likely in this decade.

4.10.2 IMPACTS AND MITIGATION

The proposed expansion project will involve use of an undeveloped portion of the existing 200-acre property owned by the City and County of Honolulu. No recreational facilities exist at the site, nor will the site be permitted to be used for recreational purposes for the duration of use of the site for a landfill. Therefore, no impact is foreseen and no mitigation measures are proposed.

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CHAPTER 5
SOCIO-ECONOMIC ENVIRONMENT AND RELATED IMPACTS

5.1 SOCIO-ECONOMIC CHARACTERISTICS

In December 2002, a *Socio-Economic Impact Assessment of Waimanalo Gulch Sanitary Landfill Expansion* was completed in support of this FSEIS by SMS Marketing and Research Services, Inc., (SMS)(Appendix D - Socio-Economic Impact Assessment). A socio-economic impact assessment is conducted to establish, for the use of policy-makers and the public at large, information about a proposed project and its consequences that can help to reach planning decisions. It is typically appended to an Environmental Impact Statement. Where appropriate, the SMS report points to other technical studies for more detailed examination of topics handled in them.

5.1.1 DEMOGRAPHICS

The area of the proposed project is in the Ewa District, on the western side of the Island of Oahu. This encompasses the communities of Makakilo, Kapolei, developments and subdivisions such as Ko Olina and Honokai Hale, and portions of Nanakuli, which is a part of the Waianae Coastline.

Oahu and Nearby Community Population Characteristics

According to Table 5-1, **Population Growth in Study Areas**, Oahu's population growth has been slowing over recent decades, a trend mirrored on the Waianae Coast (SMS, December 2002). As a major site for housing development, the Ewa area saw higher growth in the 1970s and the 1990s.

According to Census data for Oahu, demographic changes for the last decade indicated the following (Table 5-2, Demographic Changes, Oahu, 1999-2000):

TABLE 5-1
Population Growth in Study Areas

Population	1960	1970	1980	1990	2000
City & Cty. of Honolulu	500,409	630,528	762,565	936,255	876,156
Ewa	NA	24,235	35,585	42,983	68,728
Waianae	16,452	24,077	31,487	37,411	42,259
Average Annual Rate of Growth	1960-70	1970-80	1980-90	1990-2000	
City & Cty. of Honolulu	2.3%	1.9%	0.9%	0.5%	
Ewa DP Area		3.9%	1.9%	4.8%	
Waianae DP Area	3.9%	2.7%	1.7%	1.2%	

- The population has aged greatly, with the median age climbing 3.5 years to 35.7 years;
- While the cohorts between age 20 and age 35 have shrunk, the number of persons age 75 and over has increased by about two-thirds of the 1990 levels;
- The number of family households has only grown slightly, but the number of households headed by single women has increased sharply;
- Single-person households have come to form 21.6% of all households; and
- The average household size, which has been declining for decades, reached 2.95.

Housing data show a strong increase in owner-occupied units. These now constitute 54.6% of occupied housing units. In the early 1990s, housing policy focused on a crisis in supplying housing for the middle-income "gap group." By 2000, the increase in the actual number of housing units is modest, but that increase has been concentrated in fee simple homes for mid-range buyers. At the same time, the young persons and families likely to add demand both for rentals and for "starter" homes in the fee simple market form a smaller group than in 1990, partly due to emigration.

TABLE 5-2
Demographic Changes, Oahu, 1990-2000
(SMS Research, December 2002)

Subject	1990	2000	Change	
			Number	Percent
Total population.....	836,231	876,156	39,925	4.8
SEX AND AGE				
Male.....	425,994	440,518	14,524	3.4
Female.....	410,237	435,638	25,401	6.2
Under 5 years.....	61,931	56,849	-5,082	-8.2
5 to 9 years.....	58,558	60,425	1,867	3.2
10 to 14 years.....	53,191	57,574	4,383	8.2
15 to 19 years.....	54,992	57,176	2,184	4.0
20 to 24 years.....	75,418	65,376	-10,042	-13.3
25 to 34 years.....	156,619	130,624	-25,995	-16.6
35 to 44 years.....	130,573	137,278	6,705	5.1
45 to 54 years.....	81,899	117,239	35,340	43.2
55 to 59 years.....	34,560	42,705	8,145	23.6
60 to 64 years.....	36,658	33,173	-3,485	-9.5
65 to 74 years.....	58,279	62,474	4,195	7.2
75 to 84 years.....	25,939	42,504	16,565	63.9
85 years and over.....	7,614	12,759	5,145	67.6
Median age (years).....	32.2	35.7	3.5	10.9
18 years and over.....	631,618	667,398	35,780	.
Male.....	320,656	333,139	12,483	3.9
Female.....	310,962	334,259	23,297	7.5
21 years and over.....	592,601	631,039	38,438	6.5
62 years and over.....	113,889	136,945	23,056	20.2
65 years and over.....	91,832	117,737	25,905	28.2
Male.....	42,867	51,694	8,827	20.6
Female.....	48,965	66,043	17,078	34.9
RELATIONSHIP				
Total population.....	836,231	876,156	39,925	4.8
In households.....	802,338	845,211	42,873	5.3
Householder.....	265,304	286,450	21,146	8.0
Spouse.....	158,438	156,195	-2,243	-1.4
Child.....	259,193	253,649	-5,544	-2.1
Own child under 18 years.....	172,112	167,706	-4,406	-2.6
Other relatives.....	74,876	96,718	21,842	29.2
Under 18 years.....	(NA)	35,471	(NA)	(X)
Nonrelatives.....	44,527	52,199	7,672	17.2
Unmarried partner.....	6/ 10,436	14,420	3,984	38.2
In group quarters.....	33,893	30,945	-2,948	-8.7
Institutionalized population.....	6,365	5,809	-556	-8.7
Noninstitutionalized population.....	27,528	25,136	-2,392	-8.7

TABLE 5-2, CONTINUED
 Demographic Changes, Oahu, 1990-2000
 (SMS Research, December 2002)

Subject	1990	2000	Change	
			Number	Percent
HOUSEHOLDS BY TYPE				
Total households.....	265,304	286,450	21,146	8.0
Family households (families).....	197,294	205,672	8,378	4.2
With own children under 18 years.....	92,583	91,022	-1,561	-1.7
Married-couple family.....	158,438	156,195	-2,243	-1.4
With own children under 18 years.....	76,217	70,442	-5,775	-7.6
Female householder, no husband present.....	27,773	35,138	7,365	26.5
With own children under 18 years.....	12,479	15,235	2,756	22.1
Nonfamily households.....	68,010	80,778	12,768	18.8
Householder living alone.....	51,006	61,963	10,957	21.5
Householder 65 years and over.....	14,868	20,021	5,153	34.7
Households with individuals under 18 years.....	(NA)	108,247	(NA)	(X)
Households with individuals 65 years and over.....	(NA)	80,464	(NA)	(X)
Average household size.....	3.02	2.95	-0.07	-2.3
Average family size.....	3.50	3.46	-0.04	-1.1
HOUSING OCCUPANCY				
Total housing units.....	281,683	315,988	34,305	12.2
Occupied housing units.....	265,304	286,450	21,146	8.0
Vacant housing units.....	16,379	29,538	13,159	80.3
For seasonal, recreational, or occasional use.....	4,462	6,856	2,394	53.7
Homeowner vacancy rate (percent).....	0.6	1.6	1.0	166.7
Rental vacancy rate (percent).....	4.3	8.6	4.3	100.0
HOUSING TENURE				
Occupied housing units.....	265,304	286,450	21,146	8.0
Owner-occupied housing units.....	137,910	156,290	18,380	13.3
Renter-occupied housing units.....	127,394	130,160	2,766	2.2
Average household size of owner-occupied units.....	3.23	3.13	-0.10	-3.1
Average household size of renter-occupied units.....	2.80	2.74	-0.06	-2.1

NOTE: SMS views change in the number of vacant housing units for seasonal, recreational, or occasional use as partly due to changes in enumeration practice.
SOURCE: Hawaii State Data Center, based on US Census Bureau "Table DP-1. Profile of General Demographic Characteristics: 2000" Geographic area series (May 2001).

Data on particular communities near the project site bring out some of the distinctive characteristics of these areas (Table 5-3, Demographic Characteristics, Island and Selected Areas, 2000; Table 5-4, Households, Island and Selected Areas, 2000; Table 5-5, Household Incomes, Island and Selected Areas, 1999; and Table 5-6, Labor Force Characteristics, Island and Selected Areas, 2000):

- The Ewa DP area has a young population. Households are larger than the average (3.69 persons per household, vs. 2.95 persons in the average household for Oahu as a whole) and tend to be affluent. The regional median household income is 115% of the island median. Fewer households have social security, retirement or public assistance income than elsewhere on Oahu. Workers living in the Ewa DP area are diverse in occupation, but even fewer are in agriculture than islandwide. Commuting times are long, and a third of the workforce normally drives over 45 minutes to work.
- Among the Ewa communities of interest in this report, Ko Olina/Honokai Hale¹ stands out in several ways. Its population tends to be older, with a median age of 36.8, slightly higher than the island median. Most households do not have members younger than 18. The median household income level is much higher than in the other communities studied. However, the share of children under 18 living with family who are below the poverty level is comparable to that found in the Waianae Coast, suggesting that the young families in this area face an economic situation very different from that of their older neighbors.
- The Waianae Coast Sustainable Communities Plan area ("DP area" in Exhibits 2-E to 2-H) also has a young age structure (with a median age of 28.5) and even larger households. (the median household size is 3.97.) Incomes tend to be below the island median, and dependence on public assistance – 25.5% of households – is high. While commuters' use of public transportation was slightly higher than in Ewa, over 80% of workers still drove to and from work, and mean travel time to work was high (41.9 minutes).

¹ In the Census tables, "Ko Olina" consists of Census Tracts 86.09 and 86.10, and includes Honokai Hale as well as Ko Olina.

- Nanakuli Census data are much like the data for the Waianae Coast region. Household sizes are especially large (with a median size of 4.65 persons/household). In three-generation households, grandparents are more likely than elsewhere to be responsible for grandchildren.

TABLE 5-3
Demographic Characteristics, Island and Selected Areas, 2000
(SMS Research, December 2002)

	City & County of Honolulu	Ewa DP	Waianae DP	Makakilo GDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Population	878,158	57,285	42,259	13,158	17,441	1,680	10,814
Male	50.3%	50.4%	50.0%	50.3%	50.3%	50.9%	49.8%
Female	49.7%	49.6%	50.0%	49.7%	49.7%	49.1%	50.2%
Age							
Under 5	8.5%	9.2%	8.9%	8.6%	8.4%	6.2%	8.8%
5 to 9	8.9%	10.0%	9.7%	9.2%	10.2%	6.9%	9.9%
10 to 14	8.6%	8.3%	10.0%	8.4%	9.2%	6.8%	10.7%
15 to 19	8.5%	8.6%	9.5%	6.7%	7.1%	5.8%	10.4%
20 to 24	7.5%	8.0%	7.4%	6.0%	5.1%	5.1%	7.5%
25 to 34	14.9%	17.8%	13.0%	15.6%	15.8%	17.6%	12.7%
35 to 44	15.7%	18.0%	14.3%	18.0%	18.8%	16.3%	14.7%
45 to 54	13.4%	10.3%	11.9%	13.2%	11.3%	14.8%	10.9%
55 to 59	4.9%	3.6%	4.2%	4.7%	3.4%	5.9%	4.4%
60 to 64	3.8%	3.0%	3.1%	3.6%	2.8%	5.1%	3.2%
65 to 74	7.1%	4.6%	5.0%	4.3%	4.5%	5.9%	4.4%
75 to 84	4.9%	2.1%	2.4%	1.5%	2.7%	2.9%	2.0%
85 and over	1.5%	0.6%	0.7%	0.3%	0.9%	0.7%	0.4%
Median Age	35.7	30.9	28.5	32.4	31.4	36.8	27.2
Education							
Population 25 years or over	579,998	34,566	23,193	8,097	10,419	1,268	5,541
Less than 9th grade	7.3%	8.2%	6.4%	2.7%	10.4%	8.3%	7.1%
9-12 grade, no diploma	7.9%	9.3%	15.7%	7.2%	8.8%	7.3%	17.5%
High School graduate	27.8%	28.3%	45.3%	27.7%	27.1%	31.7%	49.0%
Some college/Associate degree	29.2%	34.5%	24.4%	36.2%	32.4%	30.2%	19.8%
Bachelor degree	18.9%	15.3%	8.1%	19.5%	16.7%	14.8%	4.9%
Graduate/Professional degree	9.0%	4.5%	2.1%	6.8%	4.6%	9.6%	1.7%
School Enrollment							
Population 3 years or older in:	234,038	17,143	13,283	4,148	5,644	345	2,188
Preschool	5.5%	5.7%	5.3%	7.9%	6.1%	2.6%	4.1%
Grades K through 8	45.7%	54.8%	56.0%	51.4%	55.5%	41.7%	58.8%
Grades 9 through 12	20.8%	20.9%	58.9%	17.8%	20.3%	25.2%	27.3%
College or Graduate School	28.0%	18.6%	11.8%	22.9%	18.2%	28.7%	9.8%

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

TABLE 5-4
Households, Island and Selected Areas, 2000
(SMS Research, December 2002)

	City & County of Honolulu	Ewa DP	Waiānae DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Type							
Family HH	71.8%	84.9%	83.6%	82.7%	86.1%	78.8%	90.2%
With Own Children Under 18	31.8%	49.3%	43.3%	44.2%	52.5%	26.9%	48.0%
Non-family HH	28.2%	15.1%	16.4%	17.3%	13.9%	21.0%	9.8%
Householder living alone	21.6%	10.6%	11.9%	11.3%	10.8%	15.7%	6.7%
HH with members under 18	37.8%	57.5%	57.8%	51.4%	59.2%	37.1%	64.8%
HH with members 65 years and over	28.1%	19.1%	23.2%	15.1%	21.2%	21.0%	24.0%
Grandparents in HH							
Grandparent(s), grandchildren under 18 in same HH	36,668	3,145	3,182	554	895	77	750
Grandparent(s) responsible for grandchildren	28.1%	26.3%	36.3%	22.0%	24.0%	0.0%	48.5%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

TABLE 5-5
Household Incomes, Island and Selected Areas, 1999
(SMS Research, December 2002)

	City & County of Honolulu	Ewa DP	Waiānae DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Income Distribution	286,731	15,498	10,532	3,913	4,823	561	2,249
Less than \$10,000	7.3%	3.0%	11.6%	2.8%	3.9%	2.1%	7.2%
\$10,000 to \$14,999	4.1%	2.4%	6.8%	0.5%	2.6%	3.2%	9.9%
\$15,000 to \$24,999	9.9%	6.9%	12.7%	6.4%	6.2%	5.7%	11.3%
\$25,000 to \$34,999	11.1%	9.8%	10.8%	7.6%	8.7%	2.5%	11.3%
\$35,000 to \$49,999	15.4%	15.0%	15.2%	17.1%	13.6%	10.9%	16.7%
\$50,000 to \$74,999	20.6%	29.5%	22.0%	27.8%	30.8%	27.1%	22.3%
\$75,000 to \$99,999	13.4%	18.9%	10.8%	18.9%	19.7%	25.0%	11.4%
\$100,000 to \$149,999	12.3%	11.6%	7.6%	15.6%	10.7%	18.5%	7.8%
\$150,000 to \$199,999	3.3%	1.7%	1.3%	2.8%	2.4%	1.6%	1.2%
\$200,000 or more	2.5%	1.2%	1.3%	0.8%	1.4%	3.4%	0.8%
Median income	\$51,914	\$59,583	\$42,451	\$66,515	\$60,585	\$74,063	\$42,388
HH: Selected Income Sources							
Social Security Income	27.5%	18.7%	25.7%	17.9%	21.0%	29.7%	24.5%
Retirement Income	21.8%	18.1%	20.5%	6.5%	6.1%	27.0%	23.5%
Public Assistance Income	6.8%	7.7%	25.5%	22.6%	21.8%	10.1%	23.0%
Individuals Below Poverty Level	83,937	3,103	9,146	663	809	170	2,251
% of Persons under 18	12.9%	7.7%	29.1%	7.3%	7.3%	30.4%	27.0%
Children under 18 reld to household hd.	12.4%	9.3%	28.7%	7.1%	4.9%	29.1%	24.5%
Persons ages 18 to 64	9.0%	14.9%	18.1%	4.1%	5.1%	9.3%	18.9%
Persons ages 65 or more	7.4%	8.1%	10.3%	3.6%	24.3%	4.5%	6.7%
Unrelated individuals	23.8%	41.2%	40.5%	12.4%	22.0%	3.7%	45.4%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

TABLE 5-6
Labor Force Characteristics, Island and Selected Areas, 2000
 (SMS Research, December 2002)

	City & County of Honolulu	Ewa DP	Waiānae DP	Makakilo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Labor Force							
Population aged 18 or over	691,015	40,945	29,444	9,523	12,233	1,410	4,752
In Armed Forces	38,682	2,434	216	318	271	27	20
Potential Labor Force	652,333	38,511	29,228	9,207	11,962	1,383	4,732
% Actually in Civilian Labor Force	62.6%	63.1%	58.6%	72.7%	69.1%	68.0%	87.5%
Actual CLF	406,638	24,298	17,137	6,698	8,267	913	4,139
Male CLF	209,959	12,408	9,068	3,389	4,296	438	2,154
Female CLF	196,679	11,892	8,069	3,309	3,971	475	1,985
Labor Force Participation							
Male CLF	87.5%	88.0%	84.7%	76.2%	67.6%	78.8%	63.4%
Female CLF	58.2%	61.8%	53.1%	70.0%	65.1%	69.6%	51.8%
Unemployed							
Male CLF	6.9%	5.8%	15.2%	5.8%	5.7%	0.0%	18.2%
Female CLF	5.6%	5.5%	14.6%	4.6%	5.1%	2.5%	12.3%
Employed CLF							
By Selected Industry							
Agriculture, forestry, fishing	1.1%	0.5%	2.8%	0.5%	0.4%	0.0%	0.8%
Construction	5.4%	6.5%	8.8%	8.5%	6.2%	16.2%	7.9%
Manufacturing	3.8%	5.2%	4.5%	4.3%	4.9%	3.4%	4.3%
Wholesale Trade	3.4%	3.1%	4.3%	2.8%	3.2%	2.6%	4.0%
Retail Trade	12.2%	13.0%	13.2%	13.7%	12.0%	6.2%	9.6%
Transportation and utilities	6.5%	6.7%	8.9%	8.8%	7.2%	5.3%	13.1%
Information	2.7%	2.1%	1.3%	2.6%	2.2%	0.6%	1.7%
Finance, Insurance, Real Estate	7.5%	7.7%	5.3%	8.8%	9.2%	6.9%	6.1%
Professional, Mgmt, Admin.	9.9%	8.8%	9.1%	9.1%	8.8%	11.0%	9.5%
Education, Health, Social Services	19.9%	19.1%	17.7%	18.9%	18.6%	19.2%	17.3%
Recreation, Lodging, Food Services	13.8%	12.7%	12.3%	8.4%	13.9%	10.1%	10.9%
Other Services	4.5%	4.4%	4.7%	3.2%	4.8%	6.0%	5.5%
Public Administration	9.3%	10.1%	7.2%	12.5%	10.4%	12.5%	9.4%
By Occupation							
Management and Professional Service	33.8%	23.6%	21.8%	30.5%	26.1%	30.6%	17.5%
Sales and Office	19.6%	23.4%	22.0%	15.8%	24.5%	18.9%	20.0%
Farming, Forestry, and Fishing	29.1%	28.8%	26.7%	30.8%	29.0%	26.6%	29.8%
Construction, Mining, Maintenance	0.7%	0.3%	1.5%	0.4%	0.1%	0.0%	0.8%
Production, Transportation	8.1%	9.5%	13.0%	12.5%	9.5%	17.0%	9.5%
Commuter to Work	8.8%	11.4%	15.0%	10.0%	8.8%	6.9%	22.5%
Commute to Work	412,250	25,782	14,314	6,525	7,853	928	2,271
Drove Alone or Carpooled	80.8%	86.0%	83.7%	91.6%	88.3%	92.0%	82.4%
Other Transp. (Public, Walked, Other)	16.3%	12.2%	15.2%	8.4%	11.0%	3.4%	14.7%
Worked at Home	2.9%	1.9%	2.1%	2.1%	1.7%	4.6%	2.8%
Travel Time More than 45 Minutes	8.9%	34.2%	45.8%	31.8%	35.1%	24.9%	33.7%
Mean travel time (in minutes)	27.3	36.5	41.9	35.3	39	29.2	35.6

NOTE: "CLF" = Civilian Labor Force.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

5.1.2 IMPACTS AND MITIGATION

The proposed project is not expected to result in negative adverse impacts to population growth. It is recognized that major growth has occurred in the region since operation of the landfill began in the 1989-1991 time period. However, the overall context for regional development is one which includes a diverse mix of land uses including residential, resort, business, commercial, and industrial uses. Because of ongoing development in the region brought on in part by a shortage of developable land on Oahu, there has been increased opportunities for land use conflicts. A short list of examples which have highlighted concern over potential impacts to nearby communities in Ewa include: a sulphuric acid spill from a major chemicals supplier in the James Campbell Industrial Park; the DOH issuance of a notice of violation of air quality and health regulations to an energy supplier at Campbell Industrial Park; and, closure of the Barbers Point Naval Air Station (BPNAS) due to changes in U.S. Armed Forces requirements. Operations of the air station have in the past generated complaints from Ewa residents concerning excessive noise generated from overflights of some types of military aircraft.

Although the proposed project will not involve the handling or treatment of toxic or hazardous wastes, a number of mitigative measures are proposed to ensure there are no negative adverse impacts to population growth because of continued operation of the landfill. Nuisances normally attributable to operations will be managed by use of appropriate mitigation measures and new conditions which will include, but not be limited to, the following:

- Expanded use of state of the art odor control solvents and dispersal units to ensure odors are effectively managed;
- Installation of a new gas recovery and monitoring system scheduled to be installed in the 2003 - 2004 timeframe;
- Windblown litter will be managed by use of new permanent and portable litter fences. Fencing, which has been previously cleaned by use of hand tools, will be cleaned with the addition of new equipment such as MadVac™, which incorporates a vacuum device to speed in the pick up and removal of litter. Workcrews will continue to be used on an on-call basis, 24 hours a day, 7 days a week.

- Additional measures involve: 1) the request for assistance from HPD to cite refuse vehicles which violate State and City and County of Honolulu laws regarding littering of the highway; 2) the consideration of further prohibitions against refuse vehicles with improperly secured loads; 3) inspection and cleanout of refuse vehicles prior to leaving the landfill; and, 4) potential for future removal of paper and lightweight plastics going to the landfill.
 - New modifications to the Sand Island Wastewater Treatment Plant (SIWWTP) are underway to treat and convert sewage sludge into fertilizer pellets (Andritz Dryer System). Because SIWWTP is the single largest contributor of sewage sludge to Waimanalo Gulch Sanitary Landfill, conversion to use of the Andritz Dryer System will remove a major condition known to result in the generation of odor. The successful implementation of the Andritz system will be applied to other Oahu WWTPs which will result in the further reduction of odors. The SIWWTP Andritz system is scheduled to be operational in 2004;
 - Traffic conditions involving transit of refuse vehicles to the landfill are expected to require further work in progress by ENV, in conjunction with enforcement of traffic violations from refuse haulers. The Honolulu Police Department (HPD) is being asked to assist through the issuance of citations to refuse haulers which: 1) deposit or loose refuse loads onto the highway while in transit; and, 2) exhibit unsafe vehicular movements including speeding.
- Use of appropriate mitigation measures as presented in this FSEIS are expected to negate or ameliorate the potential for negative adverse impacts to the area demographics.

5.1.3 SOCIO-ECONOMIC IMPACT ANALYSIS

The analysis of socio-economic impacts was approached by SMS Research Inc., through contexts that can affect the reception and consequences of the proposed project:

- Socio-economic context of the project;
- Concerns of stakeholders with regard to the project, and places those concerns in relation to more general issues and concerns of Oahu communities.
- Economic and demographic impacts, other social impacts, and mitigation measures.

5.1.4 SOCIO-ECONOMIC CONTEXT OF THE PROJECT

The island of Oahu is the largest study area for this report, since it has a waste stream that deposited nearly 500,000 tons to the landfill in 2001. More immediately, the Ewa Development Plan (DP) Area and the Waianae Coast Sustainable Communities Area, with the communities of Ko Olina, Honokai Hale, Kapolei and Makakilo (in Ewa) and Nanakuli (in Waianae Coast) are selected for study because of concerns about impacts of waste hauling and landfilling. A small group of houses, Kahe Point Homes, is singled out as immediate neighbors of the landfill.

Oahu has been the center of Hawaii's economic and political life since the last century. It still has 72% of the population. With growth has come a need to develop new areas. This process has led to movement of landfills to outlying areas, as the surroundings of existing ones become urbanized. Waimanalo Gulch is the only operating municipal solid waste landfill on Oahu. A private landfill takes construction and demolition waste, and can also handle some forms of asbestos and oil-contaminated soils.

The Ewa DP area is a major focus for new development. Kapolei and its surroundings include residential, commercial, resort and industrial areas. On average, about 975 new homes have been built each year (from 1990 through 2001) in the Ewa DP area. About half are in the Kapolei area. Development of Ko Olina, at the western end of the area, slowed during the 1990s, but is now increasing. While population growth has been slowing islandwide over the last two decades, it has increased in Ewa. Ewa communities are characterized by young families with above-average incomes. New development could accelerate in the next few years as the State Department of Hawaiian Home Lands and a private developer, taking over remnant lands at Barbers Point from the US Navy, may both seek to produce new inventory quickly, increasing local housing available for low-income families.

The Waianae Coast has seen less growth in recent years, and City plans support little growth in this area. While the median age is well below the average, household sizes are larger than elsewhere on Oahu.

5.1.5 COMMUNITY CONCERNS

In the research for the report, SMS interviewed three stakeholder groups and reviewed records of community concerns from the regions around the project site. They had very different perspectives:

Members of the regional community express strong opposition to continuing operation of the Waimanalo Gulch Sanitary Landfill. They see the landfill as the source of air-borne dust, debris and odors, and as an eyesore. They understand the City as having committed, before the landfill opened in 1989, to closing it when the area then designated for landfill reached capacity. They further see the City as manipulating the EIS process to make the extension inevitable. Some accuse the City of "environmental racism," i.e., the location of unwanted land uses in low-income and minority communities. Others see Waimanalo Gulch as an impediment to the development of Ko Olina as a major resort, and view the project as simply prolonging the problem. While some view a landfill as needed on Oahu, they stress their opposition to continuing this City service in their region.

Environmental specialists, including several people who send special wastes to the landfill, tend to see it as a necessary City facility, and as important for the well-being of the island community. They see the landfill as a valued resource for their firms and the wider community. They see landfill tip charges as reasonable and its operation as professional. They welcome the City's commitment to reduce the waste stream and see the need for increased recycling.

Other members of the islandwide community emphasize the importance of the landfill to Oahu's prosperity. They tend to know little about the details of landfilling, but expect that alternative methods of waste disposal would be costly, and would hence tend to make prosperity harder to maintain and continue.

While many in the local community and others share both broad goals and interest in improved environmental practice, the suspicion of and opposition to the City and Waste Management of Hawaii, Inc. expressed by local community representatives are not shared by other stakeholders.

5.1.6 IMPACTS AND MITIGATION

The project continues an existing City service, rather than developing a new project. As such, its impacts lie in (a) continuing existing processes and relationships, (b) providing services over a period in which alternative technologies and further waste stream reduction can be explored, and (c) avoiding the consequences of the No Action Alternative.

Economic Impacts

Waste Management of Hawaii, Inc. devotes a staff of 14 to work at or are associated with the Waimanalo Gulch landfill. Indirect and induced jobs in Hawaii associated with this activity number 23. The total workforce income for direct, indirect and induced workers comes to \$1.46 million (2001 dollars). No population, housing, or fiscal impacts of the project are anticipated, since no new workforce is involved. Construction is an ongoing activity - opening new cells for filling, digging and spreading cover material for other cells is done in the normal course of operations - so no separate construction workforce and incomes are calculated.

Fiscal impacts of continuing operations and City and County costs and revenues of solid waste disposal are expected to result in no new or cumulative impact.

Public Facilities and Services Impacts

In the Socio-Economic Analysis, SMS considered potential impacts on police, fire, public education, library, medical, emergency, recreation and public transportation services, and found no impact due to the project. These are presented in CHAPTER 4 of this FSEIS.

Other Social Impacts

Continued operation of the landfill for another five years, once permits are obtained will assure effective near-term management of solid waste on Oahu and allow time for development of new waste disposal technologies and/or a municipal solid waste landfill site.

Operation of the landfill according to standards developed in the course of the EIS review process should lead to a much lower incidence of problems that have irritated members of nearby

communities. Also, improvements in recycling and alternative technologies should lead over time to a reduction in the waste stream and should eliminate occasions on which garbage, rather than waste processed at H-POWER, goes straight to Waimanalo Gulch.

Recent community discussions have identified air-borne irritants - trash blowing from disposal trucks and from the landfill site, and odors - as recurring problems. Again, the appearance of the landfill has been viewed as detrimental to the community. The City and its contractor, Waste Management of Hawaii, Inc., have responded with measures to control these. Such controls are part of mandated operations and hence part of the project. However, suspicion of the City and Waste Management of Hawaii, Inc., is so strong among local community leaders, that effective controls cannot be expected to lead to community recognition of improved practices, much less acceptance. Unless local community representatives come to know that operations meet or exceed standards, the expectation that the landfill is a continuing source of pollution will remain part of community life.

SMS analyzed the impact of proximity to the Waimanalo Gulch landfill on values of both single family and condominium properties. The model was strong enough to be able to account well for valuation of residential properties in Ewa and Nanakuli. Proximity to the landfill was not a consistent contributor to value: values increased with distance from the landfill for single family homes, but decreased for condominiums. Accordingly, SMS found no clear empirical basis for asserting that the landfill affects property values negatively.

Stakeholder claims that the southwest corner of Oahu has a disproportionate share of the island's locally unwanted land uses have a fairly evident basis in fact. However, many of the land uses in question are industrial activities in James Campbell Industrial Park, the site of employment for many residents of the region. The current location of the landfill relatively close to the industrial park limits travel distance (hence cost and likelihood of ash or residues falling off trucks) to and from the H-POWER plant. However, the question of whether that efficiency outweighs the high concentration of unwanted land uses and the location of a waste disposal site just inland from a resort will bear review in future landfill siting decisions.

Impacts of Alternative Approaches to the Landfill Problem

The No Action Alternative would force the City or private parties to find new disposal mechanisms immediately. A separate study for this report identifies sites on the Big Island and in California as potential recipients of Honolulu's municipal solid waste (Pacific Waste Consulting Group, 2002).

The Big Island alternative could at best be a short-term solution, since disposal of Honolulu's waste at the West Hawaii landfill would significantly limit Hawaii County's landfill resource at a time when its other landfill, in East Hawaii, has only a few months' life expectancy. If State authorities demand treatment of wastes to minimize risk of biological harm (e.g., spread of plant disease or pests), the cost of disposal to the Big Island would be comparable to the cost of sending waste to the US Mainland. Infrastructure demands of transshipment to either location could be considerable:

- New container yard space would be needed on Oahu for MSW transshipment - and container yards are, in the long term, a very limited resource for the Harbors Division;
- To use existing barge or container ship services, MSW would be trucked from the H-POWER plant and transfer stations back to Honolulu Harbor, increasing the time it is on Oahu's most congested highways.

The new disposal process would cost somewhere between \$380 million to \$480 million annually at first. With reductions in the waste stream due to an additional boiler at H-POWER and new recycling activities, the annual cost could be lowered to \$250 million to \$325 million. (Cost estimates are for MSW and materials from H-POWER; the cost of transshipment of special wastes would be higher per ton. That cost was excluded from the SMS calculation. The cost would be borne by taxpayers and the clients of commercial haulers, especially condominium and apartment residents. The distribution of the costs would depend on tipping fees. These would likely not be enough to cover costs, since the City must set fees at a level that will not trigger a massive increase in illegal dumping of commercial wastes. Even if tipping fees were very high relative to costs, however, real property taxes could increase by 22%. A low tipping fee could raise costs for the City that would justify tax increases equivalent to a 111% increase in property taxes. The No Action Alternative would also increase the cost of doing business in Hawaii.

Mitigation Measures

By reducing the proposed expansion to 14.9 acres, the City has already responded to community views, limiting the future life of the landfill. Impacts with potentially adverse effects on social life and the economy could be addressed through

- Controls over irritants (odors, litter) according to plans already being developed and implemented;
- Landscaping of exposed areas to minimize visibility of the landfill;
- Involvement of community stakeholders in oversight of mitigation activities and in site selection for any future landfill site.

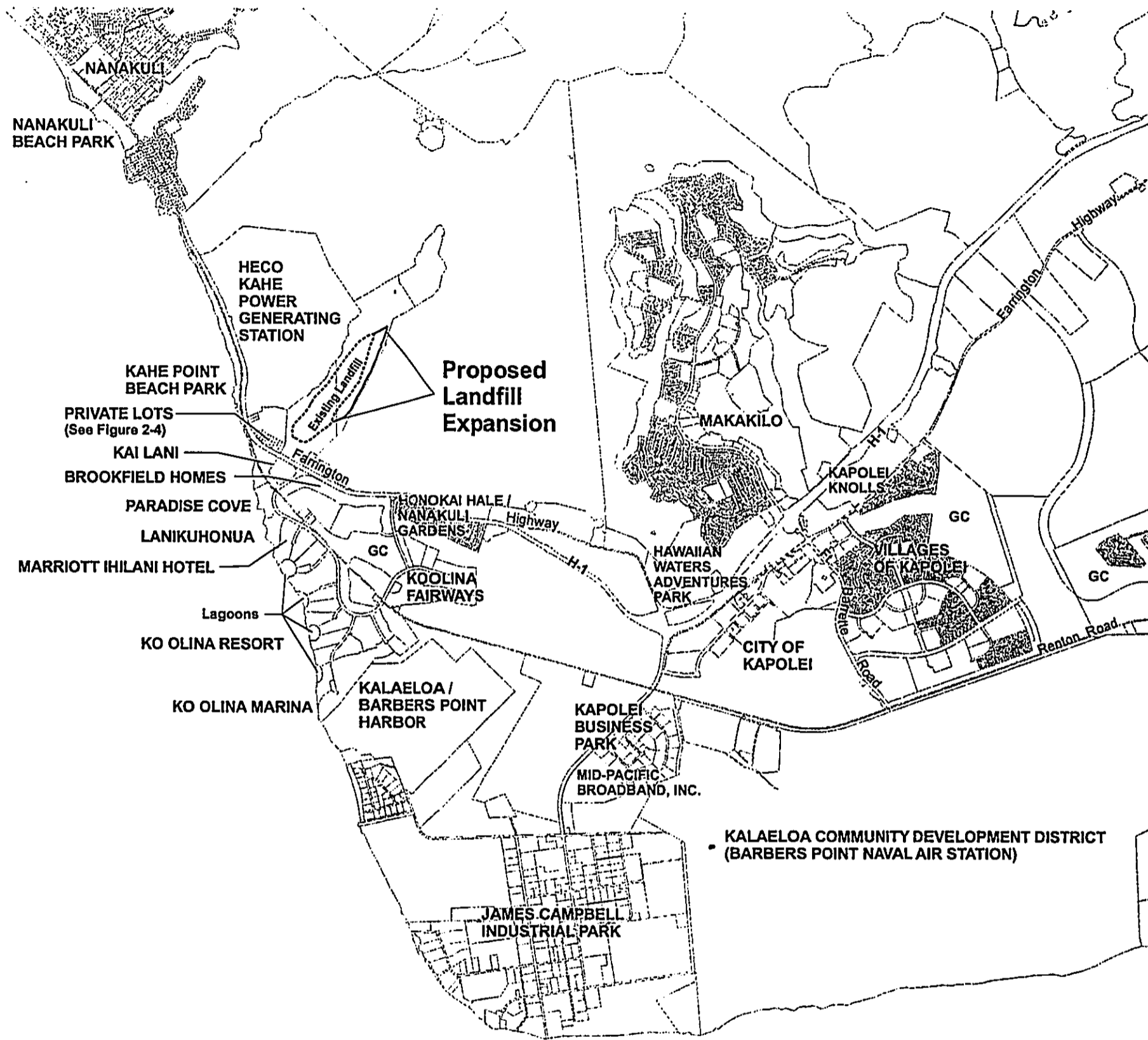
In light of current community suspicion, the City and Waste Management of Hawaii, Inc., will not only need to meet agreed-on standards but be seen to do so. Continuing oversight by a community committee will be needed to develop local acceptance and hence to lower expectations of potential adverse impacts.

5.2 LAND USE AND OWNERSHIP

5.2.1 REGIONAL LAND USE AND PROPERTIES

The Ewa Region contains a diverse mix of developments including residential, resort, recreational, business, commercial, and industrial uses. Major developments within the Ewa Region include, but are not limited to, the following (Figure 5-1, Regional Land Uses in Ewa):

- Hawaiian Electric Kahe Power Generating Station is a major power plant in the region providing electricity for residential, commercial, business, and industrial uses.
- Kahe Point Beach Park is situated less than half a mile south from the landfill and is open to the general public.
- Paradise Cove is a recreational development that provides luaus and other entertainment on a 12 acre beachside property. It is located on the shoreline adjacent to the Ko Olina Resort, approximately half a mile southwest of the landfill. This development primarily services the guests of the Ko Olina resort and tourists with other accommodations on Oahu and the neighbor islands. Residents on Oahu also utilize this facility.



GC = Golf Course

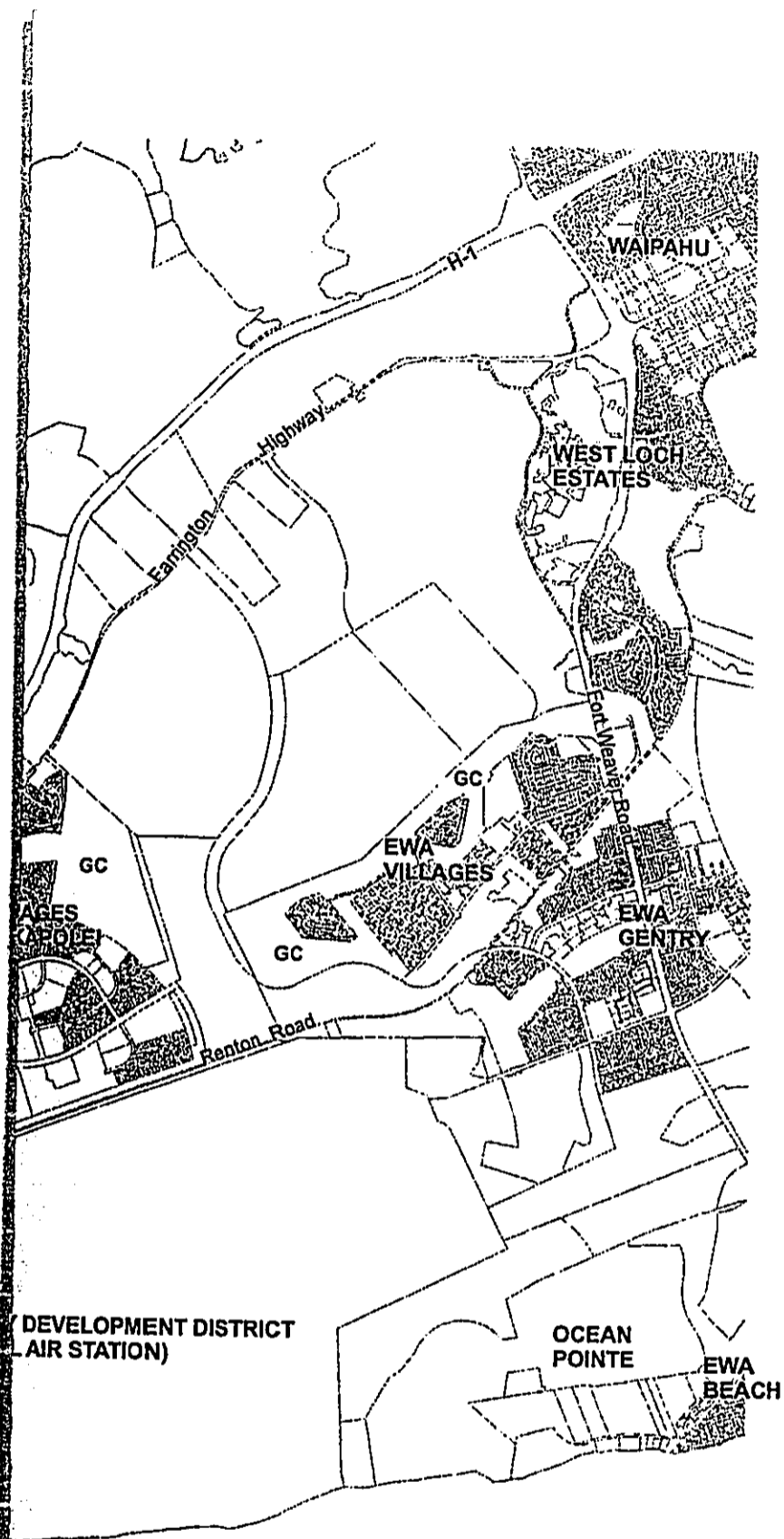
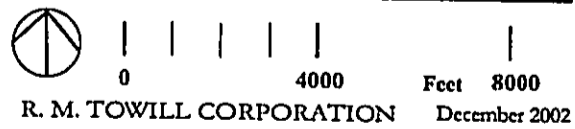


FIGURE 5-1
REGIONAL LAND USES IN EWA
 Waimanalo Gulch
 Sanitary Landfill Expansion FSEIS
 Waianae, Oahu, Hawaii



R. M. TOWILL CORPORATION December 2002

- Lanikuhonua is privately owned by the Estate of James Campbell. The site is used for recreational and related purposes.
- Hawaiian Waters Adventure Park is a recreational development that functions as a water theme park. The 25 acre attraction is located approximately 3 miles east of the landfill. It has serviced the Leeward area of Oahu and the island wide population since May of 1999.
- Ko Olina Lagoons are comprised of four man-made lagoons separated by sandy and coastal beaches. Access and use of the area is provided to guests of the Marriott Ihilani Resort and the general public by the Ko Olina Resort.
- Marriott Ihilani Hotel is a resort hotel providing accommodation and amenities for tourists and local residents. In addition to this facility there are other resort hotels that have been planned for development at Ko Olina.
- James Campbell Industrial Park is a commercial and industrial park which contains a number of businesses which includes, but is not limited to, two oil refineries, a cement processing plant, 3 power generating facilities, an aluminum fabricating company, and a moving and storage company. The 1,267 acre facility was first constructed in 1958 and is located approximately 2.5 miles southeast of the landfill. The industrial park is also home to H-POWER.
- Kalaeloa/Barbers Point Harbor is a commercial development that has become the second busiest harbor on Oahu. There are also future plans to accommodate cruise ships in the area. The harbor facilities are comprised of 241 acres and includes facilities for container storage. The site is located approximately 3.5 miles south of the landfill.
- Honokai Hale and Nanakai Gardens subdivisions are residential developments located approximately 4,000 feet, or less than a mile, southeast from the landfill.
- Makakilo is a residential development that was constructed prior to 1962 and developed by Finance Realty. There are approximately 4,200 housing units situated about 2-3 miles east of the landfill.
- Villages of Kapolei includes a number of phased residential developments that were first constructed around 1990. This State of Hawaii initiated development provides for approximately 4,700 units on 698 acres. The site is located approximately 4 miles east of the landfill.
- West Loch Estates is a residential development initiated by the City and County of Honolulu. The project site is located on the West Loch peninsula of Pearl Harbor.

- Ewa Villages is a combined residential subdivision that incorporates both new and reconstructed housing units that were once associated with operations of sugar plantations which once dominated the area.
- Ewa Gentry is a residential subdivision on land that was once under active sugar cultivation.
- Ocean Pointe is a residential development comprised of 400 units that is situated on 1,100 acres of land.
- Kapolei Knolls is a residential subdivision located in the Kapolei area of Ewa.
- Mid-Pacific Broadband, Inc., is a commercial development that will include an Internet Data Center (IDC) and Network Access Point (NAP) to facilitate the growth of telecommunications infrastructure on Oahu. The development will be situated within the 54 acre Kapolei Technology Park. This establishment is situated within the City of Kapolei approximately 3-4 miles east of the landfill.
- Barbers Point Naval Air Station (BPNAS) is a recently closed Department of Defense facility. The site is now known as the Kalaeloa Community Development District, as of July 1999. The 2,150 acre establishment is located 3 miles southeast of the landfill. The area is scheduled to provide for multiple public and private uses including a general aviation reliever airport.

As noted, additional business and land uses operate in the region.

5.2.2 PROPERTIES WITHIN PROXIMITY TO THE PROPOSED PROJECT

Immediately north of the project site is land owned by Wellington Loh (TMK: 9-2-03:41 - 48.9 acres). Surrounding land along the north and west boundary of the landfill site is owned by the James Campbell Estate Trust (TMK: 9-2-03:2 - 2,578.8 acres). To the east the project site adjoins the Hawaiian Electric Kahe Power Generating Station (TMK: 9-2-02:27 - 454.4 acres) and the James Campbell Estate Trust property (TMK: 9-2-03:2). The eastern boundary of the power plant is immediately adjacent to the western boundary of the landfill. Electrical transmission lines from the power plant traverse the project site at elevations of between 760 and 840 feet. Major portions of the adjoining James Campbell Estate Trust property remain undeveloped due to steep terrain which has constrained development. The northernmost boundary of the Campbell Estate property is also the location of the Southern Cross Terminal Building, a telecommunications facility which receives

and processes communications signals from submarine fiber optic cables emanating from New Zealand, Australia, Fiji, and the Continental U.S.

Immediately south of the project site is Farrington Highway (FASP No. S-900(4)) which serves as the primary thoroughfare for the area. Makai of the highway are private parcels under various ownership (Table 5-7).

TABLE 5-7
Selected TMKs Along Farrington Highway

No.	TMK	Ownership
1.	9-2-03:30 (1.6 acres)	Rachel K. Haili etal
2.	9-2-03:31 (0.8 acres)	Philip G. Elisara etal
3.	9-2-03:32 (0.8 acres)	Moses/Iris Rapoza etal
4.	9-2-03:33 (0.8 acres)	Chris Tanaka etal
5.	9-2-03:34 (0.8 acres)	Robert Mitsuyasu
6.	9-2-03:35 (0.8 acres)	Robert Mitsuyasu
7.	9-2-03:36 (0.8 acres)	Robert Mitsuyasu
8.	9-2-03:37 (0.7 acres)	Robert Mitsuyasu
9.	9-2-03:38 (0.6 acres)	Robert Mitsuyasu
10.	9-2-03:39 (0.6 acres)	Florence Richardson
11.	9-2-03:47 (0.8 acres)	Wallace Nakatani etal
12.	9-2-03:49 (0.8 acres)	Kenneth Nakano Trust
13.	9-2-03:13 (21.2 acres)	Betsy Lum etal
14.	9-2-03:45 (1.9 acres)	Betsy Lum etal

Across the highway is the Kahe Point Beach Park (TMK: 9-2-03:15) and Ko Olina Resort (TMK: 9-2-03, 9-1-56, and 9-1-57, various parcels). Kahe Point Beach Park is under jurisdiction of the City and County of Honolulu. Across from Farrington Highway and approximately 200 feet from the southwest corner of the landfill boundary is the main entrance to the Ko Olina Resort. This same boundary corner of the landfill, when extended to the east, encompasses the northwest corner of the Ko Olina Golf Course and a portion of the Brookfield Homes residential development which will construct approximately 270 multifamily units on approximately 29 acres of land located off of the Ko Olina Golf Course. The new Kai Lani residential development is also under construction and is located immediately southwest across Farrington Highway and the landfill.

Additional properties and developments within Ko Olina adjacent to the proposed landfill expansion area includes: Ko Olina Golf Course, Paradise Cove Luau, Lanikuhonua, Marriott Ihilani Resort, and Ko Olina Fairways. Other land use developments associated with the Ko Olina Resort are present.

5.2.3 IMPACTS AND MITIGATION

Impacts associated with expansion of the Waimanalo Gulch Sanitary Landfill to nearby properties include:

- Potential for odors associated with operations of the landfill including delivery and landfilling of MSW, and potential for leakage of decomposition gasses;
- Potential for windblown litter to become airborne and associated litter to be deposited along the highway by improperly secured loads from refuse delivery trucks; and,
- Potential traffic impacts associated with speeding and unsafe movement of refuse delivery vehicles.

A number of mitigative measures which are described in CHAPTER 3 of this FSEIS will be implemented to address the potential for impacts to the community. These measures, however, are expected to require a greater level of cooperation and coordination. This is due to ongoing development which has occurred surrounding the landfill since its inception approximately a decade ago. Constructive coordination activities to further minimize potential for future conflicts or impacts will include:

1. Formal briefings before regularly scheduled meetings of the Makakilo-Kapolei-Honokai Hale Neighborhood Board No. 34 and Waianae Neighborhood Board No. 24. The presentation of information related to work activities, practices, and efforts by ENV and Waste Management of Hawaii to properly manage waste issues will be provided by the Mayor's Representative, or by a designated representative of ENV or Waste Management of Hawaii, Inc.
2. Efforts by ENV and the WGS� operator, Waste Management of Hawaii, Inc., will continue to establish a working relationship with the adjoining Ko Olina Resort. A formal monthly

SECTION 5.2.2 - ADDENDUM

PROPERTIES WITHIN PROXIMITY TO THE PROPOSED PROJECT

The following provides additional information concerning TMK: 9-2-003: parcel 002, owned by the James Campbell Estate Trust:

Makaiwa Hills is a proposed residential development located immediately east of the Waimanalo Gulch Sanitary Landfill (WGSL). According to the Makaiwa Hills website, the project is planned to develop 1,875 homes, an elementary school, a regional commercial center, parks, an 18-hole championship golf course, and extensive ridge and valley open spaces on 1,915 acres (www.menne.com/maka.htm, Bryan Menne & Associates, 2002). The project was granted State Land Use Commission (LUC) redistricting to the State Urban District under LUC Docket No. A92-687, in 1993.

According to Campbell Estate by letter (2002 Annual Report, Docket No. A92-687), to the State LUC dated October 22, 2002, Campbell Estate is exploring various ways to develop the project and will provide the required notice to prospective buyers of the project in accordance with Condition No. 19, of the Docket which states:

- “19. Petitioner shall notify all prospective buyers of property in the Project of the potential odor, noise, and dust pollution resulting from surrounding Agricultural District land, Hawaiian Electric Company’s Kahe Power Plant, and the City and County of Honolulu’s Waimanalo Gulch Sanitary Landfill.”

meeting involving presentation of information provided to the neighborhood boards should be conducted.

Both venues (Neighborhood Board meetings and community meetings) will allow for the regular dissemination and sharing of information between the community and operators of the landfill. ENV and Waste Management of Hawaii, Inc., is committed to working with the community to ensure against potential for negative impacts. Adjustments and related modifications to landfill operations in the interest of the community will be discussed, considered, and implemented, as required.

5.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES

5.3.1 INTRODUCTION

The Waimanalo Gulch Sanitary Landfill is located between the town of Makakilo and Kahe Point, on the southeast tip of the Waianae Range. It is bounded to the south by Farrington Highway, to the west by the Kahe Ridge, to the north by a relatively flat area where tributary gulches to Waimanalo Gulch meet, and to the east by Makaiwa Ridge which separates Waimanalo Gulch from Makaiwa Gulch.

An archaeological inventory survey of the project site was conducted by Cultural Surveys Hawaii on July 27, 1999, for the proposed project (Appendix E - Archaeological Inventory Survey). The survey scope consisted of the inventory, description and mapping of archaeological sites. The survey objective was to locate and evaluate the significance of, and recommended treatment for, cultural resources in the project area.

Archaeological research included a review of existing historical documentation of significant sites in the project area. Fieldwork was accomplished by two archaeologists performing a pedestrian sweep, spaced at intervals, along the edges of the proposed expansion area. Specific attention was directed to examining overhang ledges between laminar lava flows. Larger overhangs could contain sufficient space for shelter which, in turn, could contain midden or other deposits. Exposures of

broken, dense basalt were inspected for evidence of quarrying activity, and smooth basalt exposures were examined for possible etchings of petroglyphs.

Survey conditions were good, with no rainfall and excellent visibility. Recent brush fires over much of the project area permitted good observation of the ground and adjoining surfaces. The only visual impediments noted included tall kiawe, slope angles to the expansion boundary, and boulder-strewn terrain within various gullies.

5.3.2 HISTORICAL CONDITIONS AT PROJECT SITE

Current vegetative conditions at the project site consist primarily of introduced exotic species including kiawe, koa haole, uhaloa, and various grasses. Prior to introduction of exotic plant species in 1790, however, the slopes of the Waianae Range supported greater plant diversity including an upper ohia wet forest, a dry midland forest of native trees and shrubs, and a lower grassy savannah area.

Historical accounts indicate that the lower forest once extended down to the 500 foot elevation range, with sandalwood observed down to the 300 foot level. The historical location of the lower forest is therefore hypothesized to cover at least the upper slopes of the northeastern portion of the project area. According to Cultural Surveys, because this slope is in the rain shadow, the area may be more accurately envisioned as a park land community rather than as a thick forest in early Hawaiian times.

There is no specific documentation of pre-contact or early historic land use within the project area. However, various Hawaiian legends and historical accounts indicate the Honouliuli Ahupuaa, in which the project site is located, was once widely inhabited. This would be attributable to the ready availability of marine resources along the coastline and the lowlands (*ili*) which would have been suitable for cultivation of taro and other crops. Following western contact after about 1790 the surrounding landscape was adversely affected with the removal of the sandalwood forest, the introduction of domesticated livestock and animals, and introduced exotic plant species. The combined removal of sandalwood, intensive pasturage, and release of new plant species eventually

resulted in a shifting of the area ecology. Later development and land use lasting from the mid-nineteenth century to the present continue to reflect these changes.

5.3.3 RESULTS OF SURVEY - PROJECT SITE

The pedestrian sweep of the site was started from the mauka-most end of the landfill site. Two archaeologists performing the sweep moved in sweeping arcs around the north and west sides of the proposed expansion area. Specific attention was directed to examining overhanging ledges for evidence of potential shelter, exposures of broken, dense basalt for potential quarry areas, and smooth basalt surfaces for possible presence of petroglyphs.

No archaeological sites, midden, or artifacts of any kind were observed in the proposed landfill expansion area despite the inspection of several small overhang caves which may have offered potential shelter.

5.3.4 RESULTS OF SURVEY - POTENTIAL SITES OUTSIDE OF PROJECT AREA

Two potential archaeological sites outside the proposed expansion area were also investigated by Cultural Surveys Hawaii. The decision to investigate these sites was based on informal discussion with Waste Management, Inc., personnel and included: (1) Battery Arizona site; and (2) a relocated petroglyph and two sacred stones regarded as sacred.

The Battery Arizona site is located at the southwest boundary of the landfill and includes subterranean remnants of a once nearly operational battery. The battery was designed as a coastal artillery mount to assist in the defense of Pearl Harbor and to prevent the invasion of Oahu. The battery is based on use of a salvaged three-gun turret of the sunken U.S.S. Arizona. Initiation of the Battery Arizona project was started in April 1943. According to a U.S. Army Corps of Engineers report prepared in 1946:

“The design that was eventually produced consists of a central barbette well of concrete set in rock, having an overall depth of about 60 feet and an inside diameter

of about 24 feet, with three levels below the bottom of the turret connected by stairways. Two tunnels radiate from this well to house projectiles and powder magazines immediately adjacent to the well. Beyond and in line with the projectile magazine is a large power room for three 125 KW generators, all miscellaneous switchgear, air conditioning, and ventilating equipment. In a separate tunnel off the main tunnel in the vicinity of the powder room is a 10,000 gallon emergency watertank to maintain the battery for several days in case of siege. Beyond the power room in a separate leg of the tunnel are the operations rooms. Because during prolonged action it might be necessary for the entire battery personnel to remain in the battery and be self sustaining, these gas proofed and air conditioned operations rooms normally comprised of radio and switchboard, plotting, and radar rooms included latrines for officers and enlisted men, a galley, first aid room, offices, and storerooms."

Although the Battery Arizona bunker complex lies within the landfill parcel, the site of the former turret lies in the adjacent Hawaiian Electric Company Kahe property. The guns were not yet operational near the end of World War II in 1945. Thereafter, the concept was scrapped and the turret removed by 1949 due to the development of air power, new assault techniques and nuclear weapons.

The battery tunnel complex was later used sometime after 1959 for the defense of Oahu as a guided air-to-air missile base control center using the Nike-Hercules anti-aircraft missile. Later, during the 1960s the area was used for civil defense. The tunnel system and abandoned rooms are all that remain of the Battery now.

The second site, a modern shrine complex understood as established in 1988, includes three notable stones: a larger stone with the semblance of two horns; a smaller stone with the semblance of two saucer-shaped eyes and a nose; and a flat and square slab of smooth pahoehoe lava which is said to bear the faint remnant of a petroglyph, although at the time of the field survey the figure or figures were so indistinct that no interpretation of the motif could be discerned. The shrine complex was originally reported by Neller and given the Site number 50-80-12-2893. A total of eight features

were identified at the site: rock shelters, platforms, midden deposits, and petroglyphs. The shrine complex is located, outside of the landfill property, along the base of a large outcrop ledge above Farrington Highway.

According to Cultural Surveys Hawaii, several waterworn basalt cobbles were noted in the immediate vicinity of the stones as well as two large Hump-back Cowries (*Cypraea mauritiana*). These other items could be construed as offerings and that the site constitutes a modern shrine incorporating a relocated stone bearing a possibly pre-contact petroglyph.

A third site was identified in the literature search. In 1989, Joyce Bath, Oahu Archaeologist with the State Historic Preservation Division, discovered three petroglyph units. Bath provides the following description:

“There are three units pecked into black lava rock on the west side of the valley. Two are stick figures. The third is more complex; and we do not know what it represents. The pecking is very shallow on all three units.”

The petroglyphs were given State site no. 50-80-12-4110. The three petroglyphs are identified as being at the 80 foot elevation in the southwest corner in the area of the 200 acre sanitary landfill property.

The Battery Arizona site, the modern shrine complex and the Bath petroglyph site are all regarded as quite significant but all lie well outside of the proposed sanitary landfill expansion area.

Based on historical research and the field survey, no archaeological sites or artifacts of any kind were observed within the proposed sanitary landfill expansion area. The following general considerations are made to place the Waimanalo Gulch area in the context of the Honouliuli Ahupua'a settlement pattern:

There are three areas of Hawaiian settlement in the Honouliuli Ahupuaa; two are well documented and one is problematic:

- The extensive limestone plain surrounding Waimanalo Gulch is evidenced with recurrent use habitations for fishermen and sometime gardeners;
- The rich cultivated lands of Honouliuli ili (the base of the Honouliuli Gulch which drains into West Loch) were used for extensive wetland taro and was clearly the ahupuaa population center; and
- The uplands around Puukuu on the east side of the Waianae Ridge seven miles inland of the coast for presently uncertain reasons was left unpopulated, but was probably used for agriculture and forest resource utilization.

Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley ahupuaa, except that it is arranged geomorphically in an atypical relationship. The ahupuaa is not organized around a single drainage network, but shares the west portions of Waikele drainage in its upper reaches. A typical and highly advantageous characteristic for human subsistence is included in a vast coastline and fringing reef, an extensive limestone plain which would support not only limited agriculture but would be excellent for bird catching in early times, and a huge expanse of sloping forest land. However, a prior archaeological survey of Waimanalo Gulch indicates no evidence of Hawaiian occupation, although the gulch has been impacted in modern times (Bordner, 1983).

The makai slope of Honouliuli Ahupuaa was not a major thoroughfare for early Hawaiians. There is to date no archaeological evidence of high status residence in Honouliuli. Large residential structures are not present nor is there evidence of the late prehistoric occurrence of chiefs' houses.

The focus of population and agriculture within the ahupuaa of Honouliuli was the ili of Honouliuli.

5.3.5 ADDITIONAL SITE VISIT BY SELECTED COMMUNITY MEMBERS

A followup site visit to the previously proposed 60.5-acre expansion area (now 14.9 acres) was undertaken during the morning hours of April 10, 2001. The purpose of the visit was to address stated concerns by Mr. William Aila, Waianae resident, of the potential presence of undocumented ancestral burials by former residents who had used the site many years before establishment of the current landfill facility; and, to determine the potential for discovery of new archaeological or

cultural resources that may not have been discovered during the archaeological survey. Mr. Aila was notified concerning the date and time for the visit. Appropriate resource personnel including Oahu archaeologists from the State Historic Preservation Division (SHPD), Department of Land and Natural Resources (DLNR), and an archaeologist from Cultural Surveys Hawaii, which prepared the archaeological inventory survey, was asked to attend to answer questions and to verify any cultural or archaeological discoveries which might be encountered. (Appendix F - Archaeological Site Visit, Meeting Notes of April 12, 2001).

Persons attending the site visit included:

Mr. William Aila, Waianae Resident
Ms. Melva Aila, Waianae Resident
Mr. Eric Enos, Waianae Resident
Dr. Sara Collins, Oahu Island Archaeologist, SHPD, DLNR
Ms. Muffet Jourdain, Oahu Island Archaeologist, SHPD, DLNR
Mr. David Shideler, Archaeologist, Cultural Surveys of Hawaii
Mr. Steve Cassulo, District Manager, Waste Management of Hawaii, Inc.
Mr. Joseph Hernandez, Environmental Manager, Waste Management of Hawaii, Inc.
Ms. Wilma Namumnart, Planning and Eng. Branch Chief, Refuse Division, ENV
Mr. James J.Y. Louis, Engineer, Refuse Division, ENV

The site visit consisted of the examination of various locations which were proposed to be excavated and graded to accommodate the proposed expansion area. Locations were examined both on foot and through use of binoculars along slopes. All areas of the site were made available for investigation by the individuals of the group. In addition, copies of prior archaeological studies completed for the area were provided to Mr. Aila.

The site visit yielded no new information on potential burials or cultural deposits. However, Mr. Aila indicated that he would hold further discussions with Kupuna, familiar with the history and use of the area, to ensure that should new information concerning burials be obtained, that appropriate actions be taken to protect the ancestral resource.

5.3.6 IMPACTS AND MITIGATION

The proposed project is not anticipated to result in potential for negative adverse impacts to archaeological or cultural resources in the area. Coordination of the proposed project with the State Department of Land and Natural Resources, Historic Preservation Division, has been completed, with the finding that there are no known historic sites within the expansion area and a request that the archaeological report be revised to indicate that it is an inventory survey (DLNR letter dated January 12, 2000). The archaeological report was since revised by Cultural Surveys Hawaii.

Because it is always possible that new unidentified cultural remains could be uncovered during the course of the project, Waste Management Inc. will instruct its employees that work in the expansion area is to cease with appropriate notification made to the State Historic Preservation Officer (SHPO), Department of Land and Natural Resources. As required, action to preserve or otherwise mitigate potential for negative adverse impacts will be implemented.

5.4 TRADITIONAL CULTURAL PRACTICES

5.4.1 CULTURAL IMPACT ANALYSIS SUMMARY

At the request of Waste Management of Hawaii, Inc. and the City & County of Honolulu Department of Environmental Services, Refuse Division, Cultural Surveys Hawaii Inc. (CSH) in the fall of 2002, conducted a Cultural Impact Assessment for the proposed 14.9-acre expansion of the Waimanalo Gulch sanitary landfill (**Appendix G - Cultural Impact Assessment**).

The purpose of the Cultural Impact Assessment was to consider the effects the proposed expansion of the Waimanalo Gulch Sanitary Landfill may have on traditional cultural practices. The Cultural Impact Assessment gathered information from historical documentation, archaeological investigations, and kamaaina interviews. Hawaiian organizations, government agencies, community members, and cultural and lineal descendants with ties to Waimanalo Gulch were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential impacts within the project area (Cultural Surveys Hawaii, Inc., 2002).

The "Cultural Landscape"

The following general considerations were made to place the Waimānalo Gulch area in the context of the Honouliuli ahupua`a cultural landscape.

- While rich in diverse legends, traditional Hawaiian accounts of Honouliuli focus on a few specific areas. The *ʻili* of Honouliuli (West Loch of Pearl Harbor at the mouth of Honouliuli Gulch) is a focus of traditions including those of (Ka)ihuopalaai which touches on the fish pond and mullet resources.
- Another seeming focus of a settled population is Keahumoa (as reported in the accounts of Maui's grandfather and Nāmakaokapāo`o), the location of which is not altogether clear. This is understood as a large, gently sloping "plain before reaching the Kīpapa Gulch" (Fornander 1919 Vol. V 274 Note 3) which clearly must be in eastern Honouliuli if it is in Honouliuli at all.
- The Pu`u Ku`ua area is cited as a residence of *kauwā* and seems to have been an important area in O`ahu's social stratification. The *Ka Loea Kālai`āina* Hawaiian newspaper account quoted at length above suggests this was regarded as something akin to a plantation of the aristocracy for potential human sacrifices.
- The Ko`Ōlina area - including Kualaka`i near Barber's Point and the Hoaka-lei spring - has positive associations with the accounts of Hi`iaka and Kākuhihewa.
- The rest of Honouliuli [in which WGSL is located] comes across as a somewhat scary hinterland inhabited by malevolent *mo`o* and supernatural beings. Clearly the Pōhākea Pass area was important for an important trail and shortcut to Wai`anae and for the view to be had there. Both the Hi`iaka and Kahalaopuna accounts associate the pass with danger and sudden death.
- Cultural Surveys Hawaii, Inc. found no previously-documented traditions of Waimānalo (other than those associated with Hi`iaka and Kākuhihewa at Ko`Ōlina and Kualaka`i touched on above). It appears that these western gulches such as Awanui, Pālailai, Makaīwa, Waimānalo and Lumaloa were of relatively little importance in the context of the *ahupua`a* as a whole. However, Waimānalo may well have been significant for the people of western Honouliuli. The word *mānalo* means "potable, of water that may be drunk", Wai-mānalo means potable water, *mānalo iki kēia wai*, this water is drinkable, but perhaps a little brackish.

In a dry land, this area may have been very special (Cultural Surveys Hawaii, Inc., December 2002).

Overview of Archaeological Research and Findings in the Vicinity

On the basis of archaeological studies, informed by historic records, the following was concluded by Cultural Surveys Hawaii, Inc.:

- There are three areas of Hawaiian settlement in the *ahupua`a*: the extensive limestone plain with recurrent use habitations for fishermen and gatherers and sometime gardeners; the rich cultivated lands of Honouliuli *'ili* for extensive wetland taro and clearly the *ahupua`a* population center; and the uplands around Pu`uku`ua associated with *kauwā* residence but probably used for agriculture and forest resources (Cultural Surveys Hawaii, Inc., December 2002).
- Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley *ahupua`a*, except they are arranged geomorphically in an atypical relationship. Surveys by Bordner (1983) and Hammatt and Shideler (1999) at Waimānalo Gulch indicated no evidence of Hawaiian occupation, but the gulch has been impacted in modern times (Bordner, 1983).
- The *makai* slope was not a major thoroughfare, and shows very limited evidence of part-time agriculture in and around gulches and two small areas of sparse habitation (Cultural Surveys Hawaii, Inc., December 2002).
- There is to date no archaeological evidence of high status residence in Honouliuli (Cultural Surveys Hawaii, December 2002).

Waimānalo Gulch potentially offered the Hawaiian population within Honouliuli *Ahupua`a*:

1. Habitation in good shelter caves and open air sites defining the *mauka* limit of the coastal settlement zone;
2. Localized quantities of adz basalt;
3. Limited agricultural potential in the gulches for tree crops and roots; and
4. Upland zone settlement with limited agriculture and access to forest resources such as *wiliwili* trees (Cultural Surveys Hawaii, December 2002).

Results of Community Contact Process

In preparation of the Cultural Impact Assessment, efforts were made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the Waimānalo Gulch. This effort was made by letter, e-mail, telephone or in-person contact. In the majority of cases, letters – along with a map of the project area – were mailed to potential informants.

In addition, five kama`aina and *kūpuna* with knowledge of the Waimānalo Gulch area were interviewed for the Cultural Impact Assessment:

- Mr. Shad Kane focused on the relationship of Waimānalo Gulch to the traditional Hawaiian view of the *mauka-makai* land relationship. Specific to the portion of Honouliuli *Ahupua`a* that includes Waimānalo Gulch, Mr. Kane spoke of the relation between Kalaeloa at the shoreline and an undocumented *heiau* above Waimānalo Gulch at Palehua. Mr. Kane described in detail of the features of the *heiau* which have led him and others to conclude that this is a navigation *heiau*. As such, the *heiau* relates to the history of the settlement of the Hawaiian Islands by voyagers from the South Pacific. He also mentioned that there are natural springs up in this area. Mr. Kane spoke of a night marchers path to the ocean that follows along the south ridge of Waimānalo Gulch. Many area residents believe that the intersection of this path and Farrington Highway is the scene of unexplained road accidents over the years.
- Mr. Shigeru Yawata spoke of his memories of the area while he lived in the Waimānalo Village from 1927-1937. Mr. Yawata said that he hunted goat and pig in Waimānalo Gulch during this period. At that time he never saw other people going into the gulch for any traditional gathering or other cultural practices. He does not recall seeing any significant cultural sites in the gulch. He remembers the gulch as a very dry area. But he also recalls seeing *Kiawe* and *kukui* nut trees. Mr. Yawata also spoke of the *makai* land of Waimānalo Gulch at the beach near Lanikūhōnua where he would dig in the sand and sometimes uncover freshwater springs.
- Ms. Nettie Tiffany is employed by Campbell Estate and is the supervisor at Lanikūhōnua, which is a cultural institute. Ms. Tiffany shared her memories about the bird catchers in the Waimānalo Gulch and a cultural site that is undocumented up above the Waimānalo Gulch.

- Mr. Hiram Kamana is a local resident of Nānākuli born in the year of 1938. He was employed by the Hawaiian Meat Company, which gave him the opportunity to work the land up above the Waimānalo Gulch which extends towards Makakilo. He was and still is an avid hunter who would hunt up in the valleys of this area for goat and pig. He also spoke about the traditional gathering of medicinal plants and practices.
- Mr. Glen Kila is a long-time resident of the Wai`anae area and descendent of the Haulele `Ohana which is from Waimānalo `Ewa. He is involved in a Hawaiian group called Koa Mana a Hawaiian organization, and is also the vice principal of Kamaile Elementary School. Mr. Kila spoke of Chief Kākuhihewa, noting that `ili of Waimānalo was the chief's favorite place to visit. The ocean *makai* of Waimānalo was famous for surfing. Also, local traditions tell of residents taking care of the *manō* (shark). He mentioned the importance of the springs up in Waimānalo Gulch and how his `Ohana drank the springs' water and used it for religious purposes. His main concerns about the Waimānalo Gulch are: how leaching from the landfill may affect the ocean, fish- such as the `anae, *uhu*, the *manō*- and the *limu*; and the possibility of burials in the area. He noted that the re-interment of burials removed from Ko Ōlina are higher up in the valley.
(Cultural Surveys Hawaii, Inc., December 2002)

5.4.2 IMPACTS AND MITIGATION

In the course of research for the Cultural Impact Assessment, substantial data were developed on traditional cultural beliefs, customs and practices of the ahupua`a of Honolulu and Waimanalo Gulch. However, no traditional cultural practices were identified whatsoever that were absolutely specific to the 14.9-acre expansion area (Cultural Surveys Hawaii, Inc., 2002).

The Cultural Impact Assessment concluded that the proposed project will have no impact on traditional cultural practices. This is due primarily due to the loss of native plant communities which were replaced by exotic weeds long ago and prior to land alteration for construction of WGSL. Few resources were left for potential use of cultural practitioners. In the course of establishment of the present landfill, patterns of access to the uplands shifted. Thus, there are no ongoing cultural practices specific to WGSL and the proposed expansion area (Cultural Surveys Hawaii, Inc., 2002).

As no effect to traditional cultural practices is anticipated, no mitigation measures are required.

CHAPTER 6
ALTERNATIVES TO THE PROPOSED PROJECT

6.1 ALTERNATIVES SUMMARY

6.1.1 INTRODUCTION

In December 2002, the *Alternatives Analysis for Disposal of Municipal Refuse* was completed in support of this FSEIS by Pacific Waste Consulting Group (Appendix H - Alternatives Analysis for Disposal of Municipal Refuse). The following is a summary of the report and evaluation by ENV.

Alternatives to the proposed project comprise other landfill sites and new technologies that could reduce or eliminate the need for a landfill. Technologies that could reduce the need for a landfill are included since use of two or more of them together could be considered to potentially eliminate the need for a landfill. The "No Action" alternative is also included.

1. Alternative Sites evaluated included the following:
 - A. The 42 sites included in the draft EIS for the 15 year landfill expansion (previously identified in the Revised Draft SEIS);
 - B. The site identified in reports provided by private parties to assist the City in preparation of the Expansion EIS (these sites are the Ameron Kapaa Quarry Site and the Makakilo Quarry Site), and the Central Oahu site that has been the subject of state legislation in the last two sessions.
 - C. The exporting of waste to one or more sites located outside of the island of Oahu. Sites considered as examples of possible receiving sites are the West Hawaii landfill in the County of Hawaii and the Altamont Landfill located in California.
2. Alternative Technologies evaluated included the following:
 - A. All of the technologies included in the Revised Draft Supplemental EIS (including plasma arc processing, transformation of waste into a construction material using pressure and a chemical binder, metal recycling, and gypsum [wall board] recycling). The ability of these technologies to affect the need for a landfill ranges from potential for complete elimination of need for disposal to minor diversion from disposal.

- B. Additional recycling programs. These programs are not expected to eliminate the need for a landfill, but will reduce the amount of material for which disposal is needed. All will result in some residue that needs disposal. In general, they can be implemented in one to two years.
 - C. Expansion of the H-POWER facility by adding a third boiler. This alternative will reduce the amount of material needing landfill disposal. It should be in operation before the five years elapses. It will require landfill capacity to dispose of ash under present regulations.
3. The No Action Alternative. This alternative would have landfilling at the Waimanalo Gulch Landfill cease with no alternative site or technology available. That condition will result in the shutdown of the H-POWER facility, as there will be no disposal location for ash produced. Shutting down H-POWER will also stop disposal of most of the solid waste that is generated on Oahu. Taken together these actions will result in a significant public health, safety, and economic problem for the City and County of Honolulu and for the State of Hawaii.

The time generally required for development of any alternative for site selection, permitting, design, and construction, is expected to last at least four years. Many alternatives will require more than five years. Alternatives that were favored by ENV include those that could be implemented more quickly as they would allow the use of the Waimanalo Gulch Sanitary Landfill for a shorter period of time.

The material that needs to be accepted by the alternatives is shown in **Table 6-1, Waste Disposed in the Waimanalo Gulch Landfill**. This table is taken from the report, "Waste Composition Study, May 1999." Sources of waste are listed in **Table 6-2, Sources of Waste Disposed in the Waimanalo Gulch Landfill**. Since completion of the study several changes have taken place in the refuse stream, such as more frequent green wastes (grass and trimmings) collection.

TABLE 6-1
Waste Disposed in the Waimanalo Gulch Landfill

Material	Mean Composition	Tons
Paper	8.9%	
Newspaper	0.2%	533
Cardboard	5.2%	16,529
High Grade	0.5%	1,505
Low Grade	2.2%	6,907
Compostable	0.3%	1,062
Other Paper	0.5%	1,648
Plastics	5.0%	
PET #1 Bottles	0.0%	138
HDPE #2 Bottles	0.0%	90
Other Bottles	0.0%	52
Other Rigid Plastic	1.4%	4,533
Film Plastic	2.5%	7,767
Mixed Plastic/Other Materials	1.0%	3,176
Metal	12.3%	
Aluminum Cans	0.2%	680
Tin Cans	0.2%	666
Ferrous	6.7%	21,125
NonFerrous	0.4%	1,126
Mixed Metals/Other Materials	4.8%	15,295
Glass	0.5%	
Glass Containers	0.3%	815
Other Glass	0.3%	893
Other Inorganics	20.0%	
Gypsum Wallboard	7.0%	22,190
Asphalt Roofing	1.4%	4,577
Asphalt Paving	1.9%	5,955
Concrete	2.9%	9,177
Sand/Soil/Dirt	4.0%	12,589
Ceramic Products	0.1%	268
Misc Inorganics	2.7%	8,664
Other Wastes	6.4%	
Hazardous/Chemicals	0.3%	921
Furniture/Mattresses	5.1%	16,093
Brown Goods (appliances)	1.0%	3,208
Yard Waste	6.0%	
Yard Waste	6.0%	19,063
Wood	31.2%	
Untreated Lumber	5.8%	18,468
Untreated Plywood	2.6%	8,233

Material	Mean Composition	Tons
Pallets/Crates	7.6%	23,921
Treated Wood	13.9%	44,077
Stumps	1.3%	4,139
Other Organics	9.6%	
Food	1.6%	5,087
Textile	0.9%	2,929
Carpet	4.5%	14,147
Tires	0.0%	5
Misc. Organics	2.6%	8,310
Total MSW		316,560

TABLE 6-2
Sources of Waste Disposed in the
Waimanalo Gulch Landfill

Customer Type	Annual Tons
Residential	93,514
Convenience Center	20,235
Commercial	202,207
Haulers	183,561
Other C&C	16,391
Other Private Parties	2,255
H-POWER Ash	84,421
H-POWER Residue	78,512
Sludge	34,759
C&C Sources	33,090
Other Sources	1,670

6.1.2 ALTERNATIVE SITES

The evaluation of alternative sites began with the list of sites identified previously. The Federal US EPA exclusionary siting criteria were applied to those sites and the ones that failed the criteria were removed. The criteria excludes sites in areas that are within an airport restriction zone and in floodplains, wetlands, fault areas, seismic impact zones, and unstable areas. Federal regulations preclude or severely limit siting in areas that violate the exclusion criteria.

Several of the sites were also removed from the list because, since the lists were originally prepared in 1977 and 1979, the area around the sites was converted to relatively high-density residential development. Such areas are not appropriate for landfilling.

It was previously suggested during the discussion of the Waimanalo Gulch Sanitary Landfill RDSEIS, that the City establish two (or more) landfill sites. The advantage stated involved reduced travel time if the sites were located close to the points of major waste generation. Use of two or more landfill sites was considered by ENV, but was not selected for consideration due to the following:

1. Land resources on Oahu are finite and limited. Use of more than one landfill site for disposal of MSW would increase the rate at which such sites would be exhausted, thereby reducing the amount of land resources available for future generations.
2. Potential for negative environmental impacts associated with the development of any landfill requires major effort to ensure mitigation. Development of two or more landfill sites would increase potential for negative environmental impacts and costs necessary to mitigate such impacts.
3. Economies of scale from an appropriately sized facility would generally result in more efficient use of land than two smaller facilities that may not be as easily planned from a landfill development perspective. The economies of scale would also allow for lower refuse disposal costs than two or more smaller landfills.

Completion of the process for selection of recommended alternative sites involved ranking the sites by capacity and recommending those with 10 or more years. The application of *Screening Criteria* in a process that begins after this EIS is completed will derive the final ranking. The City has indicated it will convene a special landfill siting committee to evaluate potential sites using criteria that reflect local conditions. Further detail to establish this course of action will be developed with the understanding that the land use and solid waste permitting process must be finished to gain approval to landfill on a site.

The sites that are suggested for further consideration and their estimated capacity in years are listed in Table 6-3, Sites Suggested For Further Consideration. According to Table 6-3, the Waimanalo Gulch Sanitary Landfill is the preferred site due to its current operational status.

As per Appendix H - Alternatives Analysis, final selection would include details such as final site determination, preparation of technical studies, preparation of environmental documentation, processing of land use and solid waste permits, and the public review process.

TABLE 6-3
Sites Suggested for Further Consideration

Site	TMK	Years
Kaloi	9-2-2, 3, 4	37
Ohikilolo	8-3-1:13	24
Makaiwa	9-2-3	23
Waimanalo South	4-1	21
Nanakuli	8-7-9:1 & 3 and 8-7-21:26	20
Ameron Quarry	4-2-015-001	18
Makakilo Quarry	9-2-003-082	16
Maili	8-7-10:3	14
Waimanalo Gulch Expansion	9-2-3:72 & 73	14
Bellows	4-1-15	11
Makua	8-1-1 & 8-2-1	11
Punaluu	5-3	11
Waikane	4-8	11
Kunia B	9-4-3:por 19	11

6.1.3 TRANSSHIPMENT OF WASTES OFF-ISLAND

In addition to sites on the island of Oahu, the alternatives analysis also reviewed sites that were located in California and on the island of Hawaii. These sites also were the focus on the "No Action Alternative" as disposal at these locations could occur in much less than five years and disposal at the Waimanalo Gulch Landfill could be eliminated. Appendix H details the evaluation.

In summary, use of the West Hawaii landfill on the big island would reduce the life of that site from about 60 years to 10 years, thereby transferring Oahu's landfill siting to another county for a few years and putting that county in a similar situation.

There is capacity at many landfills in California. One, the Altamont Landfill near the port of Oakland, was used as an example. The cost of shipping and disposal at both the West Hawaii and Altamont sites was estimated based on conversations with the interstate and inter-island shipping companies. Some cost savings may be possible with special shipping arrangements, and the costs provided here are estimates. The costs could also increase dramatically.

The primary cost item is the treatment of waste material to eliminate the possibility of shipping agricultural pests. The state and federal governments have prohibitions against shipping agricultural pests to the mainland and between islands. ENV cannot guarantee that the waste will be pest free, so the treatment, autoclaving or some other high temperature method, would need to be administered.

The cost of transportation, autoclaving, and disposal ranged from \$800 per ton to nearly \$1,000 per ton. *If the cost of off-island disposal were collected just from the H-POWER tip fee in 2003, (and assuming that it processes 602,000 tons per year) the result would range from \$790 to \$865 per ton. The current H-POWER tip fee is \$72.25 per ton.*

While shipment off-island is possible, in practice, the cost would have a major impact on the entire island community. The "Socio-Economic Impact Assessment of Waimanalo Gulch Sanitary Landfill Expansion" (SMS Research 2002), includes a calculation that shows the effect on property taxes if all of the increase was not collected at H-POWER, but was partially collected through property taxes. The increase in property taxes would range from 22 to 111 percent, depending on the amount collected through the H-POWER tip fee. Therefore, for reasons involving extreme difficulty in practical implementation, consideration of waste transshipment was discounted from further consideration.

6.1.4 ALTERNATIVE TECHNOLOGIES

The evaluation of alternative technologies focused on three areas:

- New technologies that could reduce or eliminate landfilling.
- Expansion of H-POWER.

- New or expanded recycling or fee based programs that could reduce, but not eliminate landfilling.

The evaluation of new technologies relied upon past efforts that ENV has conducted to evaluate the reliability, financability, energy production, and operation of the new technologies. The technology most often suggested as a possibility to handle all the material (H-POWER ash included) that is taken to the Waimanalo Gulch Sanitary Landfill is plasma arc.

Plasma arc systems use a vessel maintained at very high temperature by an electric arc that is discharged in the chamber. The waste material is introduced into the chamber and is gasified. The metals and other materials that cannot be gasified drop into a bed of molten glass or similar material that is maintained in the bottom of the chamber. The gas produced contains hydrogen which is used to generate electricity. The vendors claim that the process can produce more electricity than required to operate it.

The City & County of Honolulu commissioned four evaluations on plasma systems since 1999 and sent staff to observe the one plant that was understood to be operating on MSW. The evaluations are discussed in detail in Appendix H and are summarized here.

The first evaluation recommended plasma systems, but acknowledged that they had not been used to process MSW.

The second evaluation looked at two plasma systems and one system that compresses the waste into a building material and found that:

“None of the three processes has a plant that has been operating on MSW, so all three fail the primary evaluation criterion.”

The third evaluation was done on a test on MSW at a plasma system operated by Hawaii Medical Vittrification (HMOV) in Campbell Industrial Park. The primary purpose of that test was to demonstrate HMOV's claim that the plant could process MSW and to estimate the energy production (the plant did not have an operational generator to produce power from the gas generated). That report concluded, in part:

“The test did not demonstrate that the HMV plasma-enhanced meter system is more energy efficient than H-POWER. Further, the tests indicated the system is an inefficient producer of hydrogen gas...”

City staff investigated a plasma arc system that is planning to process MSW in Utashinai, Japan. The visit was during the period October 13 to 15, 2002. The plant was processing 66 tons per day of auto shredder waste during the visit. MSW processing was to start on December 1, 2002, with expectations for processing 77 tons per day by April 2003. At the time of the visit, the longest operating period was for five days.

While the Utashinai unit is in the size range that could be replicated to provide the 800 tons per day capacity needed to replace the Waimanalo Gulch Landfill, it has not yet operated on MSW and was not at full capacity. Data on energy production was not available, so process economics could not be estimated.

The most recent ENV documented evaluation of plasma systems was done in December 2002 (Review of Plasma Arc Technology for Waste Disposal, R.W. Beck, December 10, 2002). The report of that evaluation concluded in part,

“By contrast, disposal of MSW using plasma technology is just beginning. There are no continuously operating MSW plasma facilities in the United States and only two operating in the rest of the world. These two facilities have an average throughput of less than 100 tons per day and the oldest facility has been operating since 1999.

Based on performance of other types of gasifiers as compared to their combustion counterparts (e.g., coal gasification combined cycle plants), a plasma facility with a combustion turbine might be more efficient at producing electricity than a state-of-the-art WTE plant, but there are no commercial plasma facilities with combustion

turbines with which to confirm this supposition. An MSW-plasma facility with a combustion turbine is anticipated to begin operation in 2004.

The lack of operating history is an inherent problem with new technologies. Previous experience with WTEs shows that the nature of MSW, particularly its heterogeneity, presents a set of problems that are solved only through operating experience.

There is also the matter of scale. The throughput of existing MSW plasma facilities is well below what the C&C will need to meet its waste disposal needs in the short-term. The only plant now disposing of MSW, the Yoshii plant, has a throughput of only 24 tons per day. The EcoValley plant will process 166 tons per day, but it is not scheduled to begin processing MSW until December, 2002. Scaling-up a facility, regardless of the process, can present a number of technical problems that affect both capital and operating costs.

The difficulty with new technologies that have not been previously financed is that lenders typically require more stringent guarantees. It is not unusual for the financing process for a new technology to take several years.

Of course, if the C&C accepts the risk of failure of the new technology to process the amount of waste proposed, its cost of disposal would be expected to increase dramatically."

The City is considering issuing a request for proposals to assess interest from plasma vendors in supplying a plant that could process 200 tons per day of MSW. While the summaries of the technology that are presented here, as drawn from other extensive studies, suggest that the plasma system is not ready for scale up, the issuance of a request for proposal will offer a opportunity for the vendors to bring innovation and financial strength to the processing of Oahu's waste stream. If there is positive response, the plasma system may be able to process much of the waste stream. However, it is unlikely that the majority of the systems can be operational within a five year timeframe. This alternative while possible for future application, therefore, cannot be considered viable for the timeframe required for the proposed project.

6.1.5 OTHER ALTERNATIVES

The other alternatives included H-POWER expansion with a third boiler, Expanded Curbside Residential Green Waste, Establish User Fees, Curbside Recycling Beverage Container Deposit Program, Metal Recovery at the Landfill, Metal Recovery from Residents, Enhanced Enforcement of Landfill Bans and Restrictions, Increased Disposal Fees at the Landfill, Recovery of Wood from the Landfill, and Beneficial Uses of H-POWER Ash.

Many of these programs will divert material at the Waimanalo Gulch Landfill and could be started within an approximate five year timeframe. None of them have the potential to eliminate the need for the landfill. Some of them need to have a market for the material proven (gypsum recycling) before initiation. Another, the beneficial use of the ash, is precluded by the regulatory agency (DOH).

The City and County of Honolulu will continue to pursue these other alternatives as a useful supplement to reducing disposal of waste in a landfill. However, these alternatives by themselves will not address the proposed five year timeframe of the project.

6.1.6 NO ACTION ALTERNATIVE

This alternative describes what would occur if the City and County of Honolulu did nothing regarding extension of the Waimanalo Gulch Landfill permit, which is due to expire. The date of expiration is not fixed as the closure is based on the fill reaching a specified height and that depends on the amount of material received. This alternative would have landfilling at the Waimanalo Gulch Landfill cease with no alternative site or technology available. That condition will result in the shutdown of the H-POWER facility, as there will be no disposal location for ash produced. Shutting down H-POWER will also stop disposal of most of the solid waste that is generated in the City and County of Honolulu. Taken together, the potential public health, safety and economic impact of the No Action Alternative is unacceptable.

CHAPTER 7
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES AND THE
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S
ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF
LONG-TERM PRODUCTIVITY

7.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed expansion of the existing Waimanalo Gulch Sanitary Landfill will require the irreversible and irretrievable commitment of a number of resources. These resources include materials, capital, manpower and energy needed to plan, construct, operate, and maintain the proposed expansion of the landfill.

The commitment of the additional 14.9 acres of land to expand the existing landfill will be irreversible and irretrievable. The use of the site as a landfill will eliminate it from other uses for a period of approximately 5 years, following acquisition of environmental and development permits. The project, which is adjacent to the existing landfill is already limited in potential uses, permitted or otherwise.

The proposed expansion will result in the use of topsoil for landfill cover material which will be an irretrievable loss of this resource. However, the top of the completed landfill will be sloped and covered with a final topsoil layer which will be revegetated to promote soil retention and ensure a visual presence which will be compatible with the existing dry, lowland scrub vegetation found surrounding the project site. All work related to completion of landfill activities will be in accordance with Federal, State and City and County of Honolulu requirements. Therefore, whether or not used for landfilling purposes, the project site will involve the eventual revegetation and set aside of the site to remain as open space.

Implementation of the proposed expansion project will not result in the significant loss of natural or cultural resources. The site is not a significant wildlife habitat, nor are there any federal or state listed endangered species known to inhabit the area. While there are known archaeological or historic sites outside of the project boundaries, proposed mitigation measures will ensure against potential for negative adverse impacts to sites.

Site preparation and development will utilize fiscal, manpower, and material resources for planning, engineering and design, construction, and operations and maintenance (O&M) purposes. Expenditure of these resources will not be recoverable. Capital expenditures required for management, expansion of the existing drainage system, leachate control system and fencing installations, will require approximately \$5 million per year over the proposed period of use.

The site will be limited in the number of feasible uses which may be available upon closure of the proposed expansion area. The long-term stabilization of the landfill site and potential generation of landfill gases will further preclude development of the site for near term residential or related urban purposes. It is possible, however, that with future long term stabilization of the site that selected activities may be permitted including use for parkland or recreational facilities. This practice has successfully been applied to other sites previously used for landfilling purposes including Kakaako Waterfront Park, and the Sand Island State Recreational Park.

7.2 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This EIS provides information on many promising new methods for the reduction, recycling, and reuse of various components of the municipal solid waste stream. There are some wastes and waste by-products, however, that cannot now be feasibly disposed of by methods other

than landfilling in the City and County of Honolulu. A safe, efficient, and feasible means of disposal of municipal solid waste, therefore, must continue to be made available for the broader island community of Oahu. The proposed project is at this time the most viable method for disposal of municipal solid waste in Honolulu.

Potential for negative adverse impacts to area residents and underlying non-potable groundwater resources will be addressed through use of appropriate mitigation measures as described in this document. Mitigation to address potential for impacts to area residents will include new operational procedures and practices, use of new equipment, management measures involving further close coordination with the area community to more quickly address concerns and issues over landfill operations, and ongoing use of new technologies and practices by ENV to further reduce the volume of wastes requiring disposal in a municipal sanitary landfill. As noted, this will include the scheduled upgrade of facilities at Sand Island Wastewater Treatment Plant which involves the major reduction of treated sewage sludge through a dryer facility which will convert sewage sludge into fertilizer pellets.

Potential for contamination of non-potable groundwater resources is a long-term concern since leachate migration could occur during landfill operations as well as during post closure of the landfill. The project site, however, is currently permitted within an area located over a groundwater region that is not suitable for drinking water uses. There is concern that the underlying non-potable brackish water supply may be withdrawn in the future and desalinated to produce a potable resource. However, if and when desalination is implemented, there are other locations on the island where non-potable brackish water can be withdrawn. Despite the fact that there are no definite future plans to withdraw the underlying groundwater for desalination and potable use, the proposed expansion project will be designed in accordance with Federal, State, and City and County of Honolulu regulations and laws governing protection of groundwater. All practicable measures to minimize and mitigate leachate contamination therefore will continued to be practiced.

The proposed project will not result in a significant loss of environmental resources.

Although implementation of the project will preclude the use of the site for other purposes for at least the duration of the project, existing conditions and land use regulations governing the site already restrict feasible uses.

Although the proposed expansion of the existing landfill will require irretrievable use of the land for the duration of project activities, and will therefore limit the feasible use of the land, the project will promote the maintenance and enhancement of long-term productivity through maximizing the use of an existing public land resource for continued sanitary landfill operations. The project will fulfill an essential public service and provide for the desired social and economic growth of the broader population of Oahu.

CHAPTER 8
UNRESOLVED ISSUES

8.1 UNRESOLVED ISSUES

Unresolved issues associated with the proposed project involves: (1) development of final land use phasing and engineering plans; (2) volume of aggregate to be released from site; and (3) future landfill requirements after exhaustion of the site.

8.2 DETAILED LANDFILL PHASING AND ENGINEERING PLANS

The detailed final landfill phasing and engineering plans are currently under development by Waste Management of Hawaii, Inc. Although these plans are not yet complete, the overall site requirement has been estimated at approximately 14.9 acres.

Final landfill boundary areas will be examined to ensure that sufficient slope and grades can be designed within appropriate engineering parameters to ensure site stability. Once the final boundary has been determined a landfill phasing plan, and construction-engineering plans will be prepared. All final plans and specifications will be reviewed and approved for conformance with Federal, State, and City and County of Honolulu regulations and laws.

8.3 VOLUME OF AGGREGATE TO BE RELEASED FROM SITE

Excavation and grading associated with use of the proposed expansion area will result in the generation of soil, cobbles, and boulders. Soils from onsite grading will be stockpiled and later used for landfill cover. The landfill cover will be used for establishment of vegetative cover, landscaping, intermediate cover, and eventual final covering of the completed landfill surface.

Cobbles (rocks less than approximately 10 pounds in weight) and boulders will be used for various purposes including feed for rock crushing operations to produce aggregate, and for landscaping.

The completed crushed rock or aggregate will later be used onsite to facilitate operations within the landfill or for other purposes including supply for construction contractors.

Although the specific volume of aggregate to be generated from the site has not been determined, a preliminary estimate can be made based on the anticipated volume of soils to be excavated from the project site. The project volumes would be as follows:

<u>Cubic Yards</u>	<u>Explanation</u>
±1.0 M	Anticipated volume of soils excavated from the site
±0.4 M	Soils reused onsite for landscaping and other purposes including use for fill, construction of stability berms, etc.
±0.6 M	Remaining volume of soils with aggregate recovery rate of approximately 50% (total aggregate recovery of ±300,000 cubic yards).
±60,000	Estimated average annual generation of aggregate.

As indicated above, given an estimated aggregate recovery rate of approximately 50 percent, approximately 300,000 cubic yards of aggregate can be expected to be generated. The average annual release of volume of material over an expected landfill lifespan of 5 years would amount to approximately 60,000 cubic yards per year.

8.4 FUTURE LANDFILL REQUIREMENTS AFTER EXHAUSTION OF SITE

Current Strategy

The City and County of Honolulu waste management system involves use of a number of programs for the safe and efficient collection, reuse, and disposal of municipal refuse. A major component of the refuse system currently involves the Waimanalo Gulch Sanitary Landfill in conjunction with strategies designed to increase independence from use of the landfill. These strategies over the five-year timeframe of the landfill will include:

- The proposed expansion of the H-POWER facility with a third boiler to increase capacity and reduce periods of landfill diversion due to H-POWER maintenance and repair.
- Implementation of new, but proven technologies to further process waste streams which would otherwise require landfilling. Sand Island Wastewater Treatment Plant (SIWWTP) is the single largest contributor of sewage sludge requiring landfilling. Construction of a sewage sludge drying facility at SIWWTP is underway which will convert sewage sludge to fertilizer pellets. The successful operation of the facility will be applied to other municipal WWTPs to further reduce the need for sludge landfilling.
- Development of the Alternative Waste Disposal Technology Park. The site has been purchased and development is in the planning stage. The site will provide a favorable location for use by qualified and financially capable parties willing to demonstrate viable technology based options which can reduce need for landfilling.
- On-going recycling, reuse, and waste reduction programs of ENV will continue and will be expanded as needed.

Future Landfill Requirement

Although the current five-year strategy will address near term management of Oahu's municipal refuse, there are a number of reasons why landfilling will continue to be required for the foreseeable future:

- Recycling and reuse technologies, while a positive means of reducing waste, will not by itself completely eliminate the generation of waste or waste by-products, e.g., it is possible that some waste can be used for energy production or recycling, however, it is expected that because of either economic or technical reasons there will be some materials that cannot be further processed.
- Newly emerging plasma arc and other waste processing technologies all result in the generation of by-products which cannot be further reused or recycled.
- Transshipment of refuse off-island would eliminate the need for landfills, but would by itself generate major political and financial impacts.

Development of a new landfill site, given the difficulty of this current proposal therefore, should be provided a sufficient period of time for: further site investigation and selection; community dialog; governmental agency coordination; environmental permitting; and construction (preliminary preparation of the site to accept refuse). It is suggested that early incorporation of community issues and concerns be incorporated into the process through establishment of a (Blue Ribbon) Landfill Siting Committee, comprised of persons appointed by the Mayor to represent both regional and islandwide interests. Details, including criteria for selection of landfill sites and an implementation schedule should be reviewed by the Landfill Siting Committee and made part of the public record.

The timeframe for initiating the decision to select and develop a new landfill site should commence as soon as possible because an increase in the rate at which waste is generated could have a negative effect on use of the site for the proposed period of five-years, pending receipt of all necessary environmental and land use permits. Two examples where the rate of MSW could increase involve: (1) Future economic recovery, and associated development in Hawaii. Although increased economic activity would provide for renewed public and private sector employment and spending, there would be an accompanying need for disposal of goods and materials; and, (2) A potential natural disaster such as a hurricane, earthquake, tsunami, or flood, which would generate refuse from major clean up activities.

The net effect of either occurrence is that current projections of waste disposal would be reduced. Although emerging new technologies which are not now considered viable, may produce future feasible waste reduction breakthroughs, it would be unwise to rely solely on their future development.

CHAPTER 9
SIGNIFICANCE CRITERIA

In accordance with content requirements of Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200 of Title 11, Chapter 200, Hawaii Administrative Rules, it is anticipated that this project will have no significant negative adverse environmental impacts. All anticipated potential impacts will be addressed through use of mitigation measures and practices as set forth in this Environmental Impact Statement document.

According to the significance criteria:

Criteria 1 - Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Surveys of flora, fauna, archaeological and historic sites at and near the project area found no presence of natural or cultural resources that would be jeopardized by the proposed project (see appendices). Upon reviewing the historic and archaeological survey of the proposed project, the State Historic Preservation Division, Department of Land and Natural Resources, has concurred that there are no known archaeological or historic sites within the proposed project area (DLNR letter dated January 12, 2000).

Criteria 2 - Curtails the range of beneficial uses of the environment;

The proposed project site is located on undeveloped land within the existing Waimanalo Gulch Sanitary Landfill property owned by the City and County of Honolulu. The site is currently unused, with rocky soil and little vegetation. Development of the site will not displace any structures or activities and will not

significantly detract from the function or use of the environment. Potential for negative adverse impacts to the environment will be addressed through adherence to mitigation measures and practices as set forth by this document.

Criteria 3 - Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS;

The project proposal has been prepared in accordance with Federal, State, and City and County of Honolulu regulations, laws, and policies and is in compliance with all relevant provisions.

Criteria 4 - Substantially affects the economic or social welfare of the community or State;

The proposed expansion of the Waimanalo Gulch Sanitary Landfill is expected to have a beneficial effect on the economic and social welfare of the City and County of Honolulu. The expansion is proposed to meet the existing and future needs of the island for the safe and efficient disposal of municipal solid waste and ash. Potential for negative adverse environmental impacts to the communities surrounding the project site will be addressed through use of appropriate mitigation measures and practices as described in this Environmental Impact Statement.

Criteria 5 - Substantially affects the public health;

Factors affecting public health, including air quality, water quality, litter, and noise levels, were assessed and are addressed through the application of appropriate mitigation measures and practices. Mitigation measures and practices have been included in the design, operation, and maintenance of the proposed expansion to avoid potential for negative adverse impacts to public health and safety of the community and City and County of Honolulu.

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

Development of the proposed project will not result in substantial secondary impacts to the natural or built environment or to the social and economic community. The proposed project will not stimulate unexpected change in population, but will accommodate the current and anticipated future needs of the population of the City and County of Honolulu. The proposed expansion will utilize portions of an existing public facility, including access roads and utilities, but will not place significant additional burden on those facilities.

Criteria 7 - Involves a substantial degradation of environmental quality;

Analysis of air and water quality, noise levels, and land use associated with the construction, operation and maintenance of the proposed expansion project has determined that the proposed project will not substantially degrade environmental quality.

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

The proposed project is being developed in accordance with Federal, State, and City and County of Honolulu laws, regulations, and policies. The proposed facility is under development by the City and County of Honolulu to provide for the safe and efficient disposal of municipal solid waste. The proposed expansion is designed to meet existing and anticipated future needs within Oahu for waste disposal and will not result in cumulative effects upon the environment nor involve a commitment for larger actions.

Criteria 9 - Substantially affects a rare, threatened, or endangered species, or its habitat;

Investigation of the project site has been completed and have identified no species that are listed as rare, threatened, or endangered by the State or Federal government.

Criteria 10 - Detrimentially affects air or water quality or ambient noise levels;

Short-term impacts to air quality and ambient noise levels will result from construction activities; however, potential for negative adverse impacts are anticipated to be minimal and will cease when construction is complete. Due to specific care taken in the design (including mitigation measures and practices) no detrimental long-term effects to the environment is expected from development of the proposed project.

Criteria 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;

The project site is located inland from any coastal waters, within an area determined by the Federal Emergency Management Agency to be outside of the 500-year flood zone. The proposed expansion will be developed and built according to Federal and State standards for sanitary waste disposal facilities.

Criteria 12 - Substantially affects scenic vistas and view planes identified in County or State plans or studies;

The project site is not located within any scenic vista or view plane identified in County or State Plans. The existing administrative buildings are designed with a one to two-story roof line. Closure of each landfill cell will be accompanied with a final cover with revegetation similar to that found along slopes which adjoin the site. Visual

impacts associated with initial construction activities will be temporary. Visual impacts during operation of the landfill will be mitigated with the use of vegetation and screening. Although the proposed expansion will result in an overall increase of area used for landfill, the eventual closure of the current area will provide for increased green open space.

Criteria 13 - Requires substantial energy consumption.

Construction activities associated with the proposed expansion will require use of energy during grading, excavation, and upon application of landfill cover materials. It is anticipated that use of energy for the operation of machinery, equipment, and administrative buildings will utilize the same or less energy than the existing facility.

Daily operations activities are not anticipated to result in a substantial burden to the available power supply. The electrical energy required from Hawaiian Electric Company will involve a continuation of existing service.

CHAPTER 10
ORGANIZATIONS AND AGENCIES CONSULTED IN
THE PREPARATION OF THE FINAL, REVISED DRAFT, AND DRAFT
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

The following organizations, agencies and individuals were contacted during the preparation of the Final, Draft, and Revised Draft Supplemental Environmental Impact Statement and Preparation Notice:

10.1 FEDERAL AGENCIES

Environmental Protection Agency, Pacific Islands Contact Office (PICO)
U.S. Air Force Palehua Solar Observatory
Department of the Army, Corps of Engineers
U.S. Fish and Wildlife Service

10.2 STATE AGENCIES

Department of Accounting and General Services
Department of Agriculture
Department of Business, Economic Development and Tourism
 Office of Planning, Hawaii Coastal Zone Management Program
 Energy, Resources, and Technology Division
 Business Resource Center Library
Department of Defense
Department of Hawaiian Home Lands
Department of Health
 Environmental Division
 Clean Air Branch
 Clean Water Branch
 Solid and Hazardous Waste Branch
 Office of Environmental Quality Control

Department of Land and Natural Resources

Historic Preservation Division

Land Division

Land Use Commission

Office of Hawaiian Affairs

Department of Transportation

University of Hawaii

UHM Environmental Center

UHM Water Resources Research Center

10.3 CITY AND COUNTY OF HONOLULU

Board of Water Supply

Department of Planning and Permitting

Department of Transportation Services

Honolulu Fire Department

Honolulu Police Department

10.4 PRIVATE AND COMMUNITY ORGANIZATIONS, AND ELECTED OFFICIALS

Hawaiian Electric Company

Honolulu Star-Bulletin

Honolulu Advertiser

Matson Navigation Company

CSX Lines

Sun Press

State Senator Brian Kanno, 20th District, Ewa Beach, Makakilo, Ewa

State Senator Colleen Hanabusa, 21st District, Nanakuli, Waianae, Makaha

State House Representative Michael Puamamo Kahikina, 43rd District, Barbers Point,

Nanakuli, Maili, Waianae

Fmr. State House Representative Emily J. Auwae, 44th District, Makaha, Waianae

State House Representative Mark Moses, 42nd District, Kunia, Makakilo, Ewa,

Waipahu, Kapolei

Fmr. Councilmember John DeSoto, 9th District.

Makakilo-Kapolei-Honokai Hale Neighborhood Board No. 34

Waianae Coast Neighborhood Board No. 24

10.5 OTHERS

- Preparation of the Socioeconomic Impact Assessment by SMS Research involved interviews and contacts with concerned members of the community. A list of names contacted is provided in **Appendix D - Socio-Economic Impact Assessment**.
- Preparation of the Cultural Impact Assessment by Cultural Surveys Hawaii involved informant interviews with concerned members of the community. A list of names contacted is provided in **Appendix G - Cultural Impact Assessment**, and
- Additional coordination was conducted with interested members of the community through a series of informational meetings. A record of these meetings and persons contacted are provided in **Appendix I - Public Meeting Notes**.

CHAPTER 11

COMMENTS AND RESPONSES TO THE REVISED DRAFT SUPPLEMENTAL EIS

A list of Commenters to the RDSEIS is attached as Table 11-1. The actual letters received are indicated in numerical order as noted on Table 11-1. Comment letters are numbered on the upper right corner. City responses to comments follow copies of the comment letters and are annotated on the upper right corner by the letter designation "A" following the number of the comment letter. Note that these comments have been incorporated into the FSEIS as appropriate.

TABLE 11-1
 REVISED DRAFT SEIS - WAIMANALO GULCH SANITARY LANDFILL EXPANSION
 LIST OF COMMENT LETTERS RECEIVED TO JUNE 19, 2002

NO.	DATE	ORGANIZATION	CONTACT
1	6/13/01	Department of Facility Maintenance	Ross Sasamura
2	6/13/01	Dept. of Land and Natural Resources (DLNR)	Harry Yada
3	6/15/01	DLNR, State Historic Preservation Division	Don Hibbard
4	6/19/01	Dept. of Parks & Recreation	William Balfour
5	6/19/01	Dept. of Accounting and General Services	Gordon Matsuoka
6	6/20/01	Maeda Timson	Maeda Timson
7	6/25/01	Louis A. Lopez	Louis A. Lopez
8	6/29/01	Fire Department	John Clark
9	7/3/01	Dept. of the Army, Corps of Engineers	George Young
10	7/12/01	Jane Ross	Jane Ross
11	7/12/01	Maeda Timson	Maeda Timson
12	7/12/01	Honolulu City Council	Councilman John DeSoto
13	7/13/01	Ko Olina Community Assn.	Ken Williams
14	7/13/01	Jane Ross/Martha Makaiwi	Jane Ross/Martha Makaiwi
15	7/13/01	Martha Makaiwi	Martha Makaiwi
16	7/16/01	Don Dvorak	Don Dvorak
17	7/16/01	Penny Muell	Penny Muell
18	7/17/01	Dept. of Design and Construction	Rae M. Loui
19	7/18/01	Board of Water Supply	Clifford Jamile
20	7/19/01	Office of Hawaiian Affairs	Colin Kippen
21	7/20/01	Campbell Estate	Henry Eng
22	7/23/01	University of Hawaii Environmental Center	Jacquelin Miller
23	7/23/01	Dept. of Business, Economic Dev. & Tourism	Maurice Kaya
24	7/24/01	Jane Ross/Martha Makaiwi	Jane Ross/Martha Makaiwi
25	7/25/01	Waianae Neighborhood Board	Chair Cynthia Rezentes
26	7/26/01	Department of Health	Gary Gill
27	7/27/01	Honolulu Police Dept.	Chief Lee Donohue
28	8/2/01	Starn O'Toole Marcus & Fisher	Terrence O'Toole
29	8/2/01	Cornerstone Real Estate Advisers, Inc.	David J. Reilly
30	8/4/01	Linda M. Porter	Linda M. Porter
31	8/4/01	Sierra Club	Jeff Mikulina
32	8/6/01	Office of Environmental Quality Control	Genevieve Salmonson
33	8/7/01	Kapolei Neighborhood Board	George Yamamoto
34	8/9/01	Dept. of Planning and Permitting	Randall K. Fujiki
35	8/18/01	Faith Arakawa	Faith Arakawa
36	8/21/01	Life of the Land	Kat Brady
37	8/29/01	Brookfield Homes Southland, Inc.	Adrian Foley
38	8/30/01	Department of Transportation	Brian Minaai
39-40	9/13 & 20/2001	Paul, Hastings, Janofsky & Walker LLP	Peter Weiner
41	9/18/01	Senator Colleen Hanabusa	Senator Colleen Hanabusa

TABLE 11-1
 REVISED DRAFT SEIS - WAIMANALO GULCH SANITARY LANDFILL EXPANSION
 LIST OF COMMENT LETTERS RECEIVED TO JUNE 19, 2002

NO.	DATE	ORGANIZATION	CONTACT
42	9/20/01	Ko Olina Resort & Marina	Jeff Stone
43	9/20/01	Robert Au	Robert Au
44	9/21/01	Mike Golojuch	Mike Golojuch
45	9/26/01	Mar S. Apuya	Mar S. Apuya
46	9/26/01	Department of Transportation Services	Cheryl Soon
47	10/2/01	Ko Olina Community Assn.	Ken Williams
48	10/5/01	Linda C. Ure	Linda C. Ure
49	10/5/01	Waianae Neighborhood Board/Resident	Harry Choy
50	10/12/01	Office of the Director of Civil Defense	Edward Teixeira
51-55	10/19/01 10/13/01 10/11/01 9/26/01 9/14/01	Amy Tanaka/Robert Mitsuyasu	
56	11/1/01	Board of Water Supply	Clifford Jamile
57	12/4/01	Ko Olina Community Assn.	Ken Williams
58	1/17/01	The Fairways, Ko Olina Resort	Ralph Harris
59	2/5/02	Ameron International	Linda Goldstein
60	2/8/02	Earl & Horiko Nakazaki	Earl & Horiko Nakazaki
61	2/15/02	Dynamic Connections	Todd Apo
62		Senator Colleen	
63-64	3/13/02 3/5/02	Ko Olina Aloha Team Officer	Palako Evaimalo
65	3/13/02	Lanikuhonua Cultural Institute	Lynette (Nettie) Tiffany
66-67	3/14/02 3/13/02	Natasha Clarin	Natasha Clarin
68-70	3/14/02 2/19/02 2/7/02	Ko Olina Resort & Marina	Jack Morgan
71	3/14/02	Ko Olina Aloha Team Officer	Rodel Aradanas
72	3/14/02	Ko Olina Aloha Team Officer	Betty Lou Cullen
73	3/14/02	Marriott Vacation Club Intl.	Robert Calhoun
74-75	3/14/02 2/15/02	Brookfield Homes	David Murphy
76	3/17/02	Jane Ross/Martha Makaiwi	Jane Ross/Martha Makaiwi
77-80	3/18/02 3/14/02 3/13/02 3/12/02	Ko Olina Community Assn.	Ken Williams
81	4/5/02	Marion Tyni	Marion Tyni
82		Senator Colleen Hanabusa	Senator Colleen Hanabusa

TABLE 11-1
 REVISED DRAFT SEIS - WAIMANALO GULCH SANITARY LANDFILL EXPANSION
 LIST OF COMMENT LETTERS RECEIVED TO JUNE 19, 2002

NO.	DATE	ORGANIZATION	CONTACT
83	4/19/02	Kailua Neighborhood Board	Faith Evans
84	6/17/02	Ko Olina Community Assn.	Ken Williams
85	6/19/02	Senator Colleen Hanabusa	Senator Colleen Hanabusa
86	6/19/02	Imanaka Kudo & Fujimoto	Richard Asato/Naomi Kuwaye
87	6/19/02	Cades Schutte Fleming & Wright	Gino Gabrio
88	6/19/02	Ko Olina Community Assn.	Ken Williams
89	9/18/01	McCutchen, Doyle, Brown & Enersen LLP	David Andrews/Marilee Allan

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 537-6663 • Fax: (808) 537-6675

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 537-6663 • Fax: (808) 537-6675



JEREMY HARRIS
MAYOR

EDDY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR
REPLY REFER TO:
RE 01-096

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

REPLY REFER TO:
RE 01-116

May 25, 2001

June 27, 2001

Dear Participant:

Attached for your review is a Revised Draft Supplemental Environmental Impact Statement (RDSEIS) which was prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Hawaii Administrative Rules, Title 11, Chapter 200).

TITLE OF PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
 LOCATION: Oahu, District of Ewa
 TAX MAP KEY: 9-2-3-072 and 073
 AGENCY ACTION: X APPLICANT ACTION: _____

YOUR COMMENTS MUST BE RECEIVED OR POSTMARKED BY: July 23, 2001
 (minimum 45 day comment period)

PLEASE SEND ORIGINAL COMMENTS TO THE:

TO: City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813
Ms. Wilma Namumart
527-5378

COPIES OF THE COMMENTS SHOULD BE SENT TO OEQC AND THE FOLLOWING:

APPROVING AGENCY OR ACCEPTING AUTHORITY: Mayor Jeremy Harris
 ADDRESS: 530 South King Street, City Hall, Room 300
Honolulu, Hawaii 96813
 CONTACT: Mr. Randall K. Fujiki, Director, Department of Planning and Permitting, c/o Mayor Jeremy Harris
 PHONE: 523-4432
 CONSULTANT ADDRESS: R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817
 CONTACT PHONE: Mr. Brian Takeda
842-1133

June 13, 2001 - We do not have any comments. If you have any questions, please call Laverne Iliga at 527-6246.

ROSS S. SASAMURA, Director and Chief Engineer

MEMORANDUM

TO: ROSS S. SASAMURA, DIRECTOR
 DEPARTMENT OF FACILITY MAINTENANCE

FROM: *[Signature]*
 TIMOTHY E. STEINBERGER, ACTING DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL
 IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Thank you for your transmittal dated June 13, 2001. We acknowledge your Department has no comments concerning the Revised Draft SEIS.

We appreciate your review of the subject document. Should you have any comments please contact Ms. Wilma Namumart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 868-2985 (extension 22).

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
 Mr. Brian Takeda, R.M. Towill Corporation

RECEIVED
 DEPARTMENT OF
 FACILITY MAINTENANCE

JUN 12 7 54 AM '01



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

RECEIVED
 July 15 3 13 PM '01
 AGRICULTURE DEVELOPMENT PROGRAM
 AQUATIC RESOURCES RECREATION
 CONSERVATION AND RESTORATION
 COUNTY LAND RESOURCES DEVELOPMENT
 COUNTY LANDS
 FORESTRY AND WILDLIFE
 LAND AND NATURAL RESOURCES
 LAND DIVISION
 STATE PARKS
 WATER RESOURCE MANAGEMENT

June 13, 2001

LD-NAV
 Ref.: WAIMANALOGULCH.RCH4

Ms. Wilma Namumhart
 City and County of Honolulu
 Department of Environmental Services
 650 South King Street, 6th floor
 Honolulu, Hawaii 96813

Dear Ms. Namumhart:

SUBJECT: Revised Draft Environmental Impact Statement for the
 Proposed Waimanalo Gulch Sanitary Land Fill Expansion
 Ewa, Oahu, Hawaii Tax Map Key: 1st/ 9-2-03: 072 and 073

Thank you for the opportunity to review the subject matter.
 The Department had previously reviewed the proposed project
 and has no other comment to offer.

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 M. YADA
 HARRY M. YADA
 Acting Administrator

C: Oahu District Land Office
 R. M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
 CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-6683 • Fax: (808) 527-6675



JEFF HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.I.
 ACTING DIRECTOR
 FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR
 IN REPLY REFER TO:
 RE 01-168

WES	KIS
R-F	NIA
RIT	ORD
REC'D	MITC
AUG 26 2001	
CTP	

August 23, 2001

Mr. Harry M. Yada, Acting Administrator
 Land Division
 Department of Land & Natural Resources
 State of Hawaii
 P.O. Box 621
 Honolulu, Hawaii 96809

Dear Mr. Yada:

Subject: Revised Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 13, 2001, concerning the subject Revised Draft SEIS. We
 acknowledge you have no additional comments to offer.

We appreciate your review of the subject document. Should you have any comments, please
 contact Ms. Wilma Namumhart of our office at extension 5378 or Mr. Joseph Hernandez of
 Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
 TIMOTHY E. STEINBERGER
 Acting Director

cc: Mr. Joe Hernandez- Waste Management of Hawaii, Inc.
 Mr. Brian Takeda- R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 537-5063 • Fax: (808) 537-5075



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

W/REPLY REFER TO
RE 01-118

June 28, 2001

JEREMY HARRIS
MAJOR

Mr. Don Hibbard, Administrator
State Historic Preservation Division
State Department of Land and Natural Resources
Kakuhihewa Building, Room 555
501 Kamokila Boulevard
Kapolei, Hawaii 96707

Subject: Revised Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Dear Mr. Hibbard:

Thank you for your letter dated June 15, 2001, concerning the subject Revised Draft SEIS. We acknowledge your assessment that the project will have "no effect" on historic sites.

We appreciate your review of the subject document. Should you have any further comments please contact Ms. Wilma Namunnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

[Signature]
TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

DEPUTY
JANET E. LAMWEL
LAW ENFORCEMENT

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

LOG NO: 27683 ✓
DOC NO: 0106EJ07

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
501 Kamokila Boulevard
Kapolei, Hawaii 96707

June 15, 2001

Ms. Wilma Namunnart
City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Ms. Namunnart

SUBJECT: Chapter 6E-8 Historic Preservation Review - Revised Draft Supplemental
Environmental Impact Statement for the Waimanalo Gulch
Sanitary Landfill Expansion, Waimanalo, Ewa, O'ahu
TMK: 9-2-003-072 and 073

Thank you for the opportunity to review the Revised Draft Supplemental EIS for the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill. The City & County of Honolulu proposes a 60.5-acre expansion of the landfill site within the 200 acres of the existing landfill property.

The revised DSEIS incorporates our earlier comments provided for the DSEIS and SEISPN (SHPD log 25536, 24720) as well as summarizes the April 10, 2001 site visit to discuss the potential for undocumented historic sites in the project area. As stated in our earlier comments, the archaeological inventory survey has not identified historic sites within the proposed expansion area, and because the two historic sites located outside the expansion boundary are to be preserved, we believe that the expansion project will have "no effect" on historic sites.

If you have any questions please call Sara Collins at 692-8026 or Elaine Jourdain at 692-8027.

Aloha,
[Signature]
BONNIE HIBBARD, Administrator
State Historic Preservation Division

EJ:amk

cc: Brian Takeda, R. M. Towill Corp., 420 Waiakamilo Rd. Ste. 411, Hon., Hawaii 96817-4941
Mr. Randall K. Fujiki, Director, Department of Planning and Permitting, City & County of Honolulu

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: 527-5725 • INTERNET: www.co.honolulu.hi.us



JEREMY HARRIS
Mayor

WILLIAM D. BALFOUR, JR.
DIRECTOR
EDWARD T. "SHUPPA" OAK
DEPUTY DIRECTOR

JEREMY HARRIS
Mayor

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6075



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IF REPLY REFER TO
RE 01-115

June 19, 2001

June 27, 2001

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, P.E., ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Thank you for the opportunity to review and comment on the Revised Draft Supplemental Environmental Impact Statement relating to the Waimanalo Gulch Sanitary Landfill Expansion.

The proposed project has no impact on the Department of Parks and Recreation's programs or facilities. We request that we be deleted as a consulted party to this EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 547-7396.

W.D. Balfour, Jr.
WILLIAM D. BALFOUR, JR.
Director

WDB:CU
11/21/01

cc: Mr. Randall K. Fujiki, Director, Department of Planning and Permitting
✓ Mr. Brian Takeda, R. M. Towill Corporation
State Office of Environmental Quality Control

MEMORANDUM

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

FROM: *T.E. Steinberger*
TIMOTHY E. STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Thank you for your memorandum dated June 19, 2001, concerning the subject Revised Draft SEIS. We acknowledge your comment that the proposed project has no impact on Department of Parks and Recreation programs or facilities. You will be deleted as a consulted party to the EIS process, per your request.

We appreciate your review of the subject document. Should you have further comments please contact Ms. Wilma Namurnart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation





STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
PO BOX 118, HONOLULU, HAWAII 96810

LETTER NO (P) 1399.1



DEPARTMENT OF ENVIRONMENTAL SERVICES
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone (808) 537-6883 • Fax (808) 537-6875

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO
RE 01-114

JEREMY HARRIS
MAYOR

JUN 19 2001

June 27, 2001

Ms. Wilma Namunnart
Department of Environmental Services
City and County of Honolulu
650 South King Street, 6th Floor
Honolulu, HI 96813

Mr. Gordon Matsuoka
Public Works Administrator
State Department of Accounting and General Services (DAGS)
Kalanimoku Building
1151 Punchbowl Street
P.O. Box 119
Honolulu, Hawaii 96810

Dear Ms. Namunnart:

Subject: Waimanalo Gulch Sanitary Landfill Expansion
Revised Draft Supplemental Environmental Impact
Statement (RDSEIS)
Ewa, Oahu, Hawaii
Tax Map Keys: (1) 9-2-3: 072 and 073

Subject: Revised Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for the opportunity to review the RDSEIS for the subject project. The proposed project does not impact any of our projects or facilities. Therefore, we have no comments to offer.

Dear Mr. Matsuoka:

Thank you for your letter dated June 19, 2001, concerning the subject Revised Draft SEIS. We acknowledge your comment that the proposed project will not impact any of the facilities under DAGS jurisdiction.

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

We appreciate your review of the subject document. Should you have any further comments please contact Ms. Wilma Namunnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

GORDON MATSUOKA
Public Works Administrator

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

TF/ts:mo
c: Mr. Brian Takeda, R.M. Towill
Mr. Randall Fujiki, Dept. of Planning & Permitting
Office of Environmental Quality Control

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

Enzu Takeda

Joe Linnard

June 20, 2001

Timothy E. Steinberger, P.E.
Acting Director
Department of Environmental Services
City and County of Honolulu
650 So. King St.
Honolulu, HI. 96813

Dear Mr. Steinberger:

Enclosed are my comments and questions regarding the revised Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Landfill Expansion. I await your reply.

1. The 1983 EIS states that only 57 acres (of the 200 acre site) were suitable for use as landfill, due to topography and 8-18% slopes. Has there been seismic activity in the area which changes that analysis? Why is more of the site suitable than in 1984?
2. Given the Refuse Division's analysis that there are no suitable alternative sites on the island of Oahu, what is it doing to prepare for the expiration of the life of Waimanalo Gulch? If it is inevitable that the Gulch will be the last possible site, should we all be planning to evacuate in 2017? Why aren't we investigating the moneys from the operations of the Gulch over the past 11 years in alternative technologies?
3. In 1984, many of the potential alternative sites were disqualified because of objections from the surrounding community; considering the extensive development going on in Ko Oline which is the largest development in the entire State, why aren't such objections significant now? Why is this dump more critical than the surrounding developments; developments which are employing our residents along the Leeward Coast and Ewa Plains. Developments which are completing the "Second City", "New City of Kapolei" which was designated by the State and City? Developments, which potentially have a devastating, impact on the continued quality growth.

Sincerely,

Maeda C. Timson
92-684 Nohona St.
Kapolei, HI. 96707

Ms. Maeda C. Timson
December 17, 2001
Page 2

WES	NTS		
R-F	NM	12/18	
RIT	BRT		

DEC 20 2001 BMT
AP AF DT
TIMOTHY E. STEINBERGER, P.E.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6653 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
BY REPLY REFER TO:
RE 01-229

December 17, 2001

Ms. Maeda C. Timson
92-684 Nohona Place
Kapolei, Hawaii 96707

Dear Ms. Timson:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 20, 2001. We offer the following responses to your comments.

1. The 1983 EIS states that only 57 acres (of the 200 acre site) were suitable for use as landfill, due to topography and 8-18% slopes. Has there been seismic activity in the area which changes that analysis? Why is more of the site suitable than in 1984?

When the 1984 EIS for Waimanalo Gulch was written, soil samples seemed to indicate that much of the site was underlain with rock, and the construction budget did not permit extensive excavation in that type of material. Over many years of operating the landfill, including preparation of the original ground for individual cells, Waste Management has learned that, except for small areas, the site does not require blasting or other expensive excavation methods and that the expansion can be accomplished economically. No seismic activity has been recorded in the area.

2. Given the Refuse Division's analysis that there are no suitable alternative sites on the island of Oahu, what is it doing to prepare for the expiration of the life of Waimanalo Gulch? If it is inevitable that the Gulch will be the last possible site, should we all be planning to evacuate in 2017? Why aren't we investigating (sic) the moneys from the operations of the Gulch over the past 11 years in alternative technologies?

From strictly scientific perspectives, there are many suitable alternative sites on Oahu, and the 1977 and 1979 landfill inventory studies list more than 40. Expansion of the landfill at Waimanalo Gulch is the preferred, but not the sole, alternative. The City continually evaluates emerging disposal technologies. For example, one polymer stabilization and two plasma arc technologies are currently being examined. However, like other technologies that promise to eliminate the need for landfills, these alternatives may not be suitable for immediate implementation because they are demonstration processes which have not proven to be feasible on the large scale required for application to Honolulu's waste stream and/or vendors are unable to provide adequate financial assurances, exposing City taxpayers to substantial liability should they fail.

3. In 1984, many of the potential sites were disqualified because of objections from the surrounding community, considering the extensive development going on in Ko Olina which is the largest development in the entire State, why aren't such objections significant now? Why is this dump more critical than the surrounding developments; developments which are employing our residents along the Leeward Coast and Ewa Plains. Developments which are completing the "Second City", "New City of Kapolei" which was designated by the State and City? Developments, which potentially have a devastating, impact on the continued quality of growth.

Siting a landfill or other refuse disposal facility is never an easy task. The EIS process is designed to disclose information about the proposed project and gather comments for and against it, giving decision makers a sound basis to decide whether it is in the public interest to proceed with the project. What must be weighed along with community objections and the landfill operation as it relates to surrounding developments, is the City's responsibility to ensure public health and safety and the economic well-being of all the residents of Honolulu.

We appreciate your review of the subject document. Any further comments may be directed to Ms. Wilma Namumart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

Frank J. Doyle
FRANK J. DOYLE
Director

cc: R.M. Towill Corp.
Waste Management of Hawaii, Inc.

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WES	KTS
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TIMOTHY E. STEINBERGER, P.E. DIRECTOR	

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-5653 • Fax: (808) 527-6875



EMMY HARRIS
MAYOR

November 13, 2001

June 25, 2001

THEODORE J. P. LOPEZ TRUST
 1291 H MOANALUALANI WAY
 HONOLULU, HI 96819

R. M. TOWILL CORPORATION
 420 WAIKAKAMILO ROAD, SUITE 411
 HONOLULU, HI 96817

Dear Sirs:

Re: TMK 6-7-003-004 Land Area 99.31 Acres

You may wish to include the subject parcel as one of the prospective location for the city's waste landfills. It appears to be a good size, excellent topography (deep gully) located away from any residential areas, and the prevailing winds carry obnoxious odors up the Waianae Range and out-to-sea.

This parcel wholly owned by the Theodore J. P. Lopez Trust and as Trustee I have the authority to negotiate the sale of the parcel to the City at a reasonable price. If you or the City are interested I can be reached at telephone (808) 836-6084 or FAX at (808) 836-3618.

Sincerely,

Louis A. Lopez
LOUIS A. LOPEZ
 Trustee

Mr. Louis Lopez, Trustee
 Theodore J.P. Lopez Trust
 1291 H Moanalualani Way
 Honolulu, Hawaii 96819

Dear Mr. Lopez:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your constructive offer of the use of parcel TMK: 6-7-03-04 as a landfill in your letter dated June 25, 2001. The parcel is within the Underground Injection Control line and the groundwater recharge area administered by the State Department of Health. Regrettably, constructing a municipal sanitary landfill in such areas would face severe restrictions and very high costs.

Should you have any further comments concerning this matter please direct them to Ms. Wilma Namumart of our Refuse Division at 527-5378.

Sincerely,

Frank J. Doyle
TIMOTHY E. STEINBERGER
 Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
 Mr. Brian Takeda, R.M. Towill Corporation

7

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TIMOTHY E. STEINBERGER, P.E. DIRECTOR	

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOA PAKA STREET SUITE 4425
HONOLULU HAWAII 96819 1849

8

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675

8A



JEREMY HARRIS
MAYOR

ATULOOK LEONARD
FIRE CHIEF
JOHN CLARK
DEPUTY FIRE CHIEF



TIMOTHY E. STEINBERGER
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-167

June 29, 2001

August 23, 2001

TO: TIMOTHY E. STEINBERGER, P.E., ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTENTION: WILMA NAMUMNART

FROM: JOHN CLARK, ACTING FIRE CHIEF

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION
OAHU, DISTRICT OF EWA
TAX MAP KEY: 9-2-003: 072 AND 073

MEMORANDUM

TO: JOHN CLARK, ACTING FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: *[Signature]*
TIMOTHY E. STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

We received your memorandum dated May 25, 2001, regarding the Revised Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion.

The Honolulu Fire Department requests that you maintain fire apparatus access throughout the construction site for the duration of the project.

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

Thank you for your memorandum dated June 29, 2001. We acknowledge your Department's request and will provide fire apparatus access throughout the construction area for the duration of the project.

We appreciate your review of the subject document. Should you have other comments, please contact Ms. Wilma Namumnart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

[Signature]
JOHN CLARK
Acting Fire Chief

JC/KS:jo

cc: Office of Environmental Quality Control
Randall K. Fujiki, Department of Planning and Permitting
Brian Takeda, R.M. Towill Corporation

cc: Mr. Joe Hernandez- Waste Management of Hawaii, Inc.
Mr. Brian Takeda- R.M. Towill Corporation

9A

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6863 • Fax: (808) 527-6675



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
BY REPLY REFER TO:
RE 01-166

JEREMY HARRIS
MAIL ROOM

August 23, 2001

Mr. George Young, P.E., Chief
Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Revised Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 3, 2001, concerning the subject Revised Draft SEIS. We acknowledge your assessment that the project will not require a Department of the Army permit.

We appreciate your review of the subject document. Should you have other comments, please contact Ms. Wilma Namunnart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (extension 22).

Sincerely,

[Signature]
TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez- Waste Management of Hawaii, Inc.
Mr. Brian Takeda- R.M. Towill Corporation

9

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

July 3, 2001

ATTENTION OF

Regulatory Branch

Ms. Wilma Namunnart
Department of Environmental Services
City and County of Honolulu
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Ms. Namunnart:

Thank you for the opportunity to review the Revised Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion, dated May 2001. Based on the information contained in the document and a site visit by a member of my staff I have determined that a Department of the Army (DA) permit, will not be required for this project.

If you have any questions concerning this determination, please contact William Lennan of my staff at 438-6986 or FAX: 438-4060, and reference File No. 200100378.

Sincerely,

[Signature]
George P. Young, P.E.
Chief, Regulatory Branch

RF rk
Del tot
CLK V



July 12, 2001

City and County of Honolulu
Department of Environmental Services
650 So. King Street, 6th Floor
Honolulu, HI. 96813

Attn: Wilma Namunnat

Re: RDSEIS for Waimanalo gulch Sanitary Landfill Expansion

After reviewing the above mentioned RDSEIS, I have the following questions which I would like answered :

1. In 1984, it was a primary objective of the Refuse Division to operate a landfill in Windward Oahu as well as Leeward. Why no longer?
2. It takes 5 years to get a terrific alternative technology to a landfill up and running. Since there are no other landfills after the Gulch is exhausted, why didn't the Refuse Division start planning for the alternative 5 years ago instead of simply extending the Waste Management contract. If it had started in 1998 (when it began negotiating the new Waste Management contract), it would have been finished by 2003?!!!!
3. The original EIS said that the site was only to be 57 acres, and the original Waste Management contract was for the life of that site. Since this is an entirely new site, why wasn't the contract put out to bid?

Thank you for your attention to my request.

Sincerely,



Jane A Ross
92-783 Laalua Place
Kapolei, HI. 96707

MT

Cc: Mayor Jeremy Harris
R. M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 537-4063 • Fax: (808) 537-4075



JEREMY HARRIS
MAYOR

August 3, 2001

Ms. Jane A. Ross
92-783 Laaloa Place
Kapolei, Hawaii 96707

Dear Ms. Ross:

Subject: Waimanalo Gulch Sanitary Landfill Expansion
Revised Draft Supplemental Environmental Impact Statement

These are responses to the questions you posed in your July 12, 2001, letter.

1. *In 1984, it was a primary objective of the Refuse Division to operate a landfill in Windward Oahu as well as Leeward; Why no longer?*
In 1984, there were three disposal facilities, a 600-ton-per-day incinerator in Waipahu and two landfills, one on the Leeward side and one on the Windward side. With the opening of the H-POWER waste-to-energy plant in 1989 and the implementation or expansion of numerous recycling programs since 1984, the City has been able to rely less on landfills for refuse disposal. With the 2000-ton-per-day H-POWER plant, disposal bans and restrictions on many recyclable materials, and a privately-operated landfill which diverts nonputrescible construction and demolition debris from Waimanalo Gulch, one municipal solid waste landfill can now provide sufficient capacity for the entire island.
2. *It takes 5 years to get a terrific alternative technology to a landfill up and running. Since there are no other landfills after the Gulch is exhausted, why didn't the Refuse Division start planning for the alternative 5 years ago instead of simply extending the Waste Management contract. If it had started in 1998 (when it began negotiating the new Waste Management contract), it would have been finished by 2003?!!!!*

Ms. Jane A. Ross
August 3, 2001
Page 2

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TIMOTHY E. STEINBERGER
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN PERM REFER TO
RE 01-149

The Refuse Division began exploring alternatives to Waimanalo Gulch in 1994. The choices at that time were four sites in Maali, Nanakuli, and Ewa identified by the Solid Waste Integrated Management Plan Advisory Committee appointed by the Mayor. Private landfills proposed by three local companies, and expansion of Waimanalo Gulch proposed by the operating contractor. No high-tech alternatives to landfilling had been proposed for consideration, and none appeared viable at the time. Based on extensive evaluations and a competitive selection process, expanding the existing landfill proved to be the most desirable and cost-effective option.

3. *The original EIS said that the site was only to be 57 acres, and the original Waste Management contract was for the life of that site. Since this is an entirely new site, why wasn't the contract put out to bid?*

Initial site improvements were confined to 57 acres because the City believed further excavation in the rocky soil would be difficult and expensive. During the course of operating the landfill, Waste Management discovered that the site could be excavated at a reasonable cost and proposed the expansion to the City. The City conducted a competitive selection process involving Waste Management and three other local companies. Though the City continues to evaluate other alternatives, expanding Waimanalo Gulch is still the most desirable and cost-effective option.

If you need further information, please call Wilma Namunnart of the Refuse Division at 527-5378 or Joe Hernandez of Waste Management at 668-2985.

Thank you for your interest in the City's solid waste management program.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mayor Jeremy Harris
R.M. Towill Corp.
Waste Management of Hawaii, Inc.



MAKAKILO/KAPOLEI/HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

14 NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 608 • HONOLULU, HAWAII 96813

July 12, 2001

01 JUL 13 09:21
SANAGNO
DIRECTOR'S OFFICE
C & C HONOLULU

Tim Steinberger,
Director
City & County Of Honolulu
Department of Environmental Services
650 So. King Street, 6th Floor
Honolulu, HI, 96813

Re: Revised Draft Supplemental Environmental Impact Statement - WAIMANALO GULCH SANITARY
LANDFILL EXPANSION

Dear Mr. Steinberger:

At our June 20, 2001 regular meeting, the Makakilo/Kapolei/Honokai Hale Neighborhood Board requested a comment extension, and a separate presentation to the community regarding the plan for the Waimanalo Landfill project. The community was disappointed and strongly objected to the absence of Waste Management Hawaii, R. M. Towill, the City's Consultant and the Department of Health. The two City officials who were present were not prepared to give details of the project, only present to answer questions from a 300 page document that was available to a handful of community leaders a week earlier.

You immediately authorized a two-week extension and said that you would investigate a community presentation and notify the community when and how it would be handled. We read in the newspaper of an "open house" on July 16, 2001 from 11:00am - 2:00pm. Is this the community presentation? If it is, I do not believe that an "open house" in the middle of a workday defines a community presentation.

Please re-consider your efforts for a community presentation. I await your reply and also request that this letter be published in the comment section of the Revised Draft Supplemental Environmental Impact Statement - Waimanalo Gulch Sanitary Landfill Expansion dated May 2001.

Sincerely,

Maeda C. Timson
Chair

MCT: ak
Cc: Office of the Mayor
Office of Environmental Quality Control

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET - HONOLULU, HAWAII 96813
TELEPHONE (808) 527-6463 • FAX (808) 527-6475 • WEBSITE <http://www.ci.honolulu.hi.us>



JEREMY HARRIS
MUD

Ms. Maeda C. Timson
July 30, 2001
Page 2

Timothy E. Steinberger, P.E.
XXXXXXXXXXXXXXXXXXXX
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Frank J. Doyle, P.E.
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July 30, 2001

Ms. Maeda C. Timson
Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34
92-684 Nohana Street
Kapolei, Hawaii 96707

Dear Ms. Timson:

Subject: Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your July 12, 2001, letter. Although the letter does not address the contents of the Revised Draft Supplemental Environmental Impact Statement but rather the public forum in which it was discussed, it will be included in the comments section of the final environmental document.

My commitment to Neighborhood Board No. 43 at its June 20, 2001, meeting was to extend the public comment period for the revised draft EIS by two weeks and to "further investigate a community presentation and notify the community when and how it would be handled" (quote from the minutes of N.B. No. 34). Though you requested a "full presentation," I did not promise a particular format.

After examining other formats, I decided the "open house" held on July 16 at Kapolei Hale between 11:00 a.m. and 2:00 p.m. was the most effective and meaningful method for the community to obtain answers to their questions on an individual basis.

The City had made traditional type presentations at three prior meetings on January 31, February 20, and June 6 which occasionally degenerated into rancor.

Two of the prior meetings (January 31 and February 20) were held in the evening (7:00 to 9:00 p.m.), and the third (June 6) was held mid-morning (9:00 to 11:00 a.m.). The open house hours were selected to provide people with morning or evening scheduling conflicts an opportunity to attend.

The open house allowed one-on-one dialog between residents and experts on specific parts of the City's solid waste management system. The exchange of opinions and information in a less confrontational atmosphere (notwithstanding the staged media event which preceded the open house) for all participants was an important factor in my decision.

The City has consistently made experts available at all public events to answer questions. There were fifteen experts at the open house from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor ready to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements. The draft environmental document is accessible on our Web site (www.opala.org), at public libraries in the Kapolei-Waianae region, and by request from the Refuse Division. Our attendance and the July 16 open house had been announced in the newspapers, and those events were open to the public (the June 6 meeting was for community leaders by invitation).

However, in the spirit of cooperation and to further ensure that we fulfill the City's obligation and commitment to provide the community with full and complete information about the proposed landfill expansion and afford ample opportunity for people to express their opinions and concerns, we will schedule another informational meeting for the end of August. We will notify the community and all interested parties of the date, place, and time.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mayor Jeremy Harris (Control No. 6948)
Mr. George Yamamoto, Chair, NB No. 34
OEQC
R.M. Towill
Waste Management of Hawaii

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3065 / TELEPHONE 547-7000

June 28, 2000



JOHN DeSOTO
Councilmember
(808) 547-7009 (Voice)
(808) 533-4220 (Fax)
e-mail: desoto@cc.honolulu.hi.us

Dr. Kenn Sprague, Director
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

RE: Request for Additional Time to Comment on
Waianae Landfill Expansion - Draft Supplemental EIS

Dear Dr. Sprague:

On behalf of the residents of Leeward Oahu, I would like to request an additional 45 days beyond the current deadline for community members to comment on the Draft Supplemental Environmental Impact Statement for the Waianae Landfill Expansion.

It is my understanding that Waianae Neighborhood Board #24 received the report after their June 6th meeting, and that the Makakilo/Kapolei/Honokai Hale Neighborhood Board #34 had not received a copy as of their June 21st meeting. Both boards are requesting additional time to review, discuss and take action on the proposed landfill expansion.

Your favorable consideration of this request will be greatly appreciated. If you have any questions, please feel free to contact me or my aide, Pamela Witty-Oakland, at 527-5693.

Sincerely,

John DeSoto
Councilmember, District IX

JD:pw
11, 113 wfo

cc: Maeda Timson, Makakilo/Kapolei/Honokai Hale Neighborhood Board #34
Cynthia Rezendes, Waianae Neighborhood Board #23



CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3086 / TELEPHONE 547-7000

Dr. Kenn Sprague, Director
Page 2

July 25, 2000

JOHN DeSOTO
Councilmember
(808) 547-7000 (Voice)
(808) 323-4220 (Fax)
e-mail: desoto@co.honolulu.hi.us

July 25, 2000

Dr. Kenn Sprague, Director
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

Via Managing Director's Office

RE: Request for Additional Time to Comment on
Waimanalo Gulch Landfill Expansion - Draft Supplemental EIS

Dear Dr. Sprague:

Thank you for your letter of July 14 which extended the comment period for the Waimanalo Gulch Landfill Expansion, Draft Supplemental EIS from July 7 until August 21, 2000. Once again, I would like to request additional time beyond August 21 due to the number of unanswered questions brought up during the July 19 meeting of the Makakilo/Kapolei/Honokai Hale Neighborhood Board.

At the Makakilo/Kapolei/Honokai Hale Neighborhood Board meeting, representatives from Waste Management of Hawaii were present, but unable to answer specific questions regarding alternative sites and alternative methods of waste disposal. Waste Management of Hawaii deferred the questions to the City and County of Honolulu, as well as the State of Hawaii. To provide the City, the State, and the community an opportunity to further discuss the proposed project, the neighborhood board proposed a special board meeting dedicated to this issue alone. Cynthia Rezentes, Chair of the Waianae Neighborhood Board, also expressed an interest in further discussion of the proposed expansion of Waimanalo Gulch Landfill.

Therefore, I would like to request an opportunity for additional dialog with the community in the form of a community meeting. Additionally, I would request that the comment period remain open until such time as the meeting is facilitated and an appropriate time period be given for additional comments.

Your favorable consideration of this request will be greatly appreciated. If you have any questions, please feel free to contact me or my aide, Pamela Witty-Oakland, at 527-5693.

Sincerely,

John DeSoto
Councilmember, District IX

JD:pw

cc: Maeda Timson, Makakilo/Kapolei/Honokai Hale Neighborhood Board #34
Cynthia Rezentes, Waianae Neighborhood Board #23





CITY COUNCIL
 CITY AND COUNTY OF HONOLULU
 HONOLULU, HAWAII 96813-3065 / TELEPHONE 547-7000

Mr. Tim Steinberger, Director
 Page 2

July 12, 2001

JOHN DeSOTO
 Councilmember
 (Hon) 547-7009 (Voice)
 (Hon) 523-4220 (Fax)
 e-mail: desoto@cc.honolulu.hi.us

July 12, 2001

Mr. Tim Steinberger, Director
 Department of Environmental Services
 650 South King Street, 6th Floor
 Honolulu, HI 96813

Reference: Waimanalo Gulch Sanitary Landfill Expansion - Revised Draft Supplemental Environmental Impact Statement

JD:pw

Dear Mr. Steinberger:

cc: Mayor Jeremy Harris
 Mr. Randall K. Fujiki, Department of Planning and Permitting
 Mr. Brian Takeda, R.M. Towill Corporation ✓
 Ms. Genevieve Salmonson, Office of Environmental Quality Control
 Maeda Timson, Neighborhood Board #34
 Cynthia Rezentes, Neighborhood Board #23

Your favorable consideration of this request will be greatly appreciated. If you have any questions, please feel free to contact me, or my aide, Pamela Witty-Oakland, at 527-5693.

Sincerely,

John DeSoto
 Councilmember, District IX

On behalf of my constituents of Leeward Oahu, I would like to voice objection to the open house scheduled for Monday, July 16, 2001 at Kapolei Hale from 11:00 a.m. to 2:00 p.m. to discuss the Revised Draft Supplemental Environmental Impact Statement for the proposed Waimanalo Gulch Sanitary Landfill Expansion.

I have enclosed my correspondence from June 28, 2000 and July 25, 2000 to document the long-standing request to conduct a community meeting dedicated to the landfill issue alone. Specifically, the request included an opportunity for community members to discuss and understand the Department of Environmental Service's review of alternative sites and alternative technologies for solid waste management.

While I recognize the department's efforts to work with the community, the meetings of January 31, 2001 and February 20, 2001 were by invitation only and preceded distribution of the "revised" document. Furthermore, the June 20, 2001 presentation at the neighborhood board meeting was incomplete and lacked participation by Waste Management Hawaii, R.M. Towill - the consultants, and the Department of Health. In light of the insufficient presentation I recall that you personally committed to extend the comment period of the revised draft SEIS until a complete presentation was made to the community at-large.

However, scheduling a presentation on a Monday morning from 11:00 a.m. to 2:00 p.m. makes it impossible for the community at-large to attend. I urge you to reconsider your strategy and offer a complete discussion on alternative technologies and alternative sites at a time and location more convenient for community members.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET - HONOLULU, HAWAII 96813
TELEPHONE: (808) 527-6451 • FAX: (808) 527-6475 • WEBSITE: <http://www.ci.honolulu.hi.us>



JEREMY HARRIS
Mayor

Timothy E. Steinberger, P.E.
Acting Director
Frank S. Doyle, P.E.
Acting Director

The Honorable John DeSoto
July 31, 2001
Page 2

12A

The entire draft document has been made accessible to everyone on our Web site (www.opala.org), at public libraries in the Kapolei-Waianae region, and by request from the Refuse Division. The City has consistently made experts available at all public events to answer questions. For example, fifteen experts from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor attended the open house to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements.

However, in the spirit of cooperation and to further ensure that we fulfill the City's obligation and commitment to provide the community with full and complete information about the proposed landfill expansion and afford ample opportunity for people to express their opinions and concerns, we will schedule another informational meeting for the end of August. We will notify the community and all interested parties of the date, place, and time.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

FORWARDED:

BENJAMIN B. LEE, FAIA
Managing Director

cc: Mayor Jeremy Harris (Control No. 69333)
R. Fujiki, DPP

M. Timson, NB 34
G. Yamamoto, NB 34
C. Rezendes, NB 23
OEQC

J.R.M. Towill Corp.
Waste Management of Hawaii

July 31, 2001

The Honorable John DeSoto
Councilmember, District IX
City Council
Honolulu Hale
City and County of Honolulu
Honolulu, Hawaii 96813-3065

Dear Councilmember DeSoto:

Subject: Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your July 12, 2001, letter. Please allow me to explain my reasons for choosing the "open house" format for the public forum on July 16 at Kapolei Hale between 11:00 a.m. and 2:00 p.m. as the most effective and meaningful method for the community to obtain answers to their questions on an individual basis.

The City had made traditional type presentations at three prior meetings on January 31, February 20, and June 6 which occasionally degenerated into rancor. The January 31 and February 20 meetings were published in the newspaper and open to the public.

Two of the prior meetings (January 31 and February 20) were held in the evening (7:00 to 9:00 p.m.), and the third (June 6) was held mid-morning (9:00 to 11:00 a.m.). The open house hours were selected to provide people with morning or evening scheduling conflicts an opportunity to attend.

The open house allowed one-on-one dialog between residents and experts on specific parts of the City's solid waste management system. The exchange of opinions and information in a less confrontational atmosphere (notwithstanding the staged media event which preceded the open house) for all participants was an important factor in my decision.

P.O. *via: faked*



July 13, 2001

Mr. Timothy E. Steinberger P.E.
Ms. Wilma Namunnart
Acting Director, Refuse Division
Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Re: Waimanalo Gulch Sanitary Landfill
Public Meeting July 16, 2001

Dear Mr. Steinberger and Ms. Namunnart,

This is a follow up letter to my July 2, 2001 letter to Mr. Frank Doyle requesting that the City reschedule the Monday, July 16, 2001 meeting to a weekday night in order to allow meaningful public participation. I have never received a reply to that letter.

The July 16 "open house" is scheduled between 11:00 a.m. and 2:00 p.m. and, as you know, many concerned citizens will not be able to attend.

I am corresponding directly with you because of the commitment Mr. Steinberger made during a recent Neighborhood Board meeting to make a full presentation of the City's position in an evening community format. The July 16 "open house" certainly does not honor this commitment. Under the circumstances, I would request that the City schedule another public meeting before the end of this month and during the evening which will allow for meaningful community participation, including an opportunity for questions and answers from the audience. Please consider this letter as a formal comment to the Waimanalo Landfill SEIS.

May I please have the courtesy of your reply.

Very truly yours,

Ken Williams
General Manager

C: Office of Environmental Quality Control

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DIVISION OF REFUSE
COLLECTION & DISPOSAL

Mr. Kenneth Williams
August 10, 2001
Page 2

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DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 537-5663 • Fax: (808) 537-5675



J. FREEDY HARRIS
Mayor

TIMOTHY E. STEINBERGER
ACTING DIRECTOR
 FRANK J. DOOLE, P.E.
DEPUTY DIRECTOR
 IN REPLY REFER TO:
RE 01-152

August 10, 2001

Mr. Kenneth Williams
General Manager
Ko Olina Resort and Marina
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Mr. Williams:

Thank you for your July 13, 2001, letter. It will be included in the comments section of the final environmental document.

My commitment to Neighborhood Board No. 43 at its June 20, 2001, meeting was to extend the comment public period for the revised draft EIS by two weeks and to "further investigate a community presentation and notify the community when and how it would be handled" (quote from the minutes of N.B. No. 34). Though Chair Pro Tem Maeda Timson requested a "full presentation," I did not promise a particular format.

After examining other formats, I decided the "open house" held on July 16 at Kapolei Hale between 11:00 a.m. and 2:00 p.m. was the most effective and meaningful method for the community to obtain answers to their questions on an individual basis.

The City had made traditional type presentations at three prior meetings on January 31, February 20, and June 6 which occasionally degenerated into rancor.

Two of the prior meetings (January 31 and February 20) were held in the evening (7:00 to 9:00 p.m.), and the third (June 6) was held mid-morning (9:00 to 11:00 a.m.). The open house hours were selected to provide people with morning or evening scheduling conflicts an opportunity to attend.

The open house allowed one-on-one dialog between residents and experts on specific parts of the City's solid waste management system. The exchange of opinions and information in a less confrontational atmosphere (notwithstanding the staged media event which preceded the open house) for all participants was an important factor in my decision.

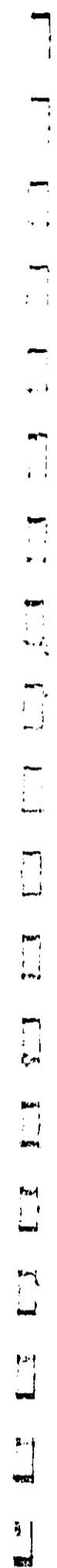
The City has consistently made experts available at all public events to answer questions. There were fifteen experts at the open house from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor ready to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements.

However, in the spirit of cooperation and to further ensure that we fulfill the City's obligation and commitment to provide the community with full and complete information about the proposed landfill expansion and afford ample opportunity for people to express their opinions and concerns, we have extended the EIS comment period a second time to September 21, 2001. We will also schedule another informational meeting for September and will notify the community and all interested parties of the date, place, and time.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: OEQC
R.M. Towill
Waste Management of Hawaii





Health of the Land

WES		KTS	
R-F		NM	
BTT		BRT	
REC'D JUL 15 7:00 AM BMT			

July 13, 2001

Mr. Timothy E. Steinberger P.E.
 Ms. Wilma Namumart
 Acting Director, Refuse Division
 Department of Environmental Services
 City and County of Honolulu
 650 South King Street
 Honolulu, Hawaii 96813

Re: Waimanalo Gulch Sanitary Landfill
 Public Meeting July 16, 2001

Dear Mr. Steinberger and Ms. Namumart:

Please consider this letter as a formal comment to the Revised Draft Environmental Impact Statement dated May 2001 (Draft EIS) published by the City on June 8, 2001. This letter will also serve as our formal objection to the "open house" public meeting scheduled by the City for **Monday, July 16, 2001 between 11:00 a.m. and 2:00 p.m.** As you know, scheduling this meeting in the middle of the work day on a Monday will only guarantee that many concerned citizens of the Leeward Coast will not be able to attend. We view this as a disservice to our community and a breach of your recent commitment to make a full presentation of the City's position and to hold a meaningful public meeting on the Landfill.

Our organization, Health of the Land, was created to defend, protect and support the health and prosperity of lands along the Leeward Coast. Health of the Land includes members from the Waianae Neighborhood Board, Kapolei Neighborhood Board, Honokai Hale/Nanakai Gardens subdivision, Ko Olina Community Association, Hawaii Homestead Association, Nanakuli Homestead Association, other residential developments and interested members of the Leeward Community.

Since the publication of the Draft EIS, Health of The Land and its constituent members have requested that the City schedule a meaningful public meeting whereby members of the Leeward Community can obtain needed information on the Landfill and also voice their concerns as a group over the proposed expansion of the Landfill. Up to this point, the City's only response has been four different "presentations" with four different presenters, many of whom knew little or nothing about the details of the Landfill and its proposed expansion.

At the recent Kapolei and Waianae Neighborhood Board meetings, your office made a commitment to a full presentation of the City's position at a future public meeting. At that time,

Health of the Land • 92-7831 Iulewa Place • Kapolei, Hawaii 96707
 Phone: (808) 682-5577

Mr. Timothy E. Steinberger P.E.
 Ms. Wilma Namumart
 July 13, 2001
 Page 2

Mr. Steinberger also extended the Draft EIS comment period by two weeks to allow for further public input. The City's "open house" scheduled for **Monday, July 16, 2001 between 11:00 a.m. and 2:00 p.m.** fails to meet that commitment and it further suggests that the City's strategy is to blunt any further public comment from Leeward citizens.

Finally, please consider this letter as our formal request that the City schedule a new meaningful public meeting at another date in July and during the evening when citizens who want to voice their concerns may attend. Consistent with your recent commitment, we also request that the City make a full presentation of its position at that meeting with informed presenters and allow ample time for a question and answer period for the audience.

Very truly yours,

Janet Ross
 Janet Ross
Martha Makaiwi
 Martha Makaiwi

cc: Mayor Jeremy Harris
 Ben Lee, Managing Director
 OEQC
 R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE (808) 537-6653 • FAX (808) 537-6675 • WEBSITE <http://www.cc.hawaii.gov>

Mses. Ross and Makaiwi
July 30, 2001
Page 2



Timothy E. Steinberger, P.E.
ACTING DIRECTOR
Frank J. Doyle, P.E.
DEPUTY DIRECTOR

WES	KTS	
R-F	NM	
RTT	(BRT)	
REC'D JUL 31 2001 MITC		

July 30, 2001

Ms. Jane Ross
Ms. Martha Makaiwi
Health of the Land
92-783 Laaloa Place
Kapolei, Hawaii 96707

Dear Ms. Ross and Ms. Makaiwi:

Subject: Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your July 13, 2001, letter. Although the letter does not address the contents of the Revised Draft Supplemental Impact Statement but rather the public forum in which it was discussed, it will be included in the comments section of the final environmental document.

My commitment to Neighborhood Board No. 43 at its June 20, 2001, meeting was to extend the public comment period for the revised draft EIS by two weeks and to "further investigate a community presentation and notify the community when and how it would be handled" (quote from the minutes of N.B. No. 34). Though Chair Pro Tem Maeda Timson requested a "full presentation," I did not promise a particular format.

After examining other formats, I decided the "open house" held on July 16 at Kapolei Hale between 11:00 a.m. and 2:00 p.m. was the most effective and meaningful method for the community to obtain answers to their questions on an individual basis.

The City had made traditional type presentations at three prior meetings on January 31, February 20, and June 6 which occasionally degenerated into rancor.

Two of the prior meetings (January 31 and February 20) were held in the evening (7:00 to 9:00 p.m.), and the third (June 6) was held mid-morning (9:00 to 11:00 a.m.). The open house hours were selected to provide people with morning or evening scheduling conflicts an opportunity to attend.

The open house allowed one-on-one dialog between residents and experts on specific parts of the City's solid waste management system. The exchange of opinions and information in a less confrontational atmosphere (notwithstanding the staged media event which preceded the open house) for all participants was an important factor in my decision.

The City has consistently made experts available at all public events to answer questions. There were fifteen experts at the open house from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor ready to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements.

However, in the spirit of cooperation and to further ensure that we fulfill the City's obligation and commitment to provide the community with full and complete information about the proposed landfill expansion and afford ample opportunity for people to express their opinions and concerns, we will schedule another informational meeting for the end of August. We will notify community and all interested parties of the date, place, and time.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mayor Jeremy Harris (Control No. 6996)
Managing Director Benjamin Lee
State Department of Health
OEQC
R.M. Towill Corp.
Waste Management of Hawaii

14A

JAN-17-02 THU 10:46 AM PM REFUSE DIVISION FAX NO. 808 527 5864

P.01
Prison Takeout
3 pages

15

July 13, 2001

City and County of Honolulu
Department of Environmental Services
650 So. King Street, 6th Floor
Honolulu, HI. 96813

Re: ROSEIS for Waimanalo gulch Sanitary Landfill Expansion

Gentlemen:

I have the following questions, which I would like answered regarding the proposed Landfill expansion referenced above:

1. In the 1984 EIS, the criteria for landfill sites were specially set at a 5-year minimum; Why is it 15 now? What has changed?
2. How much does the City make from the Waimanalo Gulch landfill? What does the City do with the money it makes from the landfill? How much does it actually cost Waste Management to operate the landfill?
3. "Waimanalo" means "drinking water" in Hawaiian. What is being done to ensure that the waters below aren't being polluted? What do the City tests (like on leachate) actually show?

I await your reply to my questions.

Barbara M. McKeown
Bartha M. Makalwi
92-783 Laaloa Place
Kapolei, HI. 96707

cc: Mayor Jeremy Harris
R. M. Towill Corporation

Ms. Martha M. Makaiwi
December 17, 2001
Page 2

WES	KTS
RF	NM
RT	BRT
REC'D DEC 17 2001 NMC	
AP	BT

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-6663 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

December 17, 2001

Ms. Martha M. Makaiwi
92-783 Laaloa Place
Kapolei, HI 96707

Dear Ms. Makaiwi:

Subject: Waimanalo Gulch Sanitary Landfill Expansion
Revised Draft Supplemental Environmental Impact Statement

These are responses to the questions you posed in your July 13, 2001, letter.

1. *In the 1984 EIS, the criteria for landfill sites were specially set at a 5-year minimum. Why is it 15 now? What has changed?*

The minimum capacity criterion has not changed -- it is still five years. Some of the larger development costs are incurred regardless of landfill capacity, that is, certain items and facilities are required whether the site lasts three years or twenty years. Utilities (power, water, sewer, phone), paved access to the nearest public roadway, security fencing, administration building, scale house, and equipment maintenance facilities must all be provided, regardless of site size. The per-ton cost of a small landfill will be higher than a large landfill, and we believe a capacity of at least five years is necessary to be cost-effective, depending on initial construction costs. Fifteen years is the estimated capacity of the Waimanalo Gulch expansion. It is not a minimum capacity criterion.

2. *How much does the City make from the Waimanalo Gulch landfill? What does the City do with the money it makes from the landfill? How much does it actually cost Waste Management to operate the landfill?*

Landfill tip fees are commingled with transfer station tip fees and are deposited in the Solid Waste Fund and recorded as disposal operations revenue. Prior to the establishment of the Solid Waste Fund in 1999, tip fees were deposited in the City's General Fund. The General Fund is used to pay for City operations and services. With the commencement of the Solid Waste Fund, revenues are used to pay for Refuse Division operations. Audited revenue from disposal charges for the past three fiscal years are:

FY 99/00	\$6,363,654
FY 98/99	\$6,935,681
FY 97/98	\$10,530,564

The City pays Waste Management an annual service fee based on the amount of solid waste accepted at Waimanalo Gulch. Audited amounts paid over the past three years are:

FY 99/00	\$5,913,373
FY 98/99	\$8,209,685
FY 97/98	\$8,594,328

Waste Management is a private company, and we are unable to provide information about what it actually costs the company to operate the landfill.

3. *"Waimanalo" means "drinking water" in Hawaiian. What is being done to ensure that the waters below aren't being polluted? What does the City tests (like on leachate) actually show?*

Five wells were identified in the 1984 EIS; all were sealed and abandoned. The entire Waimanalo Gulch site is outside the Board of Water Supply "No Pass Zone" and the State Department of Health Underground Injection Control Line, and the basal groundwater beneath the site is not considered a suitable potable water source for municipal use (low yield and high chlorine content). Because of the arid climate and operating safeguards (ban on bulk liquids; daily landfill cover; impermeable liner; leachate monitoring and control procedures) little leachate has been generated, and none has reached the basal groundwater beneath the landfill. The landfill complies with the groundwater monitoring requirements of the State Department of Health, and monitoring results are reported semi-annually.

If you need further information, please call Wilma Namumart of the Refuse Division at 527-5378 or Joe Hernandez of Waste Management at 668-2885.

Thank you for your interest in the City's solid waste management program.

Sincerely,

TIMOTHY E. STEMBERGER
Director

cc: The Honorable Jeremy Harris, Mayor
R.M. Towill Corp.
Waste Management of Hawaii, Inc.

16A

**DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-4825



HEMY HARRIS
MAYOR

WES	NTS	
R/L	NIM	
R/T	BRT	
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TIMOTHY E. STEINBERGER, PE	DIRECTOR	

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO
RE 07 018

January 15, 2002

16

PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Don Dvorak Address: 92-1515 Aliinui
Phone: 674-0281 day eve

Please write comments below. Attach additional sheets if necessary. Be Expedient

- 1- WAIMANALO I WOULD BE AT HOME IN THE
TRUCK FOR THE WEEKEND IN 2003
- 2- BECAUSE THIS IS IN THE RE OLINA
RESORT AREA
- 3- THE SMALL NEAR THE HOTEL IS
OFFENSE.
- 4- OTHER AREAS ARE AVAILABLE FOR
A SITE

Signature: [Signature] Date: 7/16/01

Mr. Don Dvorak
92-1515 Aliinui Drive
Kapolei, Hawaii 96707

Dear Mr. Dvorak:

Subject: Open House for Revised Draft Supplemental Environmental Impact Statement (RDSEIS), Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 16, 2001, and for your attendance at our Open House.

- We acknowledge your comment that the existing Waimanalo Gulch Sanitary Landfill should not be expanded.
- The statement you describe concerning the 2003 closure of the landfill was not issued by this Department.
- We acknowledge your concern regarding refuse and odor at Ko Olina. A description of mitigation measures to address concerns you describe are provided in Section 3 of the RDSEIS. A copy of the RDSEIS has been made available for public review on the City's website, www.opala.org. We encourage you to visit the website, which also contains information on our efforts to better manage Oahu's municipal refuse.
- Please refer to Appendix G of the RDSEIS, which provides information on our analysis of 42 potential landfill sites on Oahu.

Should you have any further constructive comments, please direct them to Ms. Wilma Namurnart of the Refuse Division at 527-5378.

Sincerely,

[Signature]
TIMOTHY E. STEINBERGER
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation

17A

WES						DATE
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DEPARTMENT OF ENVIRONMENTAL SERVICES
 CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-6863 • Fax: (808) 527-6675



MY HARRIS
 MAYOR

TIMOTHY E. STEINBERGER, P.E.
 ACTING DIRECTOR

FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR
 IN REPLY REFER TO
 RE 01-700

October 17, 2001

Ms. Penny Muell
 92-1535 Aliinui Drive
 Kapolei, Hawaii 96707

Dear Ms. Muell:

RE: Open House for Revised Draft Supplemental Environmental Impact Statement
 (RDSEIS), Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 16, 2001, and for your attendance at our Open House.

The decision to hold an Open House was based on our desire to provide an effective and meaningful format in which the community could obtain answers to questions on an individual basis. We have previously held traditional type presentations, which occasionally degenerated into rancor. While many meetings have been held in the evening, the Open House hours were selected to provide the public with morning or evening schedule conflicts an opportunity to attend. Fifteen experts from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor attended the Open House to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements. We are sorry that you did not find the availability of this information helpful. However, we remain committed to further discussion of this project with the community and intend to continue to work with members of the general public, such as yourself, community organizations, such as the Kapoia/Makiki/Honokai Hale and Waianae Neighborhood Boards, and elected officials from the region.

Should you have any further constructive comments, please direct them to Ms. Wilma Namunnart of the Refuse Division at 527-5378.

Sincerely,

Timothy E. Steinberger
 TIMOTHY E. STEINBERGER
 Acting Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
 Mr. Brian Takeda - R.M. Towill Corporation

17

PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
 Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Penny Muell Address: 92-1535 Aliinui Dr
Kapolei, HI 96707
 Phone: 808-679-0400 day
 eve

Please write comments below. Attach additional sheets if necessary.
 WE THE COMMUNITY, HAVE CONTINUOUSLY REQUEST
 ANSWERING WITH THE DEPT OF ENVIRONMENTAL SVCS.
 THIS MEETING, ON JULY 16TH IS AN ABSOLUTE
 DISAPPOINT TO THE COMMUNITY. WE WANT ANSWERS
 TO HOW WE CAN CONTINUE TO BUILD THE
 SECOND CITY, DEVELOP THE RESORT OF KO OLUNA
 IF THE LANDFILL IS EXTENDED WITH THE ENSUING
 SMOG, BLOWING TRASH & UGLY VIEWS.
 GET IT TOGETHER, WHERE WE CAN HAVE A
 QUESTION & ANSWER PERIOD WHERE PEOPLE
 WITH THE AUTHORITY TO SAY YES TO OUR
 QUESTIONS.
 PLEASE. THIS IS OUR INVESTMENT
 IN THE FUTURE & WE WANT IT TO BE
 WHAT WE WERE PROMISED. QUIET, FRESH
 AIR, ETC.

Signature: *Penny Muell* Date: 7/16/01

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6875



JEREMY HARRIS
DIRECTOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-200

November 13, 2001

Ms. Penny Muell
92-1535 Alirui Drive
Kapolei, Hawaii 96707

Dear Ms. Muell,


RE: Open House for Revised Draft Supplemental Environmental Impact Statement
(RDSEIS), Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 16, 2001, and for your attendance at our Open House.

The decision to hold an Open House was based on our desire to provide an effective and meaningful format in which the community could obtain answers to questions on an individual basis. We have previously held traditional type presentations, which occasionally degenerated into rancor. While many meetings have been held in the evening, the Open House hours were selected to provide the public with morning or evening schedule conflicts an opportunity to attend. Fifteen experts from the City, the State, the engineering firm working on the EIS, and the landfill operating contractor attended the Open House to discuss topics such as alternate sites and disposal technologies, recycling, H-POWER, landfill operations, and regulatory requirements. A tradition type presentation with a question and answer period was subsequently held on September 26, 2001, from 7 p.m. to 9 p.m., at Kapolei Hale. This public information meeting included speakers on alternative technologies and recycling, as well as landfill operations.

Should you have any further constructive comments, please direct them to Ms. Wilma Namunnart of the Refuse Division at 527-5378.

Sincerely,


TIMOTHY E. STEINBERGER
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R M Towill Corporation

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REC'D JUL 19 2001 MITC		

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-165

JERRY HARRIS
MAYOR

August 23, 2001

DC-829

MEMORANDUM

TO: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: *Timothy E. Steinberger*
TIMOTHY E. STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

July 17, 2001

MEMO TO: TIMOTHY E. STEINBERGER, P.E., ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: RAE M. LOUI, P.E., DIRECTOR *Rae M. Loui*

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION
REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
STATEMENT (RDSEIS)

This is in response to your request of May 25, 2001 to review and comment on the subject document.

We have no comments, but appreciate the opportunity to review the document.

Should there be any questions, please contact Douglas Collinson of my staff at 527-6375.

Thank you for your memorandum dated July 17, 2001. We acknowledge your Department has no objections to the proposed project.

We appreciate your review of the subject document. Should you have any comments, please contact Ms. Wilma Namunnart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

cc: Mr. Joe Hernandez- Waste Management of Hawaii, Inc.
Mr. Brian Takeda- R.M. Towill Corporation

RML:kw
cc: Office of Environmental Quality Control
R.M. Towill Corporation (Brian Takeda)
FDE Planning (Don Griffin)

18 18A

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



19

COPY
JEREMY HARRIS
EDDIE FLORES
CHARLES A. STED
JANILY AUN
HERBERT S.K. KAOPIA SR
BARBARA KIM STANTON

BRUNO E. MURAHAI, E.I.-OHIO
ROSS S. SASAMURA, E.I.-OHIO

July 18, 2001

CLIFFORD S. JAMILE
Manager and Chief Engineer

WES	KTS
R-F	NM
RIT	(RIT) PM
REC'D JUL 19 2001	
E.T. STEINBERGER	

TO: TIM STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: ^{for} CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR TRANSMITTAL OF MAY 25, 2001 OF THE REVISED
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
STATEMENT FOR THE WAIMANALO GULCH SANITARY
LANDEILL EXPANSION, EWA, OAHU, TMK: 2-2-03: 72, 73

Thank you for the opportunity to review the subject document for the proposed expansion of the existing landfill.

We have no objections to the proposed project. Our previous comments of June 1, 2000 have been addressed.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Department of Planning and Permitting
✓ R. M. Towill

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



August 23, 2001

MEMORANDUM

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

FROM: ^{for} TIMOTHY E. STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDEILL EXPANSION

Thank you for your memorandum dated July 18, 2001. We acknowledge your Department has no objections to the proposed project.

We appreciate your review of the subject document. Should you have any comments, please contact Ms. Wilma Namumart of our office at extension 5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

cc: Mr. Joe Hernandez- Waste Management of Hawaii, Inc.
Mr. Brian Takeda- R.M. Towill Corporation

19A

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-184



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

FAX (808) 594-1865

WES	KTS		
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EJC			

July 19, 2001

Ms. Wilma Namumnat
Department of Environmental Services
City & County of Honolulu
650 South King Street, 6th floor
Honolulu, HI 96813

Subject: Revised Draft Supplemental Environmental Impact Statement
(RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion
TMK: 9-2-3- 072 and 073
O'ahu, Ewa District

Dear Ms. Namumnat:

Thank you for the opportunity to comment on the above referenced project. The Office of Hawaiian Affairs offers the following comment.

Cultural Impacts

As stated in Section 1 of Act 50, 2000 Session Laws, Hawaii, "There is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture and traditional and customary rights." In addition, it also states: "Article IX and XIII of the state constitution, other state laws, and the courts of the state impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups."

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

Ms. Wilma Namumnat
Department of Environmental Services
City & County of Honolulu
July 19, 2001
Page Two

OHA requests that the DEA address any adverse impacts on native Hawaiian culture, Pursuant to Act 50, Session Laws, Hawaii that may occur as a result of the proposed project.

Community Input

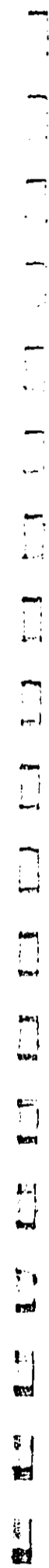
The RDSEIS illustrates a lack of community input and participation. There were only two community meetings for the proposed project, held on January 31, 2001 and February 20, 2001. More input is needed from the residents of the Ewa District to discuss issues and viable alternatives to the proposed Waimanalo Gulch Sanitary Landfill Expansion.

If you have any questions, please contact Mark A. Mataragan, policy analyst at 594-1756, or e-mail him at mamaragan@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Dept. of Planning and Permitting - City and County of Honolulu
R.M. Towill Corporation
OEQC



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DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6653 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
BY REPLY REFER TO:
RE 01-184

December 17, 2001

Mr. Colin C. Kippen, Jr.
Deputy Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your July 19, 2001, letter. We offer the following responses to your comments.

Cultural Impacts

We acknowledge the intent of state law to promote and protect Hawaiian (and other ethnic group) culture. An archaeological survey was conducted prior to construction of the landfill, and the results are contained in the 1984 EIS for Waimanalo Gulch. During preparation of the current environmental document, further field investigations were conducted by members of the community and archaeologists from Cultural Surveys Hawaii and the State Historic Preservation Division of the Department of Land and Natural Resources. No culturally significant discoveries were made.

In the interests of security and public safety, access to the landfill is restricted to normal operating hours for the purpose of refuse disposal. These restrictions have not adversely impacted native Hawaiian cultural practices. If archaeological remains are uncovered during the proposed landfill expansion, work will cease, and the State Historic Preservation Officer will be notified.

Mr. Colin C. Kippen, Jr.
December 17, 2001
Page 2

Community Input

We strongly disagree with your contention that the EIS illustrates a lack of community input and participation. The City has conducted an open house and three community meetings to explain and discuss the project; we have met with City Council and legislative representatives of the area and the Waianae and Kapolei/Makakilo/Honokai Hale Neighborhood Boards; and we have extended the EIS comment period four times for a total of 180 days beyond the normal 45-days. As the final environmental document will demonstrate, there has been ample community input and participation, particularly from project opponents.

We appreciate your review and comments concerning the subject document. Any further comments may be directed to Ms. Wilma Namumart of the Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

THE ESTATE OF JAMES CAMPBELL

July 20, 2001

21

Ms. Wilma Namumart
Department of Environmental Services
City and County of Honolulu
July 20, 2001
Page 2

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Ms. Wilma Namumart
Department of Environmental Services
City and County of Honolulu
650 S. King Street, 6th Floor
Honolulu, HI 96813

Dear Ms. Namumart:

Waimanalo Gulch Sanitary Landfill Expansion (Revised Supplemental EIS)

The Estate has received and reviewed a copy of the revised supplemental draft EIS and has significant concerns in several areas:

In the original, 1984, EIS for the landfill, consultants identified 80± acres of 260 acres as usable for landfill. The current revised draft supplemental EIS calls for the enlargement of the existing 86.5 acres landfill by 64.5 for landfill expansion. It appears that one of these documents is in error as to the amount of land suitable for landfill purposes. The 1984 EIS makes no mention of succeeding phases at Waimanalo. The proposed expansion then appears to be contrary to community expectations based on the 1984 EIS with regard to the length and scope of operation.

The purpose of the EIS is to analyze potential, and in this case, existing impacts to determine whether to proceed with the project. The operation of the existing landfill over a period of 10 plus years has provided the opportunity to identify impacts to determine whether the expansion would change those impacts.

In its present level of operation, the landfill already appears unable to control its negative impact on the surrounding community which is undergoing significant growth in accordance with adopted land use policy.

From our observations and comments from area residents, it appears that the existing operation of the landfill has already resulted in adverse impact to the community. The area regularly receives wind-borne debris from the landfill and trucks. Odors from the existing operation have had negative impact on the surrounding area. Kapolei is an area of major investment by

the Estate, the emerging Ko Olina Resort, the City and County and the State of Hawaii. The prominent visibility of the landfill is a detriment to existing businesses and businesses seeking to locate in Kapolei. The inadequate control or enforcement of regulations has resulted in significant adverse impact to the community from the present operation.

Based on past performance, any expansion will most surely increase the adverse impact on the community. It is, therefore, necessary for the revised supplemental to address these impacts fully in order for the document to be of real value to the applicant to help make the appropriate decision. New and better methods to contain these impacts must be developed and implemented.

The document needs to adequately and accurately assess the impact of the proposed project to the economic environment of the area. Kapolei is a city developing in compliance with adopted county land use policy. It has been successful, since its groundbreaking in 1990, in attracting considerable investment from a global business community and the city and state governments. The potential economic impact of a landfill expansion in a high growth area is, we believe, inadequately covered in the document.

Serious consideration of alternative sites has not been presented. We do not consider alternatives such as Diamond Head Crater and Koko Head Crater as serious ones. The discussion of alternative sites raises many questions. For instance, the Waipio site (60 acres or 160 acres?) boundaries are not explained. Nor is there a discussion of methodology used to establish capacity. The Waipio peninsula is a much larger area and fuller use of such could substantially increase capacity. The table on page 5-7 lists Waipio to be rejected based on its being within the groundwater protection zones and the UIC zone. The foldout map opposite page 4-20 seems to show this site to be outside of the zone. These apparent discrepancies may seriously hamper the credibility of the alternate site analysis. As a result, the expansion of the existing site is skewed favorably as the most economical and cost effective option but to the detriment of the Kapolei community.

In summary, our view is that the environmental assessment does not adequately cover critical areas of concern and does not provide for the evaluation of serious candidates for alternate sites. A document of this type must cover these areas thoroughly. Doing less than that provides an incomplete and inadequate basis for a true evaluation of impacts so that the purpose of requiring the assessment is not achieved.

Ms. Wilma Namunart
Department of Environmental Services
City and County of Honolulu
July 20, 2001
Page 3

We appreciate this opportunity to express our views.

Very truly yours,


Henry Eng, MCR
Community Development Manager

ms:01002000K19933

cc: The Honorable Jeremy Harris, Mayor, City and County of Honolulu
 R. M. Towill Corporation
 Office of Environmental Quality Control, State of Hawaii

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 LUOHA STREET, SUITE 200, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 • Fax: (808) 692-5113



JEREMY HARRIS
S.A.N.T.H.

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02.017

April 12, 2002

Mr. Henry Eng, AICP
Community Development Manager
The Estate of James Campbell
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Eng:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 20, 2001. We offer the following responses to your comments.

When the 1984 EIS for Waimanalo Gulch was written, soil samples indicated that much of the site was underlain with rock. Over many years of operating the landfill, including preparation of the original ground for individual cells, Waste Management has learned that, except for small areas, the site does not require blasting or other expensive excavation methods and that the expansion can be accomplished economically. We have never concealed the possibility of expanding the landfill and have never foreclosed our option to do so. Under the present economic circumstances, you can probably appreciate why expanding an existing facility is preferable to constructing a new one from scratch.

Since it opened twelve years ago, Waimanalo Gulch has been managed by Waste Management, one of the largest and most qualified landfill operators in the nation. The site resembles a well-run quarry when viewed from Ko Olina Resort, and Waste Management has installed and continues to improve landscaping and odor and litter controls. The State Department of Health, which administers the operating permit, has recorded few complaints and no violations for such nuisances, which indicates that Waste Management has operated the landfill in a diligent and professional manner. In addition, studies in other parts of the county have shown that the proximity of a sanitary landfill has no demonstrable effect on surrounding property values. A landfill is an integral component of the City's integrated solid waste management system and is vital to the economic well-being of Kapolei and the rest of Oahu.

Mr. Henry Eng
April 12, 2002
Page 2

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We agree that Diamond Head Crater would, today, not be a serious landfill candidate site, there might be compelling reasons, however, to displace the stables and botanical garden which currently occupy Koko Crater. Still, the inclusion of these two sites on the list of alternatives gives some indication of how difficult it is to find suitable locations for a landfill and how ongoing development and increasing environmental restrictions make sites more problematic and less attractive over time.

The Waipio Peninsula site was incorrectly listed within the groundwater protection zone. This oversight will be corrected in the final environment document. Although Waipio Peninsula is large, the Navy-owned area being evaluated for a landfill does not encompass the whole peninsula. The Navy has indicated that they plan to use the site for other needs and will not allow a municipal landfill on that site.

The City has fulfilled, indeed gone beyond, its obligation to inform the public about the project and the reasons other alternative sites and technologies, under existing circumstances, are deemed infeasible and why expansion of Waimanalo Gulch Sanitary Landfill is the right thing to do. We have extended the deadline for public comment on the draft environmental document six times. The City, Waste Management, and our consultants have attended numerous meetings to answer questions and address concerns, giving everyone an opportunity to be heard and gathering ample information for a reasoned decision on whether the project should proceed.

We appreciate your review of the subject document. Any further comments may be directed to Ms. Wilma Namumart of the Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

TIMOTHY E. STEINBERGER
Director

cc: Office of the Mayor
Office of Environmental Quality Control
R.M. Towill Corp.
Waste Management of Hawaii, Inc.



University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Krusas Annex 19 • 2600 Dole Street • Honolulu, Hawaii 96822
Telephone: (808) 956-7301 • Facsimile: (808) 956-3380

July 23, 2001
RE: 0717

Ms. Wilma Namunart
City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, HI 96813

Dear Ms. Namunart:

Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion
Ewa, Oahu

The May 23, 2000 Draft Supplemental Environmental Impact Statement has been revised based on public comments and concerns and re-released as The Revised Draft Supplemental Environmental Impact Statement (RDSEIS) for Waimanalo Gulch Sanitary Landfill Expansion. Waimanalo Gulch is located in Kahe Valley, the project site sits on a total of 200 acres. The City and County of Honolulu propose to increase the "footprint" of the landfill from 86.5 acres to 147 acres. The landfill is nearing capacity and without expansion the space is expected to be exhausted in early 2002. The expansion will create enough space to keep the landfill open until 2017. The landfill receives ~1,400 tons of solid waste daily, 800 tons of municipal solid waste, and 600 tons of ash. The estimated cost of the project is \$5 million dollars over a 15-year construction period.

This review was conducted with the assistance of Chhitaranjan Ray, Civil Engineering, and Renee Thompson, Environmental Center.

General Comments

We are pleased that the RDSEIS is reasonable complete, and covers most of the potential impacts and mitigative measures. In particular, we appreciate the Department of Environmental Services' efforts to recognize the unique waste disposal situation in the state and to identify methods of waste stream reduction. The programs outlined in the RDSEIS demonstrate a positive effort to reduce our dependence on landfills. Despite this, we also recognize that even more can be done to reduce waste generation, thus increasing the life span of the

Ms. Namunart
Page 2
July 23, 2001

landfill. To ensure that all potential impacts of this development are addressed, we suggest that the issues discussed below be addressed in the Final Revised Supplemental EIS.

Waste Composition

Upon reviewing the waste composition on page 1-7 it would seem that over 60% of the non-construction related items going into the landfill are potentially recyclable. It was mentioned on page 3-24 that a new program of In-Vessel Bioconversion will address the 17.9% yard waste issue, by converting sewage sludge and yard waste into compost. This is an example of an innovative and necessary program. We would like to see other potentials for recycling addressed in the Final RSEIS. It has been brought to our attention that a possible reason for the large amount of paper and other recyclable metals is that diverted loads carrying construction material from H-POWER are brought directly to the landfill. The final EIS should state what the composition of the diverted municipal solid waste is and what measures will be taken to keep diverted material separate from materials, which can be processed at H-POWER. This would reduce the amount of recyclable material going into the landfill, therefore, prolonging the life of the landfill.


Alternatives

It is stated on page 1-44, that the identified technologies in the Alternatives Technologies section will not replace the landfill and therefore, are not considered viable. It is not a matter of replacing the current landfill; it is a matter of reducing the volume of waste, and extending the life of the landfill. Alternatives 6 and 7 along with mandatory recycling (with some price support) and other source reduction measures should further extend the life of the landfill. The City proposes to expand the landfill for another 15 years of uninterrupted operation. What is shocking at this point is that the recycling system in Oahu has not been more effective in reducing waste load to landfills. The Final RSEIS must show if there is a gradual decrease in MSW load going to this and other landfills. If so, we recommend that the City develop lesser amount of land (possibly 40 acres or so) for 10 years of refuse at the current rate of generation. If aggressive steps are taken in recycling and material substitutions are mandated we may be able see a 25 to 40% reduction in MSW generation. This can increase the overall life of the landfill to 20 or even 25 years.

In addition, the issue of H-POWER ash waste is not effectively addressed in the document. There appears to be a large volume of ash brought to the landfill daily. Some alternatives should be considered. In our review, we found that the states of Pennsylvania, Florida, and Tennessee are recycling this type of ash. It is being used for embankment/fill material, as daily cover, as a base under parking lots and foundations, and as a sub-base for roadways. It is unclear whether these practices are currently in use; however, it is clear that alternatives for this material should be considered. The Final SEIS needs to address this issue. It should list alternatives, provide documentation of the content of the ash, and any toxic substances that may be present.

Ms. Namunart
Page 4
July 23, 2001

Thank you for the opportunity to comment on this Revised Draft Supplemental Environmental Impact Statement.

Sincerely,

Jacqueline Miller, PhD.
Associate Environmental Coordinator
Environmental Center

cc: Randall Fujiki, Department of Planning and Permitting
Brian Takoda, R.M. Towill Corporation, Inc.
OEQC
James Moncur, WRRRC
Chittaranjan Ray
Renee Thompson

Ms. Namunart
Page 3
July 23, 2001

If it is found that the ash contains unsafe levels of toxic substances, then the document should state ways in which the toxic levels could be reduced to acceptable useable levels. We urge the landfill operators, H-POWER, and DOH to work together to explore alternative uses of this substance.

There are discrepancies between the amount of ash reported being sent to the landfill from H-POWER and the amount of ash received. The 600tons/day value listed in the document, page 2-7, should be checked again.

Landfill Associated Gases

We commend Waste Management of Hawaii, Inc for their landfill gas recovery, and monitoring system, and we encourage evaluation and research of gases use in future energy production.

Landscaping

Landscaping and tree planting around the periphery of the whole property would provide a green border to the property and contribute to a more aesthetically pleasing view of the site. The trees should be planted at the outside edge of the land owned by the city so that possible future expansion needs will not require chopping down of trees. Another advantage is that dust transport will be contained within the area. Once established, trees would not likely require much maintenance.

Conclusion

While we recognize the need for additional landfill space, we suggest an expansion of reduced magnitude, coupled with a more aggressive waste reduction campaign as an alternative to the proposed project. In addition, we recommend that the alternative uses of ash be further explored.

9/0/90 'A

THE ENVIRONMENTAL CENTER

1000 KALANANAKUHIWA DRIVE, SUITE 1000, HONOLULU, HAWAII 96813

Ms. Jacquelin Miller
December 17, 2001
Page 2

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JAN 04 2002 BMT		
FRANK J. DOYLE, P.E. DEPUTY DIRECTOR		
IN REPLY REFER TO: RE 01-182		

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



December 17, 2001

JEREMY HARRIS
MAYOR

Ms. Jacquelin Miller, Ph.D.
Associate Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Krauss Annex 19
2500 Dole Street
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch, Seminary Landfill Expansion

Thank you for your letter dated July 23, 2001. We are gratified by your acknowledgement of the completeness of the subject document and your recognition of our efforts to reduce waste and divert material from the landfill. Your other comments are discussed below and will be included in the final document.

Waste Composition

The City continues to seek innovative programs for recycling and diverting solid waste, such as the In-Vessel Bioconversion Facility. Commercial construction and demolition loads are banned from disposal at Waimanalo Gulch, indeed any City disposal site, as long as there is an alternative provided by the private sector. Disposal of residential refuse at Waimanalo Gulch is unavoidable during the short periods when H-POWER is closed for maintenance. Under normal conditions, however, commercial refuse haulers are expected to make a reasonable effort to sort, or have their customers sort, their mixed loads.

Alternatives

That identified alternative technologies will not replace landfills and that they are not viable are two different and distinct issues. While some technologies hold the promise of eliminating the need for landfills altogether, these alternatives are not currently viable because they are demonstration processes which have not proven to be feasible on a scale required for application to Honolulu's waste stream and/or vendors are unable to provide adequate financial assurances, exposing City taxpayers to substantial liability should they fail. Despite their limitations, the City continually explores disposal alternatives in order to reduce waste generation and prolong landfill life.

The City's Energy Recovery Administrator, with a grant from the National Renewable Energy Laboratory, conducted an 8-year, comprehensive study to find uses for H-POWER ash, such as fill, paving aggregate, and landfill cover. Aside from a small, demonstration "asphalt" project at the H-POWER plant itself, we have been unable to obtain regulatory approval to put the ash to beneficial use, though efforts to obtain that approval are ongoing.

Landfill Associated Gases

Waste Management's landfill gas monitoring program satisfies all EPA requirements, and energy recovery will be implemented when generation rates make that feasible.

Landscape

Many parts of the site have already been planted, and Waste Management is planning additional landscaping. We recognize that appropriate use of plant materials will provide an effective buffer for both dust control and visual enhancement.

The City has many waste diversion and recycling programs in place and is expanding them and adding new ones. Still, landfill capacity is vital to Oahu's economic well-being. Reducing the size of the proposed expansion would waste a scarce resource, likely increase the per-ton cost of operation, and hasten the onset of the day when we will have to site another landfill.

We appreciate your review and constructive comments concerning the subject document. Any further comments may be directed to Ms. Wilma Namunnart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc. at 668-2985 (extension 22).

Sincerely,

Timothy E. Steiber
TIMOTHY E. STEINBERGER
Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM



BENJAMIN J. CAYTANO Governor
SEIJI F. NAYA Director
SHARON S. NAKAMATSU Deputy Director
DAVID W. BLAKE Director, Office of Planning

Telephone: (808) 587-3807
FAX: (808) 587-3850

Energy, Resources & Technology Division
235 South Beretania Street, Licoapapa A Kanehahana Bldg., 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2358, Honolulu, HI 96804-2358
Web site: www.hawaii.gov/oeq

July 23, 2001

Ms. Wilma Namumnaat
City and County of Honolulu
Department of Environmental Services, 6th Floor
650 S. King Street
Honolulu, HI 96813

Subject: Revised Draft Supplemental Environmental Impact Statement for the
Waimanalo Gulch Sanitary Landfill Expansion

Dear Ms. Namumnaat:

Thank you for the opportunity to comment on this subject project. Given the environmental impacts resulting from expanding the existing landfill footprint from 86.5 to 147 acres, we reiterate our concerns and alternatives to the proposed landfill expansion.

The City and County has developed a number of successful recycling programs. Enhancing these programs in the areas of waste minimization and reuse would further reduce the amount of waste that is generated, recycled, and disposed.

We are glad to hear that you are proposing the implementation of landfill gas recovery. Also, use of methane for energy production could contribute to meeting State energy objectives seeking diversification, use of indigenous energy sources, energy security, and greenhouse gas reduction.

Thank you for the opportunity to offer these comments.

Very truly yours,

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

cc: OEQC
Mayor Jeremy Harris
R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
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EREMY HARRIS
Mayor

TIMOTHY E. STEINBERGER, J
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-177

September 20, 2001

Mr. Maurice H. Kaya, Administrator
Energy, Resources & Technology Division
DBET
235 South Beretania Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Kaya:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 23, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement. We acknowledge receipt of your additional comment.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namumnaat of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

Vertical stamp on the right edge of the page.

July 24, 2001

City and County of Honolulu
Department of Environmental Services
650 So. King St., 6th Floor
Honolulu, HI. 96813

Attn: Mrs. Wilma Namunnart

Re: Waimanalo Gulch Sanitary Landfill Expansion

Gentlemen:

In further considering the RDEIS for the Waimanalo Gulch Landfill the following questions arose, which we would like to have answered, regarding why the City has waited so long to research alternative technologies to landfills:

1. The new EIS rejects all alternative technologies on the basis that they are not "considered adequate for the replacement of the Landfill"
 - A. Has the City ever made a formal Request For Proposals to any vendors of alternative technology? To Whom? When? Result?
 - B. Has the City even considered using a combination of alternative technology and a Landfill to solve the problem? When? Result?
 - C. We know a proposal was made to the City by the firm Waste to Energy which would utilize plasma arc technology to handle the majority of Oahu's waste problems? What has been done about that?
 - D. We understand that Waimanalo Gulch generates tens of million of dollars for the City annually in tipping fees. How much of it has been used to explore/develop alternative technology?
2. Over the past 5 years, Kauai has been in the Request for Proposal process with companies offering alternative technology.
 - A. Have people from Oahu's Refuse Division talked to the people on Kauai?
 - B. Have they interviewed any of these alternative technology vendors or visited sites where their technology is in operation?

- C. Why is Oahu 5 years behind Kauai in even exploring a solution to the solid waste problem?
 3. Aside from Waimanalo Gulch, does the City's Refuse Division have any other long term (or even a short-term) *solid waste game plan* for our island?
 4. Mayor Fasi's administration promised that the Landfill would not be expanded after it Reached capacity. Isn't the City's proposed expansion of the Landfill a broken promise to the people of Leeward Oahu?
- We await your reply.

Sincerely,

Jane A. Ross
Jane A. Ross
92-783 Laaloa Place
Kapolei, HI. 96707

Martha Makaiwi
Martha Makaiwi
92-783 Laaloa Place
Kapolei, HI. 96707

Cc: OEQC
Mayor Jeremy Harris
R. M. Towill

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 309, KAPOLEI, HAWAII 96707
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JEREMY HARRIS
MAYOR

TIMOTHY E. STENBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02 005

December 23, 2002

Ms. Jane A. Ross
Ms. Martha Makaiwi
92-783 Laialoa Place
Kapolei, Hawaii 96707

Dear Ms. Ross and Ms. Makaiwi:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 24, 2001. We have prepared the following itemized response to your comments:

1. The new EIS rejects all alternative technologies on the basis that they are not considered adequate for the replacement of the Landfill.
 - A. Has the City ever made a formal Request For Proposals to any vendors of alternative technology? To Whom? When? Result?
Yes, requests have been submitted for the following projects:
 - H-POWER facility, initial discussions with HRRV, late 2001, still negotiating
 - Sludge composting, U.S. Navy, started December 1998, processing 900 wet tons sludge/month
 - In-vessel bioconversion of wastewater sludge, open bid, contract awarded to Synagro on February 6, 2002.
 - B. Has the City ever considered using a combination of alternative technology and a Landfill to solve the problem? When? Result?
Yes. The nascent state of the art in alternative refuse disposal requires for the foreseeable future that Oahu's municipal refuse disposal needs will be largely met by continued use of municipal solid waste landfills in combination with adoption of new, but proven, technologies. Examples of technology-based solutions we will be using include:
 1. Andritz Drying System for Treatment of Sewage Sludge. A new project is in progress for treatment of municipal sewage sludge from the Sand Island Wastewater Treatment Plant (SIWWTP). This process involves the recycling of sewage sludge into fertilizer pellets, turning an otherwise landfilled item into a valuable resource. Advantages of this system include: (1) significantly reduced need for disposal of sewage sludge into a landfill; (2) a major reduction of odors associated with sewage sludge disposal; (3) Oahu's farming community will gain increased independence from reliance on off-island shipment of fertilizer product; and, (4) the technology is proven.
 2. Expansion of H-POWER Capacity. Planning and engineering are underway to install a new boiler which will expand the capacity of H-POWER. During annual maintenance shutdown, all refuse usually accepted at H-POWER is diverted to the landfill. A new boiler will facilitate continuous H-POWER operations, thereby increasing waste throughput efficiency. A major side benefit will be the increased production of energy for Oahu's residents, business, and government.

Ms. Jane A. Ross
Ms. Martha Makaiwi
December 23, 2002
Page 2

3. Alternative Refuse Disposal Technology Park. The City's FY03 budget includes funds for developing an Alternative Refuse Disposal Technology Park at Campbell Industrial Park. Its purpose is to promote adoption of emerging and economically viable technologies which can reduce dependency on landfills. At this time there are three technologies which will be sited at the Park: (a) plasma arc incineration, (b) organic composting, and, (c) recycling of automobile "tuff" and treated lumber.

- C. We know a proposal was made to the City by the firm Waste to Energy which would utilize plasma arc technology to handle the majority of Oahu's waste problems? What has been done about that?
The City has received inquiries for developing plasma arc technology from various firms. Although we share your eagerness to solve Oahu's refuse disposal needs, procurement must follow proper procedures. We have initiated the Alternative Refuse Disposal Technology Park project to provide operators with an opportunity to demonstrate applications to Honolulu's waste stream. It is possible that successful demonstration projects will lead to future application of technology-based solutions.

- D. We understand that Waimanalo Gulch generates tens of million of dollars for the City annually in tipping fees. How much of it has been used to explore/develop alternative technology?
The annual revenues from tipping fees are applied to operating the City's refuse management system, which includes salaries, operations and equipment for refuse collection, transfer, recycling, waste-to-energy and landfill disposal. The tipping fees revenue for the landfill and transfer stations for FY02 was \$16,923,614. The amount used to explore and develop alternative technology cannot be easily quantified since numerous professionals and individuals have contributed to the effort.

2. Over the past 5 years, Kauai has been in the Request for Proposal process with companies offering alternative Technology.
 - A. Have people from Oahu's Refuse Division talked to the people on Kauai?
Yes. The City has been approached by vendors who had offered a technology-based solution on Kauai as well as to Kauai county officials.
 - B. Have they interviewed any of these alternative technology vendors or visited sites where their technology is in operation?
Yes. A City team visited cities in Huntsville, Alabama; Richmond, Virginia; Utsunomiya, Japan, as well as the plasma arc technology facility at Campbell Industrial Park. The company that proposed plasma arc technology in Kauai is no longer in business.
 - C. Why is Oahu 5 years behind Kauai in even exploring a solution to the solid waste problem?
We do not agree with your statement. Each county has different solid waste resources and different volumes of solid waste to deal with. The situations are not equivalent.

3. Aside from Waimanalo Gulch, does the City's Refuse Division have any other long term (or even a short-term) solid waste game plan for our island?

Yes. The City has a long-term plan for management of municipal refuse. The City developed a Solid Waste Integrated Management Plan Update in 1995, which gives direction for Oahu's solid waste plans. The report is on the Refuse Division website at www.opata.org.

Ms. Jane A. Ross
Ms. Martha Makaiwi
December 23, 2002
Page 3

We continually evaluate methods to conserve landfill capacity. We restrict materials from Waimanalo Gulch when there are alternative disposal sites or recycling avenues. We will divert wastewater sewage sludge from landfill disposal, making a reusable, marketable fertilizer. We will expand H-POWER to accept more municipal solid waste and to extract recyclable materials. We will establish an Alternative Technology Park to assist emerging disposal technologies. The City will continue to divert materials away from landfill; however, a landfill is a necessary component of any solid waste program.

We will be establishing a committee to advise the City on citing a contingency landfill.

4. Mayor Fasi's administration promised that the Landfill would not be expanded after it reached capacity. Isn't the City's proposed expansion of the Landfill a broken promise to the people of Leeward Oahu?

ENV has conducted an exhaustive examination of prior correspondence and documentation from the early 1980s to the present regarding an alleged promise or commitment that the landfill would not be expanded. No record of a commitment can be found, and, therefore, we cannot verify nor disprove this claim.

We appreciate your review of the subject document. Any further comments may be directed to Ms. Wima Namuniat of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, ext. 22.

Sincerely,



TIMOTHY STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towell Corporation



WAI'ANAE COAST NEIGHBORHOOD BOARD NO. 24

40 NEIGHBORHOOD CONSERVATION • CITY HALL, ROOM 408 • HONOLULU, HAWAII 96813

If you have any questions, please do not hesitate to contact me at 696-0131 or via email at rezentesc@aol.com.

July 25, 2001

City and County of Honolulu, Dept. of Environmental Services
650 S. King Street, 6th Floor
Honolulu, HI 96813
Attn: Ms. Wilma Namumamart

Sincerely,

Cynthia K. L. Rezenites, Chair

- cc: The Honorable Jeremy Harris, Mayor City and County of Honolulu
- Mr. Brian Takeda, R.M. Towill Corp.
- State of Hawaii, Office of Environmental Quality Control
- Makalo/Kapolei/Honokai Hale Neighborhood Board No.34
- Neighborhood Commission Office
- Councilmember John DeSoto
- Senator Colleen Hanabusa
- Representative Emily Aurwaie
- Representative Mike Kahikina
- Ko Olina Community Association, c/o Mr. Ken Williams
- Makaha Alupua'a, c/o Ms Betty Waller

Dear Ms. Namumamart,

SUBJECT: Waimanalo Gulch Landfill Draft Revised SEIS

During a regularly scheduled Wai'anae Coast Neighborhood Board No. 24 meeting held on July 3, 2001 the board supported a motion to send a letter in opposition to the expansion of Waimanalo Gulch Landfill by a vote of 14-2-3 (Ayes-Nays-Abstentions).

The Board continues to have concerns regarding the limited site selection available, the lack of information regarding viable alternative technologies, the management of the facility (trash, primarily plastic bags, found on near-by lands and in the ocean as far as 6 miles offshore), and lack of benefits to the community in which the landfill is located.

The Wai'anae community has been consistent in it's opposition to the Waimanalo Gulch Landfill since its inception and continues to have concerns about the facility along the coastline leading into the heart of the Wai'anae community. It has been a constant thread of discussion that the community was led to believe, via verbal statements, that once the initial "filling" of the landfill was complete, as stated in the 1984 EIS, the landfill would be closed. Many people feel betrayed that it appears the City and County of Honolulu did not live up to those verbal statements.

Clear, definitive planning and commitments need to be made in addition to completely and comprehensively explaining the rationale behind decisions made for limiting site selection (including a scientific basis for the Pass-NoPass line and UIC line), why there is no alternative technologies available after 17 years of study (assuming studies have been going on since the last EIS in 1984), proper management of the nearby environment (how plastic and trash will be kept out of a marine mammal resting area - recognized by the tourist industry and locals alike), and how it benefits the nearby community and island to expand the landfill across from a viable, economic growth area for the island economy.

The board looks forward to receiving a response to this letter to better understand the requirement to expand the Waimanalo Gulch Landfill rather than having other alternatives available to the citizens of O'ahu.

W012450105

W012450105



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6653 • Fax: (808) 527-6975



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02 019

December 23, 2002

Mr. Albert Silva, Chair
Waianae Neighborhood Board No. 24
83-501 Farington Highway
Waianae, Hawaii 96792

Dear Mr. Silva:

Subject: Revised Draft Supplemental Environmental Impact
Statement Waianalo Gulch Sanitary Landfill Expansion

Thank you for Ms. Cynthia Rezendes' letters dated July 25, 2001, for the Waianae Coast Neighborhood Board. We acknowledge Waianae Coast Neighborhood Board's opposition to the proposed landfill expansion.

The City looked at more than 40 potential landfill sites around Oahu, ranking each in a matrix of evaluation criteria. (The history and rationale for the UIC or Pass/No Pass line can best be obtained from the State Department of Health, the agency which manages the program.) As development spreads across the island and as landfill environmental requirements tighten, it becomes increasingly difficult to site a new landfill. Factor in the substantially higher cost of constructing a landfill from scratch, and it is evident why we consider expanding Waimanalo Gulch the preferred alternative.

The discussion of alternative disposal technologies in the final SEIS has been greatly expanded, as we promised at previous community meetings. If the board members wish to more fully explore the subject, the EIS discussion is based on the New Systems Research for Refuse Disposal, Oahu Municipal Refuse Disposal Alternatives Study (R.M. Towill, April 2000), and its accompanying Appendix - Vendor and Technology Information. The City sent a team to visit plasma arc facilities in Campbell Industrial Park, Richland, Washington, and Huntsville, Alabama. The study can be viewed on our Web site, www.opala.org. We performed a pilot test with plasma arc technology on municipal solid waste. Unfortunately, the test showed that it took more energy to destroy the waste than was generated. City representatives visited a plasma arc facility in Utsashinai, Japan in 2002. During the first visit, the facility was still in construction. Later in 2002, the plant was processing auto shredder waste and planned to initiate municipal solid waste processing in December 2002. The City is establishing an Alternative Disposal Technology Park for development and demonstration of emerging technologies adjacent to our H-POWER facility at Campbell Industrial Park. Presently, none of the technologies are operational in the large scale required for application to Honolulu's waste stream. The City hopes that, with the establishment of the park, these technologies can further develop so they can provide alternative disposal in the future.

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Mr. Albert Silva, Chair
December 23, 2002
Page 2

The City shares your board's concern about the appearance and community impact of the landfill, particularly because of its proximity to residences and a resort. Though studies in other parts of the country have shown that the proximity of a sanitary landfill has no demonstrable effect on surrounding property values, public acceptance of a landfill depends heavily on its appearance. Since it opened 12 years ago, Waimanalo Gulch has been managed by Waste Management, one of the largest and most qualified landfill operators in the nation. The site resembles a well-run quarry when viewed from the resort, and Waste Management has installed and continues to improve landscaping and odor and litter controls. The State Department of Health, which administers the operating permit, has recorded few complaints and no violations for such nuisances, which would seem to indicate that Waste Management has operated the landfill in a diligent and professional manner.

A public landfill at Waimanalo Gulch benefits Waianae residents and farmers by providing nearby disposal of self-haul rubbish and animal carcasses at no charge, thus greatly reducing the incentive for illegal dumping. From a broader perspective, a landfill is an essential component (in the absence of viable alternatives) of any solid waste management system for the disposal of nonrecyclable, noncombustible refuse. Without one, the economic well-being, public health and safety of all Oahu residents are in jeopardy.

We appreciate your board's review and constructive comments concerning the subject document. Any further comments may be directed to Ms. Wilma Namuniat of our Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINBERGER, P.E.
Director

cc: R.M. Towill Corp.
Waste Management of Hawaii, Inc.
Office of the Managing Director

Mr. Randall K. Fujiki, AIA, Director
July 26, 2001
Page 2

- 4. Construction dewatering effluent.
- 3. The existing facility currently has NPDES coverage for storm water associated with industrial activity (File No. 111 B3AA531). The expansion area also requires this type of NPDES coverage and that changes to the Notice of Intent (NOI) and Storm Water Pollution Control Plan on file with CWR, as well as the required \$500.00 filing fee must be submitted to CWR at least 30 days prior to the proposed starting date of the discharge; and
- 4. The CWR requires that NOI for NPDES general permits be submitted 30 days before the discharge is to occur. NOI forms can be picked up at our office or downloaded from our website at <http://www.dnr.state.hi.us/cwr/forms/npdes.html>.

Should you have any questions, please contact Kris Poots, Engineering Section of the Clean Water Branch, at 346-4309.

Solid and Hazardous Waste Branch

No comments.

Environmental Planning Office

Due to the socio-economic make-up of the community surrounding this project, this proposed expansion of the facility landfill may be sensitive to allegations of environmental inequity. The project site should be evaluated to ensure that fair and equitable treatment of the residents within the community's near the project. Residents should not be subjected to a disproportionate share of the risks associated with environmental hazards resulting from the proposed expansion. Because the Hawaii State Department of Health's mission is to provide leadership to monitor, promote and enhance the health and environmental well being of our State, we are obliged to comment upon these risks.

Sincerely,

Gary Gill
GARY GILL
Deputy Director
Environmental Health Administration

3120
2730
WILLIAM W. WILSON
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
650 South King Street
Honolulu, Hawaii 96813

July 26, 2001

Mr. Randall K. Fujiki, AIA, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Waimanalo Gulch Sanitary Landfill Expansion
TMC: 9-2.3.72

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

Clean Water Branch

- 1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for this project. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office.
- 2. If the project involves any of the following discharges into State waters, a National Pollutant Discharge Elimination System (NPDES) general permit is required for each activity.
 - a. Storm water runoff associated with construction activities, including clearing, grading, and construction, that result in the disturbance of equal to or greater than five (5) acres of total land area;
 - b. If construction begins or continues after March 10, 2001, storm water runoff associated with construction activities, including clearing, grading, and construction, that result in the disturbance of equal to or greater than one (1) acre;
 - c. Hydro testing water, and

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



JEREMY HARRIS
CATION

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 01-208

26A

Mr. Gary Gill
November 13, 2001
Page 2.

Environmental Planning Office

November 13, 2001

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

Dear Mr. Gill:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 26, 2001. We offer the following responses to your comments:

Clean Water Branch

The Department of the Army Corps of Engineers has been consulted regarding applicability of Corps regulations. According to the Corps, no permits are required, as the project does not affect waters of the U.S.

We acknowledge the requirement for compliance with Section 402 of the Clean Water Act. A National Pollutant Discharge Elimination System (NPDES) permit for Discharges of Storm Water associated with Industrial Activities will be filed for the proposed expansion. The industrial stormwater permit will be filed not less than 30 days prior to the start of construction. At this time we hope to complete construction before March 20, 2003. We will keep hydrotesting and dewatering requirements in our files for later action, as needed.

Thank you for the information provided in Items 3 and 4.

The methodology for siting the proposed project as described in the RDSEIS involves evaluation of three primary criteria: (1) ability to fulfill federal regulations as promulgated in 40 CFR 258; (2) ability to fulfill capacity requirements for the City and County of Honolulu; and, (3) ability to fulfill technical and resource constraints, which include the ability to maintain compatibility with current and future adjacent uses.

Factors affecting public health, including air quality, water quality, litter, and noise levels, were assessed and are addressed through the application of appropriate mitigation measures and practices. Mitigation measures and practices have been included in the design, operation, and maintenance of the proposed expansion to avoid potential for negative adverse impacts to public health and safety of the community and City and County of Honolulu.

Thank you for your review of the subject document. Should you have any further comments, please direct them to Ms. Wilma Namunnart of Refuse Division at 527-5378.

Sincerely,

TIMOTHY E. STEINBERGER
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 829-3111
<http://www.honoluluupd.org>
www.co.honolulu.hi.us

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JEREMY HARRIS
MAYOR



LEE D. DONOHUE
CHIEF
MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

EREMY HARRIS
MAYOR

DEPARTMENT OF ENVIRONMENTAL SERVICES
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27A



TIMOTHY E. STEINBERGER, P.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-179

OUR REFERENCE
CS-KP

July 27, 2001

September 20, 2001

TO: TIMOTHY E. STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTENTION: WILMA NAMUMNART

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION
OAHU DISTRICT OF EWA
TAX MAP KEYS: 9-2-3: 072 AND 073

Lee D. Donohue
Chief of Police
Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813
Attention: Mr. Eugene Uemura

Dear Chief Donohue:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your memorandum dated July 27, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement.

Thank you for the opportunity to review and comment on the subject project. This proposal may have an impact on calls for police service.

If there are any questions, please call Ms. Carol Sodeiani of the Support Services Bureau at 529-3658.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namumnart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

LEE D. DONOHUE
Chief of Police

By: *Eugene Uemura*
EUGENE UEMURA
Assistant Chief of Police
Support Services Bureau

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Acting Director

cc: OEQC

Mr. Randall K. Fujiki, Director
Department of Planning and Permitting

✓ Mr. Brian Takeda
R.M. Towill Corporation

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

Veritas and Protecting with Aloha

STARN • O'TOOLE • MARCUS & FISHER

A LAW CORPORATION
GROSVENOR CENTER
MAUKA TOWER
SUITE 1740
737 BISHOP STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 537-6100
FAX: (808) 537-5434 EMAIL: mail@starnlaw.com

August 2, 2001

VIA FACSIMILE & U.S. MAIL

Mr. Timothy E. Steinberger P.E.
Acting Director, Refuse Division
Mr. Frank Doyle
Chief, Refuse Division
City & County of Honolulu
Department of Environmental Services
650 S. King Street, 6th Floor
Honolulu, Hawaii 96813

Re: Waimanalo Gulch Sanitary Landfill Expansion

Gentlemen:

As you know, we represent the Ko Olina Community Association ("KOCA") with respect to the above referenced matter. This letter will respond to Mr. Doyle's July 24, 2001 letter to Jeff Stone and it will also serve as a formal comment on behalf of KOCA to the Revised Draft Supplemental Environmental Impact Statement ("Revised Draft EIS").

I. Alternative Sites

As noted in your July 24 letter, we believe that further in-depth analysis of alternative sites is absolutely critical to the ongoing comment process to the Revised Draft EIS. Specifically, we believe that there are alternative sites to Waimanalo Gulch which have not been considered by the City. We have now retained the firm of Wil Chee-Planning, Inc. to assist us in analyzing the Kapaa Quarry and other possible alternative sites for the landfill. It is our intention to provide your office with the results of Wil Chee-Planning's analysis once it is completed. We believe that this information is an essential component of our comments to the Revised Draft EIS.

We are formally requesting on behalf of KOCA that the City extend the comment period for 45 days (beyond August 7, 2001) to allow KOCA and other interested parties to complete their analysis of key issues with regard to the Revised Draft EIS, including the alternative site analysis. From a timing standpoint, it is not possible for KOCA, Wil Chee

Mr. Timothy E. Steinberger P.E.
Mr. Frank Doyle
August 2, 2001
Page 2

Planning (or other interested parties) to complete their analysis of the Kapaa Quarry and other alternative sites prior the August 7, 2001 deadline for submitting public comments to the Revised Draft EIS.

2. Documents Not Produced.

By letters dated June 13, 2001, July 3, 2001 and July 10, 2001, our firm and our co-counsel, McCutchen Doyle Brown and Enersen, made requests for documents and information to your office under the Hawaii Uniform Information Practices, HRS, Chapter 92F. As you know, the purpose of our document requests was to obtain specific information that would enable us, as well as other interested parties, to comment on the Revised Draft EIS. Much of this was information you also agreed to provide to us during the course of the City's June 6, 2001 landfill meeting at Kapolei. While we appreciate your office's cooperation in responding to our requests, we have still not received many of the important documents we requested.

Attachment A to this letter is a list of requested documents and information which we have not received. Without the benefit of this information, we believe that KOCA's ability to present meaningful comments to the Revised Draft EIS will be severely prejudiced. For this reason also, we request that the City extend the Revised Draft EIS comment deadline by 45 days. This should allow your office sufficient time to assemble and produce the documents and for KOCA, and other interested parties, to review them prior to submitting final comments.

Please call me if you should have any questions. In the meantime, we look forward to your favorable response to our request for an extension of the deadline for public comments on the Revised Draft EIS.

Very truly yours,

Terence J. O'Toole

Terence J. O'Toole

TJO:sa
Enclosure

cc: Ko Olina Community Association
Maile R. Chun, Esq. (Department of Corporation Counsel)
David Andrews Esq. (McCutchen Doyle)
Mayor Jeremy Harris
Ben Lee, Managing Director
OEQC
R.M. Towill Corporation

WFS	11/1	11/1	11/1	11/1
11/1	11/1	11/1	11/1	11/1
REC	AUG	6, 2001	RMTC	

**FOLLOW-UP ON JUNE 13, JULY 3, AND JULY 10, 2001 REQUESTS
FOR DOCUMENTS REGARDING THE
WAIMANALO GULCH SANITARY LANDFILL EXPANSION**

1. Financial Information Relating to the Operation of the Landfill:

We requested "[a]ll documents and records from the time the Landfill commenced operations to the present relating to the following:"

- a. Annual revenues of Landfill ("Landfill Revenues");
- b. Any and all docs showing allocation and use of Landfill revenues for alternate Landfill sites and technologies;
- c. Annual operating expenses of Landfill for the City and County of Honolulu ("City"), and for Waste Management of Hawaii, Inc. ("WM");
- d. Annual Net profit to the City; and
- e. Annual fees/compensation paid to WM.

You produced overall City revenue summaries and expenditure detail reports. You indicated throughout your July 20, 2001 letter that the City has no ability to isolate: (1) the Waimanalo Gulch Sanitary Landfill revenues; (2) the indirect costs that are not even included in the expenditure details shown; and/or (3) the Waimanalo Gulch Sanitary Landfill profits or losses.

Under the existing contract, WM is compensated on the basis of tonnage deposited in the Landfill and, consequently, on revenues generated by the Landfill. Insofar as WM has been paid for its services over the last twelve (12) years, such information must be available to the City. Please provide such specific documentation.

2. Procurement Information:

We requested:

- a. All documents and records relating directly or indirectly to the solicitation of any proposals and/or bids, requests for proposals or negotiations with respect to the following matters: A list of contractors or vendors to whom the Request for Letters of Interest, signed by Kenneth Sprague in 1995 ("Request"), was sent. See Paragraph 2.a.v of the July 3, 2001 Request.

We reiterate our request to obtain a list of all recipients. If this Request was not published or circulated by mail, please indicate how the City published and/or disseminated this Request.

- b. All documents and records relating directly or indirectly to the solicitation of any proposals and/or bids, requests for proposals or negotiations with respect to the following matters: Any efforts/actions by the City prior to 1999 to expand or otherwise relocate the Landfill. See Paragraph 2.a.v.

You provided responses that the City received in relation to the Request by Kenneth Sprague in 1995; however, you did not include any documents showing the City's conclusions or decisions regarding these responses.

- c. All documents and records relating directly or indirectly to the solicitation of any proposals and/or bids, requests for proposals or negotiations with respect to the following matters: Any efforts/actions by the City to develop/use alternative technologies for waste disposal as a means to close and/or reduce waste into the Landfill.

At the June 20, 2001 Meeting of the Makakilo/Kapoi/Honokai Hale Neighborhood Board, Tim Steinberger, Deputy Director of Environmental Services, indicated that the City is looking into "Plasma Arch Technology." However, no documents have been produced to us in this regard. Please provide such specific documentation.

- d. All documents and records relating directly or indirectly to the solicitation of any proposals and/or bids, requests for proposals or negotiations with respect to the following matters: copies of all submitted proposals, regardless whether considered responsive or responsive, to the Request for Proposals concerning Proposal Document No. 7325, relating to the provision of services to operate and make improvements to the Landfill.

In addition to the list of bids to Proposal No. 7325, opened on November 9, 1998, you provided a copy of one submitted proposal (i.e., BFI Waste Systems). Apparently, there are twenty (20) other proposals and/or bids that were submitted to the City but not produced to us. We reiterate our request to obtain copies of the bids and/or proposals submitted in response to Proposal No. 7325.

- e. All copies of the agreement, any related RFPs and correspondence relating to the October 27, 1994 Services Agreement with RUST Environment & Infrastructure, Irvine ("RUST").

The "Scope of Services and Schedule [for the] Waimanalo Gulch Sanitary Landfill Site Expansion," dated October 1994, states that "Waimanalo Gulch Sanitary Landfill Representatives" agreed to the scope, budget and schedule of work to be performed.

Assuming that WM hired RUST to design the proposed expansion, the City would have been provided a copy of the contract(s) and resulting work performed by RUST. We further assert that, if any contracts and/or related documents have been provided to, and are in the possession of, the City, then they should be produced under HRS Chapter 92F. Please provide such specific documentation.

Furthermore, we are asking for any and all correspondence related to the RUST Services Agreement. Please produce all correspondence between the City and WM, and/or any other entity, relating in any way to the RUST Services Agreement.

- f. The original and all versions of the Request for Proposals concerning Proposal Document No. 7325, relating to the provision of services to operate and make improvements to the Landfill, and the scope of work covered by that certain May 1, 1999 Amendment No. 5 to the Agreement identified as Contract No. C-48689 between the City and WM.

Thank you for the excerpted sections of the agreement entered between the City and WM. However, please provide copies of (1) the Memorandum of Understanding, executed February 8, 1989, and all amendments and addenda thereto, and (2) all other contracts or agreements between the City and WM relating in any way to the Landfill.

3. Clarification:

Regarding documents relating to the proposed expansion of the Landfill as contemplated by the Revised Draft Environmental Impact Statement (May 2001), please provide any and all correspondence between the City and WM regarding the option or decision to expand the Landfill.

4. Additional Information:

Please provide all documentation relating to the City's exemption of the Landfill expansion from the Procurement Code, and/or determined that the amendment to the contract's term (i.e., doubling the term of the contract from fifteen (15) years to thirty (30) years) did not constitute a material change sufficient to warrant re-bidding the contract entirely.

Please provide all documentation relating to the City's designation of the Landfill as a "Public Use and Structure" under Revised Ordinances of Honolulu § 21-3 (the Land Use Ordinance), obviating the need to obtain a Conditional Use Permit - Major.

28A

Mr. Terence J. O'Toole, Esq.
August 22, 2001
Page 2

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
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TIMOTHY E. STENBERGER, P.E.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-182

JEREMY HARRIS
MAYOR

August 22, 2001

Mr. Terence J. O'Toole, Esq.
Stam O'Toole Marcus & Fisher
Grosvenor Center, Mauka Tower
737 Bishop Street, Suite 1740
Honolulu, Hawaii 96813

Dear Mr. O'Toole:

Re: Your Letter of August 2, 2001

This letter is in response to your letter of August 2, 2001. As indicated in the attached letter to the Office of Environmental Quality Control, the public comment period on the Revised Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion has been extended from August 7, 2001, to September 21, 2001.

We have attempted to provide your firm with all public documents you have requested. We have the following responses to the items in your Attachment A.

1. **Financial Information Relating to the Operation of the Landfill:**
We have provided the payments to Waste Management, Inc., for the operation of the Waimanalo Gulch Sanitary Landfill. Your letter indicates you believe all tonnage disposed of at Waimanalo Gulch Sanitary Landfill is revenue generating. Please note, however, that Refuse Division, householders, and eleemosynary or charitable organizations are not required to pay for disposal at the Waimanalo Gulch Sanitary Landfill pursuant to Revised Ordinances of Honolulu 1990, Chapter 9, Article 4.
2. **Procurement Information:**
 - a. The City will make available for inspection and copying the request for letters of interest regarding relocating the landfill, along with a notification letter and list of persons or entities to which the notification letter was sent. The public notice was published in the Honolulu Star Bulletin on Monday, August 14, 1995.
 - b. The City is making available for inspection and copying a complete copy of Contract No. C-48689, including, but not limited to, Amendment No. 5 pertaining to the landfill expansion.

- c. The City will make available for inspection and copying a report entitled Oahu Municipal Refuse Disposal Alternatives Study: New Systems Research for Refuse Disposal, April 2000, prepared by R.M. Towill Corporation.
- d. The City has previously provided you with a list of all entities that were provided a copy of Proposal No. 7325. The City received two bids for Proposal No. 7325. We have previously provided both bids to you. See City letter dated July 18, 2001.
- e. The City does not have a copy of the contract between Waste Management, Inc., and RUST Environment & Infrastructure. The City will, however, make available for inspection and copying a report entitled Waimanalo Gulch Sanitary Landfill Total Site Expansion, prepared by RUST Environment & Infrastructure. The City does not have any correspondence relating to the RUST Services Agreement.

3. **Clarification:**

The City will make available for inspection and copying correspondence between the City and Waste Management, Inc., regarding the option or decision to expand the landfill.

4. **Additional Information:**

The City will make available for inspection and copying Proposal No. 13038, a list of all entities that were provided a copy of Proposal No. 13038, and the two bids that were submitted for Proposal No. 13038.

The same arrangements apply as stated in the City's letter of June 20, 2001, with regard to pickup, return, and copying of the documents provided pursuant to this letter, and as listed on Exhibit A attached hereto. If you have any questions, please contact Wilma Namummart at (808) 527-5378.

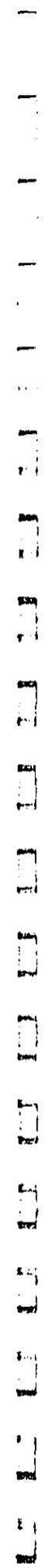
Sincerely,

FRANK J. DOYLE, P.E.
Deputy Director

Attach.

cc: Waste Management, Inc.,
David R. Andrews, Esq.

bcc: Department of the Corporation Counsel



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 150 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 537-4643 • Fax: (808) 537-4675



JEFFREY HARRIS
 MAYOR

TIMOTHY E. STEINBERGER, P.E.
 ACTING DIRECTOR
 FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR
 IN REPLY REFER TO:
 RE 01-151

August 6, 2001

Ms. Genevieve Salmonson, Executive Director
 Office of Environmental Quality Control
 235 South Beretania Street, Room 702
 Honolulu, Hawaii 96813-2437

Subject: Notice of 2nd Extension of Public Comments for Revised Draft
 Supplemental Environmental Impact Statement (RDSEIS) for Waimanalo
 Gulch Sanitary Landfill Expansion, Waimanalo Gulch, Island of Oahu

Dear Ms. Salmonson:

The Department of Environmental Services (ENS) is granting a second extension for receipt of public comments for the subject RDSEIS, from August 7, 2001, to September 21, 2001. This second extension of 45 days is in addition to our first extension of 15 days, which changed the deadline from July 23 to August 7, 2001.

This extension will permit additional time for public review of the proposed project. Letters of notification will be forwarded to the Kapolei/Makaloa/Honokai Hale and Waianae Neighborhood Boards, elected officials representing the area of the proposed project, and individuals who have provided written comments to the EIS process.

Sincerely,

TIMOTHY E. STEINBERGER
 Acting Director

cc: Joseph Hernandez, Waste Management of Hawaii, Inc.
 Brian Takeda, R.M. Towill Corporation
 Herb Lee, Lee Communication, Inc.

EXHIBIT A
August 22, 2001

1. New Systems Research for Refuse Disposal, April 2000
2. New Systems Research for Refuse Disposal Appendix – Vendor and Technology Information, April 2000
3. Proposal 13038 Vendor List
4. Browning Ferris Industries of Hawaii, Inc., Certificate and Proposal
5. Waste Management of Hawaii, Inc., Proposal
6. Proposal Document No. 13038: Addendum No. 2, Addendum No. 1, Notice to Bidders, Certificate, Proposal
7. Letter RE 95-115, August 11, 1995
8. Legal Notice Request for Letters of Interest
9. Rust Environmental & Infrastructure report, Waimanalo Gulch Sanitary Landfill, 10/94
11. Waste Management of Hawaii, Inc., letter to Mr. Frank Doyle, Chief, November 7, 1995
11. Wilma Namumart memo to Ray Rossetti, May 21, 1997
12. Waste Management of Hawaii, Inc., letter to Mr. Frank Doyle, Chief, June 18, 1997
13. Waste Management of Hawaii, Inc., letter to Ms. Wilma Namumart, Chief of Planning and Engineering, December 2, 1994
14. Frank Doyle letter to Mr. Ray Rossetti, General Manager, September 6, 1995
15. Frank Doyle letter to Mr. Ray Rossetti, July 25, 1994
16. Frank Doyle letter to Mr. Ray Rossetti, February 16, 1999
17. Frank Doyle letter to Mr. Ray Rossetti, December 15, 1997
18. Waste Management of Hawaii, Inc., letter to Mr. Frank Doyle, Chief, September 9, 1997
19. Contract No. C-48689 and Amendment Nos. 1, 2, 3, 4, and 5

CORNERSTONE

Real Estate Advisers, Inc.

MAYOR'S OFFICE
CITY & COUNTY
HONOLULU

August 2, 2001

01 AUG-6 AM:11

The Honorable Jeremy Harris
Mayor of the City and County of Honolulu
530 South King Street
Honolulu, HI 96813

Re: Waimanalo Gulch Landfill Expansion

Dear Mayor Harris:

In the Fall of 1999, Massachusetts Mutual Life Insurance Co. ("MassMutual") through its subsidiary Cornerstone Real Estate Advisers, formed a partnership with Ko Olina Resort, MassMutual became the largest single investor in the Ko Olina Resort. At the same time, MassMutual committed to reestablishing the Ihilani Resort as one of Hawaii's premier hotel destinations, which would also serve as a magnet for future hotel development at Ko Olina. I think you will agree that the Ihilani is an exceptional property, an important element in Oahu's hospitality industry and a significant economic presence on the Leeward coast in terms of employment and future economic growth.

I am also confident that, as Mayor, you would do everything in your power to support the growth and well-being of Ko Olina and other Leeward coast business interests, that have in recent years contributed to make this resort a success in an otherwise fragile economy. For this reason, we are personally appealing to you to halt the City's proposed expansion of the Waimanalo Gulch Landfill.

It is inconceivable to us that the City's Department of Environmental Services would consider expanding the Landfill after it reaches capacity. As you know, the Landfill is located directly across from the Ko Olina Resort and is very visible from the Ihilani. The frequent odor and random trash emanating from the Landfill detrimentally affect the surrounding environment, including the Ihilani. The Environmental Impact Study ("EIS") proposes more than an expansion of the Landfill since it actually proposes to double its capacity and extend its useful life by another 15 years! The resultant damage to the operation and image of the Ihilani and the entire Ko Olina Resort is simply not measurable.

The Honorable Jeremy Harris
August 2, 2001
Page 2

The Leeward community has voiced its strong opposition to the expansion of the Landfill but, for reasons which are unclear and troubling to us, the Department of Environmental Services is unwilling to change course or even to consider alternative sites and solutions. Based on Council member John DeSoto's comments at the City's "open house" on July 16, 2001, it appears that the expansion of the Landfill was a "done deal" as early as 1994 or 1995. Presumably, this "arrangement" will be fully disclosed at some point but, in the meantime, it suggests that the Department of Environmental Services has taken no meaningful steps during the intervening six or seven years to identify an alternative site for the Landfill or alternative technology for Oahu's solid waste problems. Needless to say, MassMutual would have underwritten the acquisition of the Ihilani in a less favorable light if it had been made aware of the City's plans to double the size of the Landfill, rather than fulfill its obligation to close it.

As you know, the comment period for the EIS expires on August 7, 2001. In our view, there is a very narrow window for constructive dialogue and action before the entire matter takes on a life of its own. We believe that there is a viable solution at hand which would avoid pitting the Leeward community and other interested parties against the City in potentially years of litigation over expanding the Landfill. Simply put, the City should immediately identify an alternative site and, to the extent possible, explore the use of modern technology to mitigate the demands placed on the Landfill.

We look forward to your help at this critical juncture and stand by to assist you in every way possible.

With kind regards,

David J. Reilly
Executive Vice President

DJR/gib

cc: Jeff Stone, Ko Olina Partners, LLC

DEPARTMENT OF THE CORPORATION COUNSEL
CITY AND COUNTY OF HONOLULU
 530 SOUTH KING STREET, ROOM 110 • HONOLULU, HAWAII 96813
 TELEPHONE (808) 523-4855 • FAX (808) 523-4583 • INTERNET WWW.HONOLULU.HI



JEREMY HARRIS
 Mayor

September 10, 2001

Mr. David J. Reilly
 Executive Vice President
 Comerstone Real Estate Advisers, Inc.
 One Financial Plaza, Suite 1700
 Hartford, Connecticut 06103-2604

Dear Mr. Reilly:

Thank you for your August 2, 2001, letter expressing concerns about the proposed expansion of Waimanalo Gulch Sanitary Landfill, to which I would like to respond on behalf of Mayor Jeremy Harris and the City and County of Honolulu.

Ihilani Resort and Spa is a beautiful development, which is important to Oahu's hospitality industry and significant to Leeward Coast employment and future economic growth. At the same time, the City has a broader responsibility to promote the economic well-being of all Oahu residents, and adequate landfill capacity is vital to that well-being. From a taxpayer's or a businessman's point of view, you can surely appreciate why expanding an existing facility, instead of building a new one from scratch, would be the right thing to do. The landfill occupies less than half of a 200-acre parcel, and although it is approaching the capacity for which it is now configured, there is ample space to double that capacity without affecting property boundaries.

The City shares your concern about the appearance and community impact of the landfill. Since it opened twelve years ago, Waimanalo Gulch has been managed by Waste Management, one of the largest and most qualified landfill operators in the nation. The site resembles a well-run quarry when viewed from the resort, and Waste Management has installed and continues to improve landscaping and odor and litter controls. The State Department of Health, which administers the operating permit, has recorded few complaints and no violations for such nuisances, which indicates that Waste Management has operated the landfill in a diligent and professional manner.

The location and nature of Waimanalo Gulch Sanitary Landfill would have been revealed to MassMutual by "due diligence" preceding purchase of the Ihilani. Based on Comerstone's research and site visit to Ko Olina, your company's concerns about landfill appearance, odors, and litter must have been expressed to MassMutual during that process.

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DAVID Z. ARAKAWA
 CORPORATION COUNSEL

29A

Mr. David J. Reilly
 Page 2
 September 10, 2001

Certainly, there is opposition from a segment of the Leeward community to the expansion. However, we vigorously dispute the characterization of the project as a "done deal" and the allegation that the City has failed to identify and consider alternative sites and technologies. The expansion alternative was selected after both an open, competitive solicitation and negotiations with the operating contractor. The expansion proposal remains just that -- a proposal -- until all necessary approvals and permits have been granted. While it is certainly the preferred alternative for addressing Oahu's future landfill needs, it is by no stretch of the imagination a "done deal." A thorough reading of the project's environmental document would quickly dispel the erroneous notion that the City has not examined alternatives. Over 40 potential new sites were considered, and alternative disposal technologies have been and are presently being evaluated for scientific and economic viability.

The City has fulfilled, indeed gone beyond, its obligation to inform the public about the project and the reasons other alternatives, under existing circumstances, are deemed infeasible. We have twice extended the deadline for public comment on the draft environmental document. The City, Waste Management, and our consultants have attended numerous meetings to answer questions and address concerns, and another meeting will be scheduled for the end of September.

Attorneys and engineers for the resort are already reviewing City landfill files with an eye toward litigation to stop the expansion. If MassMutual and Comerstone are truly interested in what is best for Oahu, we ask that you ensure the review is reasoned and fair.

Sincerely,

David Z. Arakawa
 DAVID Z. ARAKAWA
 Corporation Counsel

DZA:la(7401)

cc: Mayor Jeremy Harris
 bcc: Waste Management of Hawaii
 R.M. Towill
 ENV
 ENV-Refuse (RE01-169)

MAY-W7-01.MRC

The Neighborhood Board of Makakilo/Kapolei/Honokai Hale and the Fairways Board of Directors do not support this expansion. We understand that this is an economic issue. But, I would like to suggest that you seriously consider three suggestions.

1. Expand the landfill for 2 additional years. Giving the City ample opportunity to look for alternative sites and technology.
2. Be in the forefront with new technology. Go with the proposal of Plasma Technology. Although there is not a facility in operation the size of what Oahu needs, someone has to be first. Why not Oahu?
3. For the remainder of this landfill site, hold Waste Management of Hawaii accountable for the proper operation of the facility. And, if they neglect to operate this facility in accordance with all regulations, impose significant consequences, such as fines.

I sincerely appreciate the opportunity to share my concerns and ideas with you. Please seriously consider our community's request.

Respectively,

Linda M. Porter
Linda M. Porter

92-1459F Alinui Drive
Kapolei, HI 96707
(808) 678-0747

cc: Councilmember John DeSoto, 9th District
Department of Environmental Services
Office of Environmental Quality Control
✓ R.M. Towill, Corporation

WES	KTS
R-F	MM
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REC'D AUG 07 2001	DMTC

August 4, 2001

Mayor Jeremy Harris
530 South King Street, Room 300
Honolulu, HI 96813

Dear Mayor Harris:

This correspondence is in regards to the proposal to expand the Waimanalo Gulch Landfill. I am a resident of the Fairways at Ko Olina and I am on the Board of Directors at the Fairways. As you know, there is a proposal to expand the landfill an additional 60.5 acres and continue operation until 2017. Since this issue surfaced I have had serious concerns regarding the expansion of the landfill as well as the ability of the existing contractor, Waste Management of Hawaii, to properly manage the operation of the facility.

After I reviewed the SEIS dated April 2000, I sent a letter dated July 1, 2000 to the Department of Environmental Services expressing the concerns I had at that time. I received a letter from Timothy Steinberger of the City and County of Honolulu dated May 25, 2001 responding to my concerns. It is my opinion that many of my questions and concerns have not been answered.

I have attended every meeting concerning the landfill since the issuance of the first Draft Supplement Environmental Impact Statement (SEIS) dated April 2000 in hopes of obtaining information and commitments to the concerns that I have as well as those of surrounding Communities. To date this has NEVER happened. In all of these meetings, community members have requested the attendance of someone who could make a decision and/or commitment on behalf of the City. We were told this would happen. It never has. The last meeting, an "Open House" was a major disappointment. First, we requested a meeting that included answers to our previous questions and a decision maker in attendance. What did we get? An "Open House" on Monday, July 16 at 11:00 a.m. Obviously many people could not attend and this was not the forum that had been requested. It should not be a surprise that there is no support for this proposal. In addition, I must also state that I have been quite insulted several times by members of the City and employees of the Waste Management of Hawaii with their responses to the concerns I and others have expressed.

I have also attended the Islandwide Vision Meetings. I waited until after today's meeting to write this letter. It appears to me that this expansion is in direct conflict with your vision of Oahu. The unsightliness of this facility, the trash all along the Farrington Highway and HI, the odor that is present as you enter the Ko Olina Resort does not seem to be in concert with beautification of Oahu.

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
PHONE: (808) 692-5155 • FAX: (808) 692-5113



Jeremy Harris
Mayor

WES	KTS	
R-F	NM	
RT	BRT	
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MAJORS	DEPUTY DIRECTOR	
FRANK J. DOYLE, P.E.	DEPUTY DIRECTOR	

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

BY REPLY REFER TO:
RE 02-021

April 10, 2002

Ms. Linda M. Porter
92-1459-F Alinui Drive
Kapolei, Hawaii 96707

Dear Ms. Porter:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments to Mayor Harris dated August 4, 2001, concerning the subject RDSEIS. We offer the following in response.

Since the Open House was held on July 16, 2001, a subsequent Public Informational Presentation was held on September 26, 2001, to provide additional information on alternative technologies and potential landfill sites investigated by the City. Deputy Director Frank Doyle was present to answer questions and provide clarification to many of the issues voiced by the community.

Selecting the expansion of Waimanalo Gulch Sanitary Landfill as the preferred alternative to satisfy the needs of Oahu was not an easy one. In fact, the decision to site any municipal landfill is an extremely difficult undertaking. Not only must regulatory requirements involving environmental protection be met, the operator of the facility must possess the experience to address community concerns in a reasonable and effective manner. Many of the mitigation measures identified in the RDSEIS are new proposals developed in conjunction with Waste Management of Hawaii, designed to meet the three major concerns we have heard from the community.

1. Odor Control. Installation of a gas recovery system will soon be started to effectively reduce landfill associated odors. The In-Vessel Bioconversion Project at Sand Island Wastewater Treatment Plant will eliminate the need to landfill sewage sludge, which has been identified as a major odor source.

30A

Ms. Linda M. Porter
April 10, 2002
Page 2

2. Landscaping. Use of new plantings and colorizing of the drainage system will further lessen the visual impact of the landfill. The City is working with a landscape architect to enhance the landfill's appearance.
3. Litter Controls. Both new management practices and equipment will be employed to better control (a) the potential for refuse trucks littering the highway and adjoining properties in transit to the landfill, and (b) the escape of windblown litter from the landfill itself.

Some of these practices, including cleaning of refuse vehicles utilizing Waimanalo Gulch, have already been implemented. A litter crew cleans the highway daily.

Waimanalo Gulch was first operated in 1989, when the Ewa Region was experiencing new growth. Although the landfill was in part sited to minimize potential for impacts to adjoining communities, growth throughout Oahu has severely limited the availability of land for the siting of municipal landfills. This is why Waimanalo Gulch, with remaining capacity, must be utilized to the fullest extent possible before turning to other potential, and precious, land resources on Oahu. Although no one wants a landfill in their neighborhood, a landfill is an essential component of a solid waste system.

The City is establishing an Alternative Disposal Technology Park to provide land for plasma-arc and other emerging technologies to demonstrate and develop their processes.

We, and Waste Management of Hawaii, will continue our commitment to address the concerns of the community involving odor, litter and visual appearance. We recognize, however, that there will continue to be challenges ahead to meeting the waste disposal needs of Oahu, and we value your suggestions and the time you have taken to provide them.

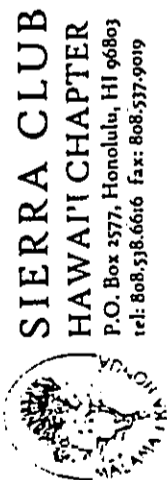
Should you have any further comments, please contact Ms. Wilma Namunnart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, ext. 22.

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Director

cc: The Honorable John DeSoto
OEQC
Waste Management of Hawaii, Inc.
R.M. Towill Corporation

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4 August 2001

Mayor
 City and County of Honolulu
 530 South King St., Room 300
 Honolulu, HI 96813

R.M. Towill Corporation
 420 Waiakamilo Road, Suite 411
 Honolulu, HI 96817

RE: Revised Draft Supplemental Environmental Impact Statement
 Waimanalo Gulch Sanitary Landfill Expansion

The Sierra Club, Hawaii Chapter, would like the following issues address more thoroughly in the Environmental Impact Statement for the Waimanalo Gulch Landfill.

I. ALTERNATIVES

Given the list of potential alternative landfill sites given in Table 1-1 (page 1-46), it is abundantly clear that landfilling is simply not a waste solution in an island environment. Waste avoidance is the best alternative. Considering that paper and packaging make up a good percentage of Oahu's waste stream, have any efforts been made to seek to reduce the amount of packaging waste used to sell goods on O'ahu? Has any outreach to manufacturers, distributors, or retailers been made in this regard? Such outreach has been very productive in reducing waste in Germany.

The second best alternative is waste diversion. Some very effective waste strategy alternatives are described in the RDSEIS, but each description ends by stating the alternative does not eliminate the need for landfilling. If all the diversion alternatives outlined in the RDSEIS are implemented and enforced, how would that change the volume of waste being landfilled? The landfill expansion cost is estimated at \$30 million, not included operations and maintenance. Have costs been associated with each waste diversion alternative and compared with the landfill alternative on a per-ton or per cubic meter basis?

The Sierra Club does appreciate the City and County's support of bottle deposit legislation during the 2001 Hawaii State legislature, but overall Hawaii greatly lags in meeting its recycling goals. Minnesota, for example, has a 46% waste diversion rate, while Hawaii only diverts about 20% of its waste. What is actively being done to increase Oahu's recycling rate?

Recycled Content Jeff Mikulina, Director mikulina@lava.net

2. DECISION ANALYSIS

A number of waste strategy alternatives as well as alternative landfill sites were outlined in the RDSEIS, but the decision analysis behind selecting expansion of Waimanalo Gulch landfill was not detailed. What type of decision system methodology was employed to select the expansion alternative? How does that selection compare in economic terms and in value preference terms for each stakeholder group (government, community, and environment) over the other sites and other waste strategy alternatives?

3. LEACHATE

The landfill will be lined with a 60 mil HDPE liner. What is the life-expectancy of such a liner? How frequently do tears occur in such a liner? How are the tears detected? How are the tears repaired once the cell is full of waste?

4. PHASING

The proposed landfill expansion lifespan is planned for 15 years, although many alternatives exist (some of which were described in the RDSEIS) that would greatly reduce the need for relying on landfilling as a solution to solid waste. A shorter time period would increase the pressure to explore and implement these alternatives. Why was a 15 year outlook selected? Can the landfill be expanded in phases to give more flexibility to implementing alternative waste diversion strategies?

We appreciate the opportunity to offer these comments and look forward to your response.

Sincerely,

Jeff Mikulina
 Director, Sierra Club, Hawaii Chapter

cc: Office of Environmental Quality Control
 Dept. of Environmental Services, C&C of Honolulu

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-5653 • Fax: (808) 527-5675



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-278

December 17, 2001

Mr. Jeff Mikulina, Director
Sierra Club, Hawaii Chapter
P.O. Box 2577
Honolulu, Hawaii 96813

Dear Mr. Mikulina:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated August 4, 2001. On behalf of Mayor Jeremy Harris and the City and County of Honolulu, please allow me to respond to your comments on the subject document.

1. ALTERNATIVES

The necessity of landfill disposal for noncombustible, nonrecyclable materials and the importance of waste avoidance and waste diversion are recognized in the City's Solid Waste Integrated Management Plan, which was formulated with the participation and assistance of the Sierra Club and other environmental organizations. The plan lays out a variety of strategies for reducing the amount of waste that must be landfilled. The City has already implemented many of those strategies and is expanding existing programs and adding new ones. Statistics show that source reduction and recycling are diverting large quantities from the waste stream, and those quantities continue to grow. Still, there is always room for improvement, and we are evaluating other diversion strategies, like bottle deposit legislation, and emerging, high-tech disposal alternatives, such as plasma arc and polymer stabilization. Waste-to-energy incineration and landfilling, however, are also vital components of the integrated plan.

Mr. Jeff Mikulina
December 17, 2001
Page 2

31A

2. DECISION ANALYSIS

The expansion alternative was selected after both an open, competitive solicitation and negotiations with the landfill operating contractor. Environmental factors and per-ton costs were compared, and expansion of the existing landfill on the Waimanalo Gulch site made more sense than constructing a new landfill at some other location.

3. LEACHATE


The life expectancy of the 60-mil HDPE liner is 40 to 100 years. The sequence of liner construction is: 6" to 12" of gravel cushion on the prepared subgrade; woven bentonite fabric; 60-mil impermeable liner; geo-textile layer, 12" of gravel, and another geo-textile layer for leachate drainage above the liner; 2' to 3' of selected waste to further protect the liner from penetration. The liner is vacuum tested, and field joints are pressure tested to ensure it is leakproof. The groundwater monitoring system is designed to detect leachate percolating into the aquifer underlying the site. If a tear were to develop in the liner, the bentonite would expand to seal the tear, preventing waste and leachate from leaking out.

4. PHASING

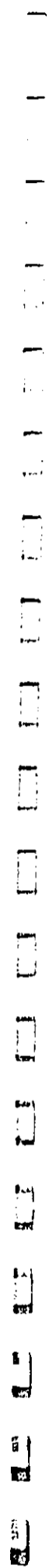
Waste Management's evaluation of the site, based on many years of operating Waimanalo Gulch under the initial contract, convinced them that it had the potential for providing a minimum of 15 years additional service. In order to fairly compare proposed alternatives, the City adopted that as the standard to give all proposers ample time to amortize their capital investment. Phasing the landfill expansion presents design and construction complexities which would raise overall costs and decrease the ultimate capacity of the landfill.

We appreciate your review of the subject document. Any further comments may be directed to Ms. Wilma Namumart of the Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINBERGER
Director

cc: Office of the Mayor (Control No. 7370)
R.M. Towill Corp.
Waste Management of Hawaii, Inc.



BENJAMIN J. CAVETANO
-On Leave-



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
736 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE: (808) 527-6675
FACSIMILE: (808) 527-6675

August 6, 2001

32

GENEVEVE SALMONSON
DIRECTOR

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DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU 32A
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-180

September 20, 2001

Mr. Timothy E. Steinberger, Director
Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Steinberger:

Subject: Revised Draft Supplemental Environmental Impact Statement for the Waimanalo
Gulch Sanitary Landfill Expansion, Oahu

Thank you for the opportunity to review the subject document. We do not have any further
comments.

Sincerely,

Genevieve Salmonson
Genevieve Salmonson
Director

c: R.M. Towill

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

Dear Ms. Salmonson:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated August 6, 2001, concerning the subject Revised Draft
Supplemental Environmental Impact Statement.

We appreciate your review of the subject document. Should you have any further
comments, please contact Ms. Wilma Namunart of our Refuse Division at 527-5378
or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

Timothy E. Doyle
TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



MAKAKILO/KAPOLEI/HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

44 NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 208 • HONOLULU, HAWAII 96813

August 7, 2001

To: Office of Environmental Quality Control
235 South Beretania Street
State Office Tower Suite 702
Honolulu, HI. 96813

The Makakilo/Kapolei/Honokai Hale Neighborhood Board has reviewed the Waimanalo Gulch Sanitary Landfill Environmental Impact Statements, in draft, final, and supplemental reports and strongly urges the City and County of Honolulu to terminate the landfill site as scheduled.

For the past 15 years, the scheduled life of the landfill, our community has served as the island's end of the road for waste on Oahu. At neighborhood board meetings, the community has expressed their opposition to the continuance of the Waimanalo Gulch Sanitary Landfill as proposed for another fifteen plus years.

The continued Waimanalo Gulch Landfill conflicts with the urbanization of the Ewa Plains. We are certain that the 2000 census will affirm this shift in population.

The planned growth and development for the island is now for the new City of Kapolei. The planned extension of fifteen years will not assist the economic development projects at the Ko Olina area. It makes no economic sense to plan a designated resort just makai of the landfill. The landfill is scheduled to close, which matches the developmental timetable of a resort development.

On July 19, 2000, our Neighborhood Board took two unanimous positions; first that the Draft Supplemental EIS for the Waimanalo Gulch Sanitary Landfill expansion is unsatisfactory, and second that the Board not support the Waimanalo Gulch Sanitary Landfill expansion project.

As a compromise, on July 25, 2001, our Neighborhood Board unanimously opposed the proposed expansion of the Waimanalo Gulch Sanitary Landfill as stated in it's EIS of 6-12-01 and to support a 2-3 year expansion only to allow time to find an alternative site and/or technology selection.

Sincerely,
George Yamamoto, Chair
George Yamamoto, Chair

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

01 AUG 13 AM 4:46

RECEIVED



City's Neighborhood Board System - Established 1973



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692 5155 • Fax: (808) 692 5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02 053

April 12, 2002

Mr. George Yamamoto, Chair
Makakilo/Kapolei/Honokai Hale
Neighborhood Board No. 34
c/o Neighborhood Commission
City Hall Room 400
Honolulu, Hawaii 96813

Dear Chair Yamamoto:

Subject: Revised Draft Environmental Impact Statement (RDEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated August 7, 2001. We offer the following in response to your comments:

Acknowledgment of Opposition to Proposed Project

We acknowledge the opposition of Neighborhood Board No. 34 to the proposed project and the subject RDEIS. We further acknowledge the support of your neighborhood board for an expansion of use limited to only two to three years.

Regional Growth and Conflicts in Land Use

We concur with your statement that there has been a shift in the population of Oahu. According to the RDEIS, the primary urban center, comprising Central Honolulu, is expected to remain Oahu's largest population center, followed by Central Oahu, Ewa, and Koolaupoko. At the same time, major new growth occurring in Ewa is resulting in land use conflicts for facilities such as the Waimanalo Gulch Sanitary Landfill. As we have previously stated, under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Unfortunately, the ongoing urbanization of Oahu, combined with stringent state and federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved.

Mr. George Yamamoto, Chair
April 12, 2002
Page 2

We remain committed to working with the community to resolve this difficult issue. Furthermore, we remain cognizant of the important economic contribution to the community which developments such as Ko Olina provide. However, we note that operation of the landfill since 1989 did not deter the developers of Ko Olina from proceeding with construction of the Ihilani resort and residences. More recently, developers have successfully initiated projects such as Coconut Plantations and Marriott Ko Olina Beach Club and have completed the Ihilani lagoons and marina. The presence of the Waimanalo Gulch Sanitary Landfill during this period provided for the disposal of nonrecyclable, noncombustible refuse from all of Oahu and, in so doing, facilitated development throughout the island. From a broader perspective, a landfill is an essential component of any solid waste management system. Without a landfill, the economic well-being and public health and safety of all Oahu residents will be in jeopardy.

Although we understand that your board has elected to oppose this project, we will continue to seek and obtain community input to ensure that all concerns have been expressed and addressed. If there are any specific faults in the RDEIS you wish to bring to our attention, please do not hesitate to contact us immediately so that appropriate corrections or modifications can be made.

We appreciated your review of the subject document. Any further comments may be directed to Ms. Wilma Namunart of our Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, ext. 22.

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
 450 SOUTH KING STREET - HONOLULU HAWAII 96813
 TELEPHONE (808) 523-6114 • FAX (808) 527-6743 • INTERNET WWW.HONOLULU.HI



JOHN H. HARRIS
 MAYOR

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PL	NM
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REC'D	AUG 10 2 00
EXT	DMC

RANDALL K. FUJIKI, AIA
 DIRECTOR
 LORETTA K. CHICK
 PERMIT DIRECTOR
 2001/ED-17(RY)

August 9, 2001

TO: TIMOTHY STEINBERGER, ACTING DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUNYART

FROM: *Wilma Namunyart*
 RANDALL K. FUJIKI, AIA, DIRECTOR
 DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
 STATEMENT (DSEIS) FOR THE WAIMANALO GULCH SANITARY
 LANDFILL EXPANSION, WAIMANALO GULCH, EWA, OAHU
 TAX MAP KEY 9-2-3-72 AND 73

We have reviewed the project and have the following comments:

Ewa Development Plan

The DSEIS for Waimanalo Gulch Sanitary Landfill Expansion accurately reports the information and policies regarding solid waste facilities in the Ewa DP area. The island-wide analysis of waste flows and sites is consistent with the policy in the Ewa DP which says that:

"Siting and/or expansion of sanitary landfills should be analyzed and approved based on islandwide studies and siting evaluations."

Land Use Approvals

The site is located in the State Land Use Agricultural District. An amendment to the State Special Use Permit is an appropriate State Land Use permit procedure by which to establish the proposed expansion. The existing facility and the proposed expansion is considered a "public use" under the Land Use Ordinance and a Conditional Use Permit is not required.

Timothy Steinberger, Acting Director
 Department of Environmental Services
 Page 2
 August 9, 2001

34

Wastewater Disposal

Our records indicate that sewage from the existing Waimanalo Gulch Sanitary Landfill is disposed into two private cesspools and not into the municipal sewer system as indicated in Wastewater Sections 1.4.2.2 and 4.2 of the DSEIS.

Should the applicant continue to use private cesspools, the State Department of Health should be consulted as private sewage disposal systems fall under their jurisdiction.

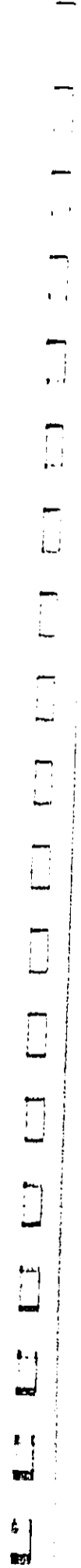
Should the applicant desire to connect to the municipal sewer system, a new sewer line would be required from the landfill site to an eight-inch sewer line in Aiihuni Drive at the Ko Olina Resort. A Sewer Connection Application Form would be required for sewer capacity reservation for the landfill's administrative and service buildings. This project would also be liable for payment of a Wastewater System Facility Charge.

Currently, portions of the Makakilo Interceptor Sewer are at capacity and a waiting list has been established should any capacity become available. A relief sewer line for the Makakilo Interceptor is in the planning stage and is being funded by private developers.

If you have any questions, please call Raymond Young of our staff at 527-5839.

RKF:lh
 doc: 108022

cc: R. M. Towill Corporation



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	AF	AE
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DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-6665 • Fax: (808) 527-6675



JEREMY HARRIS
 MAYOR

TIMOTHY E. STEINBERGER, P.E.
 DIRECTOR

FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR

IN REPLY REFER TO:
 RE 02-008

January 8, 2002

MEMORANDUM

TO: RANDALL K. FUJIKI, AIA, DIRECTOR
 DEPARTMENT OF PLANNING AND PERMITTING

FROM: *[Signature]*
 TIMOTHY E. STEINBERGER, DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
 STATEMENT FOR WAIMANALO GULCH SANITARY LANDFILL EXPANSION

In response to your memorandum dated August 9, 2001, we will obtain a State Special Use Permit upon completion of the environmental documents. We will correct the Wastewater Sections 1.4.2.2 and 4.2 to indicate sewage disposal into two private cesspools in our final document. In our discussions the State Department of Health concurs that continuation of the usage of the two cesspools is adequate.

We appreciate your review and comments concerning the subject document. Any further comments may be directed to Ms. Wilma Namunart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, ext. 22.

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
 Mr. Brian Takeda, R.M. Towill Corporation

PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Faith Arakawa Address: 86-214 Kawili St.
Phone: 696-4237 day Waianae, HI 96792
696-4034 eve

Please write comments below. Attach additional sheets if necessary.
No more expansion of landfills on the Waianae Coast. We are not the garbage bin for this island!

[Lined area for writing comments]

Signature Faith Arakawa Date 8-18-01



35A

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



REMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 01-178

WES	KTS		
R-F	NIM		
RTT	(BRT)		
REC'D	SEP 20		EMIC

September 20, 2001

Ms. Faith Arakawa
86-214 Kawili Street
Waianae, Hawaii 96792

Dear Ms. Arakawa:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 18, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namumart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

WES			
R-F			
RTT			
REC'D	NOV		EMIC

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 01-178

November 8, 2001

Ms. Faith Arakawa
86-214 Kawili Street
Waianae, Hawaii 96792

Dear Ms. Arakawa:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 18, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namumart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



LIFE OF THE LAND

Ma Manu Ke Ea O Ke Aina I Ke Pono
Hawaii's own Community Action Group
Protecting our Fragile Environment through
Research, Education, Advocacy and Litigation

August 21, 2001

Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Office of Environmental Quality Control
235 South Beretania Street - Suite 702
Honolulu, Hawaii 96813

Comments on Revised Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion

Aloha!

Life of the Land appreciates the opportunity to comment on this document. We are concerned, however, that despite our request, included in our prior comments dated July 7, 2000, to be a 'consulted party' we were not sent a copy of the Revised Draft Supplemental Environmental Impact Statement. Please, therefore, list Life of the Land as a consulted party and send us copies of any and all documents relating to this proposed project.

We continue to be concerned about view planes. Your responses to some questions about landscaping state that revegetation must occur when the landfill is closed. We are concerned, however, about view planes while the landfill is in operation.

What can and what will you do to mitigate the grading and scarification of the hillside?

Is there a way that you could plant wiliwili or some other fast growing native trees to block off the unsightliness of the landfill from public view? This may also benefit by creating a windbreak to catch the flying debris that the community has been picking up.

We strongly encourage you to convert the methane gas to energy as suggested by DBEDT's Energy Division's comments and would like to see a real plan for this in the Final Revised Draft Supplemental Environmental Impact Statement.

How will you accomplish converting methane to energy?

* 76 North King Street * Suite 203 * Honolulu, Hawaii 96817 * phone: 533-3454 * fax: 533-0993 *
* email: lifefortheand@hotmail.com *

Life of the Land's Comments on
Revised Draft Supplemental Environmental Impact Statement
for the Waimanalo Gulch Sanitary Landfill Expansion
August 21, 2001
Page Two...

Life of the Land reviewed Table 3-1 "Composition of Refuse Received at Waimanalo Gulch Sanitary Landfill" and continues to push for a more aggressive recycling program in the City and County of Honolulu. As a member of the Department of Health's Solid Waste Advisory Committee, we are aware that curbside recycling is the most effective means of diverting recyclables from landfills. From our review of Table 3-1 it appears that approximately 31% of the waste going to the landfill should be recycled. Wouldn't an aggressive recycling program with a strong community education component be a better way of dealing with Honolulu's municipal solid waste than land filling? We need to change our perspective about solid waste from "garbage" to "resource".

What is the City's long-term plan for dealing with municipal solid waste?

We note that the Commission on Water Resource Management expressed concern about the potential for groundwater contamination. What is your response to this concern?

Have there been instances where leachate from the landfill has impacted the water table? If so, what was done and how did you monitor this from occurring or re-occurring?

The Department of Forestry and Wildlife (DOFAW) asked that you make a conscious and realistic appraisal of the risk-hazard-value of not only the immediate project area, but also of its surroundings.

Will you please include this appraisal in the Final Revised Draft Supplemental Environmental Impact Statement? Life of the Land agrees with DOFAW's suggestion to identify possible ignition sources and appropriate fire mitigation measures. How will the identification take place? Please describe your evaluation methodology and implementation.

What are the potential problems of the proposed expansion underlying a major electric power transmission line? A wildfire can trigger a massive power failure. Has this been considered?

What will you do if this should happen?

How will the surrounding community be notified?

How will the surrounding community be protected?

Have you contacted the State Botanist, as suggested by DOFAW as a double-check to assure that the location is free of a unique plant community? If so, what were the conclusions reached by the State Botanist?

Are there currently any harvesting activities going on at the landfill? What are they? What is the end use for that which is harvested?

Since the landfill takes the ash from H-POWER, how can the community be assured that the fugitive dust is not toxic?

Life of the Land's Comments on
Revised Draft Supplemental Environmental Impact Statement
for the Waimanalo Gulch Sanitary Landfill Expansion
August 21, 2001
Page Three...

Are the more toxic components of the landfill in a separate and covered area?

How are they secured?

How will you mitigate the noise, odors, and fugitive dust from the landfill?

What are you plans, should this project be approved, for life after 15 years of this project?

Are you planning for the eventual closure of the landfill?

Will you wait until the clock is running out, as you are doing now, to ask for another expansion?

From a planning perspective, Life of the Land wants to encourage the City to be pro-active. Technologies are advancing and we want to see more progressive methodologies implemented augmented by an aggressive recycling program by the City.

Please answer the following questions that emerged during a community meeting:

Why is Waimanalo North being designated as a forest preserve?

What impact does the landfill have on this (forest preserve) designation?

Does this designation require anything different, or pose different conditions,
on the operation of the landfill?

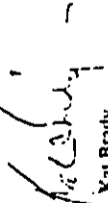
How much does it cost to operate the landfill?

Does the landfill generate revenue? If so, how much and what is the income used for?

Again, Life of the Land asks to be a consulted party on anything related to the Waimanalo Gulch Sanitary Landfill. Please send us copies of any and all documents relating to this particular project or anything relating to Waimanalo Gulch.

Mahalo for this opportunity to comment

Sincerely,



Kai Brady
Assistant Executive Director

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 212, KAPOLEI, HAWAII 96707
PHONE: (808) 692-3159 • FAX: (808) 692-5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOTY, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
PE-02-109

December 23, 2002

Ms. Kat Brady
Assistant Executive Director
Life of the Land
76 North King Street, Suite 203
Honolulu, Hawaii 96817

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Dear Ms. Brady:

Thank you for your transmittal dated August 21, 2001. We have prepared the following response to your comments.

1. As you may be aware, the City has modified the proposal for expansion of the landfill from 15 years to a new goal of five years. During this period, we have been directed to seek all available and viable options which will alleviate our need for continued reliance on landfills.
2. We acknowledge your request to be a consulted party to the EIS process. You will be notified regarding the publication date for the Final EIS. A copy of the RDSEIS has been available for public review on the City's website, www.opala.org. We encourage you to visit the website, which also contains information on our efforts to better manage Oahu's municipal refuse.
3. Landscaping will include use of vegetation similar to that found along the slopes and ridges surrounding the project site. Species such as wiliwili will be considered for use. Portions of a concrete drainageway have been painted to better blend in with the surrounding terrain.
Major portions of Waimanalo Gulch are in active use for landfilling and, therefore, cannot be landscaped. Final work to landscape and replant the surface of the site will occur when the landfill is closed.

Ms. Kat Brady
December 23, 2002
Page 2

4. A gas recovery system will be developed at the site. The type of system deployed will be based on investigation of gas quality and quantity. We have used these systems at Kapaa and Kalaheo Landfills. A similar system will be used at Waimanalo Gulch.

5. We agree there is potential for further recovery of selected recyclable or reusable components in the municipal waste stream. We supported the bottle bill, which provides for the recycling of glass containers, and have held discussions with the State Department of Health (DOH) concerning reuse of H-POWER ash in the construction industry. Although DOH does not now permit the reuse of ash, we will continue to investigate future opportunities for this material.

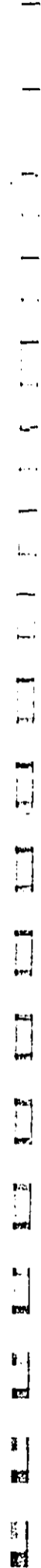
6. We share your concern regarding potential for future non-potable groundwater contamination. The RDSEIS indicates that groundwater quality monitoring is required during operation of the landfill and for a period of 30 years following closure of the facility. To date, there have been no adverse impacts to the water table from the landfill. We believe this is due to the existing dry conditions at the site, combined with the composition of refuse received at the landfill, e.g., low in putrescible content.

The RDSEIS describes necessary and reasonable safeguards which have been put into place to ensure protection of the landfill and surrounding area from adverse impacts associated with fires. Hawaiian Electric Company (HECO) requires a minimum vertical distance of 35 feet from the surface of the landfill to overhead lines as a further safeguard. As indicated, the landfill expansion plan will exceed this distance.

8. We have contacted State Botanist, Ms. Vickie Caraway, DNLR, and Ms. Winona Char, Botanist, concerning the species *Abutilon Menziesii* (phone discussion on September 21, 2001). Our discussion indicated the following:

- The project site was investigated for presence of both threatened and endangered species and species of concern. None were found.
- The individual in charge of the site investigation also conducted the survey at East Kapolei, which found *Abutilon Menziesii*.
- The Oahu habitat for *Abutilon Menziesii* is typically found at a lower elevation than exists at Waimanalo Gulch.

We continue to concur with the Botanical Survey of August 1999, which states: "...there are no botanical reasons to impose any restrictions, conditions, or impediments to the proposed use of the site. The proposed landfill expansion is not expected to have a significant negative impact on the botanical resources."



9. No harvesting occurs at the site. The existing ±200-acre Waimanalo Gulch Sanitary Landfill property has been and will continue to remain restricted to general use by the public for purposes other than refuse disposal. Regular use of heavy construction equipment and vehicles at the site constitutes a public safety hazard. Locations surrounding active work areas have also been subject to unanticipated movement and shifting of rocks, boulders, sediments and debris, as a result of landfill operations which further compromises public safety.
10. All forms of municipal solid waste received at the landfill, including H-POWER ash, are required to be handled in accordance with strict Federal and State regulations. Upon delivery, the ash must be at a specific moisture level to ensure against release into the air column. The ash is then placed in the ash monofill section of the landfill, where it is covered with appropriate materials. Waimanalo Gulch Sanitary Landfill is not permitted to accept or dispose of toxic or hazardous wastes or materials.
11. Potential for generation of fugitive dust is controlled onsite by use of a water truck and spray misters. Potential for impacts from odor and noise are addressed in the RDSEIS in Section 3.
12. Our future plans call for continued investigation and, if feasible, use of alternative technologies and practices to improve our management of refuse in the City and County of Honolulu. In addition to use of new technologies, we will continue to pursue recycling, reuse, and waste reduction practices.

13. Additional Questions:

- Why is Waimanalo North being designated as a forest preserve? The State Department of Land and Natural Resources (DLNR) has designated this site for preservation based on forest and natural resource values. You may contact DLNR directly for further information.
- What impact does the landfill have on this? Does this designation require anything different, or pose different conditions on operation of the landfill? DLNR will not permit the designation of a landfill at Waimanalo North.
- How much does it cost to operate the Waimanalo Gulch Sanitary Landfill in Fiscal Year 2002. In addition to this amount, ENV staffing salaries for landfill operations must be included. This amount is not readily quantifiable.
- Does the landfill generate revenue? If so, how much and what is the income used for? The landfill and transfer station revenues are commingled. The revenue for landfill and transfer station was \$16,923,614 for Fiscal Year 2002. The revenues are deposited in the Solid Waste Enterprise Fund, which pays for refuse collection and disposal operations.

We appreciate your review of this document. Any further constructive comments may be directed to Ms. Wilma Namumhart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

*EMV resp for
Mayor sign*



August 29, 2001

VI SEP -6 P12:45

The Honorable Jeremy Harris
Mayor of the City and County of Honolulu
530 South King Street
Honolulu, HI 96813

Re: Waimanalo Gulch Landfill Expansion

Dear Mayor Harris:

I am writing to you on behalf of Brookfield Homes, to express our dismay at the City and County of Honolulu's insistence upon expansion of the Waimanalo Gulch Landfill Expansion directly across the highway from Ko Olina Resort and Marina.

From the inception of Brookfield Homes' involvement at Ko Olina, we understood that the Landfill was scheduled to close within two to three years. In fact, the 1984 Revised Environmental Impact Statement clearly states that the Landfill would cease operations by 2004, or when capacity was exhausted. Now we know the City has intentions to the contrary, that the intent is now to expand for an indefinite period these Landfill activities. The City's aggressive pursuit of the approvals required to proceed with this expansion severely threatens the development of our planned communities within the Resort.

While it may be true that virtually no one wants a dump in his back yard, it is most certainly inappropriate to position the repository for the entire island immediately adjacent to the Oahu's largest active Resort, which is also the potentially most significant development in the State.

Increasing Landfill activities in proximity to Ko Olina place our current project, The Coconut Plantation (270 homes) in jeopardy. Inevitably, future development, including our option to Purchase Parcel 33 (300 homes) and Parcel 50 (150 homes) will be overshadowed by this Landfill expansion as well.

To direct unsightly, foul-smelling, noisy, traffic-producing, and potentially hazardous activities to the doorstep of a project which, after ten dormant years, is finally beginning to emerge as a new and vital success story borders upon the absurd.

It is linguistically clear from the language in the Ewa Development Plan that Ko Olina is intended to be a water-oriented residential and resort community (with about 4,000 visitor units in hotels and resort condominiums). It is meant to provide relief from the growth pressure upon Waikiki. The Development Plan addresses in detail environmental compatibility of uses, and defines the Resort as an "integral part of the Secondary Urban Center."

Surely, no one can seriously contend that the location of a long-term Landfill in the Resort's immediate proximity supports the intent of the Development Plan. The Environmental Impact Statement relating to this Landfill, while addressing technical issues, does not address matters of equal importance to our community - that is, the negative Economic Impact.

SOUTHLAND BUSINESS GROUP
82-11701 Puu o Sani, Ewa, HI 96707
Phone 808 640 9778 • Fax 808 640 9673

When Brookfield Homes committed to Honolulu, we saw an opportunity to bring new design and technology to a very special place, to build relationships and to create new opportunities. We perceived Ko Olina to be the launch pad for our longer-range plans to remain here, and we hoped to contribute in a meaningful way to positive growth within our island community.

Our current and intended projects at Ko Olina are valued at over \$345,000,000. Should our efforts fail, the direct labor force alone will lose \$100,000,000 of earnings. Today, we are providing hundreds of jobs, delivering exciting new community concepts, and are directly and significantly contributing to the recovery of our economy.

There simply must be a better way to address the location of Oahu's opoia than to just dump it on our doorstep. We cannot accept that all alternatives have been thoroughly explored, that virtually all the rubbish must terminate right here.

We appreciate your efforts on our behalf. Please share our concerns with your counsel, and let us know how we may assist in efforts to seek a more balanced solution.

Sincerely,
BROOKFIELD HOMES SOUTHLAND INC.

Adrian Foley
Senior Vice President of Development

cc: Jeff Prostor
Jeff Brown
President, Brookfield Homes Southland
Director of Operations, Brookfield Homes Hawaii

OFFICE OF THE MAYOR
CITY AND COUNTY OF HONOLULU

530 SOUTH KING STREET, ROOM 300 - HONOLULU, HAWAII 96813
TELEPHONE (808) 527-4141 - FAX (808) 527-5552 - INTERNET WWW.CC.HONOLULU.HI.GOV



JEREMY HARRIS
MAYOR

37A

Mr. Adrian Foley
September 21, 2001
Page 2

WES	KTS
R.F.	NM
RTT	BRT
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September 21, 2001

Mr. Adrian Foley
Senior Vice President of Development
Brookfield Homes Southland Inc.
92-1070 Olani Street
Kapolei, HI 96707

Dear Mr. Foley:

Thank you for your August 29, 2001, letter on behalf of Brookfield Homes expressing concerns about the proposed expansion of Waimanalo Gulch Sanitary Landfill.

No one wants a landfill in the neighborhood because of the lingering, erroneous association with old-fashioned, poorly managed, public dumps. In reality, a state-of-the-art sanitary landfill like Waimanalo Gulch incorporates features, which prevent and mitigate possible adverse impacts on human health and the environment. Since it opened twelve years ago, Waste Management, one of the largest and most qualified landfill operators in the nation, has managed Waimanalo Gulch. The site resembles a well-run quarry when viewed from the resort, and Waste Management has installed and continues to improve landscaping and odor and litter controls. The State Department of Health, which administers the operating permit, has recorded few complaints and no violations for such nuisances, which indicates that Waste Management has operated the landfill in a diligent and professional manner.

The City has a responsibility to promote the economic well being of all Oahu residents, and adequate landfill capacity is vital to that well-being. From a taxpayer's or a businessman's point of view, you can surely appreciate why expanding an existing facility, instead of building a new one from scratch, is the right thing to do. The landfill

occupies less than half of a 200-acre parcel, and although it is approaching the capacity for which it is now configured, there is ample space to double that capacity without affecting property boundaries.

We have never concealed the possibility of expanding the landfill and have never foreclosed our option to do so. This did not deter the original developers of Ko Olina from proceeding with construction of the Ihilani and existing residences, until Hawaii's economic downturn intervened a few years ago. Studies in other parts of the country have shown that the proximity of a sanitary landfill has no demonstrable effect on surrounding property values, and we are glad to see Brookfield and other developers resume construction at Ko Olina now that the economic outlook has improved.

The City continues to seek and evaluate alternatives to land filling, such as recycling and waste-to-energy; however it would be foolhardy to expend taxpayer money on unproven technologies. Recycling presents an excellent opportunity to reduce tonnage entering landfills. However, recycling does require participation from the community and support from developers. As the City has done previously, we will continue to support recycling and waste to energy efforts.

There will be another community meeting on Wednesday, September 26, 2001 at Kapolei Hale from 7:00 - 9:00 p.m. Please contact the Department of Environmental Services, Division of Refuse Collection and Disposal, at 527-5358, for more information.

We appreciate your insight and your concerns.

Sincerely,

JEREMY HARRIS
Mayor

JH:wy (7854)

cc: Waste Management of Hawaii
R.M. Towill

BENJAMIN J. CATETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5087

AUG 30 2001

38

BRIAN K. MINAAI
DIRECTOR
DEPUTY DIRECTORS
GENEVA OKUMOTO
JADINE T. LUKASIAKI

IN REPLY REFER TO:
HWY-PS
2-4015

WES		KTS	
R-F	242	NIA	
RTT		ARD	1st
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Mr. Timothy E. Steinberger
Acting Director
City and County of Honolulu
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Steinberger:

Subject: Waimanalo Gulch Sanitary Landfill Expansion, Revised Draft Supplemental Environmental Impact Statement, Ewa, TMK: 9-2-3: 72 and 73

Thank you for requesting our review of the revised draft supplemental EIS for the Waimanalo Gulch landfill expansion.

The proposed expansion is not anticipated to have a significant impact on our State highway facilities.

If there are any questions regarding our comments, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

Brian K. Minaai
BRIAN K. MINAAI
Director of Transportation

cc: OEQC
Mr. Randall J. Fujiki, Department of Planning and Permitting
Mr. Brian Takeda, R.M. Towill Corporation

38A

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



SENY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, I
ACTING DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-178

September 20, 2001

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

Dear Mr. Minaai:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

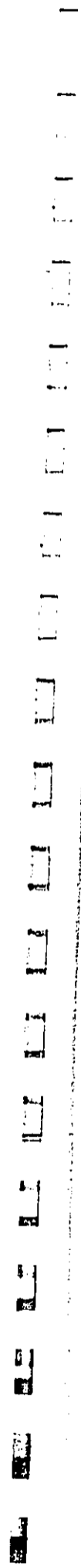
Thank you for your letter dated August 30, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namunart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (ext. 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joseph Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



PaulHastings

Paul Hastings, Jennifer & Walker LLP
345 California Street, 20th Floor, San Francisco, CA 94104-2625
Telephone 415-435-5020 / facsimile 415-217-5333 / internet www.paulhastings.com
Atlanta / Costa Mesa / London / Los Angeles / New York / Stamford / Tokyo / Washington, D.C.

PaulHastings

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(415) 835-1688
matthew@shaps@paulhastings.com
34099.00001
September 20, 2001

VIA UPS NEXT DAY DELIVERY

Ms. Wilma Namunnart
City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Re: Comments on Revised Draft Supplemental Environmental Impact Statement
for Waimanalo Gulch Sanitary Landfill Expansion

Dear Ms. Namunnart:

Attached is a letter previously provided to Mayor Harris on behalf of Massachusetts Mutual Life Insurance Co. ("MassMutual"). MassMutual acquired the Ihilani Resort and Spa in 1999.

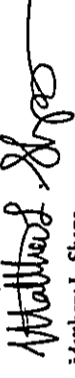
The attached letter contains MassMutual's comments on the Revised Draft Supplemental Environmental Impact Statement ("RDSEIS") for the Waimanalo Gulch Sanitary Landfill Expansion. MassMutual strongly objects to the analysis and conclusions in the RDSEIS, as detailed in the accompanying letter.

MassMutual's comments and objections to the RDSEIS were originally sent directly to the Honorable Jeremy Harris, Mayor of the City and County of Honolulu. We are providing them to you today, as required by the City Notice dated May 25, 2001, regarding submission of comments on the RDSEIS.

Ms. Wilma Namunnart
September 20, 2001
Page 2

If you have any questions concerning this letter, please do not hesitate to contact us. Thank you very much for your attention to this matter.

Very truly yours,



Matthew L. Shaps
for PAUL, HASTINGS, JANOVSKY & WALKER LLP
Not Admitted in California

MLS/kot

Enclosures

cc: The Honorable Jeremy Harris (w/ encl.) via Overnight Courier
Mr. Randall Fujiki (w/ encl.) via Overnight Courier
Ms. Genevieve Salomonson (w/ encl.) via Overnight Courier
Mr. Brian Takeda (w/ encl.) via Overnight Courier

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58/107101

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The Honorable Jeremy Harris
September 13, 2001
Page 2

(415) 835-1610
peter.vaine@paulhastings.com
34099.00001
September 13, 2001

The Honorable Jeremy Harris
Mayor of the City and County of Honolulu
530 South King Street
Honolulu, HI 96813

Re: Comments on Revised Draft Supplemental Environmental Impact Statement for the
Waimanalo Gulch Sanitary Landfill Expansion

Dear Mayor Harris:

We are writing on behalf of Massachusetts Mutual Life Insurance Co. ("MassMutual"), which acquired the Ihilani Resort and Spa ("Ihilani") in 1999. The City and County of Honolulu (the "City") is proposing to build a new 60-acre landfill, with capacity to accept waste for 15 more years, on property located in the Waimanalo Gulch near the Ihilani. For the reasons outlined below, MassMutual is concerned that the Revised Draft Supplemental Environmental Impact Statement (the "EIS") prepared for this project is woefully inadequate, both from an equitable and legal perspective. Unless the document is redone to accurately reflect the facts and present an unbiased analysis of the project and its alternatives, we believe that any decision by the City to proceed with the proposal would be made with inappropriate environmental information and subject to challenge on that basis.

In summary, the EIS is flawed and insufficient because it attempts to disguise the proposed new landfill as a mere expansion project; fails to independently assess odor impacts or provide realistic mitigation measures; ignores significant impacts to visual and scenic resources; entirely overlooks adverse socioeconomic impacts; and does not contain a legally or factually sufficient alternatives analysis.

MassMutual is providing the following comments to explain the serious shortcomings of the EIS and highlight the significant environmental and economic issues raised by the project. In addition, MassMutual supports and incorporates by reference the comments prepared by McCutchen, Doyle Brown & Eriksen, as counsel for the Ko Olina Community Association. It is our hope that City officials will reconsider the merits of the proposed project in light of these concerns.

1. The EIS Attempts to Disguise the Proposed New Landfill as a Mere Expansion Project

The EIS is fundamentally flawed because it fails to acknowledge that the City is seeking to site a new landfill in Waimanalo Gulch. Instead, the EIS attempts to disguise the proposed project as a mere expansion of an existing facility. That approach is misleading for two reasons. First, the "existing" facility is about to be closed. Second, the magnitude and location of the proposed project clearly identifies it as a new landfill, not an expansion project.

In 2002, the City will close and reclaim the existing 64-acre landfill in Waimanalo Gulch. The land will be restored and revegetated. The City is proposing to construct its new 60-acre landfill adjacent to, but upslope from the soon-to-be-closed landfill. In other words, the proposed project will disturb entirely new territory next to a closed, covered, and revegetated site. From this perspective, the impacts of siting a new landfill next to the existing Waimanalo Gulch facility are no different than siting a new landfill next to any other vegetated site, in the immediate vicinity of resort and residential properties. The EIS fails to confront this central reality in its baseline assumptions, and as a result, the analyses of impacts and alternatives it contains are inaccurate and unreliable.

What the City must do, but has yet to accomplish, is analyze impacts and compare alternatives for siting a new landfill in Waimanalo Gulch. The proposed project cannot reasonably be viewed or analyzed as merely an expansion of the existing landfill. The EIS must contain a comprehensive analysis with the baseline assumption that, once the existing landfill is closed in 2002, there will be no on-going landfill operations in Waimanalo Gulch and no operating facility to "expand."

Moreover, even putting aside the fact that the existing facility is about to be closed and revegetated, the suggestion that the proposed 60-acre project be evaluated as an expansion of the existing 64-acre facility is problematic. The new site will be almost the same size as the existing facility, it will be constructed at roughly twice the elevation of the old landfill, and it will be in a different portion of Waimanalo Gulch. It is clear that the City's current proposal is a new and distinct project. To characterize the project as an "expansion" is misleading. The EIS must be redone to accurately describe the project as development of a new landfill adjacent to a soon-to-be closed and revegetated facility.

Once the project description is corrected, the analysis of the project must be revised accordingly. In particular, the analysis must include comparison of the project to a revegetated hillside with no negative impacts on the surrounding community. Comparison only to impacts that the community currently experiences due to the existing landfill is inappropriate given the facts here. In the absence of a revised project description and analysis, the EIS is wholly insufficient both in terms of its substantive content and its compliance with Hawaiian law.

The Honorable Jeremy Harris
September 13, 2001
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2. The EIS Fails to Independently Assess Odor Impacts from the Project or Provide Realistic Mitigation Measures

The existing Waimanalo Gulch Landfill routinely receives complaints from local residents and resort owners regarding odors. Despite ongoing efforts to manage odors, the problem persists. The EIS readily admits that there are significant and substantial odor impacts associated with the existing landfill. It seems obvious that the odor impacts from the proposed new landfill would be equally unpleasant and difficult to control, and quite possibly worse due to the project's different location and far greater elevation. The EIS, however, unjustifiably minimizes potential odor impacts relating to the project.

For example, the EIS seeks to couch the discussion of odors in terms of the proposal's "potential for increased landfill associated odors to the south." While the language is vague, it appears to suggest that odor problems associated with the current landfill have only occurred to the south. According to Waste Management, the southerly impacts cited in the EIS are ostensibly due to southerly and southeasterly breezes that occur at different times in the area, coupled with (1) shutdown of H-POWER for maintenance; (2) queuing of refuse vehicles prior to opening of the landfill for business; and (3) disposal of sewage sludge during maintenance of wastewater treatment plant process equipment. In the first place, there is no evidence presented to confirm or support a conclusion that these problems only result in odors to the south. Secondly and more importantly, there is no assessment of how the change in location and increase in elevation of the proposed landfill would affect odors from these and other potential sources. The conclusory statements in the EIS asserting that future odor problems will be no worse than the current problem fall well short of the requirements of H.R.S. § 343.

The shortcomings of the odor analysis may reflect the fact that no independent study or evaluation of odor impacts was conducted. Rather, the odor-related discussion in the EIS is based solely upon conversations with Waste Management of Hawaii, Inc. ("Waste Management"). No analysis of the source of odors was done, no measurements were taken, and no other efforts were made to delineate the actual extent of odor problems associated with the proposal. This failure to conduct a reasonable odor analysis highlights the need to redo the EIS. Such threshold questions as what are the actual sources of the odor problems, what areas around the landfill are impacted, what can be done to abate or mitigate such odors, and why have previous efforts at the existing landfill failed to control or resolve ongoing odor impacts remain unanswered.

As might be expected, the EIS's failure to properly analyze odor impacts has resulted in inadequate mitigation proposals. In essence, an unsubstantiated laundry list of abatement techniques is given in the EIS, each tailored to one of the three activities that Waste Management claims are the causes of off-site odors to the south. These abatement techniques are vague and anecdotal, and were not seriously analyzed for efficacy or appropriateness. Furthermore, they fail to address potential odor impacts from sources other than the three identified by Waste Management.

The Honorable Jeremy Harris
September 13, 2001
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Finally, the failure of the EIS to acknowledge that the existing landfill in Waimanalo Gulch will soon be closed is also evident in the odor analysis. There is no baseline consideration that, once the existing site is closed in 2002, there will be no operational facility, and therefore, no on-going odor impacts associated with an open landfill. The alternatives analysis must reflect these facts and assess the possible lack of odor issues at other sites.

Given the dearth in analysis of the sources of odors, further study is required to ascertain the actual cause of off-site odors prior to going forward with the EIS. As noted, odor problems at the existing landfill are persistent and have not been adequately managed. Bottomline, nothing in the EIS is offered to suggest that the situation will be any different with the new landfill.

3. The EIS Ignores Significant Impacts to Visual and Scenic Resources

Hawaiian law specifically requires that the impact of a project on visual and scenic resources be evaluated. H.R.S. § 343-2. Despite this requirement, no effort was made in the EIS to accurately analyze how a new landfill in Waimanalo Gulch will impact such resources. In fact, the proposed project will have an enormous negative impact on views and scenic resources, as well as the natural beauty and resort setting of the surrounding area.

The project will create an open and highly unattractive "scar" on the earth's surface at an elevation that will make it particularly visible to the surrounding area. The greater elevation of the new 60-acre facility would make the project far more visible than the current landfill. Yet, the EIS states, without supporting analysis, that the project will have essentially the same extent of visual and scenic impact as the existing landfill. Based upon such incorrect statements, the EIS concludes that the project's impacts will not be significant.

Rather than address the reality that there will be significant visual and scenic impacts, the EIS implies that any negative impact from the proposed landfill "expansion" will be offset by the reclamation work on the portions of the existing landfill slated for closure. Once again, the assessment of impacts on visual and scenic resources in the EIS, like the rest of the document, is based on the erroneous assumption that the new landfill is an "expansion" rather than a new project. That assumption is flawed and misrepresents the facts.

Not surprisingly, the discussion of mitigation measures in the EIS also lacks substance or merit. Specifically, the EIS offers the following mitigation measures: (1) the proposition that grading will be conducted in a manner that will minimize the possibility of erosion; (2) the suggestion that the landfill will be filled one cell at a time; and (3) the installation of landscaping "buffer strips" to mitigate the impacts on scenic resources. Controlling erosion, filling the landfill in stages and planting trees and vegetation around a landfill that is located high on a mountainside and visible for miles in a scenic resort area does not constitute adequate mitigation. Nevertheless the EIS

The Honorable Jeremy Harris
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claims that the proposed mitigation measures will "screen" the landfill. The EIS fails, however, to explain how such measures will mitigate the real visual and scenic impacts, both from ground level and from the upper floors of nearby resorts. The EIS must be redone to accurately assess significant visual and scenic impacts and realistically portray potential mitigation options.

4. The EIS Ignores Adverse Socioeconomic Impacts

Hawaiian law requires that an EIS evaluate the economic and social welfare effects of a proposed action. H.R.S. § 343-2. It is therefore incumbent upon the City to analyze the socioeconomic impacts that would result from building a new landfill in Waimanalo Gulch. Here, the EIS fails to adequately accomplish this requirement.

The City is proposing to operate a highly conspicuous landfill in Waimanalo Gulch for 15 years after it is constructed. As already noted, the proper baseline for assessing impacts from the new landfill in Waimanalo Gulch is to compare it with the currently planned alternative, no on-going landfill operations after 2002. That means that the EIS must examine the socioeconomic impacts of operating a landfill in Waimanalo Gulch from 2002 to 2017, against a baseline where the existing landfill has been closed and revegetated.

Under proper analysis, there is no question that the proposed project would have serious socioeconomic impacts. Placing a new, even more visible landfill in close proximity to the local resort community will adversely affect the economy. Visitors come to resorts, such as the Ihilani, expecting a beautiful, Hawaiian setting. If, instead, they are confronted with an unattractive view of a landfill, accompanied by the smell of refuse, they will be disappointed and much less likely to return. The reputation, economics and business good will of the resort industry in the area will greatly suffer. Despite these predictable impacts, the EIS does not even ask the most basic question: what will the economy and population structure of the Ewa Region look like in 2017 if the existing landfill closes in 2002 as scheduled and the land is revegetated? Until the EIS addresses this question, any assessment of socioeconomic impacts or discussion of proposed mitigation measures can only amount to a combination of speculation and fabrication.

The Ewa Region is the fastest growing region of Oahu. The EIS does not consider the impacts of operating a landfill in a rapidly urbanizing region where land-use conflicts will only increase over time. The EIS lists a handful of activities that the City and Waste Management are doing or will do to mitigate the impacts of the existing landfill and assumes that these will be adequate over the years 2003-2017. However, because the EIS does not even attempt to assess impacts on the local economy out to 2017, it has no factual basis to identify or effectively evaluate long-term mitigation measures. Furthermore, the EIS fails to evaluate socioeconomic impacts at any of the alternative

The Honorable Jeremy Harris
September 13, 2001
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sites. As a consequence, there is no factual basis in the EIS for determining whether socioeconomic impacts at alternative sites would be less significant than the socioeconomic impacts at the Waimanalo site. Such issues must be taken into consideration and fully analyzed in the EIS before any final decision may be made regarding the proposal for a new landfill in Waimanalo Gulch.

5. The Alternatives Analysis in the EIS is Flawed

Hawaiian law requires a detailed consideration of alternatives in an EIS. H.R.S. § 343. The entire EIS is premised on the incorrect assumption that the project consists of a mere expansion of an existing landfill. In reality, the project is properly described as the construction of a new, equally large facility next to the soon-to-be-closed and revegetated landfill. The alternatives analysis is itself premised on the same incorrect assumption. As a consequence, it fails to provide an adequate consideration of alternatives, as required.

The alternatives in the EIS were compared to the Waimanalo Gulch site, under the baseline assumption that the site contains a preexisting landfill, and therefore, having a landfill on adjacent property in the future will constitute a continuing use. As already discussed, this is not so. Instead, the baseline for comparison of alternatives must be the intended use of the site as planned following 2002—closure, reclamation and revegetation. This critical error has led to an alternatives analysis that is irreparably biased toward siting the new landfill in Waimanalo Gulch.

Specifically, the awarding of less points in the alternatives analysis to other sites, because they are not located next to landfills, resulted in an improper analytical process. This failing of the EIS requires that a completely new alternatives analysis be prepared. Otherwise, the resorts and residences in the vicinity of Waimanalo Gulch will have another landfill forced upon them for 15 additional years, based solely on the fact that a landfill is currently located on an adjacent property. A decision to proceed with the proposed project based on the current EIS would be to commit a severe injustice on the surrounding community and constitute a clear violation of law.

Another major flaw with the alternatives analysis is that it does not evaluate the possibility of the City building a smaller landfill in conjunction with making serious efforts at instituting source reduction and recycling programs. Consideration of smaller landfill alternatives coupled with source reduction and recycling efforts is well established as a requisite component of a proper EIS alternatives analysis for landfill siting. The original 1984 EIS, which the current EIS is intended to supplement, indicates that a 5-year capacity requirement would be sufficient for the new landfill. Nevertheless, the current EIS disqualifies 29 of the 42 alternative sites for failing meet the City's 15-year capacity requirement, without providing any justification for the switch from 5-year

Paul Hastings

The Honorable Jeremy Harris
September 13, 2001
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capacity to 15-year capacity. Not only is it improper to rate alternatives based on the need for a landfill with a 15-year capacity, without establishing legitimate reasons for requiring an additional 10-years of capacity, the current alternatives analysis suggests that the City has not genuinely attempted to implement source reduction and recycling strategies to reduce the size and lifespan of the proposed landfill.

For all of the reasons stated in this letter, as well in those contained in the letter sent on behalf of Ko Ollina Community Association, MassMutual strongly objects to the EIS and the City's efforts to build a new landfill in Waimanalo Gulch. The EIS does not satisfy the requirements of Hawaiian law, and overlooks certain harm to the resort industry and residential community in the Ewa Region.

MassMutual appreciates your time and consideration, and looks forward to the fair and prompt resolution of these important matters.

Very truly yours,



Peter H. Weiner
of PAUL, HASTINGS, JANOFKY & WALKER LLP

cc: The Honorable Benjamin J. Cayetano, Governor of Hawaii

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6653 or Fax: (808) 527-6675



MAY HARRIS
MAYOR

TIMOTHY E. STERNBERGER, P.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-012

December 23, 2002

Mr. Matthew L. Shaps
Paul, Hastings, Janofsky & Walker LLP
345 California Street, 29th Floor
San Francisco, California 94104-2635

Dear Mr. Shaps:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

We offer the following in response to Peter H. Weiner's September 13, 2001, letter to Mayor Jeremy Hahn on behalf of Massachusetts Mutual Life Insurance Company.

GENERAL COMMENT

The 15-year proposal for expansion of the Waimanalo Gulch Sanitary Landfill has been changed to 5-years. The five-year goal is based on the City's policy to seek, whenever feasible, increased use of alternative methods and technologies for the disposal of municipal solid waste. This represents a major effort by the City to work with the immediate community, while fulfilling its mission to provide for the safe and effective disposal of municipal solid waste from all of Oahu.

SPECIFIC COMMENTS

1. The EIS attempts to disguise the proposed new landfill as a mere expansion project. This statement and the comments which followed imply that the City is attempting to downplay the significance and impact of the project by calling it an expansion, rather than a new landfill. Actually, "expansion" is the most logical and appropriate term because we seek to "increase the extent, number, volume, or scope of the existing Waimanalo Gulch Sanitary Landfill and because, unlike a new landfill, the project will not require the construction of permanent, onsite facilities, such as an administration building, scalehouse, maintenance facility, fueling station, utilities, or access roads. Nor does the City gain anything by calling the project an expansion rather than a new landfill - the environmental, land use, and permitting requirements are the same for both. The City does not believe that calling it an expansion has misled anyone about the true nature of the project.

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Mr. Matthew L. Shaps
December 23, 2002
Page 2

Your premise that Waimanalo Gulch Sanitary Landfill will be closed in 2002 is also incorrect. During initial permitting for the landfill footprint, the City estimated the landfill capacity to be fifteen years based on the waste generation at that time. As Waimanalo Gulch Sanitary Landfill gets closer to its permitted capacity, drastic measures will be necessary to reduce the amount of incoming waste. However, there are materials which cannot be disposed of elsewhere or by other means, and the City must provide capacity for the continuous disposal of those materials. Additionally, depriving Oahu of a sanitary landfill could impend public health and safety.

The EIS does not minimize the impacts of the proposed expansion by comparing it with the current landfill. Such comparisons are meant only to provide a frame of reference. Impacts, and their mitigative measures, are addressed as if the expansion were a new landfill.

2. The EIS fails to independently assess odor impacts from the project or provide realistic mitigation measures.

While odors can be a nuisance under certain weather conditions, the City would not characterize the impact on the surrounding community as "significant and substantial." The City and Waste Management of Hawaii, Inc., have repeatedly asked people who reside or work in the vicinity of the landfill to immediately report odors they detect in areas away from the site. This has enabled Waste Management of Hawaii, Inc. to cross-reference the reports against data from an onsite meteorological station, conduct investigations to determine the specific source of the odor, and implement mitigative measures. Waste Management of Hawaii, Inc.'s meteorological station measures barometric pressure, wind direction and velocity, temperature, dew point, and wind chill. While the number of reports increased for a short period after public announcement of the proposed expansion and initial publication of the Revised Draft SEIS, odor complaints before and after this period were infrequent. The State Department of Health, which administers the landfill operating permit, has also recorded few complaints. The State Department of Health has never cited the City for creating an odor nuisance (or for any other type of violation, for that matter). This would suggest that the landfill is being operated in a diligent and professional manner.

Odors are highly subjective. What smells mildly unpleasant or is undetectable to one person may be overwhelmingly vile to another. Waste Management, Inc., has attempted to compile source, direction, extent, and strength information based on the scant number of complaints. Because scientific analysis is difficult or impossible in an outdoor, landfill environment, the statements in the Revised Draft SEIS regarding odors are necessarily based on anecdotal evidence. This does not mean, however, that the mitigative measures will be ineffective when promptly and appropriately applied.

3. The EIS ignores significant impacts to visual and scenic resources. A landfill may appear artificial in a natural setting, but the same argument can be made about residences and resorts. The fact remains that landfill operations are not visible to

most surrounding communities. Unless the observer is told that it is a landfill, a person might easily conclude that the landfill is a construction site or a quarry. In addition, improvements are continually being made to the site to lessen its visual impact.

4 The EIS ignores adverse socioeconomic impacts.

We disagree that the proposed project will result in negative adverse socioeconomic impacts. However, because of changed conditions involving a new five-year goal and our desire to work with the community, we have commissioned a Socio-Economic Impact Assessment. This document will be included in our forthcoming Final EIS submittal.

5. The Alternatives Analysis in the EIS is flawed.

The Alternatives Analysis is based on earlier comprehensive and all-inclusive studies, which identified potential landfill sites across Oahu. With regard to your statement that "the awarding of less points in the alternatives analysis to other sites, because they are not located next to landfills," the City maintains that the proximity of other landfills had no direct bearing on the points assigned to a site. Logically, the presence of other landfills indicates the suitability of the area for that type of facility. In this case, because a landfill is in a specific geographic area, the physical characteristics of that area, such as location outside the Underground Injection Control Line and/or the Pass/No Pass Zone, climate, flood zone criteria, are such that the landfill criteria can be satisfied.

However, because of changed conditions involving the five-year goal a revised Alternatives Analysis will be undertaken. The results of the analysis will be provided in the forthcoming Final EIS.

We do not agree that we have not genuinely attempted to implement source reduction and recycling strategies to reduce dependency on landfills. The City continues to seek and evaluate alternatives to landfilling, such as recycling and waste-to-energy. We are proceeding with the establishment of an Alternative Disposal Technology Park adjacent to the H-POWER facility for demonstration and early development of emerging technologies. A site has been acquired for this purpose. Additionally, source reduction and recycling programs were initiated by the City 15 years ago, and include mandatory business recycling, community drop-off centers, and City office recycling. Bans and restrictions of certain materials from the landfill supplement these programs. The City is also expanding its public education efforts in hopes of increasing public and private participation in these programs.

We appreciate the time you have taken to share your concerns. Should you have any further comments, please contact Ms. Wilma Namumant of our Refuse Division at (808) 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at (808) 668-2985 (ext. 22)

Sincerely,



TIMOTHY E. STEINBERGER, P.E.
Director

cc: The Honorable Jeremy Harris, Mayor
Benjamin Lee, FAIA, Managing Director
Joseph Hernandez, Waste Management of Hawaii, Inc.
Brian Takeda, R.M. Towill Corporation



The Honorable Mayor, City & County of Honolulu
2000 King Street
Honolulu, Hawaii 96813

STATE CAPITOL
Honolulu, Hawaii 96813
September 18, 2001

AT SUNCH
COLLEEN HANABUSA
JONATHAN CHEN
CAL KAMAHARU
J. SALAS
SAM BLOOM
FRED W. LAMON
MAYOR'S POLICY LEADERS

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Mayor Jeremy Harris
September 18, 2001
Page 2 of 2

HAND DELIVERED

The Honorable Jeremy Harris
Mayor, City & County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Harris:

RE: Request for Extension of Time to Submit Public Comments
on the Revised Draft Supplemental Environmental Impact
Statement - Waimanalo Gulch Sanitary Landfill Expansion

I am writing to request an extension of the September 21, 2001 deadline to submit public comments on Revised Draft Environmental Impact Statement - Waimanalo Gulch Sanitary Landfill Expansion.

As you are aware, your office did not reschedule the meeting with yourself and members of the community, which was originally scheduled for September 11, 2001, until yesterday, for September 25, 2001. It goes without saying that the events of September 11, 2001 have caused a major disruption in all of our lives and necessitated the adjustment.

Still, this coupled with the fact that the Department of Environmental Services' community meeting will be held on September 25, 2001, causes the representatives who had planned to meet with you last Tuesday to wonder about the credence which will be placed upon our concerns. One of the requests we intended to make on September 11, 2001 was an extension of the September 21, 2001 deadline for you to consider our proposal and to permit the community at large the opportunity to first hear the presentation of September 26, 2001 before making final comments on the RDSEIS.

For the foregoing reasons, I respectfully request that you extend the deadline of September 21, 2001, to permit us the opportunity to both meet with you and to hear the community's comments on September 26, 2001. Your immediate attention to this request will be deeply appreciated.

If you have any questions or comments, please do not hesitate to contact me at 586-7730.

Sincerely,

COLLEEN HANABUSA
Senator, Twenty-First District

- C: Timothy E. Steinberger, P.E., Dept. of Environmental Services
Representative Michael P. Kahikina
Councilmember John DeSoto
George Yamamoto, Chair Neighborhood Bd. No. 34
Cynthia Rezentes, Chair, Neighborhood Bd. No. 24
Martha Makaiwi, Member, Neighborhood Bd. No. 34
Jane Ross, Member, Neighborhood Bd. No. 34
Maeda Timson, Member, Neighborhood Bd. No. 34
Kamaki Kanahale, Hawaiian Home Community Association
George Paris, Leeward Coast Resident

OFFICE OF THE MAYOR
CITY AND COUNTY OF HONOLULU
530 SOUTH KING STREET, ROOM 300 • HONOLULU, HAWAII 96813
TELEPHONE (808) 523-4141 • FAX (808) 527-5552 • INTERNET www.honolulu.gov

41A



JEREMY HARRIS
Mayor

September 20, 2001

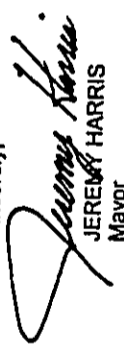
The Honorable Colleen Hanabusa
Senator, Twenty-First District
State of Hawaii
State Capitol, Room 214
Honolulu, Hawaii 96813

Dear Senator Hanabusa:

Thank you for your letter of September 18, 2001. I have instructed my staff to extend, for the third time, the Comment Period to the Draft Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion. At your request, a 25-day extension is being granted to October 18, 2001. I trust there will be no additional requests for extension so that the EIS process can be completed.

I look forward to our meeting on September 25th.

If you have any questions, please contact me at your convenience.

Sincerely,

JEREMY HARRIS
Mayor

JH:mik

bcc: Office of the Mayor
ENV - Refuse Div. (RE 01-187)



September 20, 2001

The Honorable Jeremy Harris
Mayor of the City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Re: Waimanalo Gulch Landfill - Public Comment Period for SEIS

Dear Mayor Harris:

As you are aware, the public comment period for the draft Supplemental Environmental Impact Statement, released on June 8, 2001, for the proposed expansion of the Waimanalo Gulch Landfill ("SEIS") is set to expire on Friday, September 21, 2001. During our previous meeting at your request and suggestion, we have been working to examine and prepare alternatives to the currently proposed expansion. In the days following our meeting, we spoke with many local engineering firms about assisting us in these efforts, but they were unwilling to accept this assignment for various reasons. We have since been working with EA Engineering, Science and Technology, Inc., which has a local office, but whose landfill expert is located in Seattle, Washington.

We have made significant progress in our efforts and were prepared to talk to your Environmental Services Department last week about our findings and proposals. As you suggested, we believe it is prudent and beneficial to discuss our findings and proposals with the City prior to the end of the public comment period, and would like to share the EA Engineering report findings as well as the revised comments to the SEIS that we have received from our attorneys and consultants. As we previously conveyed to you, we would much prefer to work out a solution with the City for the island's waste management, than to submit public comments to the SEIS.

However, the recent national events have prevented us from pursuing planned meetings and discussions regarding this work. Specifically, our consultants have been unable to schedule a desired meeting with Mr. Tim Steinberger, due to the emergency duties placed on Mr. Steinberger over the past week and a half. Attempts to schedule such a meeting began last Monday, September 10, 2001, and a meeting scheduled for yesterday, September 19, 2001, was cancelled by Mr. Steinberger.

Haber Court • Suite 310 • 151 Mendenhall Street • Honolulu, Hawaii 96813 • Phone: (808) 948-5144 • Telex: 6141 JPS HAW

Therefore, we ask that the public comment period be extended for an additional 60 days, to November 20, 2001, so that we will have the time to discuss and present the information to your representatives. This will also give everyone time to focus on these matters, away from the "state of emergency and flux" in which we are all currently entangled.

Given the quickly approaching deadline, we would appreciate an immediate response. To facilitate this request, we are forwarding copies of this letter to Tim Steinberger, Frank Doyle and Wilma Namunaa directly.

Thank you in advance for your consideration of this request.

Sincerely,

Jeffrey K. Steas

Cc: Mr. Tim Steinberger
Mr. Frank Doyle
Ms. Wilma Namunaa

Bcc: Senator Colleen Hanabusa
Representative Mike Kahikina
Councilman John De Soto
Mr. Kamaki Kanahale
Mr. Cynthia Kacenta
Ms. Maeda Timpson
Ms. Jane Ross
Mr. Murtis Makiwi
Mr. George Paris

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 300, HONOLULU, HAWAII 96707
Phone: (808) 632-5159 • Fax: (808) 632-5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02.013

42A

April 10, 2002

Mr. Jeffrey R. Stone
Ko Olina Resort and Marina
1157 Fort Street
Honolulu, Hawaii 96813

Dear Mr. Stone:

Subject: Waimanalo Gulch Sanitary Landfill Expansion

As discussed in our meeting on June 6, 2001, and confirmed in your letters of June 8, 2001, and September 20, 2001, the City is pleased to work with you to identify and develop an alternative landfill site. Specifically, if you, the City, or any third-party are able, through the privatization process or otherwise, to locate and acquire an alternative private landfill site that is suitable, then (upon obtaining the proper approvals to operate a landfill) the City would, within reasonable timeframe, use the new site and agree to the closure and reclamation of the Waimanalo Gulch site. As noted in your letter, you understand that for the site to be suitable, it must meet certain requirements with regard to site characteristics and planned operations.

We met with EA Engineering, Science, and Technology, the firm you engaged, at the end of August 2001 and provided all information requested regarding our present operation and study of alternative landfill sites. Since September 20, we have received no further information about EA Engineering's findings. If there is any additional information regarding alternative sites that you wish to have included in the final EIS, please advise our office.

Sincerely,


TIMOTHY E. STEINBERGER
Director

cc: The Honorable John DeSoto
R.M. Towill Corporation
Waste Management of Hawaii, Inc.
Health of the Land Members (via Facsimile)

POINTS OF CONCERN (Attachment):
Re: Waimanalo Gulch Sanitary Landfill Expansion

- 1. Fort Arizona ("Battery Arizona")
 - a. Over looked and impacted adversely.
 - 1. Possible Historical Sight designation & aid to tourism. Cannon of US Arizona installed at this location. President Roosevelt stayed there once. Cannons were fired on test and for readiness. Museum potential and Federal Historical Funds potential

- 2. Health Hazard to the surrounding residents, businesses and environment:
 - a. Potential for diseases (Skin, Lungs, and Eyes etc.)
 - b. Creates discrimination for people who have to tolerate these conditions vs the people who can afford not to.

- 3. Solid Waste (Miss leading)
 - a. 1985 EIS Implied Solid Waste as building material and other such "solid" material which allow it to be read in a more accepting environment for this landfill.
 - 1. Objection to the continued exposure of potential material that can culture disease; Such as MSW (Municipal Solid Waste) material and other such material. This is not "Solid Waste".

- 4. The potential for fires:
 - a. Combustible gases and carbon base material can cause fires

Special Note: We have lost a building to a fire that allegedly started at this landfill. at the south western end of this current landfill.(WGSLLF)
And may have loss the ability to rebuild on this land.

- 5. The loss of the full potential of the use of our lands
 - a. Liability for healthy habitat to live next store and the surrounding areas.
 - b. Inability to utilize full highland vistas and it's investment potential for these properties.

- 6. I am concern of the possible effect of the continued existence of Hawaiian Electric in conjunction with this "sanitary" landfill.
 - a. Burned oil for production of electrical current in conjunction with leaching potential to the ground water under the landfill and surrounding areas.
 - What is the effect on the water below?
 - What is the chemical effect of a electric current production area in conjunction with leaching possible toxins into the ground from the neighboring landfill.

- b. What is the true air quality with the emissions from the smoke stack of Hawaiian Electric Co. and the gasses of the landfill together? What are the convection patterns that are formed for this area and the surrounding communities? The community has a right to clean air to breath.

- c. What are the effects to the beaches and ocean environment; individually and together?(Hawaiian Electric & Waimanalo Gulch Landfill)

WES	RTS	
20	10/2	
RIT	10/2	
REC'D	SEP 24	MITC

Sept. 20, 2001
Ms. Wilma Namunart
Project Manager of the Waimanalo Gulch Sanitary Landfill
Department of Environment Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Subject: Comments & Concerns of the Waimanalo Gulch Sanitary Landfill
Dear Ms. Namunart:
I represent my family (Betsy Au Lum, The Estate of Audrey M. Au) and my self. We have two parcels of property bordering the Waimanalo Gulch Landfill. These properties have been owed by three generations of my family.

We are very concern about the extenuation of this landfill and it's long-term impact to these properties. We had hoped that this project would have terminated in 2002, and, along with all the other owners, begin to clam back the normal environmental qualities and benefits Hawaii has with land ownership, and it's benefits.

We would like to go on record as opposed to this landfill extenuation.

Attached is an outline of our Comments and Concerns (Two Pages) based in part on the current Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion.

Thank you, for your time in this matter. And your attention is greatly appreciated.

Sincerely,



Robert Au
1715 Anapuni St. #H
Honolulu, Hawaii 96822

Ph. 808-944-8140
Wk. 808-537-3497

CC: Mayor Jeremy Harris
R.M. Towill Corporation
John DeSoto, City Councilman

7. From experience I know that this valley/gulch" does flood approximately every ten to twelve years. When the military had this property (that the landfill is presently on) there was a road in from Farrington Hwy. that went to the right of the then stream bed and turned to the left over a concrete bridge, center back, of this valley; and then up to Fort Arizona. Water would always seep out from this area to the beach; that created an alluvial slow stream to the ocean. Blue crab and other water animals thrived in this "brackish" water. This environment existed with or without a flood. My concerns are:

- a. What damage has already been done at this location, and the surrounding echo environments.
8. Has the Board of Water Supply made a mistake in the change of the UIC Line and Groundwater Protection Zones during the mid 1980's?
- a. Detailed information is lacking for the physical reasoning and does not seem logical. This is based on the current diagrams and the past diagrams before the first IES on the inception of Waimanalo Gulch Sanitary Landfill.

Summated By:

Robert Au et al.
1715 Anapuni St. #H
Honolulu, Hawaii 96822

Properties Impacted:
9-2-03:13
9-2-03:45

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
PHONE: (808) 652-5155 • FAX: (808) 652-5113

Mr. Robert Au
December 23, 2002
Page 2

43A



JEREMY HARRIS
MAYOR

TIMOTHY E. STERNBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
BY REPLY REFER TO:
PE 02-007

December 23, 2002

Mr. Robert Au
1715 Anapuni Street, #H
Honolulu, Hawaii 96822

Dear Mr. Au:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

We regret any odor-associated discomfort you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

Thank you for your letter dated September 20, 2001, concerning the subject RDSEIS. We acknowledge your opposition to the project and have prepared the following responses to your concerns:

- 1. Fort Arizona ("Battery Arizona")**
Response: We acknowledge the history and use of the site up to the late 1950s, when it was last designated for a Nike Hercules anti-aircraft missile base. Although this site cannot presently be used for tourism-based activities, there is a possibility for such uses when the landfill is closed and capped. As noted in the RDSEIS, the Fort Arizona complex is outside the proposed expansion area and will not be adversely impacted.
- 2. Health Hazard to the surrounding residents, businesses and environment**
Response: The landfill is operated in accordance with regulations of the Environmental Protection Agency (EPA) and State Department of Health (DOH). Recent air quality monitoring has indicated that the municipal solid waste and ash are not a source of air contamination to the region and residences surrounding the property.

With regard to litter, both new management practices and equipment will be expanded to better control 1) the potential for refuse trucks littering the highway and adjoining properties in transit to the landfill, and 2) the escape of windblown litter from the landfill itself.

Some of these practices including cleaning of refuse vehicles transiting Waimanalo Gulch have already been implemented. Other practices are in the process of being constructed or developed.

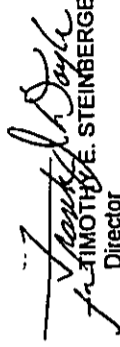
- 3. Solid Waste (Miss leading)**
Response: Waimanalo Gulch Sanitary Landfill is designed and permitted to accept municipal solid waste and ash. All materials going to the landfill, including putrescible waste, are required to be buried and covered by the end of each work day. This practice and other procedures are a requirement of the EPA and DOH to specifically prevent the establishment of disease and disease vectors. Furthermore, the site is regularly inspected and tested to guard against potential for adverse public health impacts.

4. The potential for fires
Response: Safe working procedures at the landfill are practiced to both prevent and deal with unavoidable fires. In one incident, a fire was contained in the load of a refuse vehicle which was diverted to the landfill from H-POWER. Waste Management of Hawaii, operators of the facility, successfully extinguished the fire using onsite fire fighting equipment.
5. The loss of the full potential of the use of our lands
Response: The Waimanalo Gulch Sanitary Landfill was opened in 1989, when much of the Ewa Region remained relatively undeveloped. Since then the area has experienced major new growth and development, all in the presence of the landfill. At the same time, we recognize that the landfill must remain a good neighbor in the community. Therefore, as required, operations of the landfill will be upgraded or improved to minimize or eliminate nuisances.
6. I am concerned of the possible effect of the continued existence of Hawaiian Electric in conjunction with this "sanitary" landfill.
Response: Hawaiian Electric (HECO) Kahe Power Plant. We cannot address the operating characteristics of the Kahe Power Plant. However, we can respond to your questions as they relate to operations of the landfill:
- a) Generation of leachate from the landfill. Leachate from the landfill has been tested and found to be in compliance with EPA and State regulations governing public and environmental safety. There has been no adverse impact to the underlying non-potable groundwater.
 - b) Landfill air quality. The landfill itself is relatively young and therefore has not generated high volumes of landfill associated gasses. A contributing factor to relatively good air quality in the area is the prevailing trade winds. Plans are currently underway to maintain control over gasses as the landfill matures. A gas collection system will be installed.

- c) Effects to beaches and ocean environment. We are not aware of any adverse impacts to the beaches and ocean environment. The landfill is required to operate in accordance with regulations of EPA and DOH, which call for a properly managed and operated site that specifically avoids hazards to the environment.
7. From experience, I know that this valley/gulch does flood approximately every ten to twelve years.
Response: Flooding of Waimanalo Gulch. A drainage control system has been installed to address flooding events such as the periodic 10- to 12-year flood you describe. The system is designed for a 25-year storm event.
8. Has the Board of Water Supply made a mistake in the change of the UIC line and Groundwater Protection Zones during the mid 1980's?
Response: Underground Injection Control (UIC) Line. We are required to undergo DOH project review for compliance with the UIC program. You may wish to consult DOH for further information concerning the specific regulation and implementation of the program.

We appreciated the time you have taken to review the subject document. Should you have any further comments, please contact Ms. Wilma Namumart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (ext. 22).

Sincerely,



TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

Office of Environmental Quality Control
September 21, 2001
Page 2

MIKE GOLOJUCH
92-954 MAKAKILO DRIVE #71
MAKAKILO, HI 96707-1340
(808) 672-9050

RECEIVED

SEP 27 2:05 PM
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

September 21, 2001

Office of Environmental Quality Control
State of Hawaii
336 South Beretania Street, Suite 702
Honolulu, HI 96813

RE: WAIMANALO GULCH SANITARY LANDFILL EXPANSION,
WAIANAE, OAHU

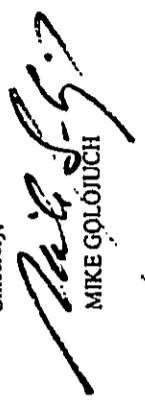
There has been an Environment Impact Statement (EIS) prepared for the City and County of Honolulu Waimanalo Gulch Sanitary Landfill expansion. There was an additional request to review alternatives to expanding the landfill. I have the following questions that I do not have been adequately addressed.

1. The City represented that only 57 acres of the site would be used, over a 15 year period, and then shut down; many people relied upon that in buying homes, investing money. Why is that not relevant?
2. The rules dealing with Groundwater Protection Zone's "no-pass" zones don't prohibit landfills; they only shift the burden onto the proponent of the landfill to show that aquifers won't be affected. Why hasn't the Department of Environment Services and/or the Refuse Division looked into alternative sites and investigated whether there are, in fact, any groundwaters which would be threatened by a sanitary landfill in such locations?
3. The EIS says that the landfill now takes 1,400 tons a day, which equals about 511,000 tons per year; why is the renegotiated base with Waste Management 335,000 tons a year.
4. In 1984, the tipping fee was \$8.90 per ton, and now 17 years later it's \$72 per ton, of which my understanding is that only \$12 per ton is required to be paid to Waste Management. Why is the tipping fee so high?
5. In 1996 modification of the landfill's permit, the State indicated that it was concerned with the elevated levels of heavy metals in H-Power ash and requested evaluation of its effect on ambient air or personnel; what tests have been performed and what were their results?

Please ensure all of these questions are answered before an expansion of the current landfill is considered. I still believe that the landfill should not be allowed to operate at its current or any immediate surrounding location after two more years - 2004. The City and County of Honolulu needs to locate another site and/or initiate immediate actions to find alternatives.

Thank you for allowing me to provide my input. Although I provided these inputs as a private citizen, I would be remiss if I didn't mention that I am a board member of Neighborhood Board #34; President, Palehua Community Association (2,600 families in Makakilo); and the President, Palehua Townhouse Association.

Sincerely,


MIKE GOLOJUCH

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 308, LAKEVIEW, HAWAII 96707
PHONE: (808) 672-5155 • FAX: (808) 672-5113



JEREMY HARRIS
DIRECTOR

TIMOTHY E. STEMBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
BY REPLY REFER TO:
RE 02 054

May 13, 2002

Mr. Mike Golojuch
92-954 Makakilo Drive, Unit No. #71
Makakilo, Hawaii 96707-1340

Dear Mr. Golojuch:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated September 21, 2001. We offer the following in response to your concerns:

1. The City represented that only 57 acres of the site would be used, over a 15 year period, and then shut down; many people relied upon that in buying homes, investing money. Why is that not relevant?

Response: The initial landfill site was confined to approximately 57 acres because the City believed that further excavation of the rocky soil would be difficult and expensive. During the course of operating the landfill, Waste Management of Hawaii discovered that the site could be excavated at a reasonable cost and proposed the expansion to the City. The City conducted a competitive selection process involving Waste Management and three local firms. Though we continue to evaluate alternatives to use of landfills in general, and use of Waimanalo Gulch in particular, the expansion remains the most desirable and cost effective option.

Waimanalo Gulch Sanitary Landfill has been in operation since 1989, and there has never been a commitment to close the site after 15 years. We note in particular that operation of the landfill throughout this period did not deter the original developers of Ko Olina from proceeding with construction of the Ihilani resort and residences. More recently, developers have successfully initiated projects such as Coconut Plantations and Marmot Ko Olina Beach Club and have completed the Ihilani Lagoons and Marina. From a broader perspective, a landfill is an essential component of any solid waste management system for the disposal of nonrecyclable, noncombustible refuse. Without a landfill, the economic well-being and public health and safety of all Oahu residents will be in jeopardy.

44A

Mr. Mike Golojuch
May 13, 2002
Page 2

2. The rules dealing with Groundwater Protection Zone's "no-pass" zones don't prohibit landfills; they only shift the burden onto the proponent of the landfill to show that aquifers won't be affected. Why hasn't the Department of Environmental Services and/or the Refuse Division looked into alternative sites and investigated whether there are, in fact, any groundwaters which would be threatened by a sanitary landfill in such locations?

Response: The City has investigated a number of alternative landfill sites and determined that certain locations are inappropriate for landfill development. This includes areas which have been designated as vital for continued groundwater recharge. Furthermore, the rationale supporting this decision is based on the growing demand and need to maintain protection of Oahu's limited potable water resources. This is the reason we have identified all areas within the groundwater protection zone and underground injection control lines as a major criterion in determining whether a site is suitable for use as a sanitary landfill. There are no locations within these zones that have been identified by the Board of Water Supply as suitable for landfill development.

3. The EIS says that the landfill now takes 1,400 tons a day, which equals about 511,000 tons per year, why is the renegotiated base with Waste Management 335,000 tons a year.

Response: The renegotiated base tonnage in the Waste Management contract is based on the City's efforts to decrease landfill disposal through diversion to recycling and reuse. The City will divert approximately 45,000 tons of wastewater sludge to a reuse process which will become operational in approximately two years. The City is also moving to expand the types of materials banned from disposal at the landfill. We have been working with the State Department of Health to use H-POWER ash for construction material. We are planning the expansion of H-POWER and the establishment of an alternative technology park to divert more tonnage from landfill disposal. As these programs are implemented, the tonnage will be closer to the base tonnage amount.

4. In 1984, the tipping fee was \$8.90 per ton, and now 17 years later it's \$72 per ton, of which my understanding is that only \$12 per ton is required to be paid to Waste Management. Why is the tipping fee so high?

Response: The landfill tip fee is the same as that charged at H-POWER. A lower landfill tip fee would create an unwanted incentive to dispose of all materials at the landfill instead of sorting materials for recycling and reuse. This would result in an inefficient use of our scarce land resources. Therefore, because we wish to conserve landfill capacity, the tip fee charged is appropriate to the objective of promoting recycling, reuse, and conservation of resources.

Mr. Mike Golojuch
May 13, 2002
Page 3

5. *In 1996 modification of the landfill's permit, the State indicated that it was concerned with the elevated levels of heavy metals in H-POWER ash and requested evaluation of its effect on ambient air or personnel; what tests have been performed and what were their results?*

Response: The City continues to perform Toxicity Characteristic Leaching Procedure (TCLP) testing of ash as required by the Environmental Protection Agency and State Department of Health. The results indicate that H-POWER ash is a non-hazardous material. The results also indicate a decline in the presence of heavy metals over time.

We appreciate your review and comments concerning the subject document. Any further comments may be directed to Ms. Wilma Namunnart of our Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, ext. 22.

Sincerely,


TIMOTHY STEINGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Ms. S. Apuya Address: 92-761 Paakai St
Phone: 683-0647 day Kapolei, HI 94707
784-1556 eve

Please write comments below. Attach additional sheets if necessary.

*I would like the landfill to be extended
beyond its current location. I would like to
see appropriate plans of the way to the landfill
in a timely and efficient manner.*

Signature: [Handwritten Signature] Date: 9-26-01

45A

WES	
R-F	
RTT	
BRT	
AP	
SP	
J	

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 209, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 • Fax: (808) 692-5113



FREEMAN HARRIS
MAYOR

April 10, 2002

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02 020

Ms. Mar S. Apuya
92-761 Paakai Street
Kapolei, Hawaii 96707

Dear Ms. Apuya:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated September 26, 2001. We acknowledge your opposition to the proposed project and your desire for the City to select an alternative site for the future landfill needs of Oahu.

The Waimanalo Gulch Sanitary Landfill was first operated in 1989 at a time when the Ewa Region was beginning to experience new growth. Although the landfill was in part sited to minimize potential for impacts to adjoining communities, growth throughout Oahu has severely limited the availability of land for the siting of new municipal landfills. It is our belief that Waimanalo Gulch, with remaining capacity, must be utilized to the fullest extent possible before turning to other potential, and precious, land resources on Oahu.

We, and Waste Management of Hawaii, will continue our commitment to address the concerns of the community involving odor, litter, and visual appearance. We will investigate new technologies and, whenever feasible and prudent, develop them.

We understand there will continue to be challenges to meeting the waste disposal needs of our island, and value your concerns. Should you have any further comments, please contact Ms. Wilma Namunart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc. at 688-2985, ext. 22).

Sincerely,

[Handwritten Signature]
TIMOTHY E. STENBERGER
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 PACIFIC PEARL PLAZA • 731 KAPOLANI BOULEVARD SUITE 1200 • HONOLULU, HAWAII 96813
 TELEPHONE: (808) 523-4329 • FAX: (808) 523-4730 • INTERNET: www10.hawaii.gov



JEREMY HARRIS
 MAYOR

WES	KTS
REU	NIA
ERT	ERT
RECD	UU1
	ERIC
	CHERYL D. SOON
	DIRECTOR

GEORGE M. EDNF MIYAMOTO
 DEPUTY DIRECTOR

September 26, 2001

TPD6/01-02504R
 TPD8/01-03459R

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, ACTING DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUMNART

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION

In response to the May 25, 2001 letter from the Department of Environmental Services, the revised draft supplemental environmental impact statement for the subject project was reviewed. As stated in our August 21, 2000 memorandum regarding the subject project, the proposed project does not affect streets under City jurisdiction. For this reason, we have no objections to the proposed project. Should an alternate site involving City street(s) be selected as the preferred location for the proposed landfill, we would appreciate having the opportunity to comment on that proposal.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

Cheryl D. Soon
 CHERYL D. SOON

cc: Mr. Randall K. Fujiki
 Department of Planning and Permitting
 Ms. Genevieve Salmonson
 Office of Environmental Quality Control
 Mr. Brian Takeda
 R.M. Towill Corporation

46 01032.

RECEIVED
 IF NEEDED SUPPLY
 3 10 34 AM '01
 DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 600 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-8663 • Fax: (808) 527-8675



JEREMY HARRIS
 MAYOR

TIMOTHY E. STEINBERGER, P.E.
 ACTING DIRECTOR
 IN REPLY REFER TO
 RE 01-095

May 25, 2001

Dear Participant:

Attached for your review is a Revised Draft Supplemental Environmental Impact Statement (RDSEIS) which was prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Hawaii Administrative Rules, Title 11, Chapter 200).

TITLE OF PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
 LOCATION: Oahu, District of Ewa
 TAX MAP KEY: 9-2-3-072 and 073
 AGENCY ACTION: APPLICANT ACTION: _____

YOUR COMMENTS MUST BE RECEIVED OR POSTMARKED BY: July 23, 2001
 (minimum 45 day comment period)

PLEASE SEND ORIGINAL COMMENTS TO THE:

APPLICANT: City and County of Honolulu
 Department of Environmental Services
 ADDRESS: 550 South King Street, 6th Floor
 Honolulu, Hawaii 96813
 CONTACT: Ms. Wilma Namumnart
 PHONE: 527-5378

COPIES OF THE COMMENTS SHOULD BE SENT TO OECC AND THE FOLLOWING:

APPROVING AGENCY OR ACCEPTING AUTHORITY: Mayor Jeremy Harris
 ADDRESS: 530 South King Street, City Hall, Room 300
 Honolulu, Hawaii 96813
 CONTACT: Mr. Randall K. Fujiki, Director, Department of Planning and Permitting, c/o Mayor Jeremy Harris
 PHONE: 523-4432

CONSULTANT: R.M. Towill Corporation
 ADDRESS: 420 Waiakamilo Road, Suite 411
 Honolulu, Hawaii 96817
 CONTACT: Mr. Brian Takeda
 PHONE: 842-1133

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 PACIFIC PARK PLAZA • 711 KAPOLAHUA BOULEVARD SUITE 1200 • HONOLULU, HAWAII 96813
 TELEPHONE (808) 523-5229 • FAX (808) 523-4730 • INTERFAX (808) 523-4730



H. R. HARRIS
 MAYOR

WES	KTS
REU	NM
RTT	(BRT) [initials]
REC'D UUI	DATE
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	DATE
	DATE

GEORGE T. LEONT MIYAMOTO
 DEPUTY DIRECTOR

September 26, 2001

TPD6/01-02504R
 TPD8/01-03459R

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, ACTING DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUMNART

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION

In response to the May 25, 2001 letter from the Department of Environmental Services, the revised draft supplemental environmental impact statement for the subject project was reviewed. As stated in our August 21, 2000 memorandum regarding the subject project, the proposed project does not affect streets under City jurisdiction. For this reason, we have no objections to the proposed project. Should an alternate site involving City street(s) be selected as the preferred location for the proposed landfill, we would appreciate having the opportunity to comment on that proposal.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

Cheryl D. Soon
 CHERYL D. SOON

cc: Mr. Randall K. Fujiki
 Department of Planning and Permitting
 Ms. Genevieve Salmonsom
 Office of Environmental Quality Control
 Mr. Brian Takeda
 R.M. Towill Corporation



October 2, 2001

Mr. Timothy E. Steinberger P.E.
Mr. Frank Doyle
City & County of Honolulu
Department of Environmental Services
650 South King Street 6th Floor
Honolulu, Hawaii 96813

Subject: Waimanalo Landfill - Foul Odors, Flying Garbage and Dust

Gentlemen:

This is to report that during the period from Saturday, September 29, 2001 through Monday, October 1, 2001 the foul odors and flying garbage and dust emanating from the Waimanalo Landfill seriously affected (more than normal) Ko Olina's Resort's guests, residents and employees.

Contrary to promises made by officials from the Department of Environmental Services and Waste Management Hawaii at the September 26th public meeting at Kapolei Hale to minimize the Landfill's adverse effects of current operations, the neighboring community continues to endure the serious impact of odor and garbage on a daily basis.

We continue to view these occurrences as a major reason for the immediate closure of the Waimanalo Landfill. We also request that this letter be made a part of the Final SEIS.

Very truly yours,

Kenneth M. Williams
General Manager

- c: Senator Colleen Hanabusa
- Senator Brian Kamae
- Councilman John DeSoto
- Representative Mike Kahikina
- Representative Emily Awee
- Representative Mark Moses
- George Yamanou (Kapolei Neighborhood Board Chair)
- Cynthia Rozzakis (Waianae Neighborhood Board Chair)
- Wilma Naniunani (DSES)
- Bruce Taketa (R.M. Tenille)
- Steve Casolo (Waste Management III)
- Joe Hernandez (Waste Management III)
- KIWA Board of Directors

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HI 96813
TELEPHONE: (808) 527-6653 FAX: (808) 527-6675 WEBSITE: <http://www.cco.honolulu.hi.us>



AMY HARRIS
Mayor

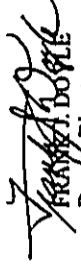
TIMOTHY E. STERNBERGER, P.E.
Acting Director

FRANK J. DOYLE, P.E.
Deputy Director

Mr. Kenneth M. Williams
October 5, 2001
Page 2

Should you need additional clarification or assistance please call me at 527-6952.

Sincerely,


FRANK J. DOYLE
Deputy Director

Mr. Kenneth M. Williams
General Manager
Ko'Olina Resort & Marina
92-619 Farrington Highway
Ko'Olina, Hawaii 96707

Dear Mr. Williams:

Thank you for your letter of October 2, 2001.

Your experience during the period September 29 to October 1, 2001 is regrettable. Unfortunately, over the three days, you failed to notify anyone of the adverse conditions as requested previously in our letter of December 12, 2000.

All complaints of this nature are immediately investigated to determine their source and, if resulting from landfill operations, to reduce their occurrence. We need your assistance to address these situations in a timely manner.

Waste Management has an onsite wind direction and velocity recorder. The data for the three-day period September 29 through October 1, 2001, indicate that, except for a short period of time, the wind direction was away from Ko'Olina. We did have a number of strong gusts that resulted in onsite litter. As is our normal practice, this material was removed on the next full day of operations. There was no off-site litter from landfill operations during this period.

Again, we ask for your cooperation by following the reporting procedure outlined in the above referenced letter. In addition to the telephone numbers previously provided, you may reach me on my cell phone at 383-9470 or Joe Hernandez on his cell at 479-4608.

DEP 01-026

October 5, 2001

WES		KTS	
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RTT		(BRT)	PA
REC'D	UCI	U 9	MITC
		(ETW)	

cc: Senator Colleen Hanabusa
Senator Brian Kanino
Councilman John DeSoto
Representative Mike Kahiikina
Representative Emily Auwac
George Yamamoto (Kapolei Neighborhood Board Chair)
Cynthia Rezendes (Waianae Neighborhood Board Chair)
Wilma Namunauat (ENVY)
Brian Taketa (R.M. Towill)
Steve Cassulo (Waste Management HI)
Joe Hernandez (Waste Management HI)
KOCA Board of Directors

47A

October 5, 2001

2:02 PM/vicki

October 5, 2001

2:02 PM 48

- >To: mayor@co.honolulu.hi.us, holmes@co.honolulu.hi.us, felix@pixi.com,
- >From: Linda C Ure <ureonnow@lava.net>
- >Subject: Use of Kapaa Quarry as a City & County Landfill
- >Cc: senhanabusa@capitol.hawaii.gov
- >Subject: Use of Kapaa Quarry as a City & County Landfill.
- >
- >Senator Colleen Hanabusa announced, at a Public Hearing on Leeward's
- >Waimanalo Gulch, held at Kapolei Hale on September 26, 2001, that the City
- >is evaluating Kapaa Quarry as a municipal landfill to replace Waimanalo
- >Gulch. She told the audience that she had just had a meeting with Mayor
- >Harris and that he informed her that the City is evaluating Kapaa Quarry as
- >a solid waste landfill which, apparently, would allow for closure of
- >Waimanalo Gulch landfill. Ms. Hanabusa used words to the effect that "Kapaa
- >Quarry is just a big puka in the ground and needs to be filled anyway; why
- >not put the City landfill there and go ahead and close Waimanalo Gulch
- >[Ko'alina as she called it]."
- >
- >Kapaa Quarry does not appear on the City & County's "Inventory of Potential
- >Landfill Sites (Municipal Solid Waste, Ash and Sewage Sludge) Island of
- >Oahu," distributed at the Public Hearing.
- >
- >The Kailua Neighborhood Board No. 31 has not been made aware that the City
- >is evaluating Kapaa Quarry as a landfill site. Apparently, other
- >interested groups such as those on this address list, have not been informed.
- >
- >Testimony on Thursday night revealed that the City landfill continually
- >exacerbates health and living problems for some miles around the landfill.
- >Local residents and businesses alike complained of asthma and illness,
- >sickening smells, harassing truck traffic, and debris blown and scattered
- >all around the area of the landfill. Local residents complained about
- >having to continually hose down their houses and live with all windows and
- >doors closed. Plastic bags blown by the wind could be seen all over the
- >adjacent landscape even in the fields surrounding Kapolei Hale. This does
- >not bode well for movement of the landfill to Kapaa Quarry.
- >
- >Ameron at Kapaa Quarry is being fined by State Department of Health (DOH)
- >and entering into a Consent Order as a result of violations of Kapaa's
- >Stream and Kawaiinui Marsh. How much more so will a landfill injure Kapaa's
- >Stream and Kawaiinui Marsh?
- >
- >Kapaa Landfill No. 1, TMK 4-4-14; por 2, sixty (60) acres, life-span 5.1

- >more years, is open and operating at Kapaa already. Two filled and closed
- >landfills, Kapaa Nos 2 & 3, now stand at Kapaa. Questions exist as to
- >these three landfills' effect on Kawaiinui Marsh. The Garbage transfer
- >point at Kapaa operates all-year round.
- >
- >Truck traffic which serves Ameron (soon at its newly opened Quarry site
- >Phase II, south of H-3) Bitumuls' plant, road debris dump, green waste
- >dump, the transfer point, and businesses in Kapaa Light Industrial Park, is
- >already very heavy. To add landfill truck traffic, which carries 800 tons
- >of solid waste, and 600 tons of ash and sewer sludge every day to Waimanalo
- >Gulch, would literally devastate the Kailua/Kaneohe traffic flow,
- >over-pollute the Windward region, destroy the roads, and increase hazards
- >to Windward residents and property. Le Jardine School, now entering an
- >expansion to high school level, and Kaleheo High school would both be
- >severely impacted by land fill operations and traffic.
- >
- >There can be no assurance that landfill operations do not, or will not
- >injure the environment and ecosystem of Kawaiinui Marsh, the largest
- >remaining wetland wildlife habitat in the State of Hawaii. Questions exist
- >as to whether or not the marsh would be degraded in its flood control role,
- >recalling the devastation to Coconut Grove, especially in earlier floods.
- >
- >As discussed at the Public Hearing on September 26, the State, County and
- >City need to move beyond ancient methods of waste disposal by burying and
- >burning as has been done by humans since the stone age (c. 10,000 B.C.E.).
- >Three private companies attended the meeting and stated that they have been
- >seeking State and City cooperation to begin modern, environmentally
- >protective waste disposal operations: Plasma Enhanced Melter (PEM) already
- >in operation at Campbell Industrial; Plasma Arc disposal; and one other
- >method that combines waste products into useable construction material.
- >Mr. Jeff Stone testified that profits, to the City and to the private
- >companies which run landfill operations for the City, prevent the State and
- >City from moving toward new, modern waste disposal methods. This is
- >certainly an issue which could be taken up by our legislators, City
- >Council, and other government elected and appointed officials. This is a
- >state-wide issue. Continuing to use landfill as a solution will be to
- >continue to downgrade the environment, natural beauty, and ecosystem health
- >of Oahu and other island.
- >
- >The time to act is now. It takes years to shift from one waste disposal
- >method to others. The health and well-being of residents and visitors

October 5, 2001

2:03 PM/vicki

>alike are affected by current waste disposal methods; especially in view of
>the very limited land area remaining to us on these islands. We must move
>away from burying and burning and toward PEM, laser, plasma-arc, and other
>new millennium age methods; they need to be actively explored and evaluated
>for cost and efficiency. A combination of new technical methods might well
>be considered, not just one single method. Above all, if the Mayor and the
>City are evaluating Kapaa Quarry as a potential landfill site:
>1.) Why haven't Kaiua, Kaneohe, and Windward residents been informed of
>that fact (as Senator Hanabusa, from Leeward, has been informed)?
>2.) Why isn't Kapaa Quarry carried on the City's "Inventory of Potential
>Landfill Sites (Municipal Solid Waste, Ash and Sewage Sludge) Island of
>Oahu" as distributed by the City to the public at the hearing on September
>26, 2001?
>Jim Corcoran
>Phone: 808-263-3093
>Fax: 808-263-3094
>e-mail: urenonow@lava.net, corcoran@hawaii.edu

January 18, 2002

Ms. Linda C. Ure
lureonow@lava.net
Mr. Jim Corcoran
jcorcoran@hawaii.edu

Dear Ms. Ure and Mr. Corcoran:

Subject: Use of Kapaa Quarry as City Landfill

I am writing on behalf of Mayor Jeremy Harris in response to your email dated October 5, 2001. Senator Colleen Hanabusa was correct in indicating the City is evaluating Kapaa Quarry as a municipal solid waste landfill site. We will be adding Kapaa Quarry to the Inventory of Potential Alternative Landfill Sites. The inventory lists locations on Oahu that have potential to become a landfill site. We have been notified by Ameron, however, that the site will not be available for at least 7 to 10 years, if at all.

The testimony on September 26, 2001, understandably attests to the fact that no one wants a landfill in his neighborhood. A landfill, however, is a necessary part of any solid waste management program for assuring public health and safety, as well as economic well-being.

The City is evaluating the plasma arc technology on municipal solid waste in February 2002. We are establishing an Alternative Disposal Technology Park at Campbell Industrial Park to provide land for the development and demonstration of emerging technologies. Land availability is a major obstacle to these technologies.

The City revenue from landfill operations is about equal to its landfill expenses.

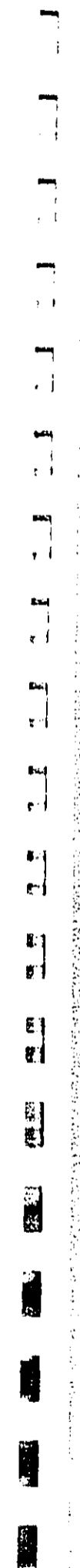
Although some people would like to believe there is a magic solution to solid waste disposal, a landfill is a necessary component for solid waste management. As part of Oahu's program, the City conserves landfill capacity by disposing of more than half of Oahu's waste at H-POWER, where it is converted to electrical energy. The City recycles and diverts approximately 30% of its waste to viable markets. Even with these activities, there is still a need for a landfill for noncombustible, nonrecyclable materials.

Any further comments may be directed to Ms. Wilma Namunnart of our office at 527-5378.

Sincerely,
TIMOTHY E. STEINBERGER
Director

cc: Joe Hernandez, Waste Management
Brian Takeda, RM Towill Corp.

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PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Harry Choy Address: 87-1550 Kanahale Road
Phone: 6769100 day
6682878 eve

Please write comments below. Attach additional sheets if necessary.

I was one of a few that voted for the expansion of Waimanalo Landfill at the Waiānae Neighborhood Board which I am a member. I still feel the same today. At the last Board meeting Senator Hanabusa back the community on the expansion since Ku. Oline and Kapolei are investing over a billion dollars in developing their vacant land for housing no doubt. Yet they are not worry about the opposite and namely Campbell Industrial Park which is a noxious industry area. If they can monitor that area they sure can monitor "Waimanalo Landfill".

You talk about modern technology, good and well but this is a two way street the City should assure that the community complaint are met like Farrington Highway dirt and dust should be clean weekly or more not just when someone complaint. There should be a truck bath so vehicles leaving the landfill does not track dirt or mud onto the Highway. All loads entering the landfill should be check at the scale and to reject unauthorized load. Not checking after the load is dumped. The roads and areas that may create a dust problem should be watered down. Are the contractor at the dump checking or monitoring the daily wind and other weather condition? I notice the woman at the scale isn't too friendly like checking the load, SMILE or give any instruction especially I am not a frequent user.

On the other side the City Council should initiate an ordinance on recycling. Residence should separate their rubbish-green waste metal-garbage and only certain items should go into the landfill.

This holds true to the commercial refuse companies. The community don't want the landfill expansion but I heard they the grapevine that it is a done deal the city is going to pass the old Karner Quarry into a C&D and recycle Dump which we (Mikilua) and Waiānae residents does not want. Think about it the Waiānae Board voted no to Waimanalo but leaning for Kūāiākea Dump.

Signature: Harry Choy Date: 10-5-01

Mr. Harry Choy
November 20, 2001
Page 2

WES	AK	NIS
EXP	VP	NM
RIT	BRT	BRT
LULU		
REC'D NOV 27 2001 MITC		
AK	VP	
AK	VP	
FRANK J. DOYLE, P.E. DEPUTY DIRECTOR		
IN REPLY REFER TO: RE 01-206		

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, HONOLULU, HAWAII 96813
 Phone: (808) 527-6663 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

November 20, 2001

Mr. Harry Choy
 Waianae Resident and Boardmember,
 Waianae Neighborhood Board
 87-1550 Kanahaole Road
 Waianae, Hawaii 96792

Dear Mr. Choy:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated October 5, 2001, and for your affirmative vote on the landfill expansion proposal.

The proximity of residential and resort development – Ko Olina, Honokai Hale, Nanakai Gardens, Kahe Point Homes – makes it imperative that Waimanalo Gulch Sanitary Landfill be operated in an environmentally responsible manner to ensure the health and safety of the surrounding community. Many of the mitigating measures you mention have been implemented or are being improved.

- Unauthorized incoming loads are turned away at the scale. If unacceptable materials are dumped at the landfill working face, the hauler is required to pick up the load and dispose of it properly elsewhere.
- Landfill roads are watered down periodically to minimize the effect of windblown dust on adjoining properties and the highway.
- Onsite litter control has been enhanced with additional litter fencing, new litter collection equipment, and additional litter cleanup crews.
- Waste Management of Hawaii, the landfill operating contractor, has weather instruments to measure wind speed and direction. They are able to anticipate conditions which increase the potential for litter being carried off-site and alert standby work crews for immediate deployment should that occur.

The City has developed a number of successful recycling programs, but we agree with you that more can be done to reduce our dependence on landfills. Recycling ordinances already require the commercial sector to separate recoverable materials from their rubbish, and the City is increasing its efforts to encourage residents to participate in its recycling programs.

Expansion of Waimanalo Gulch Sanitary Landfill is the preferred alternative from environmental and economic standpoints. In addition to completion of the environmental impact statement process, land use approvals must be obtained and operating permit requirements must be satisfied before the City can proceed with the project.

We appreciate the time you have taken to share your concerns. Should you have any further comments please contact Ms. Wilma Namunnart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

Timothy E. Steibberger
 TIMOTHY E. STEIBBERGER
 Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
 Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAFFRANO
 MAJOR GENERAL EDWARD L. CORREA, JR.
 DIRECTOR OF CIVIL DEFENSE



STATE OF HAWAII
 DEPARTMENT OF DEFENSE
 OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
 3949 DIAMOND HEAD ROAD
 HONOLULU, HAWAII 96816-4495

October 12, 2001

TO: Ms. Genevieve Salmonson, Executive Director
 Office of Environmental Quality Control
 235 South Beretania Street, Room 702
 Honolulu, Hawaii 96813-2437

FROM: Edward T. Teixeira
 Vice Director of Civil Defense

SUBJECT: REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
 STATEMENT (RDSEIS) FOR THE WAIMANALO GULCH SANITARY
 LANDFILL EXPANSION

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Waimanalo Gulch Sanitary Landfill Expansion, Ewa, Oahu, State of Hawaii, Tax Map Key 9-2-03: 072 and 073.

We do not have any comments or recommendations on the RDSEIS.

Technicians and planners are available to assist and answer any questions you may have. If there are any questions, please have your staff call Mr. Norman Ogasawara, State Civil Defense, at 733-4300.

Mr. Randall K. Fujiki
 Department of Planning and Permitting
 650 South King Street, 7th Floor
 Honolulu, HI 96813

LTC Ron Swafford
 HIARNG Environmental Section

Radio Shop

Mr. Brian Takeda
 R. M. Towill Corporation, Inc.
 420 Waikamilo Road, Suite 411
 Honolulu, HI 96817-4941

Oahu Civil Defense Agency

50



PHONE (808) 733-4300
 FAX (808) 733-4287

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R-F	NM		
RTT	BRT		
RECD	ULI		EMTC

DEPARTMENT OF ENVIRONMENTAL SERVICES
 CITY AND COUNTY OF HONOLULU
 1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
 Phone: (808) 692-5159 • Fax: (808) 692-5113



April 10, 2002

Mr. Edward T. Teixeira
 Vice Director of Civil Defense
 Office of the Director of Civil Defense
 State Department of Defense
 3949 Diamond Head Road
 Honolulu, Hawaii 96816-4495

Dear Mr. Teixeira:

Subject: Revised Draft Supplemental Environmental Impact Statement
 Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated October 12, 2001. We acknowledge that you do not have any comments or recommendation concerning this document.

We appreciated your review of the subject document. Should you have any further comments please contact Ms. Wilma Namumnat of our Refuse Division at 692-5378.

Sincerely,

TIMOTHY E. STEINBERGER
 Director

cc: Waste Management of Hawaii, Inc.
 R.M. Towill Corporation

50A

KTS	
NM	
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EMTC	

FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR
 RE 02-023

52



Amy forgets? Never!

from desk of Amy H. Tanaka

87-1748 Farrington Hwy., Waimae, HI 96792
Phone/Fax (808) 668-1846

October 13, 2001

Department of Environmental Services
City and County of Honolulu
Refuse Division
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Attention: Mr. Herb Lee
Ms. Wilma Numanart
Wendy

Subject: Wainanalo Gulch Sanitary Landfill, Additional Comments

Dear Mr. Lee and Numanart,

Forwarding my Additional Comments with extra copies for your review and information. Please call me if you need more data. Thank you for your efforts in our pleas for help.

Note to Wendy: I received the CD on the REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT on Tuesday October 9th and the letter from the Mayor extending the Comments to be sent by November 11th. I am now reading the EIS and downloaded only the pages that I'm interested in. Thanks very much for your prompt service! Do you want me to return the CD that I received? Please call me at 668-1846 or by e-mail: TANAKAH010@hawaii.rr.com.

Aloha,

ENCLOSURES

FAX to:

D Addresses: (Mn
> CC: (4 persons)
FM: Amy Tanaka
'01/10/01



Amy forgets? Never!

51

from desk of Amy H. Tanaka

87-1748 Farrington Hwy., Waimae, HI 96792
Phone/Fax (808) 668-1846

October 19, 2001

Department of Environmental Services
City and County of Honolulu
Refuse Division
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Attention: Mr. Herb Lee
Ms. Wilma Numanart
Wendy

Reference: My Letter dated October 13, 2001, Subject: Wainanalo Gulch Sanitary Landfill, Additional Comments

Subject: Typographical error in Referenced letter

Dear Mr. Lee and Ms Numanart,

Of referenced letter above, please change the word "mitigation" to "intigation" on page 2, line 3 starting at the top of page.

This error is the worst of my other typo's, and missing words, etc. I wish I had someone to edit my letters before they are sent out, but please excuse me for causing more work for you. I just hope I got the gist of my comments across to you and anyone who may have an interest in the subject matter. Thank you very much for your help!

Yours truly,

CC: Councilman John DeSoto
Senator Colleen Hanabusa
Representative Elaine Auwae
Ms. Maeda Timson

ROBERT U. MITS' 'ASU
 c/o Amy H. Tanaka
 87-1748 Farrington Hwy.
 Waianae, HI 96792-3742
 Phone/FAX: 808 668-1846

October 11, 2001

City and County of Honolulu
 Department of Environmental Services
 650 S. King Street
 Honolulu, HI 96813

ATTN: Ms. Wilma Namunart, Landfill Expansion Project Manager and
 Mr. Herb Lee, Consultant to the State Office of Environmental Quality Control

Re: Waimanalo Gulch Sanitary Landfill Expansion Meeting
 of September 26, 2001 at Kapolei Hale

Subject: Additional Comments to the Landfill Expansion to Re: meeting above

TO ALL CONCERNED:

Mr. Herb Lee, please recall that after the meeting of September 26th, I handed you a sheet of additional comments that I had written hurriedly, along with my letter to Ms. Wilma Namunart, dated September 14th. To clarify my roughly written comments of that night, I am forwarding this typed letter that explains in depth what I had wanted to say before the meeting ended.

- The "life" of the Waimanalo Gulch Landfill was to be 10 years with enough space for trash/wash to fill up the 80+ acres in 20 years. However, right now, the allocated landfill area is filled to capacity and overflowing. The Ash and raw garbage that are hauled and dumped in the gulch daily are piling up higher than the natural Kahe mountains. (See Enclosure #1). These waste byproducts are causing terrible air and land pollution that are affecting the health of the residents and destroying the land that was once clean and beautiful. At Kahe Point Homes, of the 12 families or total of 35 residents, 11 of them from ages 11 months to 55 years old are afflicted with asthma and/or bronchitis. Their conditions worsen when the trade winds blow directly toward their homes and the children must be rushed to the doctors or have some relief by using the asthma breathing machines that cost more than \$100.00 a piece for each child or adult. (This cost is very high considering their modest income and high medical bills.) The bulldozers atop the high ash piles (see Enclosure #2) push the "toxic" ash-dust up in the air which is comparable to the volcanic haze that blows over the islands from the Big Island. The detrimental dust haze and the foul toxic air have been tolerated and endured by the many neighboring residents of this area for more than 10 years. How much longer can this go on? It is unthinkable that this may go on for another 17 years! In the event people who have never lived near a landfill approve the landfill expansion, the worst scenario imaginable

will be an exodus of the residents, businesses and visitors from this area creating a GHOST TOWN. This will cause a bigger headache for the City and State who have to contend with more homelessness, bankrupt businesses and mitigation by people who became ill from the toxicity from the landfill. Therefore, the landfill expansion must NOT become a reality!

- Also, an important factor or question that was raised, but not satisfactorily answered at the meeting, was "When will the landfill be covered up, now that it has been filled to capacity within a given period of 10 years?" Apparently, this factor was overlooked or overshadowed by the people looking for more space to dump more waste discarded by the "affluent" population of this modern day era. The purpose of a landfill is to find an undesirable piece of land, fill it up with trash, level and cover it up with dirt and use it for other useful purposes. It appears that the most important factor that had been overlooked is the restoration of the landfill which has not begun because new burnt ash and raw garbage have been piled on top of the old piles and the waste had not been given enough time "age." If this continues, when will it ever be ready for aging? With careful planning could it not have been done in portions, where the oldest dumped materials are aged and prepared for restoration? If this had begun within the few years after the landfill started, the whole landfill would not be the pollutant garbage dump today. The way things are running now, we are forced to live with these intolerable and sickening conditions that have been going on for more than 10 years. Somehow, we have managed to live more than 10 years of our lives enduring the bad environmental effects of the landfill. These 10+ years have been much too long. Therefore,

TO ALL THE LAWMAKERS AND KEEPERS OF OUR GOVERNMENT:

Please help us by STOPPING the landfill expansion and BEGIN the RESTORATION of the Kahe Valleys now! We plead for your support and your power to end the "life" of the Waimanalo Gulch Sanitary Landfill and return Kahe Valleys to the people so that we can live in a clean and healthy environment before it is too late! (I say return the Kahe Valleys to the people and residents before it is too late because according to folklore, Kahe Valleys are the homes of the ancient *Menehunes* who go fishing along the coastline from Paradise Cove to the beaches past the Hawaiian Electric Plant. These *Menehunes* are called the "night marchers" and have their natural trails down the mountains to the beaches. Their homes and trails have been desecrated by us humans with the building of homes, roads, stone walls, digging up the grounds and filling them up with rubbish. Some of the residents at Kahe Point Homes have seen and experienced incidences that have occurred since the '60's. So, they called in "Auhuna's" or Hawaiian Healing Ministers to ask the *Menehunes'* permission to use their lands and had them "blessed" according to their ancient rites... Have you had the grounds blessed? If not, look out, the *Menehunes* might get you! Better to do it now before it is too late! These are just a few precognitive words of caution...)

Very respectfully,


 Amy H. Tanaka, Manager

and the Residents of Kahe Point Homes

CC: Councilman John De Soto
 Senator Colleen Hanabusa
 Representative Elaine Auwae
 Ms. Maeda Timson
 Mr. Robert Au

Enclosure #1 Photos of the Landfill were taken on October 5, 2001. Photo #a shows that the man-made ash and trash mountain higher than the natural mountain. Photo #b shows the polluted dust constantly pushed in the air by the bulldozer.

Enclosure #2 Comments received from Bernadette Hatchette, former resident of Kahe Homes

Enclosure #3 For those who had not received my original letter, dated September 14, 2001 to Ms Wilma Namunart and the FAX Transmittal to Councilman John De Soto, these Enclosures are forwarded now.

P.S. After the grounds are restored, how about envisioning the prospect of a futuristic Olympic Games facilities at Kahe Valley, Hawaii, USA. It will cost a mint, but the returns will be immeasurable for our economy and younger generations. Japan built an airport on land filled grounds. (This is just another afterthought, but had to mention one of the possibilities of using the land productively.) Hopefully, a more suitable landfill site can be found away from populated areas, and Thank you very much for giving your precious time and working for the betterment of Hawaii, USA.



Photo # a:

Background:

Ash mountain is higher than natural mountain in foreground.

WAIMANALO GULCH SANITARY LANDFILL - OCT. 5, 2001

Photostaken from backyard of Kahe Homes resident.



Photo # b:

Ash and dust hovering over bulldozer.

(ENCL.)

TANAKAH010@hawaii.rr.com

From: <TwentyBernie@aol.com>
To: <jgonser@honoluluadvertiser.com>
Cc: <tanakah010@hawaii.rr.com>
Sent: Friday, October 05, 2001 3:29 PM
Subject: Former Kahe Point Resident

Dear Sir:
I understand that you are doing a report on the Waimanalo Gulch. I'm a former resident of Kahe Point Homes. Recently, I had to move out of that area because of the dump. I have a 11 year old son with asthma. I lived in Kahe Point most of my life. I understand that my son was mentioned by the tenants there. So I decided to E-mail you to let you know how bad it was. My son was diagnosed with asthma at the age of 1 1/2 years old. His asthma did not start until we moved back there. It continued to get worst until recently. The reason that my son story sticks out the most is because he nearly died. My son had a bad asthma attack the nearty took his life. I watched my son turn blue, the purple, and then white! My son was out for about 10 to 15 min. we had to do CPR on him to get him back. You can't imagine the feeling of watching your child go through something like that. Don't get me wrong, I loved living in the neighborhood. My children was happy there. The only problem was our health.

The health of the people of Kahe Point is very much affected by the dump. Many of the occupants are old timers. They been there for many years. I, myself grew up there. Before the dump was built, we were there. We didn't have to worry about the smell or the fact that the dust was too thick. Now, the place smell and the people can't breath. The rubbish from the dump decorate the surrounding trees in the neighbor hood area. It also goes to the ocean. It's affecting the whole environment there. I think that it would be a bad idea to expand the dump. Listen to the people as they cry for help. The dump had chased me from the on place I called home. It almost took my son from me. What will take for people to listen and help those people in Kahe Point? Most of my family live in Kahe Point. I can't see them suffering like I did. I know people will say clean your house if it's dusty. Well, I cleaned everyday! The dust just won't stop! &nb! sp.! swept and mopped my house everyday. ALL DAY. My son asthma still was bad. now that we moved my son has not complained about his breathing. I think that the dump had a lot to do with my sons health. The people in Kahe Point have a lot to complain about. Many of the children there have asthma. Many of them have an updraft machine in their home. Just in case their children cannot breath. I used to have to loan them my sons updraft machine because they didn't have their own. There are babies there that young a 1 years old having difficulty breathing so young, too young to be diagnosis as asthma. I hope this will help with your report. &nb!

Thank You,
Bernadette Hatchett

10/5/01

FAX COVERSHEET.....Date 9/17/01.....Number of pages including this page 3

FROM : Amy H. Tanaka FIRM: Robert U. Mitsuyasu, Kahe Point Homes
Phone/FAX: 808 668-1846

TO: Mr. John De Soto, Councilman, City and County of Honolulu

REF/SUBJECT: Expansion of the Waimanalo Gulch Sanitary Landfill

MESSAGE:

1. Forwarding copy of letter sent to Ms. Wilma Namunart, Project Mgr of the Waimanalo Gulch Sanitary Landfill. (pages 2 of 3).
2. Please review our opposing viewpoints on the expansion of the landfill. Those who reside in Kahe Homes know for a fact about how "stink" burnt ash, raw rotting garbage and other debris that float and trash the residents' tree tops and grounds, the highway, our beautiful beaches and mountains. (Yesterday I went to the Kahe Homes to speak with the tenants. Low and behold, an awful aroma greeted me that was more worse than rotting-left-over-Aku-heads that uncouth fisherman dump along the canal before they leave. I wanted to "gag" from the stench that the trade winds blew down from the Kahe mountain and gulch. So, before I started gagging I left soon as I finished my business because, if I did gag, it would have made the tenants sicker knowing that they have to contend with the smell and dust everyday.)
3. Please help us to keep our environment clean, healthy and beautiful. The overflowing pile of "dump" that is already there is more than enough! If the present landfill is expanded for more waste, it will only cause double trouble for everyone—the City, the folks who live there, the businesses and the visitors who come thinking our leeward coast is still the calm and beautiful coast untouched by pollution.
4. Your kokua will be greatly appreciated. Mahalo Nui Loa!

Aloha,



Amy Tanaka, resident in Nanakuli next to the Ulahawa Bridge and canal.

PUBLIC COMMENT FORM

Waimanalo Gulch Sanitary Landfill Expansion
Department of Environmental Services, Refuse Division

Your written comments will help the Department of Environmental Services to assess concerns regarding the proposed Waimanalo Gulch Sanitary Landfill Expansion. We appreciate your assistance.

Name: Amy H. Tanaka Address: 87-1748 Farrington Hwy
Waimanalo, HI 96792
Phone: 668-1846 day
(same) eve

Please write comments below. Attach additional sheets if necessary.

1. Please start the "hydro-planting" (cover the piled part of the landfill with plant growth) as soon as possible.
2. Continuing to pile ash on top of ash will delay the hydro-planting, so STOP dumping more ash on areas that are piled higher than the mountains!
3. Please see attached letter to Wilma Nannert

Signature Amy H. Tanaka Date 9/26/01

ROBERT U. MITSUYASU
c/o Amy H. Tanaka
87-1748 Farrington Hwy.
Waianae, HI 96792-3742
Phone/FAX: 808 668-1848

September 14, 2001

Ms. Wilma Namunart
Project Manager of the Waimanola Gulch Sanitary Land Fill
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, HI 96813

Subject: Comments to the Expansion of the Waimanola Gulch Sanitary Land Fill

Dear Ms. Namunart,

My brother, Robert U. Mitsuyasu owns five (5) parcels of land along Farrington Hwy. called the "Kahe Point Homes" on the Waianae side of the subject landfill. He purchased the properties in the late sixties and has been renting the homes to low income families ever since.

Just over ten years ago the City condemned and acquired the properties in the back of Kahe Point Homes to use as a landfill dump site. Since then the quality of the clean and beautiful environment surrounding the mountain and coastal area have deteriorated to a point of great concern to the residents and businesses in that district.

- Presently, the residents of Kahe Point, KoOlina, Nanakuli, Honokai Hale, Makakilo and the new city of Kapolei have become the victims of land degradation and pollution that are created by the hazardous waste byproducts that filled approximately 80 acres of virgin land in a short period of ten years. (This landfill was projected to take more than twenty years to fill up.)
- The babies, children and adults are afflicted with asthma and other breathing illnesses caused by the polluted dust and ash that are blown from the landfill dump whenever gusts of wind carry the hazardous waste for miles around.
- The light paper and plastic bags that are blown up and away are caught on tree tops, utility lines or the brushies along the highways, mountains and residential yards. (Talk about keeping our streets clean - the government is the very culprit. causing more pollution from the unburned trash from the overflowing landfill dump.)
- The stench from the garbage and burnt trash travels down to homes and causes nausea and sickens the residents. (The residents have no way to avoid the awful smell except to close all their windows and doors and "suffocate.")

For reasons/comments stated above and some that we may have overlooked, WE, the owner, representative and tenants of Kahe Point Homes are against the expansion of the

Waimanola Gulch Sanitary Landfill. We realize the City's dilemma of ridding the waste generated by our growing population and the limited resources available, namely, landfill dumpsites that no community wants and that the expansion of the landfill dump will only compound the existing problem of waste pollution to our precious environment. To stop generating waste into more waste, an alternative solution is to earnestly begin recycling waste paper, plastics, glass, etc. with government aid. Many small entrepreneurs have tried to recycle these products, but without government support, they have not succeeded and fell by the waysides. Thus, the beginning of the never-ending cycle of an ongoing problem of waste elimination continues to plague our communities.

Therefore in retrospect, We, the owners and residents of KAHE POINT HOMES stand against the expansion of the Waimanola Gulch Sanitary Landfill and herewith sign this commentary document to attest our viewpoints on this 15th day of September 2001.

Robert U. Mitsuyasu *by Amy H. Tanaka*
Robert U. Mitsuyasu, Owner and brother of: Attorney-in-fact, Amy H. Tanaka

Deborah Elvenia Address: 92-390A Farrington Hwy., Kapolei, HI 96707
Deborah Elvenia, Tenant

Pedro Eitagonde Address: 92-390B Farrington Hwy., Kapolei
Pedro Eitagonde, Tenant

Stacey Akayan Address: 92-396A Farrington Hwy., Kapolei
Stacey Akayan, Tenant

Henry Elvenia Address: 92-396B Farrington Hwy., Kapolei
Henry Elvenia, Tenant

Pinky Elvenia Address: 92-396B Farrington Hwy., Kapolei
Pinky Elvenia, Tenant

Joseph Magner Address: 92-402A Farrington Hwy., Kapolei
Joseph Magner, Tenant

Veronica Magner Address: 92-402A Farrington Hwy., Kapolei
Veronica Magner, Tenant

Bernard Gabaylo Address: 92-402B Farrington Hwy., Kapolei
Bernard Gabaylo, Tenant

Desiree Gabaylo Address: 92-402B Farrington Hwy., Kapolei
Desiree Gabaylo, Tenant

David Gabaylo Address: 92-408A Farrington Hwy., Kapolei
David Gabaylo, Tenant

Ruth Gabaylo Address: 92-408A Farrington Hwy., Kapolei
Ruth Gabaylo, Tenant

Leilani Marino Address: 92-408B Farrington Hwy., Kapolei
Leilani Marino, Tenant

Bonifacio Gabaylo Address: 92-414C Farrington Hwy., Kapolei
Bonifacio Gabaylo

Elaque Gabaylo Address: 92-414C Farrington Hwy., Kapolei
Elaque Gabaylo

Richard W. Shumaker Address: 92-420 Farrington Hwy., Kapolei
Richard W. Shumaker

CC: John DeSoto, City Councilman

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 212, KAPOLEI, HAWAII 96707
Phone: (808) 692-5159 • Fax: (808) 692-5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-200

December 23, 2002

51A - 55A

Ms. Amy Tanaka
Mr. Robert Mitsuyasu
December 23, 2002
Page 2

Ms. Amy Tanaka
Mr. Robert Mitsuyasu
87-1748 Farrington Highway
Waianae, Hawaii 96792

Dear Ms. Tanaka and Mr. Mitsuyasu:

Subject: Revised Draft Supplemental Environmental Impact Statement
(RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters dated September 14 and 26 and October 11, 13, and 19, 2001. We acknowledge your opposition to the proposed project and have prepared the following in response:

- Your letter edits and additional comments are noted. Please retain the copy of the CD we have provided for your information and use.
- Exhaustion of Existing Space and Landfill Impacts - The current Waimanalo Gulch landfill can accommodate approximately six months of further use. Although we disagree concerning this capacity the impending exhaustion of space requires that we direct our efforts toward providing for the future refuse needs of all the residents of Oahu. The decision to expand Waimanalo Gulch for an additional five years as the preferred alternative was not an easy one. In fact, the decision to site any municipal landfill is an extremely difficult undertaking. Not only must regulatory requirements be met, the operator of the facility must possess the experience to address community concerns in a reasonable and effective manner. The safe and environmentally responsible operation of Waimanalo Gulch, therefore, is a major priority for both this department and Waste Management of Hawaii.

Existing federal and state regulations require that all ash and residue delivered by H-POWER be wet to prevent dispersal into the air. Onsite operations which may generate dust are controlled through regular watering of work areas, and municipal refuse placed in open cells must be covered with fill material at the end of each work day. We recognize that, even with these procedures, there is always room for improvement. We have implemented improvements which we hope will address some of your concerns. These improvements are:

- Use of new equipment, including MadVac™, to facilitate cleanup of on- and off-site localities.
- Introduction of new management policies at the landfill that require: 1) arriving refuse trucks to be covered to ensure against littering of the highway; and 2) refuse and commercial trucks leaving the landfill to be inspected, and, if necessary, manually cleaned before leaving.
- A new gas recovery system will be installed. This system may one day capture a sufficient volume and quality of gas for the generation of electricity.
- Sand Island Wastewater Treatment Plant is the largest single contributor of sewage sludge requiring disposal at the landfill. The City has awarded a contract to convert sewage sludge into fertilizer pellets, thereby diverting this odorous material from the landfill.

Waimanalo Gulch Sanitary Landfill was opened in 1989, at a time when the Ewa Region was beginning to experience new growth. Although the landfill was, in part, sited to minimize potential for impacts to adjoining communities, growth throughout Oahu has severely limited the availability of land for the siting of new municipal landfills. In consideration of community concerns, the City is seeking a five-year expansion, rather than the original 15 years. The City will explore alternative disposal technologies that promise to reduce our reliance on landfills.


Restoration of Landfill Site- We are required by law to restore the exiting area of use and provide long-term environmental monitoring upon closure. Although we cannot now implement post-closure measures, we have begun revegetating selected landfill areas which will remain undisturbed until closure. In addition, the drainage channel has been dyed in a shade which blends with the surrounding area. Future plans call for further landscaping which will incorporate painting onto geotextile fabric to camouflage other areas of the site.

Ms. Amy Tanaka
Mr. Robert Mitsuyasu
December 23, 2002
Page 3

• Recycling – Recycling by itself cannot eliminate all forms of waste. However, we do agree there is potential for further recovery of selected recyclable or reusable components in the municipal waste stream. As noted in the RDSEIS, there are recycling technologies which are demonstrating promise to reduce our reliance on landfills. These and other new technologies will be adopted by the City whenever they can be developed as a practical and viable solution.

We remain sensitive to the concerns and issues you have raised and appreciate the time you have taken to comment. Should you wish to provide any further constructive comments, please direct them to Ms. Wilma Namunnart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation



BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
SOUTH BERTANIA STREET
HONOLULU, HI 96843



November 1, 2001

56

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M. L. AM
HERBERT S. K. RAOPUA, SR.
BARBARA ANN STANTON
BRUNN K. ANNAH, Ex-Officio
ROSS S. SAJAJURUA, Ex-Officio

CLIFFORD S. JAMILE	YES	NO	WTS
R-F	W	NIM	
RIT		GRD	EX
REC'D NOV 6 2001			LMTC

TO: TIM STEINBERGER, ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: *Clifford S. Jamile*
CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR TRANSMITTAL OF SEPTEMBER 27, 2001 OF
THE NOTICE OF EXTENSION OF TIME FOR COMMENTS
ON THE REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT FOR THE WAIMANALO GULCH SANITARY
LANDFILL EXPANSION, EWA, OAHU, I.M.K. 9-2-03: 72, 73

Thank you for notifying us of the extension of time to review and comment on the subject document for the proposed expansion of the existing landfill.

We have no further comments to offer. Our previous comments of January 11, 2000, June 1, 2000 and July 18, 2001 are still applicable.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Office of Environmental Quality Control
R.M. Towill

56A

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER,
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 01-207

November 8, 2001

MEMORANDUM

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

FROM: *Timothy E. Steinberger*
TIMOTHY E. STEINBERGER, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: REVISED DRAFT SUPPLEMENTAL
ENVIRONMENTAL IMPACT STATEMENT (SEIS)
WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Thank you for your transmittal dated October 31, 2001, concerning the subject Revised Draft Supplemental Environmental Impact Statement.

We appreciate your response to our Extension of Comment period. Should you have any further comments, please contact Ms. Wilma Namumart of our Refuse Division at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



December 4, 2001

Timothy E. Steinberger, Director
Frank Doyle, Deputy Director
City & County of Honolulu
Department of Environmental Services
650 South King Street 6th Floor
Honolulu, Hawaii 96813

Subject: Storm Water Runoff From Waiananalo Landfill Into the Ocean

Gentlemen:

The Ko Olina Resort and the Leeward community are deeply concerned with what was observed last week in the aftermath of the wind and rain storm that occurred last Monday night and Tuesday morning, November 26 and 27, 2001.

The storm had caused rivulets to form at the Waiananalo Landfill site that caused the drainage channel to become swollen with garbage, debris and muddy water. This mixture, which very well may have contained landfill toxins, made its way through the underground culverts and flowed into the Pacific Ocean off-shore of Ko Olina Resort, Lanikuhouua, Paradise Cove and Kaha Beach Park. This caused the ocean to become laden with landfill borne sediment which was evident by its brown, murky appearance all along the coastline extending seaward several hundred feet.

These post-storm impacts emanating from the Waiananalo Landfill have been fully documented. Based on what happened last week, our concern is heightened as we head into the storm season of December through February. Your immediate attention to quell recurrences of this sort is vital to the health of the Leeward community, on and off shore.

Further, the recent shutdown of H-Power which, as you know, results in the disposal of raw garbage from the entire Island into the Waiananalo Landfill, has continued to cause an acrid landfill odor throughout the Resort. We beg that the City find a solution to this problem immediately.

We request that this letter be made a part of the Final SEIS for the Waiananalo Gulch Sanitary Landfill Expansion.

Very truly yours,

Kenneth M. Williams
General Manager

Ko Olina Community Association • 9449 Puhimua Highway, Ko Olina, Hawaii 96761
Phone (808) 693-3211 • Facsimile (808) 693-3446

12-6-01 cc: GEMAN TAKEEDA, R. M. TAVAKI
JOE HERNANDEZ, WASTE MANAGEMENT



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 537-5153 • Fax: (808) 532-5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-051

December 23, 2002

Mr. Kenneth M. Williams, General Manager
Ko Olina Community Association
92-619 Farrington Highway
Kapolei, Hawaii 96707

Dear Mr. Williams:

Subject: Revised Draft Supplemental Environmental Impact
Statement (SEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated December 4, 2001, concerning the subject Revised Draft SEIS. We offer the following in response:

Stormwater Management

Stormwater runoff into the coastal zone is a naturally occurring process which often results in the transport and release of sediments into nearshore waters. The storm event you describe indeed could be observed along a large part of the leeward coast of Oahu. The source of this runoff involves rainfall from upslope lands surrounding the region which then discharges by sheetflow or defined drainageways to shoreline waters. The sediment loading you observed, therefore, is from multiple sources over a large region and not solely from Waimanalo Gulch.

The discharge of stormwater from facilities such as Waimanalo Gulch Sanitary Landfill is regulated by the State Department of Health, through provisions of Section 402 of the Clean Water Act (erosion controls are also mandatory in accordance with City and County of Honolulu regulations). The landfill is required to have stormwater control features to ensure that sediments and debris associated with the landfill are not discharged to offshore waters. Any stormwater that falls on the landfill is collected in evaporation ponds on the unfilled portion of the ash landfill. Performance of this system, including management, structural, and vegetative controls, is monitored by regular inspection and thorough water quality testing of runoff. Although we cannot control runoff from land that is not managed by us, stormwater from Waimanalo Gulch remains in compliance with DOH standards to ensure the health, safety and protection of the public.

Mr. Kenneth M. Williams
December 23, 2002
Page 2

Litter and pollutants washing into the ocean may have originated from improper dumping of wastes along the various drainage channel banks along the Waianae Coast, from the nearby golf course, from the highway, from the ocean, and from open, undeveloped areas. Waste is observed on these sites during dry periods. We do not believe the wastes came from the landfill. Wastes from the landfill would have had to go over the four-foot chain link fence adjacent to the landfill drainage channel, enter the drainage channel, and pass through the settling basin and its filtering system before entering the large drainage culvert that exit at the ocean.

Shutdown of H-POWER

We regret any inconvenience or nuisance that the shutdown of H-POWER may create for Ko Olina and the surrounding community. The comprehensive management of odor will be addressed on a short- and long-term basis. Short-term measures as provided in the RDSEIS will continue to involve use of odor neutralizers, combined with management practices designed to reduce or minimize odor sources. Queuing of refuse vehicles, which was previously occurring at the entry to the landfill before business hours, is now handled by permitting entry up to the area of the scale house. This action has helped to reduce the potential for impacts to the adjoining properties within Ko Olina and along Farrington Highway. Future plans may involve installation of odor misters between the area of the scale house and the perimeter fence to provide treatment of refuse loads entering the landfill. In addition, some vehicles are now being refused entry because of odor and vector related issues.

Longer term management of odor is a key concern, and actions are underway by ENV. Some of these are already described in the RDSEIS and, combined, are expected to markedly improve odor management. In summary this involves: 1) installation of a landfill gas recovery system; 2) construction of a processing facility at Sand Island Wastewater Treatment Plant which will divert sewage sludge from the landfill; 3) expansion of H-POWER, to increase waste handling volume; and 4) adoption of new, but viable, technologies which will lead to further reduction of odor-generating waste. Additional detail for these items will be provided in the Final EIS.

We appreciate your review of the subject Revised Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumart of our office at 527-5378, or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

WES	ATS	
R-F	NR	
RIT	(SRT)	
REC'D JAN 21 2002 BMT		
AP	AF	667
CP		

The Fairways
Ko Olina Resort

January 17, 2002

VIA FAX: (808) 527-5864
Ms. Wilma Namumart
City & County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, HI 96813

RE: COMMENTS ON THE REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT ("SEIS") FOR THE WAIMANALO GULCH SANITARY LANDFILL EXPANSION AND OBJECTION TO THE EXPANSION OF THE WAIMANALO GULCH LANDFILL

Dear Ms. Namumart:

I am writing to you as president of the Association of Apartment Owners (280 townhomes) of the Ko Olina Fairways at Ko Olina Resort. On behalf of the majority of our homeowners I want to express strong objection to the proposed 15-year expansion of the subject Landfill. The extended comment period ends on January 19, 2002 and after spending countless hours reviewing the revised SEIS, attending community meetings, and asking questions, it is our conclusion that the second SEIS report does not address the proposed expansion adequately, does not address alternate site evaluation adequately, does not address long term waste management plans adequately and proposes a direct conflict with land use planning by the City & County of Honolulu.

As residents of the Ko Olina Resort for over five (5) years, we knew, in 1996, that the Landfill was scheduled to close by about 2002. When the first SEIS was published in 2000 our neighborhood was shocked with the lack of substance and the fact that Ko Olina Fairways was not identified in the report. The report was so inadequate that with community outrage the City & County of Honolulu withdrew the report for re-writing. The second SEIS was then published on June 8, 2001 and the public comment period was subsequently extended to January 19, 2002.

I am sure you can agree, by now, that after getting into the process surrounding this report that the City & County of Honolulu has made serious errors with the lack of a comprehensive analysis and serious errors in land use planning. It is apparent to the

reader that the City has not demonstrated long-term waste management plans for the island of Oahu. After a long study of this report there are many inadequate assessments by the City and the City's consultants. No, I am not a technical expert but I do have common sense.

There is ample confusion of the stated facts in the SEIS. Throughout the report references are interplayed between tonnage, volumes, truckloads, densities, etc. I talked with Waste Management staff and on occasion they were confused with their own numbers. My point is that the SEIS analysis is not reasonably understandable and it is very challenging to read by people of reasonable intellect.

The report does not adequately develop a baseline to understand the waste management process, the economics, or the need for what is really a "new site" at Waimanalo Gulch. The City explained in a meeting that they would close down the existing site and prepare a "new site" in the back of the gulch. Why did the City prepare this Supplemental EIS if the subject is really a new site? Should the City have completed a new EIS?

For the City to know that the original EIS was almost twenty (20) years old and admit in a public forum that during this period of time environmental concerns, waste management technology, landfill operations, recycling, and alternate technologies have drastically changed the picture of waste management worldwide; Why then is there no evidence of comprehensive planning to modernize Oahu's waste management process? The world is much different today than in 1984. Why can't this report be used to as a primer in basic waste management?

In a recent conversation with Waste Management I learned that the volume of waste to the Landfill has declined over that last 4 years. Has the City inflated the need for capacity in the SEIS since the decline in volume is not mentioned? Is there intent to confuse the reader? Are there efficiencies in the City's waste management systems that have not been identified but could be expanded? HPOWER seems to be a huge player in the process leading me to think that there should be some priority in a plan to expand it. Yet there was little discussion on HPOWER or alternate technologies. Why is the City not pursuing alternate technologies?

Perhaps one of the most glaring perceptions is the appearance that a decision has already been made. I personally attended meetings where the City & County individual staff members and or decision makers (who should have been there for questions) were always unavailable. I met Mr. Steinberger at the Kapolei/Makakilo Neighborhood board meeting when he stated that he had only been on board for a couple of months but he would try his best. He did try but he was obviously uncomfortable and unprepared.

The alternative site analysis was expanded to a separate volume from the first SEIS. More paper, but the same conclusions as the original report, same arbitrary

WVWJ and

criteria. The site evaluation criteria read like a set of rules written to make certain the outcome is Waimanalo Gulch. Can you confirm this to us so we know we are not being insulted?

There were alternate sites listed that would be totally unacceptable on Oahu like Diamond Head Crater. There was one good potential alternative site, which was removed from the alternative site list in the middle of the SEIS comment period. The site was in the real Waimanalo (Windward side of Oahu). Why did the City suddenly remove the site from the list?

There is no economic analysis of site operations (income and expense) or site acquisition (cost and development) that would compare any alternate sites with the Waimanalo Gulch Landfill (Leeward Coast). How would you know what will work and what will not work?

With the absence of any economic analysis of the Waimanalo Gulch Landfill site or any alternate sites for consideration the reader can only draw suspicion about why that information is not included. Where is the income and expense analysis? We asked this question directly to Mr. Frank Doyle at Kapolei Hale and he indicated that the numbers were commingled in the refuse funds and would be difficult to separate. How do you know if you are running a profitable operation? Where is the money?

The City was non-responsive to the question: Where is the money? Therefore to understand how much money is involved a simple calculation of the tonnage stated on page 1-1, by the tipping fees will result in the estimated gross revenue for the Landfill. At the Waimanalo Gulch Landfill 800 tons a day of MSW and 600 tons a day of ash equal 1,400 tons of solid waste per day. At \$72 per ton the daily revenue would be \$100,800.00 per day, or \$100,800 X 360 days = \$36,288,000 annual revenue. There are taxes on the tipping fee that are not included in this calculation.

Additionally, tipping fees are collected at HPOWER. On page 1-10 the report states that HPOWER processes over 620,000 tons of waste per year. Do the math at \$72 per ton that equals annual revenue of \$44,640,000.00.

Where is the money? With the Landfill and HPOWER tipping fees alone, and these are averages; the estimated annual revenue for Oahu's waste stream is in excess of \$80,928,000.00. Rounded that is \$81 million dollars a year! Why is the City not forthcoming regarding this revenue stream? What is being hidden from the taxpayers?

Why is the revenue not going to long-term solutions for waste management on Oahu? Is the City using this revenue stream for other purposes? We were told by Mr. Doyle that the tipping fees go into Opala Refuse system but never received an explanation of how the money flows? Can you explain the money flow? Are we losing money?

The issue that glares the most is the plain and simple disjointed planning process. Extending the Landfill at Waimanalo Gulch is the glaring incompatibility of land uses. Why would the City Planners and the City Council zone land for a resort that is directly across the highway from the Waimanalo Gulch Landfill unless there was an expectation at that time that the landfill was going to close in 2002? You see it does not make any common sense to have one section of City Government driving economic expansion by development and then have another section of City Government create a negative issue regarding land use compatibility. The Landfill is an "offensive use" to adjacent lands by any measurement just ask the neighborhoods. I am concerned about this incompatible land use error by the City because as a taxpayer I think the City has a major liability and real legal exposure. Can you explain why the City would make such an error?

Ko Olina Fairways AOAG is a member of the Ko Olina Community Association ("KOCA"), we are aware that efforts have been taken to work with the City to assist in finding a better solution to issues confronting the City's Landfill plan. We support KOCA in their efforts. However, as the president of the Association of Apartment Owners my Board of Directors has requested that I submit these questions and our position opposing the expansion on behalf of the 280 homeowners.

Please call anytime at (808) 679-0085.

Sincerely,



Ralph F. Harris
President AOAG
Ko Olina Fairways
92-1527-H Aliinui Drive
Ko Olina Resort, HI 96707

cc: Council Member John DeSoto, Via Fax: (808) 523-4220
Office of Environmental Quality and Control (OEQC)
Department of Planning & Permitting
Ko Olina Community Association (KOCA)
Brian Takeda, R. M. Towill Corporation
Mayor Jeremy Harris
Randall K. Fujiki, Director, Department of Planning & Permitting

Mailing Addresses:

Mayor Jeremy Harris
Honolulu Hale, Room 300
530 South King Street
Honolulu, HI 96813

Council Member John DeSoto
Honolulu Hale, Office of Council Services
530 South King Street
Honolulu, HI 96813

Ms. Wilma Namuminart
City & County of Honolulu
Office of Environmental Quality and Control (OEQC)
650 South King Street, 6th Floor
Honolulu, HI 96813

Randall K. Fujiki, Director
City & County of Honolulu
Department of Planning & Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Street, Suite 411
Honolulu, HI 96817

Ken Williams, General Manager
Ko Olina Community Association (KOCA)
1480 Alinui Drive
Ko Olina Resort, HI 96707

Office of Environmental Quality and Control (OEQC)
State Office Tower, Suite 702
235 S. Beretania Street
Honolulu, HI 96813.



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1100 ULUOHIA STREET, SUITE 308, HONOLULU, HAWAII 96707
Phone: (808) 692-3159 • Fax: (808) 692-5113



JEREMY HARRIS
Mayor

TIMOTHY E. STERNBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

MI REPLY REFER TO:
FE 02-152

November 19, 2002

Mr. Ralph F. Harris, President
Association of Apartment Owners
The Fairways, Ko Olina Resort
92-1527 H Aliinui Drive
Ko Olina Resort, Hawaii 96707

Dear Mr. Harris:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated January 17, 2002, concerning the subject RDSEIS.

1. **Objection to project** - We acknowledge your opposition to the previously proposed project which involved the expansion of the site for a 15-year period. As you may be aware, the City has modified the period of expansion to a new goal of five years. During this period, we have been directed to seek all available and viable options which will alleviate our need for continued reliance on landfills.
2. **Assessment of RDSEIS and request for additional information** - We do not agree with your assessment of the RDSEIS. However, per your comment concerning the need for additional information, we will further describe the City and County of Honolulu's long-term waste management plan for Oahu.

The data describing waste composition and volume are based on the dynamic nature of waste generation, collection, and disposal. Unlike comparable public facilities, such as a wastewater treatment plant where waste streams can be readily measured by metered flow rate, solid waste is generated and collected from a variety of sources. Some of these sources are not able to report with complete accuracy the true volume of refuse involved. In spite of this inherent difficulty, we believe the waste volumes as stated, combined with use of historical experience, enable sound and informed decision making.

Mr. Ralph F. Harris, President
November 19, 2002
Page 2

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3. **Changes in managing municipal waste** - We agree that much has changed since 1984. In 1984, the City and County of Honolulu had a number of municipal landfills, used waste incineration with no energy recovery, and did not recycle or reuse much of the refuse that was generated. Today, one municipal landfill is capable of handling all refuse generated on Oahu. This one facility would not be possible without new technologies and a change in the way that "garbage" is viewed. H-POWER and private recyclers have reduced our dependency on use of landfill space while providing energy and new uses for what was formerly discarded. In the future, we are hoping that projects such as our proposed Alternative Disposal Technology Park for refuse recycling and disposal and the conversion of Sand Island Wastewater Treatment Plant sewage sludge into fertilizer pellets will further negate the volume of refuse needing to be landfilled.
4. **The decision to expand Waimanalo Gulch Sanitary Landfill has already been made** - We wish to reiterate that expansion of the Waimanalo Gulch landfill is our preferred option. Because this option must still undergo review through the Chapter 343, HRS, process, it is not a foregone conclusion.
5. **Analysis of alternative sites for refuse disposal, removal of Waimanalo North - Waimanalo North** was removed from consideration based on the conversion of the land by the State Department of Land and Natural Resources (DLNR) to Forest Reserve designation.
6. **Economic analysis of landfill operations** - As previously stated by Mr. Frank Doyle, the City does not maintain records by individual sites, i.e. revenue and expense for Waimanalo Gulch Sanitary Landfill alone. All revenue from transfer stations and landfill are commingled in one revenue source. Expenses are kept by activities within the division. In the case of landfill, expenses for all City landfills (operational and closed sites) are appropriated together.

Logically, estimating revenue is a calculation of tonnage multiplied by the tipping fee; however, householders and eleemosynary organizations are not charged for landfill disposal, although their tonnage is tracked. In addition, City refuse trucks do not pay a tipping fee, since landfill revenue is used to fund City refuse operations (requiring City refuse trucks to pay the tipping fee would inflate both revenue and expenses by the tipping fee amount for City refuse trucks).

In the H-POWER revenue situation, householders and eleemosynary organizations are not charged for disposal. Additionally, City agencies, including the Refuse Division, are charged a lower rate because the H-POWER fund interest income makes up the difference between the City tipping fee and the commercial tipping fee. Therefore, simply multiplying the incoming tonnage by the tipping fees does not give an accurate revenue estimate.

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February 5, 2002

Wilma Namumart, Chief
Planning & Engineering Branch
Division of Refuse Collection & Disposal
Department of Public Works
City and County of Honolulu
650 South King Street, Sixth Floor
Honolulu HI 96813

Ameron Hawaii
2341 Puuhouani Drive
Honolulu, Hawaii 96819
PO Box 28984
Honolulu, Hawaii 96820
Telephone: 808/432-2100
Fax: 808/432-9450

Subject: Landfill Status

Dear Ms. Namumart:

Thank you for your telephone call of February 1st. It is reassuring to hear that the City's position with regard to Kapaa Quarry as a landfill is unchanged since our last discussion, and that the list of potential landfill sites is a compilation of all sizeable pieces of land capable of holding large quantities of waste and does not indicate that Kapaa Quarry is under consideration.

Ameron would like to take this opportunity to reiterate our position regarding the unsuitability of Kapaa Quarry for use as a municipal solid waste (sanitary) landfill. We appreciate that the City recognizes the need for the rock we will mine from Phase I in the next several years. After our Phase I reserves are exhausted, Ameron will still require the use of the Phase I area. Our need is well known for expanded water retention capacity to maintain optimal storm water control to meet State requirements. In addition, Ameron requires space for the management of collected fine rock particles (dust) generated during rock mining and crushing. These uses are consistent with our current operating plans, and will enhance our efforts to return mined-out areas to a more natural reclaimed state.

Thank you for responding to my call, and keeping me informed about the City's plans. I appreciate your help, and your efforts to keep excitement out of my life!

Sincerely,

Linda F. Goldstein
Manager, Environmental, Health & Safety

F523

c: G. N. West
Kailua Neighborhood Board
Ameron Community Focus Group

No response needed.

03/14/02 11:57 0808 686 1386

Carl & Noriko Nakazaki
92-1162-3 OLANI STREET
KAPOLEI, HI 96707

Waste Management
92-460 Farrington Hwy.
Kapolei, Hawaii 96707
Attention : Mr. Joseph P. Hernandez
(Environmental Manager)

February 8, 2002

Dear Mr. Hernandez,

This letter is to follow up our conversation that we had , on 2/5/02 at your office. First of all, I wanted to thank you for your time.

We received our keys on 1/25/02, and on the night of 2/2/02 (Saturday) at about 8:30 p.m., my family and I thought we'd go outdoors for some light recreation. Almost immediately after we'd ventured out, we were surprised with a strong stench of rotting garbage. I quickly checked on the street for any dead animals or trash bins, but nothing was out. Then I noticed a slight breeze coming from the direction of the Waimanalo Gulch Sanitary Landfill, at 92-460 Farrington Highway. Our eyes started to tear and my five year old grandson, started to gag.

My wife's first impression was, what did we buy into. We are paying about a half million dollars for this unit, only to be trapped within, not being able to use these large lanai's or the outdoor recreational facilities. My feeling was of health concerns for my grandson and my wife's asthma condition. The bacterial spores or bacterium generated from this type of waste, will affect their health.

On Tuesday 2/5/02, I stopped by to visit the Waimanalo Gulch Sanitary Landfill. Owned by the City and County of Honolulu and contracted out to Waste Management Company, and met with Mr. Joseph P. Hernandez (Environmental Manager). Mister Hernandez checked his computer for the weather conditions on the evening of 2/2/02, and verified that there was a slight breeze from the landfill, towards the Coconut Plantation. And during our winter months, the air tends to get heavy, hugging the ground areas, carrying these offensive odors.

While there, Mr. Hernandez offered to give me a tour of the facility. At the base of the dumping area, for a span of about 140' long, were vertically installed wooden telephone poles, at about 20' apart. Each standing approximately 100' tall, with mist sprayers attached to each pole. When activated, these mist sprayers will disperse a solution that neutralizes the odors. Presently these mist sprayers are operated on a timer system only, and on the evening of 2/2/02 at 8:30 p.m., were not timed to go off. Mr. Hernandez mentioned that there is a more effective system on the market today, which involves a gas injection type system. Proven in a number of states to minimize the bacterial odors, but the millions of dollars required to fund this system, would have to come from the City and County of Honolulu. And for the past 6 months, Waste Management Company has been waiting on a response on their submitted proposal.

Within the next month or so, Waimanalo Gulch Sanitary Landfill will reach it's maximum capacity. I am not sure if an extension of the existing facility has been approved or if the facility will be moved to another location and if so, where? Another question would be, how are the existing odors and trash to be dealt with,

location, and if so, where? Another question would be, how are the existing odors and trash to be dealt with, and because the existing landfill is so old, a seepage barrier may not have been installed. So how is the Kapolei potable ground water and shore lines affected? Also, I would like to know in a current report, what chemical compounds are in the potable water and at how many parts per million?

We fell in love with the unit and the Coconut Plantations overall design theme of a wide expanse of greenery and a feeling of clean open air. But maybe as reality goes, what looks good on the surface, is only to mask the truth within. In my opinion we all have a vested interest in this community, whether it be of time, energy and/or money. And I'm sure we could blame each other or someone else, till we're blue in the face. But we hope that somehow, we may work towards resolving these issues in a civil and collective manner, where everyone wins. Having worked in the design/build industry for a number of years, I find that 70% of the job involves problem solving, and this is another problem to deal with. And if all else fails, we may still have to seek legal counsel.

Best Regards,
Carl & Noriko Nakazaki

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 637-6158 • Fax: (808) 692-5113

JEREMY HARRIS
MAYOR



December 20, 2002

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

BY REPLY REFER TO:
RE 02-182

Ms. Noriko and Mr. Earl Nakazaki
December 20, 2002
Page 2

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We sincerely apologize for any difficulty you may have experienced. As you are aware, our previous proposal for the expansion of Waimanalo Gulch Sanitary Landfill for a 15-year-period has been modified to a new expansion goal of five years. While we understand your concern about the siting of the landfill, we hope to continue to work with you in the future so that we can have a better-run facility. Any further comments may be directed to Ms. Wilma Namumnat of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Earl and Noriko Nakazaki
92-1070 Olani Street
Kapolei, Hawaii 96707

Dear Mr. and Mrs. Nakazaki:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

We acknowledge receipt of your letter to Mr. Joseph Hernandez, Waste Management of Hawaii, dated February 8, 2002.

Mitigation of Landfill-Associated Odors

The mitigation of landfill-associated odors is being addressed under both a short- and a long-term plan. Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of odors. We are working with Waste Management of Hawaii to further improve locations where the odor misters are deployed. We are confident that once optimum locations are determined that landfill-associated odors will be significantly reduced. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; and 3) expand H-POWER. We firmly believe that both our short- and long-term plans will constitute a marked improvement in the odor situation.

Groundwater Protection

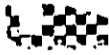
An impermeable barrier is incorporated into the design of the landfill liner. All municipal sanitary landfills, such as Waimanalo Gulch, are regulated by the Federal Environmental Protection Agency, and, in Hawaii, by the State Department of Health (DOH). As noted in our RDSEIS, this system is comprised of multiple layers, using compacted clay overlain by geosynthetic clay liner (GCL), overlain by high density polyethylene (HDPE). This system, as demonstrated by regular groundwater monitoring, has performed satisfactorily in ensuring protection of non-potable groundwater resources (groundwater resources beneath the landfill are not designated as drinking water sources). Groundwater hydrology beneath the landfill also does not flow toward Ko Olina. Potable water at Ko Olina is provided by the Honolulu Board of Water Supply (BWS). You may wish to contact BWS for the chemical analysis of your water supply.

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

11/2/23/2002 11:16 FAX 6925402



DYNAMIC CONNECTIONS, LLC
 46-359 HAIKU ROAD C-10
 KANEHOHE, HAWAII 96744

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU 61A
 1000 ILIULUHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
 Phone: (808) 692-5159 • Fax: (808) 692-5113



HARRIS
 FOR

TIMOTHY E. STEINBERGER, P.E.
 DIRECTOR

FRANK J. DOYLE, P.E.
 DEPUTY DIRECTOR
 IN REPLY REFER TO:
 RE 02-161

61

February 15, 2002

VIA FACSIMILE

Mr. Tim Steinberger
 City & County of Honolulu
 Department of Environmental Services
 650 S. King Street, 6th Floor
 Honolulu, Hawaii 96813

Re: Waimanalo Gulch Sanitary Landfill

Dear Tim:

Thank you again for your kind yesterday. First, I would like to confirm that because the comment period for the SEIS is set to expire on February 18, 2002, which is the President's Day Holiday, comments must be delivered or postmarked by Thursday, February 19, 2002. I am passing this information on to various interested parties, so if this is not correct, please let me know immediately. Our legal counsel has suggested that we also confirm this with Maile Chua of Corporation Counsel, so I put a call in to her this morning to confirm this deadline.

After thinking through our discussions yesterday, I wanted to reiterate our position and belief that based on the recently announced master plan for waste management, including a 50% expansion of H-POWER, the SEIS must be amended to reflect, at a minimum, the expected change in waste streams. Given the foreseen reduction in the waste stream flow to the landfill, we do not believe that the City should seek the same area currently requested in the SEIS.

As always, please call me if you have any questions or concerns.

Aloha,

Todd K. Apo

Cc: Ko Olina Community Association,
 Maile Chua, Esq.

REAL ESTATE, BUSINESS AND MANAGEMENT CONSULTING
 PHONE 808-781-7761
 FAX 808-335-0245
 EMAIL: Y.S.GUAWAII@AOL.COM

Mr. Todd K. Apo
 Dynamic Connections LLC
 46-359 Haiku Road, C-10
 Kaneohe, Hawaii 96744

Dear Mr. Apo:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated February 15, 2002, concerning the subject RDSEIS. As you are aware, the public comment period for the subject Revised Draft SEIS was extended to June 19, 2002. Since that time, our previous proposal for the expansion of Waimanalo Gulch Sanitary Landfill for a 15-year period has been modified to a new expansion goal of five years. Additional information concerning future plans for managing Oahu's municipal waste will be provided in the forthcoming Final Supplemental EIS.

Should you have any further comments or questions, please contact Ms. Wilma Namumnat of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
 Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
 Mr. Brian Takeda, R.M. Towill Corporation

November 19, 2002

OFFICE OF THE MANAGING DIRECTOR
CITY AND COUNTY OF HONOLULU
530 SOUTH KING STREET, ROOM 305 - HONOLULU, HAWAII 96813
TELEPHONE: (808) 533-4331 • FAX: (808) 533-4742 • INTERNET: WWW.CC.HONOLULU.HI

REC'D APR 18 2002
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REC'D APR 18 2002
MHC



April 12, 2002

The Honorable Colleen Hanabusa
Senator, Twenty-First District
State of Hawaii
State Capitol, Room 214
Honolulu, Hawaii 96813

Dear Senator Hanabusa:

Thank you for your recent letter regarding Waimanalo Gulch Sanitary Landfill. Please be advised that H-POWER is in the midst of its annual maintenance shutdown, and as is normal practice, refuse that would otherwise be incinerated at the plant is being landfilled at Waimanalo Gulch. This year, the shutdown will last about twice the usual three-week duration because much more extensive repairs are required. We anticipate the plant will be back in operation before the end of May.

At the beginning of the H-POWER shutdown, trucks were directed to unload at the front of the landfill to fill some unused space. As you are well aware, the landfill is nearing its currently permitted capacity, and it is prudent to use every available space. The work at the front of the landfill has been completed. Trucks are now unloading at the back of the site, which should alleviate the situation that gave rise to complaints about odors and dust.

For the quickest implementation of mitigative measures, problems with odors and dust should be reported immediately to Mr. Joe Hernandez at 668-2985. Waste Management of Hawaii, the landfill operating contractor, continually monitors the weather for conditions that can carry odors and dust onsite, but it is difficult to anticipate individual reactions to these nuisances.

We recognize and acknowledge the Waianae Coast opposition to expansion of the landfill.

Sincerely,
Benjamin B. Lee
BENJAMIN B. LEE, FAIA
Managing Director

JH:rc (10592)

cc Waste Management of Hawaii

Mr. Jeremy Harris, Mayor
Executive Branch
Honolulu Hale
530 S. King Street
Honolulu, Hawaii 96813

MR 20 P139

cc: Ben
cc: [Signature]

Dear Mayor Harris:

RE: Waimanalo Gulch Landfill

My office has received many phone calls regarding the horrendous stench and dust that is coming from the Waimanalo Gulch Landfill.

It has been brought to my attention that H-Power has been shut down due to maintenance up grade and the trash that usually goes to H-Power is now being routed straight to the landfill. Needless to say, it is causing many complaints from the communities near by.

I understand that Mr. Joe Hernandez has authorized the trash trucks to dump the trash in the front of the landfill. I question whether this goes to show that the Waimanalo Gulch Landfill is already filled to capacity.

I would appreciate your assistance by providing me with a response in writing addressing this matter and your recommended action as to how our communities concerns can be meet.

As an added note, the Waianae Coast remain in opposition to the expansion of the landfill.

Sincerely,
Colleen Hanabusa
COLLEEN HANABUSA
SENATOR, Twenty-First District

- ROBERT B. HOA
- COLLEEN HANABUSA
- THE HONORABLE MAYOR
- JEREMY HARRIS
- ALAN HOA
- SAM BLOOM
- FRANK MARIANO
- BOB HOOLE
- FIRST DISTRICT
- SECOND DISTRICT
- THIRD DISTRICT
- FOURTH DISTRICT
- FIFTH DISTRICT
- SIXTH DISTRICT
- SEVENTH DISTRICT
- EIGHTH DISTRICT
- NINTH DISTRICT
- TENTH DISTRICT
- ELEVENTH DISTRICT
- TWELFTH DISTRICT
- THIRTEENTH DISTRICT
- FOURTEENTH DISTRICT
- FIFTEENTH DISTRICT
- SIXTEENTH DISTRICT
- SEVENTEENTH DISTRICT
- EIGHTEENTH DISTRICT
- NINETEENTH DISTRICT
- TWENTIETH DISTRICT
- TWENTY FIRST DISTRICT
- CHIEF CLERK

03/14/02 11:59 888 888 1386

TX HAWAII/FGSL

008



63

March 5, 2002

Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Landfill Odors

Dear Mr. Hernandez:

This is to follow up my phone call today regarding the strong odors coming from the Waimanalo Landfill during the lunch hours.

Mr. Hernandez, as reported to you at 2:30 p.m., the smell is very strong from the front gate of the Resort and received numerous complaints from the neighboring project, like Kai Lani & Paradise Cove. As instructed by you, I have called your office and have left a detailed message concerning this matter.

I appreciate the time you've taken to read about my concern.

Very truly yours,

Palak Evaimalo
Palako Evaimalo
Aloha Team Officer

64

March 13, 2002

Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Landfill Odors

Dear Joe:

At 6:20 a.m. this morning the smell of the Waimanalo Gulch Landfill was overpowering. This is a common occurrence. I called your cell phone and left a message about this. I respectfully ask that Waste Management and the appropriate City agency to do whatever is necessary to cure this ongoing problem. Please respond with your plans to resolve this unhealthy issue.

Please insert this letter in the Environmental Impact Statement.

Very truly yours,

Palak Evaimalo
Palako Evaimalo
Aloha Team Officer

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 306, KAPOLEI, HAWAII 96707
PHONE: (808) 692-5153 • FAX: (808) 692-5173



RENEE HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-158

November 22, 2002

Mr. Palakao Evaimalo
Aloha Team Officer
Ko Olina Resort & Marina
92-619 Farrington Highway
Kapolei, Hawaii 96707

Dear Mr. Evaimalo:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated March 5 and 13, 2002. This is in follow-up to actions we are taking to address the conditions you described.

You were correct to contact Mr. Hernandez, Environmental Manager at the landfill, concerning your odor complaints. We regret any odor-associated discomfort you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert a more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

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Mr. Palakao Evaimalo
November 22, 2002
Page 2

We appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namumart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc. Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

03/14/02 12:00 888 668 1386

FM HAWAII/WGSL

011

65

March 13, 2002

Dear Mr. Hernandez,

I reside at Lanikuhoua 92-1101 Ahi Nui Dr., Ko Olina. Please be advised that the evening of March 12, 2002 produced an air aroma closely resembling that of rotting food. With a prevailing trade wind, its source was undoubtedly the landfill above Ko Olina.

This was not the first time such an aroma had been experienced.

Your efforts to preclude future occurrences would be appreciated.

Please include this letter in the Environmental Impact Statement

Sincerely,

Tiffany Nettie
Tiffany (Nettie) Nettie

P.02 6625579 808 6625579 011 NETTIE T. CAMPBELL 03-13-02

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, FORTUIT, HAWAII 96707
Phone: (808) 697-5155 • Fax: (808) 672-5113



WRENN HARRIS
QUALITY

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-160

November 22, 2002

Ms. Lynette (Nettie) Tiffany
92-1101 Aili Nui Drive
Kapolei, Hawaii 96707

Dear Ms. Tiffany:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated March 13, 2002. This is in follow-up to actions we are taking to address the condition you described.

You were correct to contact Mr. Hernandez, Environmental Manager at the landfill, concerning your odor complaint. We regret any odor-associated discomfort you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

Ms. Lynette (Nettie) Tiffany
November 22, 2002
Page 2

65A

We appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namumart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

03/15/02 16:13

808 688 1386

HAWAII/WGSL

008/010

03/19/02 08:28

808 688 1386

HAWAII/WGSL

005/007

67

March 13, 2002

Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

Dear Mr. Joseph Hernandez,

I'm an employee at the Ko Olina Resort and I'm writing today to inform you about the smells that are coming from the Waimanalo Gulch and Landfill which you are managing. I drove in at 7:00 a.m. and noticed a horrible smell at the front gate. I asked the Aloha Team guards if the smell was coming from the landfill and they said yes, as always. This disgraceful smell nauseated me.

I've always driven in with my windows up, but from now on when I drive in every morning and I smell the landfill, I'll be voicing my opinion to you until something is done about it. It's not right for employees and mostly residents to be smelling this junk.

This is a beautiful resort to work and live at but with smells from the landfill, it's not right. Today I noticed for some reason, trash was being dumped facing the roadway and I saw a line of trucks waiting to dump their loads way up the landfill. Paper bags, trash etc was exposed towards the road and I appalled by the sight of things. It looked like a mountain of trash, why do we have to look at this? And how high is it going to be?

Your prompt response will be appreciated. I would like this letter to be a part of the Environmental Impact Statement (EIS).

Sincerely yours,

Natasha Clarin
Natasha Clarin
91-479 Pohakupuna Road
Ewa Beach, Hawaii 96706

66

March 14, 2002

Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

Dear Mr. Joseph Hernandez,

I'm an employee at the Ko Olina Resort and I'm writing today to inform you about the smells that are coming from the Waimanalo Gulch and Landfill which you are managing. I drove in at 7:15 a.m. and noticed a horrible smell at the front gate. I asked the Aloha Team guards if the smell was coming from the landfill and they said yes, as always. This disgraceful smell nauseated me.

Like I mentioned in my letter yesterday, I'll keep writing you whenever I can smell these smells from the landfill. I'll be voicing my opinion to you until something is done about it. It's not right for employees and mostly residents to be smelling this junk.

This is a beautiful resort to work and live at but with smells from the landfill, it's not right. Today I noticed again for some reason, trash was being dumped facing the roadway and I saw a line of trucks waiting to dump their loads way up the landfill. Paper bags, trash etc was exposed towards the road and I appalled by the sight of things. It looked like a mountain of trash, why do we have to look at this? The guards at the front gate said the smells occurred all night, how can this not be a health issue?

Your prompt response will be appreciated. I would like this letter to be a part of the Environmental Impact Statement (EIS).

Sincerely yours,

Natasha Clarin
Natasha Clarin
91-479 Pohakupuna Road
Ewa Beach, Hawaii 96706

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 306, KAPOLEI, HAWAII 96707
Phone: (808) 692-5155 • Fax: (808) 692-5113



JEREMY HARRIS
MANAGER

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-155

December 20, 2002

Ms. Natasha Clarin
91-479 Pohakupuna Road
Ewa Beach, Hawaii 96706

Dear Ms. Clarin:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated March 13 and 14, 2002. This is in follow-up to actions we are taking to address the conditions you described.

You were correct to contact Mr. Joseph Hernandez, Environmental Manager at the landfill, concerning your odor complaint. We regret any odor-associated discomfort you may have experienced. Management of landfill gases at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; and, 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

Potential for visual impacts will be addressed with a landscaping plan which is being implemented. Visual modifications to the site will involve a combination of hydromulching and camouflaging to further reduce the visual impact of the site on locations such as Ko Olina. While it is not possible to completely suspend operations at a facility designed to serve all of Oahu's landfill needs, we have initiated many of the mitigative measures we discussed in prior meetings before the public. These include:

- Landscaping, as discussed above;
- Implementation of short- and long-term programs to address odors;
- Implementation of measures to reduce littering along the highway; and
- Implementation of a plan for long-term management of Oahu's municipal refuse needs through a combination of reuse, recycling, and adoption of new technologies.

We appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namunnart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,


TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

66A - 67A

Ms. Natasha Clarin
December 20, 2002
Page 2



March 14, 2002

Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Hwy.
Kapolei, HI 96707

Subject: Landfill stench

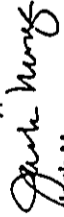
Sir:

This is to follow up on the message I left this morning, and the subsequent call to your cell phone during which I was cut off. I thought that I had smelled the worst of the odor coming from the landfill, until this morning. I began smelling it as I passed Honokai Hale, and by the time I rolled my window down at the front gate, I was on the verge of vomiting. The expression on the face of the gate attendant mirrored my feeling, as she told me that the stink had been powerful all night. No one in this community, worker, resident or guest, should have to endure this level of polluted air, especially if they are unable to relocate to escape it.

If there is any odor neutralizing equipment in use, the effect is undetectable. The extent to which the stench permeated the air was well past the point at which it usually is diminished. The cool, still air may be part of the reason. However, after noticing the extent to which the "lava flow" of garbage is now visible from many points on the resort, it seems that you are unable to exert any control over these landfill conditions whatsoever.

I would appreciate a call from you to my cell phone, 479-4245, to address the points I have raised. I feel that past explanations as to the cause of these wide spread odor clouds ring hollow. Something far more substantial than a mist of faint fragrance needs to be done to permanently eliminate this pollution.

Sincerely,


Jack Morgan
Grounds Director

03/14/02 11:57 808 668 1366
Feb. 7. 2002 11:54AM KO OLINA COMMUNITY ASSOCIATION

WM HAWAII/MGSL
KO OLINA COMMUNITY ASSOCIATION

03/14/02 11:58 808 668 1366
Feb. 19. 2002 7:20AM KO OLINA COMMUNITY ASSOCIATION

WM HAWAII/MGSL
KO OLINA COMMUNITY ASSOCIATION

No. 0208 P. 2/2
No. 0293 P. 2/2



February 7, 2002

February 19, 2002

70

69

Joseph Hernandez
Waste Management of Hawaii
92 460 Farrington Highway
Kapolei, HI 96707

Joseph Hernandez
Waste Management of Hawaii
92 460 Farrington Highway
Kapolei, HI 96707

Subject: Waimanalo Landfill Odors

Subject: Waimanalo Landfill Odors

Dear Joe:

Dear Joe:

This is a follow up to our conversation of this morning regarding the strong, sickening odors coming from the Waimanalo Landfill, especially during the early morning hours. The odors are most noticeable during the early morning hours from approximately 2:00 AM until 8:00AM. The cooler weather and light winds also seem to be a factor, as I mentioned when we spoke.

This is a follow up my call and phone message this morning regarding the strong, nauseating odors coming from the Waimanalo Landfill, during the early morning hours today. The odors were quite noticeable as I entered the resort a bit after 6:00 am. The cooler weather and light winds also seem to be a factor, as I mentioned in past reports. These odors are sickening when one is exposed to them over time, as is the case with our people working at the front entry.

You mentioned that your deodorizing mist equipment is operated by timer and manually when your weather station indicates certain conditions. Based on my observations of this week, if the equipment is in operation I cannot detect any lessening of odors. The odors are nauseating when one is exposed to them over time, as is the case with our people working at the front entry.

Joe, I appreciate the time you take to discuss these concerns with me, and your efforts to alter the operating hours of the deodorizers. However, I do not feel that the equipment is effective. Our interest in reducing the effect the Waimanalo Landfill has on the working and living conditions with the Resort remain unchanged.

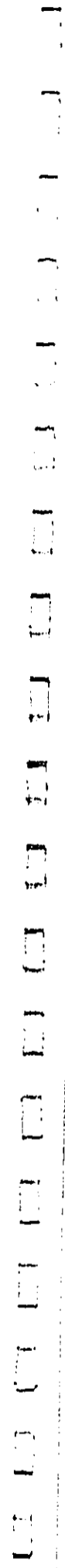
Joe, I appreciate the time you take to discuss these concerns with me, and your efforts to alter the operating hours of the deodorizers. However, I do not feel that the equipment is effective. Our interest in reducing the effect the Waimanalo Landfill has on the working and living conditions with the Resort remain unchanged.

Sincerely yours,
Jack Morgan
Jack Morgan
Grounds Director

Sincerely yours,
Jack Morgan
Jack Morgan
Grounds Director

c: Tim Steinberger
Frank Doyle
Wilma Namumart

c: Tim Steinberger
Frank Doyle
Wilma Namumart



68A - 70A

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692 5159 • Fax: (808) 692 5113



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-157

November 22, 2002

Mr. Jack Morgan
Grounds Director
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

WES					
R-F	WZ				
RIT					
REC'D	NOV 27 2002	DATE			
ATP	AF				
BRT					

Dear Mr. Morgan:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated February 7 and 19, and March 14, 2002. This is in follow-up to actions we are taking to address the conditions you described.

You were correct to contact Mr. Joseph Hernandez, Environmental Manager at the landfill, concerning your odor complaints. We regret any odor-associated discomfort you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

Mr. Jack Morgan
November 22, 2002
Page 2

We regret any discomfort you may have experienced and appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namumart of our office of Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension.22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



March 14, 2002

Joseph Hernandez
Site Environmental Manager
Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Gulch Landfill Odor

Dear Joe:

I work the morning shift at the Ko Olina guardshack. This morning when I started at 7:00 a.m. I was greeted with the smell of rotting garbage. It is very unpleasant not only for me but for the employees, residents and guests as well. I feel bad for the tourists who come to Hawaii from all over the world only to be hit by the putrid smell of the Waimanalo Landfill upon their arrival to the Ko Olina Resort. Not a good message to send to travelers considering our struggling local visitor industry and our reputation for welcoming guests.

Please let me know of your remedial efforts to eliminate the odors from the dump. I await your reply. Include this letter in the Environmental Impact Statement please.

Very truly yours,

Rodol Aradanas
Aloha Team Officer

c: Department of Environmental Services
Attn: Timothy Steinberger
Frank Doyle
Office of Environmental Quality Control
Council Chair John DeSoto
Senator Colleen Hanabusa



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIWA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5155 • Fax: (808) 692-5113

71A

JEREMY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-186

December 23, 2002

Mr. Rodel Aradanas
Aloha Team Officer
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Mr. Aradanas:

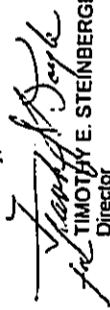
Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated March 14, 2002. You were correct to contact Mr. Hernandez concerning your odor complaint. We regret any odor you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management of Hawaii is redeploying the odor misters for better odor control. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; and 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert putrescible and odorous wastes. We believe that both the short- and long-term plans will cause a marked reduction in odors.

We regret any discomfort you may have experienced and appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namunnart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (extension 22).

Sincerely,


TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Jose Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



March 14, 2002

Joseph Hernandez
Site Environmental Manager
Waste Management of Hawaii, Inc.
92-160 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Gulch Landfill Odor

Dear Joe:

We once again at Ko Olina are being impacted by the foul smells of your Waimanalo Gulch Sanitary Landfill. This morning was terrible. I needed to be relieved from my front gate post so I could get some fresh air. Ko Olina and for that matter, the Leeward Coast, is a special area which does not deserve this type of toxic use in the midst of a neighborhood of young families, island guests and local recreation areas. I beg that the Landfill be shut down and relocated to a more appropriate site more isolated from people trying to enjoy and live their lives.

Please insert this letter into the Environmental Impact Statement so my contention to this Landfill is made a part of the public record.

Sincerely,

Betty Lulu Cullen
Betty Lulu Cullen
Aloha Team Officer

c: Department of Environmental Services
Attn: Timothy Steinberger
Frank Doyle
Office of Environmental Quality Control
Council Chair John DeSoto
Senator Colleen Hanabusa

Ko Olina Community Association • 92-010 Farrington Highway, Ko Olina, Hawaii 96707
Phone: (808) 671-3112 • Fax: (808) 671-9400



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692 5159 • Fax: (808) 692 5113



MURRAY HARRIS
US-100

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-159

November 22, 2002

Ms. Betty Lou Cullen
Aloha Team Officer
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Ms. Cullen:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter addressed to Mr. Joseph Hernandez, Waste Management of Hawaii, dated March 14, 2002. This is in follow-up to actions we are taking to address the condition you described.

We regret any odor-associated discomfort you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill-associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

72A

Ms. Betty Lou Cullen
November 22, 2002
Page 2

We regret any discomfort you may have experienced and appreciate your efforts to notify us regarding this matter. Any further comments may be directed to Ms. Wilma Namurninat of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

03/15/02 18:11 808 668 1366 HI HAWAII/REGSL 003/010
04-15-2002 09:32cc From HAWAII REGIONAL OFFICE MCI 088747080 T-423 P.002/002 F-053

1001 Kamehaha Blvd., Suite 202
Kapolei, HI 96707
808/674-3100
808/674-7000 Fax



Hawaii Regional Office

March 14, 2002

Mr. Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, HI 96707

Subject: Waimanalo Landfill Odors and Unsanitiness

Dear Mr. Hernandez:

If I may introduce myself, I am the Regional Vice President of Sales and Marketing for Marrion Vacation Club International for the Hawaii/Asia Region. Our newest project, the Ko Olina Beach Club currently under construction is located in the resort directly below the Waimanalo Gulch Landfill. The "scar" in an otherwise beautiful mountainside has been even uglier these past few days and I would like to add my comments along with the other residents of the Ko Olina Resort.

Our clients that come to the resort in hopes of purchasing their "dream vacation" for many years to come may be impressed by our beautiful sales gallery and model, but just one step outside and their dreams are dashed by the unsightliness of the Waimanalo Gulch. Even the best sales person in the world will not be able to respond to the mountains of garbage overflowing and the line-up of trucks driving up the mountainside.

As a responsible and contributing member of the community, MSCI and the Ko Olina Beach Club respectfully ask that you suspend the open dumping of garbage and implement the mitigative actions promised in the public forums. Please include this letter in the Final Environmental Impact Statement for the expansion of the Waimanalo Gulch Landfill.

Sincerely,

Robert Calhoun
Regional Vice President - Sales & Marketing
Hawaii/Asia Region

cc: Tim Steinberger
Frank Doyle
Council Chair John Desoto
Senator Colleen Hanabusa



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1001 ULUOHA STREET, SUITE 300, KAPOLEI, HAWAII 96707
Phone: (808) 697-5159 • Fax: (808) 697-5113



TIMOTHY E. STEINBERGER
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-165

Mr. Robert Calhoun
December 20, 2002
Page 2

• For a short period in March 2002, it was necessary to place refuse into one of the permitted landfill cells which faces the Ko Olina Resort. Community concerns regarding views of this activity have been addressed by use of screening berms facing the Ko Olina Resort.

We appreciate your comments concerning the subject Revised Draft EIS. Any further comments may be directed to Ms. Wilma Namunnart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER, P.E.
Director

Mr. Robert Calhoun
Regional Vice-President, Sales and Marketing
Marriott Vacation Club International
1001 Kamokila Boulevard, Suite 202
Kapolei, Hawaii 96707

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated March 14, 2002. We acknowledge your stated concerns regarding operations at Waimanalo Gulch Sanitary Landfill. We offer the following in response to your concerns.

- Waimanalo Gulch Sanitary Landfill is an important public facility which addresses the municipal refuse disposal needs of all of Oahu. It is therefore not possible to suspend operations of this facility.
- Prior proposals for the site involved an extended use of approximately 15 years. This proposal has since been modified to a five-year plan. During this period the City will be investigating and implementing alternative methods to further reduce our dependency on use of this facility.
- Potential for visual impacts such as you describe will be addressed with a landscaping plan which is being implemented. Visual modifications to the site will involve a combination of hydromulching and camouflaging to further reduce the visual presence of the site to locations such as Ko Olina.



March 14, 2002

Mr. Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Landfill

Dear Mr. Hernandez:

We are writing to you to express our dismay and disappointment to the ongoing mismanagement of the Waimanalo Landfill. In many of our past meetings your firm reported to the public that Waste Management of Hawaii was taking all steps necessary to minimize the impact of the presence of the landfill. However, repeated complaints have continued to circulate without meaningful response in regard to the unsightliness of the landfill or the foul odors that it disperses.

As of yesterday, we were personally able to witness first hand how blatant and uncaring the facility managers of the landfill are towards their surrounding community. As we watched from the Model Homes of our newly developing community, The Coconut Plantation within Ko Olina Resort, trucks hauled above the edge of the landfill to dump whatever waste over the hillside edge into the direct view of our resident community. Not only was the dumping a complete eyesore, but also the foul order produced by the waste is still lingering through our entire neighborhood. Seeing and smelling this operation first hand and as it continues today, we must convey that this type of landfill operation must cease and desist immediately. We cannot co-exist with this type of negligence occurring.

Representatives from the City and County of Honolulu, Department of Environmental Services, as well as all active managers of Waste Management of Hawaii are misleading the public when they speak of better practices, new technologies and landscape improvements. We have yet to see any of these steps implemented.

We would like your response no later than Monday, March 18, 2002 indicating how the following items are going to be addressed and within what time frame they will occur.

1. Immediately cease and desist on the hillside dumping in the direction of the Ko Olina Resort Communities.
2. We were apprised of a new order spraying system that was proposed but not implemented. What are the details of this system and when will it be operational?

SOUTHLAND BUSINESS GROUP
92-1070 Owa Street, Kapolei, HI 96707
Phone 808 683 9778 • Fax 808 680 9673

3. The entire landfill area is exposed with no vegetation. At prior meetings, Waste Management had proposed staged landscape improvements to disguise and camouflage the landfill. The landfill itself is unsightly, but we also share great concerns with expectations of surface erosion and water runoff into drains and ultimately into the ocean. What is the status of the landscape improvement project?
4. An irritated resident of our community informed us after his visit to the landfill that the expansion of the landfill was already occurring. This individual homeowner had written to us on February 8, 2001 requesting several clarifications and threatening legal recourse. Being that there has not been any approval or permit issued for the expansion, please assure us that the landfill operation is working exclusively within its authorized area.

Please include this letter in the Final Environmental Impact Statement for expansion of Waimanalo Gulch Landfill.

Sincerely,
BROOKFIELD HOMES

David F. Murphy
Development Director

Cc: Department of Environmental Services
Attn: Timothy Sternberger
Frank Doyle
Office of Environmental Quality Control
Council Chair John Desoto
Senator Colleen Hanabusa
Health of the Land Members

**BROOKFIELD
HOMES**

February 15, 2002

City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, HI 96813

Attention: Ms. Wilma Namumart
Subject: Waimanolo Gulch Sanitary Landfill Expansion

Dear Ms. Namumart:


Attached is a copy of a complaint letter regarding the above subject. Mr. & Mrs. Nakazaki are new residents to our early stage community, The Coconut Plantation. As you are aware, our project is located within the Ko Olina Resort, only a short distance from the Waimanolo Gulch Landfill.

Please accept the attached letter as a formal complaint, which should be registered with all other community complaints brought forward by the Ko Olina Resort Community.

Mr. & Mrs. Nakazaki had several inquiries, which we would expect that your department would respond to them directly. In summary, they have inquired for the following information:

1. What is the status of the proposed more effective order system? According to conversations with Waste Management, it is pending with the City and County of Honolulu.
2. Has a seepage barrier ever been installed on the current landfill? If not is there any plan to install one in the very near future?
3. What is the chemical make up (parts per million) of the potable water system currently being distributed in the Ko Olina Resort?

Your early response to these matters would be appreciated.

Sincerely,
BROOKFIELD HOMES

David F. Murphy
Development Director

Cc: Mr. Randall K. Fujiki, Director of Planning and Permitting
C/o Mayor Jeremy Harris
Mr. Brian Takeda, R. M. Towill Corporation
SOUTHLAND BUSINESS GROUP
92 1070 Oahu Street, Kapehu, HI 96707
Phone 808 676 3300 • Fax 808 676 3310

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1100 ULUKOHA STREET, SUITE 300, KAPOLEI, HAWAII 96707
Phone: (808) 637-5153 • Fax: (808) 637-5113



JEREMY HARRIS
DATE

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-153

November 19, 2002

Mr. David F. Murphy, Development Director
Brookfield Homes
Southland Business Group
92-1970 Olani Street
Kapolei, Hawaii 96707

Dear Mr. Murphy:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters dated February 15 and March 14, 2002. We acknowledge your stated concern regarding our prior proposal to expand Waimanalo Gulch Sanitary Landfill for a 15-year period. The City has since modified this proposal to an expansion goal of five years. During this period, we have been directed to seek all available and viable options which will reduce our need for continued reliance on landfill.

Letter of February 15, 2002

We acknowledge receipt of the letter from Mr. and Mrs. Nakazaki dated February 8, 2002, and will respond directly by letter to them. Our responses to the questions you raise are as follows:

1. "What is the status of the proposed more effective order (sic) system? According to conversations with Waste Management, it is pending with the City and County of Honolulu."
There are short- and long-term efforts to address the generation of nuisance odors from the landfill. The short-term fix augmented the existing system of odor misters with placement of additional misters. This work has been completed. We are optimistic about the successful use of this system, as it has been found to be effective at treating and eliminating odors. In particular, we believe the system will more effectively treat odors during periods when H-POWER is temporarily shut down for maintenance and when sewage sludge is delivered to the site.

Mr. David F. Murphy, Development Director
November 19, 2002
Page 2

The long-term solution will involve installation of a gas recovery system, expansion of H-POWER, and diversion of sewage sludge from Waimanalo Gulch. The proposal for the gas recovery system is under review by the State Department of Health (DOH). Once the plan is approved, Waste Management of Hawaii, the operators of the landfill, will issue a request for proposals (RFP) for the design and construction of the system. The major advantage of gas recovery will be that landfill associated gasses will be constrained from leaving the site. Implementation of gas recovery is expected to take approximately one year following approval by DOH.

The City is planning to expand H-POWER with the addition of a third boiler. The new boiler will enable further diversion of combustible waste products from the landfill. Diversion of sewage sludge will be handled by conversion of the sludge into fertilizer pellets at Sand Island Wastewater Treatment Plant. The sludge dryer contractor is in the design stage of this project and should be operational in 2004.

2. "Has a seepage barrier ever been installed on the current landfill? If not is there any plan to install one in the very near future?"
Yes. All municipal solid waste landfills are regulated by the Federal Environmental Protection Agency and, in Hawaii, by DOH. As noted in the RDSEIS this system is comprised of multiple layers, using compacted clay overlain by geosynthetic clay liner (GCL), overlain by 60 mils of high density polyethylene (HDPE).

3. "What is the chemical make-up (parts per million) of the potable water system currently being distributed in the Ko Olina Resort?"
Oversight for potable water resources used at Ko Olina is by the Honolulu Board of Water Supply. We recommend that they be contacted for the analytical chemical data you are interested in obtaining.

Letter of March 14, 2002

1. "Immediately cease and desist on the hillside dumping in the direction of the Ko Olina Resort Communities. We acknowledge for a short period in March 2002, it was necessary to place refuse into one of the permitted landfill cells which faces the Ko Olina Resort. Community concerns regarding views of this activity have been addressed by use of screening berms facing the Ko Olina Resort."
"We were apprised of a new order (sic) spraying system that was proposed but not implemented. What are the details of this system and when will it be operational?"
As noted above, new odor misters have been installed. The misters are located along the litter fence facing the Ko Olina Resort and will augment the existing system to provide additional coverage.
- 2.

Mr. David F. Murphy, Development Director
November 19, 2002
Page 3

3. *"The entire landfill area is exposed with no vegetation. At prior meetings, Waste Management had proposed staged landscape improvements to disguise and camouflage the landfill. The Landfill itself is unsightly, but we also share great concerns with expectations of surface erosion and water runoff into drains and ultimately into the ocean. What is the status of the landscape improvement program?"*
Active portions of the landfill require clearing to ensure proper placement of the liner system. Once installed, the liner area must be kept clear to ensure proper working conditions. Drainage and erosion controls are already in place and installed pursuant to rules and regulations of the Department of Planning and Permitting to ensure public health and safety. We are reviewing a landscaping plan submitted by Waste Management. The plan will be implemented once we are satisfied that it can address stated concerns regarding visual impacts.

4. *"An irritated resident of our community informed us after his visit to the landfill that the expansion of the landfill was already occurring. This individual homeowner had written to us on February 8, 2001 requesting several clarifications and threatening legal recourse. Being that there has not been any approval or permit issued for the expansion, please assure us that the landfill operation is working exclusively within its authorized area. No expansion of the site has occurred. The State Department of Health has permitted an increase in height over existing landfill cells. We expect this interim measure will provide sufficient landfill space for approximately nine months. Our intention is to use this time to complete the EIS documentation required for the project."*

We appreciate your review of the subject document. While we understand your objection to the proposed project, we hope that we may work with you in the future so that we can have a better-run facility. Any further comments may be directed to Ms. Wilma Namumart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (extension 22).

Sincerely,



TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

76

3/17/02

To: Mayor Jeremy Harris
 Council Chair, John DeLoe
 State Office of Environmental Quality Control
 Senator Bruce Kahanu
 Senator Helen Kawakawa
 Joseph Hummerly, Waste Management of Hawaii

3/10/02

To: City Dept. of Environmental Services
 Cc: Jim Steinberger + Frank Doyle
 From: Jane S. Rose + Martha Makaini Rose; M. Moku
 Subject: Maimonads Leach Landfill

From: Jane S. Rose + Martha Makaini Rose, M. Moku
 Subject: Maimonads Landfill

Attached is a copy of a letter sent to the City Dept. of Environmental Services re. conditions recently experienced while in No 8 Leach Point

Pages attached (also) including cover - 2

One day during the week of 3/10 to 3/16 we went to the No 8 Leach. Any Leach that House for Leach. As we drove along No 8 Leach's main roadway, near the house being built at the Coconut Plantation, we looked up to the mountains and were appalled to see the Maimonads Leach Landfill (dump) looks worse than ever seen it before.

Piles of rubbish/garbage/whatever around the mountain side - very wide & very long - while dirt trails (roads?) cut across in their sides.

Bulldozers were clearly visible pushing stuff around, and a number of trucks, like ants on an ant hill, were moving all over the place.

What a horrible sight it was!

How can tourists be expected to pay to look at that, or anyone to purchase homes at No 8 Leach?!

How about signed can the City to do allow this to go on when this Point is square of pouring huge top dollars into both the City & State coffers, if not prevented by this outrageous project.

Take some mitigation in steps; but honestly expensive to achieve. Make up before it is too late - dump the dump!



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHA STREET, SUITE 306, KAPOLEI, HAWAII 96707
Phone: (808) 697-5159 • Fax: (808) 697-5113



HERIMY HARRIS
DIRECTOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-154

November 19, 2002

Ms. Jane A. Ross
Ms. Martha Makaiwi
92-783 Laalaa Place
Kapolei, Hawaii 96707

Dear Ms. Ross and Ms. Makaiwi:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated March 17, 2002. We acknowledge your concerns regarding operation of the Waimanalo Gulch Sanitary Landfill.

As you are aware, the existing landfill site is rapidly approaching its permitted capacity. A recent approval from the State Department of Health will permit a moderate increase in landfill height. Our ultimate goal, however, is to seek expansion of Waimanalo Gulch for a period of five years, which is a change from our prior proposal for 15 years.

Because we understand your concerns, we will seek all available and viable options which will help to ensure that our goal can be met. This will involve, but not be limited to, the following:

- Expansion of the H-POWER waste-to-energy facility to increase processing capacity;
- Source separation of specified materials for diversion to recycling facilities;
- Development of a sewage sludge drying facility at Sand Island Wastewater Treatment Plant; and
- Development of the Alternative Disposal Technology Park adjacent to H-POWER in the James Campbell Industrial Park.

76A

Ms. Jane A. Ross
Ms. Martha Makaiwi
November 19, 2002
Page 2

As we have stated to you previously, attaining this goal will require the support of concerned citizens such as you and the City Council.

We appreciated the time you have taken to share your concerns with us. Any further comments may be directed to Ms. Wilma Namumart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation



March 18, 2002

Joseph Hernandez
Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Wind Blown Trash Coming From the Waimanalo Gulch Landfill

Dear Mr. Hernandez:

This is to report another problem from your landfill operation at Waimanalo Gulch.

On Sunday and Monday, March 17 & 18, 2002, the exposed trash coupled with the high winds that we have been experiencing has resulted in airborne trash leaving the landfill and littering the Waianae-side of Ko Olina Resort and the Pacific Ocean from Lanikuhonua / Paradise Cove to Kahe Beach Park and beyond.

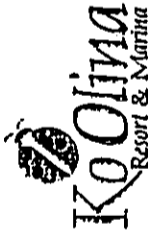
The catchment fence at the landfill designed to contain trash within the landfill site has once again proven to be ineffective from stopping the thousands of plastic bags and paper articles from being swept upwards over the fence and seaward into the ocean where it will surely impact, in a bad way, the marine life that thrive offshore.

Please institute the necessary measures immediately to prevent recurrences of this nature. As always, this letter needs to be included in the Final EIS for the expansion of the Waimanalo Landfill.

Very truly yours,

Kenneth M. Williams
General Manager

c: Department of Environmental Services
Attn: Timothy Steinberger
Frank Doyle
Office of Environmental Quality Control
Senator Colleen Hanabusa
Council Chair John DeSoto
Health of the Land Members



March 14, 2002

Joseph Hernandez
Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Kapolei, Hawaii 96707

Subject: Acrid Stench From Waimanalo Landfill

Dear Joseph:

This is to confirm my conversation with you this morning at 7:10 a.m. concerning the acrid stench coming once again from your landfill operation at Waimanalo Gulch. I also requested that you respond in writing to the concerns I raised in my letter faxed to you yesterday (attached).

The Ko Olina Community Association demands that all dumping on the makai hillsides cease immediately.

There is no doubt that the next rain will send garbage and its toxins down the hillside into lower lying areas such as Kahe Homes, Farrington Highway, Ko Olina Resort and most tragically through the underground culverts into the Pacific Ocean where marine life such as Dolphins thrive. We request that Waste Management Hawaii provide in writing any and all efforts that are being undertaken to ensure that this will not happen. Please include this letter in the Environmental Impact Statement for the Waimanalo Gulch Landfill.

Very truly yours,

Kenneth M. Williams
General Manager

c: Department of Environmental Services
Attn: Timothy Steinberger
Frank Doyle
Office of Environmental Quality Control
Council Chair John DeSoto
Senator Colleen Hanabusa
Health of the Land Members





Joseph Hernandez
Waste Management of Hawaii
92-460 Farrington Highway
Kapolei, Hawaii 96707

March 13, 2002

Subject: Waimanalo Landfill Odors and Unpleasantness

Dear Joe:

The smell of garbage from the Waimanalo Gulch Landfill was once again very strong this morning at Ko Olina Resort. I left a message on your cell phone to this effect at 6:55 a.m. which is the time I arrived at the Resort. The smell has not dissipated and is still very strong at this moment (1:00 p.m.).

I've also received reports that the foul odor of the Landfill was exceptionally pungent throughout last night. These reports came from our front gate Aloha Team member and Mrs. Nettie Tiffany who lives at Lanikuhonua.

I would also like to point out that the visual impact of the Landfill today is absolutely abominable. From every point at Ko Olina the sight of raw garbage spewing down the hillside is visible. Also, no less than 30 garbage trucks and trailers are lined up on the ridge above the field of rubbish kicking up huge clouds of dust. What is going on? In past public meetings WMHI and the City promised to mitigate these operational impacts and keep the community informed of the progress of these mitigative measures. We have heard nothing. As evidenced by the visual and olfactory impacts being observed and felt today, it is clear that past promises to make things better are nothing but words.

I expect to receive a detailed response explaining your efforts to mitigate the negative impacts your operation is having on Ko Olina and the neighboring communities. Your blatant disregard to keep the community informed and the lack of action to implement mitigative measures as promised in public forums such as deodorizing systems and landscaping is disappointing.

Finally, I have been told in the past that I should call WMHI immediately whenever the smell of raw garbage is detected at the Resort so a WMHI representative can be sent to investigate and discuss the problem with me. Well, I called at 6:55 this morning and have yet to receive any response from your office. Were those just "words" too?

Please include this letter in the Final Environmental Impact Statement for expansion of the Waimanalo Gulch Landfill.

Very truly yours,

Kenneth M. Williams
General Manager

cc: Department of Environmental Services
Attn: Timothy Steinberger
Frank Doyle
Office of Environmental Quality Control
Council Chair John DeSoto
Senator Colleen Hanabusa
Health of the Land Members

COPY



March 12, 2002

Joseph Hernandez
Waste Management of Hawaii
92-160 Farrington Highway
Kapolei, Hawaii 96707

Subject: Waimanalo Landfill Odors

Dear Joe:

This is to confirm my telephone conversation with you this morning at 7:05am informing you of the strong garbage odor coming from the Waimanalo Gulch Landfill. As mentioned to you, the entrance flags at Ko Olina Resort indicated a wind direction blowing from the landfill directly to the Resort.

Please provide me with WMHI's and the Department of Environmental Services' plans to rectify a recurrence of these incidents which is negatively impacting the Resort and neighboring communities. As a separate but related matter, please advise as to the progress of instituting mitigative measures to screen the Waimanalo Gulch Landfill from view through the use of landscaping as well as the use of a deodorizing system to eliminate the nauseating smell which emanates from the Landfill to surrounding communities. Your prompt response will be appreciated.

As always, please include this letter in the Final Environmental Impact Statement for the Landfill expansion and extension. Thank you for your attention to this matter.

Very truly yours,

Kenneth M. Williams
General Manager

c: Department of Environmental Services, Attn: Timothy Steinberger

Ko Olina Community Association • 12-410 Farrington Highway, Ko Olina, Hawaii 96761
Phone: 808-688-1111 • Fax: 808-688-1112



DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 URUKOHA STREET, SUITE 200, HONOLULU, HI 96817
TELEPHONE (808) 525-5151 FAX (808) 525-1113 WEBSITE: <http://www.dea.honolulu.gov>

JEREMY HARRIS
Mayor



JAMOTHY E. STERBERGER, P.E.
Director

FRANK J. DOYLE, P.E.
Deputy Director

DEP-02-07

March 20, 2002


Mr. Kenneth M. Williams
Ko'Olina Resort & Marina
92-619 Farrington Highway
Ko'Olina, Hawaii 96707

Dear Mr. Williams:

I appreciate your observance. Your concerns are noted and will be addressed accordingly.

Should you have any questions, please call me at 692-5206.

Sincerely,


FRANK J. DOYLE
Deputy Director

cc: Mr. Joe Hernandez-Waste Management of Hawaii, Inc.
Mr. Brian Iakeda-R.H. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 ULUOHI STREET, SUITE 308, LAPOELE, HAWAII 96707
Phone: (808) 537-5155 • Fax: (808) 632-5113



MIRIAM HARRIS
MAYOR

TIMOTHY E. STERNBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-155

77A - 80A

Mr. Kenneth M. Williams
December 20, 2002
Page 2

As we have advised you previously, attaining this goal will require the support of concerned citizens such as you and the City Council.

December 20, 2002

Mr. Kenneth M. Williams
General Manager
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

- Letter of March 18, 2002
- Refuse at the site will be managed with additional use of portable litter fences.
 - We concur that more can be done to further reduce the incidence of windblown litter from the site. We are planning to increase the capacity of H-POWER, which will facilitate the processing of more municipal waste. We are confident that, once the excellent record of H-POWER is understood, the City will be permitted to seek its upgrade.

Dear Mr. Williams:

Subject: Revised Draft Supplemental Environmental Impact Statement
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters dated March 12, 13, 14, and 18, 2002. We acknowledge your concerns regarding operation of the Waimanalo Gulch Sanitary Landfill.

General Comments

As you are aware, the existing landfill site is rapidly approaching its permitted capacity. A recent approval from the State Department of Health will allow a moderate increase in landfill height. Our ultimate goal, however, is to seek expansion of Waimanalo Gulch for a period of five years, which is a change from our prior proposal for 15 years.

Because we understand your concerns, we will seek all available and viable options which will help to ensure that our goal can be met. This will involve, but not be limited to, the following:

- Expansion of the H-POWER waste-to-energy facility to increase processing capacity;
- Source separation of specified materials for diversion to recycling facilities;
- Development of a sewage sludge drying facility at Sand Island Wastewater Treatment Plant; and
- Development of the Alternative Disposal Technology Park adjacent to H-POWER in the James Campbell Industrial Park.

Letter of March 14, 2002

- Our response to your letter of March 13, 2002, is provided below.
- Drainage controls at Waimanalo Gulch are designed to handle stormwater runoff not only from the landfill, but also the larger tributary area of Waimanalo Gulch. Regularly scheduled monitoring of onsite conditions at the landfill are already a requirement of our DOH Solid Waste Permit. We are, and have always been, in compliance with health and safety requirements of DOH.

Letter of March 13, 2002

- You were correct to contact Mr. Joseph Hernandez, Environmental Manager, Waste Management of Hawaii, concerning your odor complaint. We regret any odor you may have experienced. Management of landfill gasses at Waimanalo Gulch is being addressed through short- and long-term actions.

Short-term action will involve expanded use of odor misters and regular use of cover material to suppress generation of landfill associated gasses. Waste Management is relocating the odor misters for greater effectiveness. Further reduction of landfill odors will be addressed through our long-term plan to: 1) install a landfill gas recovery system; 2) develop a new sludge drying facility at Sand Island Wastewater Treatment Plant; 3) expand H-POWER. The installation of the gas recovery system will capture landfill gasses at the source, while the sludge drying facility and expansion of H-POWER will divert more putrescible waste. We believe that both the short- and long-term plans will cause a marked reduction in odors.

Mr. Kenneth M. Williams
December 20, 2002
Page 3

Potential for visual impacts such as you describe will be addressed with a landscaping plan which is being implemented. Visual modifications to the site will involve a combination of hydromulching and camouflaging to further reduce the visual impact of the site on localities such as Ko Olina. While it is not possible to completely suspend operations at a facility designed to serve all of Oahu's landfill needs, we have initiated many of the mitigative measures we discussed in prior meetings before the public. These include:

- Landscaping, as discussed above;
- Implementation of short- and long-term programs to address odors;
- Implementation of measures to reduce littering along the highway; and
- Implementation of a plan for long-term management of Oahu's municipal refuse needs through a combination of reuse, recycling, and adoption of new technologies.

Letter of March 12, 2002

Please refer to our General Comments and individual comments concerning mitigation measures to address odor, litter, and visual concerns.

We appreciate the time you have taken to share your concerns with us and apologize for any disturbance you have experienced as we seek to improve operations at the site. Should you have further comments you may direct them to Ms. Wilma Namunnart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,


TIMOTHY E. STEINBERGER, P. E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

April 5, 2002

Dear Sir,

I'm writing this letter with concern for the landfill problem in West Oahu.

We, of course don't want an expansion of the landfill, but also the idea of expanding Campbell Industrial Park & having machines making garbage into fertilizer or fuel in future trouble too.

May I suggest that another area, less populated be chosen for rubbish burning and landfill.

The state's buying Campbell Estate and leasing it for population expansion and also waste expansion expansion planning I know the biggest concern is the financial situation in West Oahu should be thought out.

There is a cluster of people on the seaward coast that suffer from lung disease, asthma, etc. and it doesn't seem fair one side of Oahu has to take all the problems.

Sincerely,
Marion Tyni

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 692-5155 • Fax: (808) 692-5113

EREMY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-203

December 23, 2002

Marion Tyni
No Address Provided

Dear Marion Tyni:

Subject: Revised Draft Supplemental Environmental Impact
Statement Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated April 5, 2002.

The City has modified the period of expansion for Waimanalo Gulch from 15 years, to a new goal of five years. During this period, we have been directed to seek all available and viable options which will alleviate our need for continued reliance on landfills.

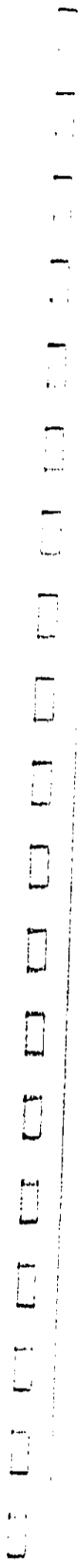
We acknowledge your concerns regarding expansion of the landfill. The decision to select Waimanalo Gulch as the preferred alternative for the future landfill needs of Oahu was not an easy one. In fact, the decision to site any municipal landfill is an extremely difficult undertaking. Not only must regulatory requirements involving environmental protection be met, the operator of the facility must possess the experience to address community concerns in a reasonable and effective manner. It is our hope that by working with the community, we will be able to improve the mitigation programs we now have in place for the remainder of time that the landfill is in operation.

We appreciated the time you have taken to share your concerns. Should you have any further comments you may direct them to Ms. Wilma Namunhart of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (extension 22).

Sincerely,

Timothy E. Steinberger
TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation



82A

REC'D	APR 18 2002	MMTC
RTT	ILP	NM
RTT	ILP	BRT

RECD APR 18 2002 MMTC

MAIL ROOM J. TON
OFFICE MANAGING DIRECTOR

OFFICE OF THE MANAGING DIRECTOR
CITY AND COUNTY OF HONOLULU
550 SOUTH KING STREET, ROOM 306 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 522-4331 • FAX: (808) 523-4242 • INTERNET: www.ci.honolulu.hi.us



April 12, 2002

The Honorable Colleen Hanabusa
Senator, Twenty-First District
State of Hawaii
State Capitol, Room 214
Honolulu, Hawaii 96813

Dear Senator Hanabusa:

Thank you for your recent letter regarding Waimanalo Gulch Sanitary Landfill. Please be advised that H-POWER is in the midst of its annual maintenance shutdown, and as is normal practice, refuse that would otherwise be incinerated at the plant is being landfilled at Waimanalo Gulch. This year, the shutdown will last about twice the usual three-week duration because much more extensive repairs are required. We anticipate the plant will be back in operation before the end of May.

At the beginning of the H-POWER shutdown, trucks were directed to unload at the front of the landfill to fill some unused space. As you are well aware, the landfill is nearing its currently permitted capacity, and it is prudent to use every available space. The work at the front of the landfill has been completed. Trucks are now unloading at the back of the site, which should alleviate the situation that gave rise to complaints about odors and dust.

For the quickest implementation of mitigative measures, problems with odors and dust should be reported immediately to Mr. Joe Hernandez at 688-2985. Waste Management of Hawaii, the landfill operating contractor, continually monitors the weather for conditions that can carry odors and dust offsite, but it is difficult to anticipate individual reactions to these nuisances.

We recognize and acknowledge the Wai'anae Coast opposition to expansion of the landfill.

Sincerely,
Benjamin B. Lee
BENJAMIN B. LEE, FAIA
Managing Director

JH:rc (10592)

cc Waste Management of Hawaii

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0003

REFUSE DIVISION

12/30/2002 08:02 FAX 6925432

- ROBERT BARRA
- COLLEEN HANABUSA
- JOHN L. CHAN
- CA. HANAUJIO
- MAURITIUS LARSEN
- ALAN T. LEE, SR.
- ALBERT T. LEE, JR.
- SAM SLOAN
- WENDY T. LANE
- FRED W. MARCOS
- BRUNYLLA J. LEE
- ROBERT LEE
- WENDY T. LANE

The Senate
The Twenty-First District
MAYOR'S OFFICE
CITY & COUNTY
HONOLULU

Mr. Jeremy Harris, Mayor
Executive Branch
Honolulu Hale
530 S. King Street
Honolulu, Hawaii 96813

Dear Mayor Harris:

RE: Waimanalo Gulch Landfill

My office has received many phone calls regarding the horrendous stench and dust that is coming from the Waimanalo Gulch Landfill.

It has been brought to my attention that H-Power has been shut down due to maintenance up grade and the trash that usually goes to H-Power is now being routed straight to the landfill. Needless to say, it is causing many complaints from the communities near by.

I understand that Mr. Joe Hernandez has authorized the trash trucks to dump the trash in the front of the landfill. I question whether this goes to show that the Waimanalo Gulch Landfill is already filled to capacity.

I would appreciate your assistance by providing me with a response in writing addressing this matter and your recommended action as to how our communities concerns can be met.

As an added note, the Wai'anae Coast remain in opposition to the expansion of the landfill.

Sincerely,
Colleen Hanabusa
COLLEEN HANABUSA
SENATOR, Twenty-First District

cc: Ben



APR-23-02 TUE 02:05 PM PH REFUSE DIVISION
4/19/2002 16:40 FAX 8082633086 Jim Corcoran & Linda Liu



KAILUA NEIGHBORHOOD BOARD NO. 31

20 BOX LANE • KAILUA, HAWAII 96704
PHONE: (808) 374-4749 • FAX: (808) 527-5798 • INTERNET: www.kn31.com

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DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
PHONE: (808) 637-5155 • FAX: (808) 637-5113

83A

MY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-201

December 23, 2002

Ms. Kathy Bryant-Hunter, Chair
Kailua Neighborhood Board No. 31,
248 Uliama Street
Kailua, Hawaii 96734

Dear Chair Bryant-Hunter:

Subject: Revised Draft Supplemental Environmental Impact
Statement, Waimanalo Gulch Sanitary Landfill Expansion

Thank you for Ms. Faith P. Evans' letter dated April 19, 2001, from the Kailua
Neighborhood Board. We understand that the 2001 date was probably a mistype, as
we received the letter on April 23, 2002.

The City has modified the period of expansion for Waimanalo Gulch from 15 years to a
new goal of five years. During this period, we have been directed to seek all available
and viable options which will alleviate our need for continued reliance on landfills.

We acknowledge the comments concerning Integrated Environmental Technologies,
LLC. The facility described is designed for the handling and treatment of medical
waste. The forthcoming Final SEIS will further discuss plasma arc and other potential
technologies which may one day be put to practical use on Oahu.

We appreciate the time taken to share your Neighborhood Board's concerns. Should
you have any further comments, please direct them to Ms. Wilma Namunart of our
office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at
668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation

RECEIVED

Apr 23 10 12 AM '02

WASTE MANAGEMENT OF HAWAII, INC.
COLLECTION & DISPOSAL

April 19, 2002

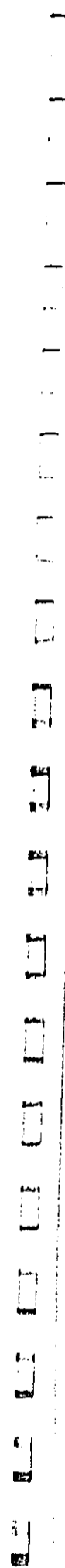
Department of Environmental Services
Director, Timothy E. Steinberger
City and County of Honolulu
1000 Ulukoua Street, Suite 308
Kapolei, Hawaii 96707

Public Comment on Revised Draft Supplemental Environmental Impact State
Waimanalo Gulch Sanitary Landfill Expansion
Reference: City & County DES letter, March 15, 2002, Extension of Public Comment
Period to April 19, 2002

P. 3-55. "Integrated Environmental Technologies, LLC." Left out of this portion of the SEIS
(3.6.6 Prior Experience) is any mention of the plasma system site, referred to as PEM™
now operating at Campbell Industrial Park known as Hawaii Medical Verification (HMV). This
site has the capability to process a variety of waste streams such as tires, solid waste, sludge,
and hazardous waste" (p. 3-55 SEIS). It is requested that this facility, with the words used
above, be incorporated into the Second Draft SEIS; and that a thorough study of the capabilities
and potential of PEM™ be explored and reported upon as a feasible method of reducing City
and County use of landfill. Failure to fully consider the capabilities of the operational PEM™
facility is seen as an alarming oversight on the part of DES.

Respectfully submitted,

Faith P. Evans
Chair, Kailua Neighborhood Board No. 31





Mr. Timothy Steinberger
June 17, 2002
Page 2

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binding Memorandum of Understanding by the City will alleviate concerns and provide community members with a necessary document in the event that a future administration attempts to renege on this commitment. We would like to move forward with such a document at your earliest convenience. Please let us know how best to get this process started.

Another issue that arose from the June 10 meeting was the starting date for the 5-year period for the landfill closure. When questioned, Mr. Doyle indicated that the 5 years would start from April 2003, but did not indicate the significance of the April 2003 date. Obviously, we would prefer that the 5-year period begin from today or, at a minimum, when capacity under the now existing permits for the landfill is reached - which according to Frank Doyle is approximately two and a half months. Please let us know the reason for the April 2003 date and whether that date may be accelerated.

Also, this will confirm that the City will reduce the proposed expansion area at Waimanalo Gulch to a space sufficient for 5 years. As stated in previous correspondence to the City, we believe that the SEIS should be amended to incorporate the reduced expansion area and to address the new City plans which have been announced since the SEIS was made public. Based on the information given at the June 10 meeting, we understand the City does not plan to amend the SEIS before the comment deadline. Instead, the City will keep the June 19, 2002 deadline for comments to the SEIS and will then produce the final SEIS based on those comments and the new 5-year expansion area plan. The final SEIS will then be open for a 60-day review and comment period, after which the Mayor may accept the final SEIS.

If the SEIS will not be amended, please understand that we will be required to comment on the new existing SEIS (which seeks a 15 year expansion area), and although we will note the City's promise to close the Landfill within 5 years from April 2003, we must protect our association member's rights by fully commenting on the existing SEIS. If the City plans to deal with the new landfill plan in some other manner, we would like the opportunity to review and comment on these plans and any revisions to the SEIS.

Finally, we want to insure that you understand our position concerning the proposed temporary height increase for the landfill. We would prefer that any further dumping be done in an area and a manner that is hidden from views along Farrington Highway, the Resort and other coastal points. We are greatly concerned about the proposed temporary 30-foot height increase, as it would have a significant visual impact on all of West Oahu. The impact would be compounded by the fact that the City/Waste Management intends to take down the waste above the now existing height limit once the expansion area is prepared for dumping. We hope that together, we can find a better solution than piling trash another 3 stories high. Over the last month, our engineering consultant has attempted to obtain information from both Waste Management and Wilma about the proposed height increase, but has not received any information or details on

June 17, 2002

Mr. Timothy Steinberger
Department of Environmental Services
City & County of Honolulu
1000 Uluohia, Suite 308
Kapolei, Hawaii 96707

Re: Waimanalo Gulch Landfill

Dear Tim:

I am writing to confirm the City's promises made at the June 10, 2002 informational meeting by Frank Doyle and others. Most importantly, this will confirm that the City has promised and committed to close and reclaim the Waimanalo Gulch Landfill within 5 years. In addition to the closing of the landfill, the City has indicated that the expanded H-Power facility will be operational by the end of 2004 and the alternative technology facility will be operational by the end of 2005, and that the City's goal is to eliminate the need for any landfill within the 5-year period.

First of all, we would like to thank you for all of your efforts over the last year in dealing with the proposed landfill expansion and to let you know that we truly appreciate the fact that the City has made this commitment. As we stated from the beginning of this process, we believe there are better alternatives than expanding the Waimanalo Gulch Landfill for the proposed 15-year period. We thank you and your department for working with us to find a solution that both provides the City with a reasonable amount of time to effectuate an alternative plan and provides for the closure of the Waimanalo Gulch Landfill.

Obviously, there are some questions about the details of the closure plan. At the forefront is the question being asked by numerous community and association members - what will be done to bind the City to this promise? As you know from previous meetings, many community members cited the fact that a prior City administration in the early 1980's promised that the Waimanalo Gulch Landfill would be closed after approximately 15 years. Last year's proposal to expand the Landfill for an additional 15 years have made many people concerned about binding the City to this landfill closure commitment. As suggested by Mr. Doyle at last week's meeting, we believe that a

Mr. Timothy Steinberger
June 17, 2002
Page 3

how or where the height increase will occur. Because of this lack of information, we are unable to comment on the proposed increase or determine whether any better solution may exist. Please let us know to whom we should talk to about the planned height increase and how to obtain the plans for the proposed additional dumping. We would like to work with the City and Waste Management on finding a possible alternate solution for this issue.

Thank you again for your efforts. We look forward to hearing from you on these matters at your earliest convenience. Given the approaching June 19, 2002 deadline, we would appreciate an expedited response.

Sincerely,



Kenneth Williams

Cc: Mayor Jeremy Harris
Waste Management
Dept. of Health
Senator Hanabusa
Frank Doyle
Ko Olina Community Association Members
Health of the Land

KOCA MEMBERS

- JW Marriott Ihilani Resort & Spa
- Royal Development 13, Inc.
- Royal Development 15, Inc.
- TAT Ko Olina 25, Inc.
- HFJ. Ewa, Inc.
- Royal Development 53, Inc.
- Royal Development 54, Inc.
- Royal Development, Inc.
- Marriott Vacation Club International
- Ko Olina Ocean Marina Estates, LLC
- Ko Olina Beach Lagoons Estates, LLC
- Ko Olina Golf Course Condominiums, LLC
- Armstrong Kai Lani Corporation
- Brookfield Homes Southland, Inc.
- Ko Olina Golf Estates, LLC
- Ko Olina Development, LLC
- The Fairways at Ko Olina
- Pacific Northwest, LTD.
- Ko Olina Commercial, LLC
- South Pacific Ventures, LLC
- Ko Olina Ocean Marina, LLC
- Ko Olina Golf Course, LLC

HEALTH OF THE LAND MEMBERS

- Merric Aipolani *(Mike Kahikina's Office)*
- Marjorie Collier
- Agnes Cope
- Robert Calhoun
- Donna Godt
- Colleen Hanabusa
- Ralph Harris
- Kamaki Kanahale
- Martha Makaiwi
- David Murphy
- Cynthia Rezendes
- Jim Richerson
- Jane Ross
- Brad Snyder
- Jeff Stone
- Nertie Tiffany
- Maeda Timson
- John Torner
- Pamela Witty-Oakland *(John DeSoto's Office)*
- George Yamamoto

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 IALUOHA STREET, SUITE 300, KAPOLEI, HAWAII 96707
Phone: (808) 692-5155 • Fax: (808) 692-5113



JEREMY HARRIS
SAC

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
WHEREBY REFERS TO:
RE 02-195

Mr. Kenneth M. Williams
December 23, 2002
Page 2

December 23, 2002

Mr. Kenneth M. Williams
General Manager
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Mr. Williams:

Subject: Revised Draft Supplemental Environmental Impact
Statement Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 17, 2002. We have prepared the following in response:

1. Five-Year Commitment – We confirm the intention of the City to seek expansion of Waimanalo Gulch for a period of five years, upon receipt of all necessary permits for operation. We will certainly describe this commitment in our forthcoming Final EIS and are amenable to discussing the possibility of a Memorandum of Understanding or other document which can demonstrate our good faith effort to work with you.
2. Start of Five-Year Commitment – Yes, we fully understand your desire to seek the start of the five year timeframe as soon as possible. However, because of the number of comment letters received, we have been working to ensure that all public concerns are addressed. Further delay in the start of the five years can be expected if other concerns or challenges emerge to the proposed project.
3. Comments Based on 15-Year Timeframe – Yes, we understand your comments must be based on the current RDSEIS which proposed an expansion timeframe of 15 years.

4. Position Concerning Temporary Height Increase for Landfill – Unfortunately, it may be necessary to place refuse along the forward edge of the existing area to begin fill along the side due to stability concerns. Once the refuse is placed it will be covered with soils soon as practicable and we will proceed to use other areas which will have less of a visual impact. We have been working with a landscape architect to propose new landscaping in efforts to better accommodate your concerns.

Thank you for sharing your concerns and expression of desire to help us coordinate this important project. Should you have any further comments please direct them to Ms. Wilma Namunant of our office at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation.

Refuse Department
Department of Environmental Services
June 19, 2002
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The Senate
The Twenty-First Legislature
of the State of Hawaii
STATE CAPITOL
HONOLULU, HAWAII 96813
June 19, 2002

- ROBERT BISHA
PRESIDENT
THIRTIETH DISTRICT
...
MAYOR POLY LESLIE

Refuse Division
Department of Environmental Services
City & County of Honolulu
Kapolei Hale, 1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

Attn: Wilma Namunnart

Dear Ms. Namunnart:

RE: Comments on Revised Draft Supplemental Environmental Impact Statement -- Waimanalo Gulch Sanitary Landfill Expansion

RESERVATION OF RIGHTS

During its June 10, 2002 Public Information Meeting, "Waimanalo Sanitary Landfill Expansion Update," the Applicant's representative, Frank Doyle, Deputy Director, Department of Environmental Services, City & County of Honolulu, stated that the Applicant is now committed to seeking a 5-year expansion of the Landfill in lieu of the original 15 which is the basis of the Revised Draft Supplemental Impact Statement -- Waimanalo Gulch Sanitary Landfill Expansion (RDSEIS). At end of the 5-year period it was stated that the Landfill will be closed and there will no further need for landfills on the Island of O'ahu.

The Applicant's current plan (expansion of H-Power, High Technology Park, Landfill closure at end of the 5-year period and thereafter no landfills on O'ahu) is a significant and material change to the RDSEIS. The Applicant, however, has not presented sufficient information on its proposal and the resulting impacts which substantially different. (For example, issues of obtaining permits required by HRS Chapter 342H, Solid Waste Pollution, as amended, and HRS Chapter 343, Environmental Impact Statements, as amended, and for the expansion of H-Power and High Technology Park are not addressed yet are integral components in the Applicant's plan to close the Landfill).

In response to questions regarding a new RDSEIS based on the 5-year period, etc., the Applicant responded that new RDSEIS will not be done since it plan to continue with the current process then use the public comments as its basis to reduce the 15-years to 5-years in the final SEIS.

This is an improper use of the public comment requirement and a new RDSEIS is required. HRS Chapters 343, 344, as amended, Hawaii Administrative Rules -- Title 11 Department of Health 200, A Guidebook for the Hawaii State Environmental Review Process (1997), Edce v. Obayashi Hawaii Corp., 81 Haw. 171, 180 (1996). It is also inconsistent with the Applicant's past actions in this area where less significant changes resulted in the RDSEIS. See 1.2 Purpose of the Revised Draft Supplemental Environmental Impact Statement, page 1-5, RDSEIS (May 2001).

The Applicant's representations and course of conduct raises, not only legal and ethical issues, but seeks to make those submitting public comments parties to its questionable conduct while giving the impression that those submitting comments condone and support its 5-year plan as oppose to closing the landfill. (This is yet another piece of evidence of the Applicant's bad faith and its steadfast commitment to keep the landfill open).

Please take notice that we reserve all rights, legal and otherwise, that we may have in regards to the Applicant's actions and the RDSEIS and we strongly take issue with the Applicant's conduct and behavior throughout this process and its chosen course of action.

COMMENTS ON REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

With the above understanding, we are submitting the following comments on the Revised Draft Supplemental Environmental Impact Statement -- Waimanalo Gulch Sanitary Landfill Expansion (RDSEIS):

In determining whether an EIS contains sufficient information to satisfy statutory requirements, the Hawaii Supreme Court in Life of the Land v. Arvoshi, 59 Haw. 156, 164, 577 P.2d 1116, 1121 (1978), held:

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June 19, 2002
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In making such a determination a court is governed by the "rule of reason", under which an EIS need not be exhaustive to the point of discussing all possible details bearing on the proposed action but will be upheld as adequate if it has been compiled in good faith and sets forth sufficient information to enable the decision-maker to consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action, as well as to make a reasoned choice between alternatives. (Emphasis added).

The Court reaffirmed its holding in Price v. Obayashi Hawaii Corp., 81 Haw 171, 182, 914 P.2d 1364 (1996).

Although this standard of review is applicable to an EIS, a draft EIS most assuredly must also meet the "rule of reasonableness" standard and the requirement that it be "compiled in good faith."

Chapter 343, Environmental Impact Statements, Hawai'i Revised Statutes, as amended, and the Environmental Impact Statement Rules, Hawai'i Administrative Rules, Title 11, Department of Health, Chapter 200 sets forth the governing law and administrative rules to insure that an EIS and a Draft EIS gives environmental concerns the appropriate environmental, economic and technical consideration.

The RDSEIS does not meet either the "rule of reasonableness" or the "good faith" standard as applicable to the requirements of an EIS for the following reasons:

- I. THE RDSEIS FAILS TO SATISFY THE REQUIREMENTS THAT, "APPLICANTS SHALL CONSULT ... CITIZEN GROUPS, AND CONCERNED INDIVIDUALS ... TO THIS END, AGENCIES AND APPLICANTS SHALL ENDEAVOR TO DEVELOP A FULLY ACCEPTABLE EIS PRIOR TO THE TIME THE EIS IS FILED WITH THE OFFICE, THROUGH A FULL AND COMPLETE CONSULTATION PROCESS, AND SHALL NOT RELY SOLELY UPON THE REVIEW PROCESS TO EXPOSE

ENVIRONMENTAL CONCERNS." § 11-200-15 HAWAII ADMINISTRATIVE RULES, TITLE 11, DEPARTMENT OF HEALTH, CHAPTER 200 (HAR).

Although the Applicant's representatives held a number of community informational sessions, the briefings focused primarily on the expansion plans rather than addressing the concerns of the community. During a number of these briefing sessions, the Applicant's representatives committed to holding a future meeting to fully discuss and address the questions and points raised by those in attendance. Some of the points raised were:

1. That the series of community informational briefing sessions were only a formality to the continued use of the site;
2. Why were a small number of alternative sites considered and what was the criterion used in evaluating the alternative sites -- why were other potential sites not considered;
3. What alternative technology was considered in lieu of or in mitigating the need to expand the landfill;
4. The impact on the growing surrounding community and development of the area as a second city;
5. Concerns about the types and amounts of waste being accepted at the landfill that were not listed in the 1984 EIS and the commitment made not to expand the landfill; and
6. The existing problems and issues the surrounding community has with the landfill operations.

The Applicant scheduled a July 16, 2001 community open house at Kapolei Hale on a weekday during the mid-morning hours when many concerned community members would not be able to attend. Many believed that the open house would be the forum where their questions and concerns would be openly discussed. IT WAS NOT. The open house was strictly an informational meeting on the Applicant's plan with

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no formal presentations or discussion. Indeed, it was later discovered that an alternative technology company originally had been given permission to make a formal presentation on its technology only to be told the day before that it would not be permitted to do so.

It was further revealed at the open house, only upon the questioning by a news reporter, that the Applicant had entered into a 15-year contract with the landfill operator in 1999 covering the expansion of the landfill. This is evidence that the expansion is a "DONE DEAL." Exhibit 1. To further buttress this "DONE DEAL" notion is the Mayor's September 21, 2001 letter responding to the expansion concerns raised by Brookfield Homes Southland Inc. The Mayor described expanding the landfill as "the right thing to do." Exhibit 2.

The public meeting to openly discuss the questions and points raised by the community was eventually scheduled for Tuesday, September 26, 2001, a date after the original public comment deadline, which was extended. (With the exception of a request from a community resident and one following the events of September 11, the requests for public comment deadline extensions are directly attributable to the Applicant's actions.) It should be noted that two extensions (one extending the deadline to Sunday, January 20 and the other to Monday, February 18 (Presidents' Day) caused confusion as to when the actual deadline for submission of public comments was. Exhibit 3. While inquiring as to the whether comments submitted on February 19 would be considered timely, we were once again notified that the deadline was to be extended, this time until Friday, April 19, 2002. Exhibit 4.

After hand-delivering our comments on April 19, 2002, stamped received at 3:16 p.m., Exhibit 5, we were informed that the Applicant may again extend the Public Comment deadline. Upon contacting the Applicant, we verified that the deadline had indeed been extended. Written notice of the extension to June 19, 2002 was later received, the notice was dated April 19, 2002. Exhibit 6.

The events following the notification of yet another 60-day extension buttresses the position that the Applicant has not been forthright in its endeavor to develop a fully acceptable EIS prior to the time the EIS is filed with the Office, through a **FULL AND COMPLETE** consultation process" (emphasis added) and has not acted in good faith throughout

this process and in compiling the RDSEIS. Rather, it appears that the Applicant has manipulated the process to eventually achieve its objective.

The May 8, 2002 edition of the Star-Bulletin carried an article dealing with the Landfill entitled, "Nearly full landfill needs OK to keep running - City officials say the dump could reach its limit within 3 months." In the May 15, 2002 editions of the Honolulu Advertiser and Star-Bulletin carried articles entitled, "City seeks to expand Leeward landfill", "City seeks to expand landfill on Waianae Coast", respectively. Exhibit 7; May 13, 2002 Letter in Opposition, Exhibit 8.

Despite the obvious fact that the Applicant knew of this problem well in advance, it did not take any steps to inform the Community that the Landfill would reach its permitted capacity in a couple of months prior to the news articles. At its June 10, 2002 Public Information Meeting, the Applicant's representative did not answer the question as to why the Applicant had withheld this information and instead adjourned the meeting. During the meeting and after much banter, the Applicant did finally admit that it had submitted its request for modification of its permit to the State Department of Health only that afternoon.

The Applicant used this same tactic on its current plan to seek a 5-year (to begin April 2003) expansion of the Landfill in lieu of its original 15-year.

At the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 meeting of May 15, 2002, during his presentation on the Administration's proposed budget request, the Applicant's Managing Director announced that the City was reducing its expansion request from 15 years to 5 years. He circulated a City News Release, dated May 15, 2002, stating that, "[b]y expanding H-Power and developing a cutting edge recycling technology park we believe we can dramatically reduce the need for landfill space on this island." Exhibit 9. (The release also mentioned the Mayor's \$8 million proposed budget for the technology park which had been reduced to \$2,000 by the Council.)

Two questions were posed to the Managing Director. First, whether the 5-year expansion was conditioned on the expansion of H-Power and Technology Park? The Managing Director said that it was. (Just prior to

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him saying it was conditional, the Department of Environment Services representative voiced it was not. Mention was made that the responses by the Department and Administration is illustrative of their conduct throughout the process. The Community received conflicting responses -- the Department says one thing and the Administration says another.) Second, assuming all conditions are met, is the 5-year expansion limitation a guarantee? Here again, the Managing Director had to admit that no commitment to the 5-year limitation could be made. The current administration can not bind a future administration. (It was again mentioned that the City had made a commitment not to expand the landfill when the Community was first asked to let it be built.)

When this same question was asked at the June 10, 2002 Public Information Meeting, the Applicant's representative repeatedly stated that there would be no need for landfills on the island after the 5 years and that there must be a way that its promised commitments will be binding on future Administrations. See June 14, 2002 Letters to DOH and Mayor, Exhibit 10.

II. THE RDSEIS FAILS TO DESCRIBE "ALTERNATIVES WHICH COULD ATTAIN THE OBJECTIVES OF THE ACTION, REGARDLESS OF COSTS, IN SUFFICIENT DETAIL TO EXPLAIN WHY THEY WERE REJECTED", INCLUDING, "A RIGOROUS EXPLORATION AND OBJECTIVE EVALUATION OF THE ENVIRONMENTAL IMPACTS OF ALL SUCH ALTERNATIVE ACTIONS." ("PARTICULAR ATTENTION SHALL BE GIVEN TO ALTERNATIVES THAT MIGHT ENHANCE ENVIRONMENTAL QUALITY OR AVOID, REDUCE, OR MINIMIZE SOME OR ALL OF THE ADVERSE ENVIRONMENTAL EFFECTS, COSTS, AND RISKS.") §11-200-17(f), HAR.

A). Alternative technology:

Only after the original comment deadline had passed did the Applicant address the public comments made concerning various alternative technologies that had been proposed to address the need to expand the landfill. A number of private independent vendors offered to pay for pilot projects to demonstrate the effectiveness of their alternative technology. Although the Applicant sent representatives to meet with mainland

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principals of some of these alternative technologies and publicly represented that selections for pilot project testing would be made at the end of November 2001, no such selections have been made. One such organization was not able to continue to place its offer on hold and recently began proceeding on a pilot project elsewhere.

In the matter of H-Power and strong support for recycling, the Applicant throughout the lengthy process made no mention of the planned expansion of the H-Power program or its planned creation of a technology/recycling park. This is another example of why the RDSEIS is deficient. The first public notice came by way of the Mayor's January 28, 2002, State of the City Address. Exhibit 11.

At the May 15, 2002 Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 meeting mentioned above, a legislative colleague mentioned that the Applicant's action do not support its assertions. He mentioned that he had tried with out success to have the Applicant review a Plasma Pyrolysis Gasification Vitification system that is being successfully utilized in Japan. Additionally, he mentioned that the Council had passed City Council Resolution No. 01-266, CD1 in September 2001 establishing a City policy to develop and implement alternative methods of solid waste disposal to divert solid waste away from landfills. Exhibit 12. Despite this, the Applicant declared its concern for the environment and its commitment to alternative technology only recently and after the Community questioned its actions in this area.

B). Alternate Sites:

If anything is a "shibui," it is the RDSEIS' s discussion on alternate sites, a discussion that also reflects "environmental racism."

"Environmental racism" occurs when lower-income communities and/or minority communities disproportionately bear the burdens and risks of environmental protection policies while the associated benefits are enjoyed throughout society. The RDSEIS's top alternative sites are located in close proximity of the current site and are located on the Leeward Coast, an economically depressed area whose citizens are primarily part-Hawaiian, as well as, other minorities. (It must be noted that the site is the only active site serving O'ahu and that all active construction and general purpose landfills are now located on the

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stated that Waimanalo North was no longer an alternative site since it was being placed within the Forest Reserve Category. The timing of the announcement prompted an investigation and it was revealed that in 1992, 9-years prior, the DLNR application to place the site in the Forest Reserve Category had been submitted. A fact easily obtained and known giving rise to questions as whether the Applicant acted in good faith in naming alternate sites.

Second, viable possible alternative sites (Kapaa Quarry and Waiatua site) outside of the Leeward Coast, were not considered in the RDSEIS. Chief among these is the Kapaa Quarry (Ameron) located on the Windward side of O'ahu next to two former landfill fill sites. Unlike the Waimanalo Gulch site, it is definitely outside of both the BWS's "No Pass Line" and the "UJC" line (a review of maps will illustrate that these lines are conveniently drawn around the Waimanalo Gulch site). Additionally, the Kapaa site is not across the street and in close proximity to a resort complex, residential subdivisions, development projects, nor is it located on the only highway used by the commuting public on the Wai'anae Coast. The social environmental impacts would also be substantially less. Exhibit 13.

Third, during the past legislative session, Central Oahu Recycling & Disposal Facility, Inc. proposed to develop a private recycling and disposal facility in the Kunia area. A former Director (10 years) of Government and Community Affairs for Waste Management, Inc., the current Waimanalo Gulch Sanitary Landfill operator, supported the Kunia site pointing out its expansive buffer zone between the site and neighboring residents, its location such that the potential for dust and odor issues would be mitigated and that technology has proven across the nation that with additional protection in the liner systems, landfills may be safely developed, operated and closed over aquifers. His technology comments on the issue of liner systems were buttressed by the testimony of a senior geotechnical engineer with the URS corporation. Exhibit 14. (The RDSEIS did not address such technological advances in conjunction with alternative sites which may have produced more alternative sites and effected the process of evaluating alternative sites).

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Leeward Coast. This Leeward Coast is also home to the main electrical generation plant and nearby industrial park for O'ahu, which is home to all the refineries and other power generating facilities. Further, on its web-site, the Applicant reveals its plan to build a wastewater treatment facility at Wai'anae.)

In its "Supplemental Environmental Assessment for Routine Training at Makua Military Reservation and PFC Pillitz'au Range Complex," May 2001. (an EIS is held to a stricter standard than an Environmental Assessment) the United States Army addressed the issue of "environmental racism." The Environmental Assessment described it as follows:

Executive Order 12896, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies to identify and address as appropriate, disproportional high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Presidential Memorandum that accompanied the Executive Order recognizes the importance of procedures under NEPA to identify and address environmental justice concerns. The memorandum states "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority and low-income communities, when such analysis is required by NEPA. (Emphasis Added).

The following supports a showing of "environmental racism" and the conclusion that the Applicant's intention was to buttress its decision to expand the Waimanalo Gulch Sanitary Landfill:

First, the 1984 Leeward District Sanitary Landfill, Revised Environmental Impact Statement originally listed Waimanalo North on the Windward side of O'ahu (an old quarry) as an alternative site. The RDSEIS (2001) continued to list the site as an alternative site until the February 20, 2001 public information briefing. At the briefing, the Applicant's representative

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Fourth, a September, 2001, report on alternative landfill options notes that the RDSEIS does not address, in lieu of a single landfill, the alternative of having regional landfill sites.

The alternative site discussion also illustrates how the Applicant has not met the "rule of reasonableness" standard or acted in "good faith". In addition to the expansion being a "done deal" and "environmental racism", another explanation for the Applicant's actions is that it is political. 2002 is an election year where nearly all elected positions are up for election. Passing comments have been heard that challenging the expansion of the Waimanalo Gulch site would have political ramifications.

(Historical note: During community briefings on the RDSEIS, community residents confirmed that in 1984 the Applicant had made a number of representations to the Leeward community in order to win its acceptance. One representation was, despite the large land area, the Landfill would not be expanded beyond the direct area it was seeking to utilize. Another was, if allowed to proceed with the site it would not use Makaiwi Valley a landfill site. Coincidentally, the Applicant is also now stating that Makaiwi Valley is its top alternative site if the expansion does not proceed).

iii. THE HISTORY OF THE WAIMANALO GULCH SANITARY LANDFILL SERVES AS PROOF OF HOW ADVERSE THE IMPACT ON THE SOCIO-ECONOMIC ENVIRONMENT THE EXPANSION AND HOW INEFFECTIVE MITIGATION EFFORTS WILL BE.

A). The Direct and Indirect Consequences on the Human Environment

The Waimanalo Gulch Sanitary Landfill is located in Kahe Valley along the only ingress and egress highway on the Leeward Coast, Farrington Highway. It is situated within the "second city" target area among the growing communities of Nanakuli, Kahe Point Homes, Ko Olina, Honokai Hale, Makakilo and Kapolei. During the Applicant's September 26, 2001 Public Information Presentation, residents voiced their experiences and problems which are directly or indirectly to the landfill.

Since the landfill has already been in operation for many years these experiences are real and not speculative. Complaints of persistent flying trash debris from trucks as well as the landfill, odors (Ko Olina resort guest have also noticed the odors when the wind blows in their direction), and dust. See Exhibit 15 (Photographs of Landfill from Ihilani Resort, Ko Olina). The Applicant gave assurances that the problems would be addressed but to no avail. At the June 10, 2002 Public Information Meeting, the Applicant stated that it is a landfill and you will never be able to totally resolve the problems.

A Kahe Point Homes (next to landfill) resident (who has lived there since prior to the landfill) recounted how she can no longer open the windows, use the pool or let the children play in the back yard. Her electric bill exceeds \$600 a month since it is now necessary to utilize the air conditioner all the time. Despite her numerous complaints to the Applicant and its assurances that the problem would be handled, nothing has been done. She mentioned that the Applicant also told her that the landfill would be closed in 2002. See Exhibit 16 (Photographs of Subdivision's Proximity to Landfill).

At Ko Olina, a resident voiced his frustration at not being able to open the windows facing the landfill, having to clean the dust off the window screens often and the need to hose down the front of his home twice a month. Complaints about the stench, debris and dust continue to be voiced by the neighboring community. Exhibit 17.

An October 7, 2001, Honolulu Advertiser news article by James Gonsar, Exhibit 18, covered the health problems being suffered by the residents of Kahe Point in ever increasing numbers and frequency. The residents suspect that these health problems are the black dust coming from the landfill.

The Sunday, March 3, 2002 edition of the Honolulu Advertiser, Exhibit 19, carried an article entitled, "Study 'clears' landfill dust." The landfill operator contracted with Mountain Edge Environmental, Inc. to conduct a study of the source and composition of the air-borne dust generated at the landfill. At the end of January 2002, Mountain Edge Environmental completed its report and forwarded it to the landfill operator, who then released it prior to the March 3, 2002 article.

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develop will revitalize the Leeward Coast and improve the living conditions of its residents.
Development and construction activities abound in this area with more planned. As of this date, the only major commercial construction project in the State is within this area and the only construction crane, once referred to as the "State Bird," in active operation in the State is operating there.

Projects currently being considered and planned include more residential housing developments, visitor accommodations and attractions, travel industry educational training facilities, sport complex and a world class aquarium.

The continuation of the landfill operation and its expansion will halt the economic momentum in the surrounding area while reversing the gains already achieved. Even with the mitigation actions the landfill operator has stated it was taken, the effects of the operations continue to generate complaints on a regular basis.

Brookfield Homes, a residential homebuilder acquired over 700 homesites in Ko Olina in 2000 with plans to build up-scale homes. When notified of the plans to expand the Waimanalo Gulch Sanitary Landfill, Brookfield expressed their concerns with the RDSEIS in a June 26, 2000 letter to me. Exhibit 21. Additionally, as referenced above, in an August 29, 2001 letter to the Mayor, Brookfield informed the Mayor that when the purchase was made, it was understood that the landfill would be closed. (An understanding, as mentioned numerous times herein, shared by many residents and which was attributed to assurances made by the Applicant). Brookfield, as well as, Ko Olina business interests continue to receive complaints or complain about the landfill operations. Exhibit 22.

IV. IN GENERAL, THE RDSEIS FAILS TO COMPLY WITH SUBCHAPTER 10, SUPPLEMENTAL STATEMENTS, §11-200-28 CONTENTS, HAR.

Section 11-200-28, HAR, states:

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The report (may be requested from the landfill operator or applicant) concluded, "it appears that the dust is derived from the cover material and not the H-Power ash." The report in describing the characteristics of the dust and soil samples stated, "we assume that most of the particles represent fine-grained material that has been quarried at the site and used for daily cover." (Emphasis Added). The samples were collected from the southwest corner of the landfill only with samples of dust and soil being collected on two different occasions, approximately one month apart. The landfill operator's personnel installed the dust collection screen and collected both the dust, cover soil and H-Power ash samples and provided them to Oceanic Analytical Laboratory, Inc. for analysis and to Mountain Edge Environmental, Inc. for evaluation of mineral content and texture. The landfill operator also provided Mountain Edge with copies of the laboratory reports for evaluation of the data.

A review of the report leads to more questions than it attempts to answer. The complaints have been of the amount of dust the landfill operation generates. Surely the composition of the dust is a concern, but dust itself in the amounts being experienced by the neighboring residents can be more than a nuisance, it can be a health issue. The report does not attempt to address this issue. It confines its scope narrowly and bases its finding on samples taken by the landfill operator from a single location on two separate occasions. The controls utilized in conducting the study appear to be insufficient.

The attached article, "Why New York Sends Virginia Garbage ...", October 12, 1998, Exhibit 20, reports on the New York State Department of Health's study of people living near landfills and the incidence of developing cancer. The study found elevated incidences of 14 kinds of cancer studied with 2 types (bladder and leukemia in women) achieving statistical significance. The article cited to other studies with similar findings, as well as, the effects on children's low birth weight and defects.

B). The Economic Effects Are Already Being Felt.

As stated continuously, the Waimanalo Gulch Sanitary Landfill is located within the geographical area that has been designated as the "second city" and a resort area. It is hoped that this designation and future

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The contents of the supplemental statement shall be the same as required by this chapter for the EIS and may incorporate by reference unchanged material from the same; however, in addition, it shall fully document the proposed changes from the original EIS, including changes in ambient conditions or available information that have a bearing on a proposed action or its impacts, the positive and negative aspects of these changes, and shall comply with the content requirements of section 11-200-16 as they relate to the changes.

The RDSEIS has its genesis in the 1984 "Leeward District Sanitary Landfill, Revised Environmental Impact Statement," a document dating back approximately 17-years. At the time, the stated purpose for the landfill was to service the Leeward side of O'ahu (the Windward side would be serviced by another landfill) with the primary waste being the ash from the H-Power plant. The same type of representation was made during the Mayor's State of the City address on January 28, 2002 - H-Power capacity will be increased by 50%.

The intervening time period since the original EIS report has brought significant changes both in the "Leeward District" and in the City and County of Honolulu as a whole. Today information is much more current and more sources of information are readily available and easily accessible.

The RDSEIS, in some cases has not included changes in "ambient conditions," etc. or, in other cases, it has dealt with them in a summary fashion; including, but not limited to:

- a). The Leeward side has experienced tremendous growth in population and in residential, commercial and resort developments. (Although more current census data is available, the RDSIS utilizes data from 1997. Since 1997, plans for significant development in the area adjacent to the site have been announced);
- b). The types of waste accepted at the landfill as expanded and the amount and percentage of the various types waste;

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c). The landfill has become the only general purpose landfill for the island of O'ahu. (All O'ahu commercial refuse landfills are located on the Leeward side);

d). Despite its efforts, the Applicant has not been able to control debris (or odors) from blowing into the neighboring resort, ocean, sub-divisions and along Farrington Highway (only access road to the Leeward Coast). Nor has it been able to adequately police trucks in containing their cargo loads within their truck beds;

e). Farrington Highway (the only access road to the Wai'anae Coast) and too often has been closed or obstructed, resulting in very long traffic delays and enormous inconvenience to the areas residents;

f). Considering the growth in the area, the recent events of unusual natural and human occurrences and its location on Farrington Highway and on the slopes of the mountain range, any type of mishap whether it be flooding, fire, slides, etc. there is a heightened possibility of a serve impact on the community and adjacent properties. The Landfill already exceeds the mountain ridge line on the Wai'anae side. Exhibit 23;

g). There is evidence that the site has had a significant adverse socio-economic environment and related impact. Not only is the community plagued by the dust, odor and debris, many in the community are experiencing health problems that are suspected to be associated with the landfill operations and warrant a full investigation. Many children are no longer permitted to play in certain parts of the family yard and many have suffered financially from the operations of the site. Exhibit 18;

h). The City Council for the City & County of Honolulu considered a resolution that would require landfill developers to obtain a permit from the council which would provide the community an avenue for direct involvement in the process. Exhibit 24;

i). Many in the community, as well as, some from outside of community have signed petitions opposing the expansion of the landfill or placing another landfill on the Leeward Coast. Exhibit

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25 and Exhibit 26 (comments received but was uncertain as to whether they wished our office to transmit for them or if they were furnishing us with a copy); and

j). A March 2002 survey of State Senatorial District Twenty-One found that 62% of those who responded (657) wanted the Waimanalo Gulch Sanitary Landfill closed/moved away from the Wai'anae Coast.

Based upon a review of the RDSEIS, and the Applicant's conduct, both in the past and during the current process, the comments and concerns voiced by the community and others, the information and research that has been brought to the forefront, the RDSEIS should be rejected as lacking in "good faith" and being "environmental racism" - denying the Leeward Coast community its basic right to live in a healthy environment while saddling it with a disproportionate amount of the risks of environmental protection policies.

In his State of the City address on January 28, 2002, the Mayor emphasized that, "restoring neighborhoods and revitalizing them economically is important to our quality of life, and has emerged from the vision process as a critical component of our blueprint of sustainability for the future." Based upon the above and the Applicant's conduct throughout this process, it is apparent that the Leeward Coast is excluded from this concept and goal -- another example of "environmental racism."

Thank you for this opportunity to comment on the RDSEIS.

Sincerely,



COLLEEN HANABUSA
Senator, Twenty-First District

Encl.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

1000 KUKUIA STREET, SUITE 212, HONOLULU, HAWAII 96707
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IRENE HARRIS
MAYOR

TIMOTHY E. STERNBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-182

The Honorable Colleen Hanabusa
December 24, 2002
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The Honorable Colleen Hanabusa
Senator, 21st District
State Capitol, Room 214
Honolulu, Hawaii 96813

December 24, 2002

Dear Senator Hanabusa:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 19, 2002. We acknowledge your concerns regarding the operation and planned expansion of the Waimanalo Gulch Sanitary Landfill. We have prepared the following in response.

- Proposed Five-Year Goal**
We confirm that the City has stated a goal of five years for Waimanalo Gulch once all necessary permits are obtained. We do not believe that detailed environmental review of the proposed alternative technologies being considered for implementation is appropriate for inclusion in the subject EIS. The appropriate venue for detailed environmental review of such technologies as plasma arc incineration, expansion of H-POWER, and other methods is a separate, project-specific, Chapter 343 document, prepared and filed in accordance with requirements.
- Consultation with the Public**
Public comments received for the proposed project are not limited to the subject RDSEIS. Public informational meetings as well as additional consultation will document the range of public comments and concerns regarding the proposed project. The 15-year contract you describe was prepared prior to the change in seeking a five-year expansion goal for the landfill. Based on the current change in timeframe we recognize that the contract cannot be fulfilled and therefore, will need to be revised.

Concerning your statement that a new RDSEIS is required. We consulted with the State Office of Environmental Quality Control (OEQC) which advised us that in instances where the scope of the project is reduced (in this instance a reduction in area used from approximately 60.5 acres to 14.9 acres) a new Draft EIS/EA would not be required.

We disagree with your assessment that the City is seeking public comments to give the impression that those submitting comments would support the project. The purpose of seeking public comments, whether or not supportive, is to obtain feedback and constructive suggestions for improvement. We recognize that not everyone will be supportive of the project, but are concerned that proper and reasonable mitigation be implemented for a facility designed to serve all the people of Oahu.

3. Alternatives Not Described in Sufficient Detail

- Alternative Technology and Sites.** Please be advised that the alternative technology and site assessment contained in the RDSEIS will be revised in accordance with the Administration's new expansion goal.
- Environmental Racism.** We do not agree that the preferred site is an example of "environmental racism." All alternative sites considered for evaluation were based on meeting regulatory, engineering, and environmental criteria necessary to ensure the site possesses characteristics necessary for development. At the same time, we note the identification and development of a site for a landfill will never be an easy task. Furthermore, we have indicated in the RDSEIS that options available for remaining landfill locations on Oahu are expected to become increasingly limited as growth and development of our island home continues. We believe this is the situation at Waimanalo Gulch, where there are increased opportunities for land use conflicts given a broad mix of activities which include resort, residential, commercial, and industrial land uses.
- Viable Alternative Sites.** We will include the addition of the Makakilo Quarry site and the Kapaa Quarry Site in the alternative site analysis. The Central Oahu site you describe is currently not acceptable for consideration based on the location above potable groundwater resources. However, your concern regarding use of more than one landfill on Oahu will be addressed in our revised alternative site analysis.

4. Effects on Socioeconomic Environment

- Direct and Indirect Consequences on the Human Environment.** The landfill, and all municipal solid waste landfills in Hawaii, are operated in accordance with regulations of the Environmental Protection Agency (EPA) and State Department of Health (DOH). As you note, recent air quality monitoring has indicated that the

municipal solid waste and ash is not a source of air contamination to the region and residences surrounding the property. However, we note concern regarding generation of dust associated with operations and believe that while the landfill is not the only source of dust in the area, that increased use of water sprinkling will be evaluated and, as applicable, applied by Waste Management of Hawaii, the operator of the site.

B. Economic Effects of Landfill Already Felt. We concur that the Ewa region is one which has experienced major new growth within a relatively short time frame. We therefore appreciate your concern regarding presence of the landfill. However, as you point out, Waimanalo Gulch Sanitary Landfill is only one of a number of industrial facilities which are located in the area. These facilities include the James Campbell Industrial Park, the Hawaiian Electric Kahe Power Generating Station, and the Barbers Point (Kalaheo) Commercial Harbor. Although the landfill was opened in 1989 when much of Ewa was relatively undeveloped, the major new growth experienced in the area has occurred in the presence of the landfill.

C. Concerning the closure of the landfill, we wish to reiterate that the City has never issued a statement that the landfill would be shut down and closed in 15 years from the date of opening in 1989.

5. Failure to Comply with HAR 11-200-28

A. The subject RDSEIS does utilize data referenced from 1997. Additional data collected from more recent sources will be provided in a Socioeconomic Impact Assessment.

B. The types of waste accepted at Waimanalo Gulch will be further described in our revision to the Alternative Site Assessment report.

C. We acknowledge your observation that Oahu's commercial refuse and municipal solid waste landfills are currently sited along the Leeward Coast.

D. We disagree that activities to improve operation of refuse trucks and management of the site have been inadequate. As noted in the RDSEIS a number of new operational practices have been implemented to address both windblown litter and loss of load from refuse trucks transiting the site. At the same time, we believe that improvement can always be made and remain willing to work with the community on finding constructive courses of action.

E. We have no further comments to add concerning Farmington Highway, which is a facility operated by the State DOT.

F. Waimanalo Gulch is a facility operated in accordance with all necessary and required permits to ensure safety and security of the community and public. This includes provision of sufficient controls to address flooding, fires, and the slides you describe.

G. We do not agree that the site has resulted in significant adverse socioeconomic impacts to the community. We are concerned for the health and welfare of the community, and we have consulted with the State Department of Health to ensure that all operations are in accordance with responsible safe engineering practices.

H. Although the resolution you describe was not advanced by the Council, we agree that the community is key to the establishment of a workable landfill. We continue to seek community feedback and constructive criticism to make this a better facility.

I. & J. Although we are disappointed that some in the community would oppose this important project we certainly agree that it is the right of every citizen to express their viewpoint. We therefore welcome comments, whether in favor or not, to ensure a government that is fair and open.

We appreciated your review of the subject document. While we understand your objection to the proposed project, we hope that we may one day work with you so that we can operate a better run facility. Any further comments may be directed to Ms. Wilma Namumart of the Refuse Division at 682-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,



TIMOTHY E. STEINBERGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation



Environmental Services, Inc. Company

June 19, 2002

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MTC		

APR 20 2002 MTC

Attention: Ms. Wilma Namunahat

Re: **Waimanalo Gulch Landfill Expansion Revised Supplemental Environmental Impact Statement**

To Whom It May Concern:

On behalf of Marriott Vacation Club International ("Marriott"), we are hereby submitting the foregoing comments in response to the Revised Supplemental Environmental Impact Statement ("SEIS") for the Waimanalo Gulch Sanitary Landfill Expansion Project.

While Marriott is a member of the Ko Olina Community Association ("KOCA"), the impacts from the expansion of Waimanalo Gulch Sanitary Landfill on Marriott and its development are unique. As such, Marriott is submitting a separate comment letter regarding issues in accordance with Chapter 343, Hawaii Revised Statutes ("HRS"), and Title 11, Chapter 200 of the Hawaii Administrative Rules ("HAR").

The SEIS fails to comply with the requirements set forth in HRS Chapter 343 regarding the preparation of environmental impact statements ("EIS"). The reasons why we believe the SEIS for the above-referenced project fails to comply with said requirements are outlined below.

1. The "expansion project" constitutes a new landfill. The SEIS mischaracterizes the project as an expansion of an existing landfill. The existing 64-acre landfill will be nearly doubled under the proposal, which in essence constitutes a new landfill in the area. Furthermore, this new landfill utilizes an area different than what was originally planned when the existing landfill was planned. As such, the SEIS's characterization of the proposed action should be corrected.

2. The SEIS fails to include a cultural impact assessment as required by Chapter 343, HRS.

The Hawaii State Legislature recently amended Chapter 343, HRS, to now require that cultural impact assessments be prepared in conjunction with the preparation of EIS documents. As outlined in the Office of Environmental

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Quality Control ("OEQC") guidelines governing the assessment of cultural impacts, a cultural impact assessment requires:

1. The geographical extent of study for the cultural portion of an environmental review which, in most instances, is greater than the area over which the proposed action will take place.
2. A historical analysis that commences with the initial presence in the area of a particular group whose cultural practices and features are being assessed. In conjunction with this historical period study, the types of cultural practices and beliefs subject to assessment should include subsistence, commercial, residential, agricultural, access-related, recreational and religious and spiritual customs.
3. The types of cultural resources should be identified and may include traditional cultural properties or other types of historic sites, both manmade and natural, including submerged cultural resources, or support such cultural practices and beliefs.

The Environmental Council has recommended, and it is our understanding that it is standard practice, that preparers of cultural assessment, when analyzing cultural impacts, adopt the following protocol:

1. Identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area (e.g., district or ahupua'a);
2. Identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. Receive information from or conduct ethnographic interviews and/or oral histories with the persons having knowledge of the potentially affected area;
4. Conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. Identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. Assess the impact of the proposed action, alternative to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

It is also our understanding in conjunction with the preparation of a cultural impact assessment, interviews and oral history with knowledgeable individuals are recorded and field visits by preparers accompanied by informants are included.

In reviewing the SEIS, none of these requirements have been complied with. As cultural impact assessments are now required under Chapter 343, HRS, the SEIS must include a cultural impact assessment. Failure to do so renders the SEIS unenforceable for purposes of Chapter 343.

3. The SEIS fails to adequately discuss flood control measures.

The SEIS indicates that the project provides a drainage control system within the limits of the landfill property but fails to discuss the details of the drainage control system, its limitations, and whether any storm runoff will impact makai properties. This information should be adequately discussed and disclosed in the SEIS in light of the location and potential impacts of the proposed expansion on the environment.

4. Surface water and hydrology.

The SEIS indicates that a surface drainage system will be used to control the potential for leachate migration onto adjacent lands and nonpotable groundwater zones. The SEIS fails to describe, however, the extent of the current surface drainage system, which will be expanded under this proposal, and what lands are affected by this surface drainage system. This information is necessary to determine whether makai landowners may be impacted by excess rainfall runoff, some of which can be considered hazardous materials, from entering the property.

The SEIS also fails to provide detailed information regarding the existing liner system, which will be applied in the expansion area. Without adequately describing the existing liner system in the SEIS, a decision-maker cannot make an informed decision to determine the impacts associated with the proposed action.

5. The SEIS fails to adequately describe fugitive dust control measures.

Page 3-8 of the SEIS states that "[t]he sanitary landfill process requires some water sprinkling to control fugitive dust, and then compacting an intermediate cover of waste materials on a daily basis." The SEIS fails to describe the amount of water that will be required to control fugitive dust, source of said water, and the infrastructure required to provide water to the new location. This information is needed in order to adequately assess the impacts of the project on water use in a characteristically arid region.

Page 3-8 of the SEIS also indicates that "[i]f the normal landfill operation requires placement of six inches of daily soil cover or a lesser amount of an approved alternative material (such as foam or geotextile cover) at the end of each working day over the MSW." The SEIS fails to describe whether the historical operation is consistent with "normal landfill operations" and whether the expansion of the project will require greater amounts of soil cover. Finally, the SEIS fails to provide information regarding the source of the soil cover.

Page 3-8 of the SEIS also provides "[t]he daily and intermittent cover will minimize infiltration from direct precipitation and runoff, and decrease the potential for leachate generation, odor and vector problems." The SEIS fails to provide any backup information or information from experts to support its conclusion that the cover will have any effect on infiltration from direct

precipitation and runoff. Furthermore, no explanation is provided as to how this process is supposed to work. Therefore, the impacts related to new projects cannot be adequately assessed because of this lack of information.

6. The SEIS fails to adequately discuss impacts of the expansion on the groundwater.

As an initial matter, Figures 3-4 and 3-5 should be revised to show the location of the project on the respective maps.

Furthermore, the SEIS fails to adequately discuss the impacts of the expansion on the groundwater. The SEIS, in fact, lacks any analysis or studies to determine what impact the existing operations have had on the groundwater aquifer. Instead, the SEIS makes conclusive and broad statements that are not based on any scientific evidence that the activities currently being undertaken and are planned are adequate.

The SEIS fails to include results of the existing groundwater-monitoring program and fails to provide details necessary to determine whether such a program is adequate for this area.

In addition, the SEIS fails to discuss whether there are any plans for addressing the situation where the groundwater quality monitoring program shows abnormal or deviant levels of contaminants. It may be too late to address a contamination issue if such a corrective plan were to be developed after said contamination has occurred. As such, a corrective plan should be developed and included as part of this SEIS document. A program for cleaning up the contamination should be developed in advance and discussed in the SEIS to ensure adequate evaluation of the impacts of the proposed action.

7. The SEIS fails to adequately analyze the economic impacts of the proposed project.

The SEIS fails to analyze the economic impacts of the project on property values, development in the area, jobs, etc. While the SEIS makes a cursory examination of the median household income in the area, the SEIS lacks any discussion or analysis on what impacts the proposed project will have on jobs, property values, or the unemployment rate. At a minimum, Chapter 343, HRS, requires such an examination rather than the sparse discussion that is afforded to the issue in the SEIS. Without such an analysis, the impacts related to this project cannot be adequately addressed without the information; and therefore, the SEIS should be rejected.

8. The SEIS fails to adequately analyze the social impacts of the proposed project on the surrounding communities.

The SEIS fails to adequately evaluate the socio-economic impacts of the expanded landfill operation on the Ewa region and the Leeward Coast. As described in the SEIS, the Ewa region is one of the fastest and largest growing communities on Oahu. Despite this characterization, however, the SEIS fails to evaluate the impacts, if any, that the proposed landfill operations will have on the continued growth in the Ewa region — which includes the Ko Olina resort area.

operations to assess whether such measures will adequately address the future expansion of the landfill.

12. The SEIS fails to adequately analyze the alternatives to the proposed action.

Title 11, Chapter 200 clearly requires an objective evaluation of the environmental impacts of alternative actions. The analysis of such alternatives must be sufficiently detailed to allow the comparative evaluation of the environmental benefits, costs and risks of the proposed action and each reasonable alternative. HAR § 11-200-17(D). In the instant case, the SEIS focuses primarily on the proposed action and lacks any meaningful discussion regarding the impacts of the alternatives to the proposed action.

13. Incorporation by reference of KOCA comments.

In addition to the foregoing comments, Marriott hereby incorporates by reference the comments and concerns raised by KOCA and its members in their comment letters to you regarding the sufficiency of the SEIS.

CONCLUSION

Based on the foregoing reasons, we respectfully request that the SEIS not be accepted until the above-referenced deficiencies are addressed.

Sincerely,

IMANAKA KUDO & FUJIMOTO

Richard T. Asato ✓
Naomi U. Kuwaye ✓

cc: The Honorable Jeremy Harris
RM Towill Corporation ✓
The Office of Environmental Quality Control
Mr. Mark Slaufler
Mr. Steve Busch
Mr. Robert Calhoun

Furthermore, there is noticeably absent from the SEIS any discussions on what impact the proposed action will have on the Leeward Coast area, whose residents are primarily native Hawaiian.

In order to properly evaluate the impacts of the proposed action on these communities, greater analysis and information is needed to determine whether the expansion is proper.

9. The SEIS fails to adequately discuss mitigation measures to control odor.

The SEIS fails to adequately analyze mitigation measures to control the odor from the expanded operation. Rather, the SEIS vaguely discusses past practices to control odor from the existing operations to surrounding properties. Based on the continuing complaints by the landfill's neighbors, it is readily apparent that these measures have not been successful as odors continue to be a problem. Further, anticipated dates for the installation of mitigation measures, such as the new fluidized bed incinerator, should be disclosed. Additional measures are needed to control odors from the expanded operation since it will be located closer to residences.

Additional information is necessary regarding the development of the In-Vessel Bioconversion Program. At the minimum, a date for the implementation of the program should be provided and any conditions that are attached to the implementation of the program should be attached.

With respect to the new mitigation measures proposed in the SEIS, there is insufficient discussion to make an informative decision as to whether the mitigation measures will, in fact, address the odor problem or cause other problems. There is also insufficient discussion as to why these current mitigation measures cannot be implemented with the existing operations. Finally, there is a lack of detail as to when these mitigation measures would be implemented.

10. The SEIS fails to adequately discuss air quality impacts.

The SEIS acknowledges that the operation of the proposed expansion area will generate landfill gases, which includes carbon dioxide, methane, nitrogen and hydrogen sulfide. Some of these gases, such as methane, can be highly volatile and are hazardous to the public health of surrounding properties. The SEIS discusses a landfill gas recovery and monitoring system that is being developed by Waste Management of Hawaii, Inc. However, the system is still in the design stage and has not been adequately tested to determine whether it will address the public health and safety issues associated with the landfill gases. In light of this untested technology, additional measures are needed to address the potential safety measures associated with the expanded landfill operation.

11. The SEIS fails to adequately discuss mitigation measures to control litter.

Section 3 of the SEIS describes various mitigation measures to address litter problems. It has been the experience of residents in this area that litter has been a consistent problem as the result of existing landfill operations. To the extent that many of the mitigation measures proposed in the SEIS are not being implemented, such measures should be implemented during the current

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CITY AND COUNTY OF HONOLULU

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KERLEY HARRIS
SALON

Mr. Richard T. Asato and Ms. Naomi U. Kuwaye
December 23, 2002
Page 2

TIMOTHY E. STENBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

BY REPLY REFER TO:
PE 02-139

December 23, 2002

Mr. Richard T. Asato, Esq., and Ms. Naomi U. Kuwaye, Esq.
Imanaka Kudo & Fujimoto
745 Fort Street Mall, 17th Floor
Honolulu, Hawaii 96813

Dear Ms. Kuwaye and Mr. Asato:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 19, 2002. We acknowledge your concerns regarding the operation and planned expansion of the Waimanalo Gulch Sanitary Landfill.

GENERAL COMMENT

Please be advised that the area and timeframe for the Waimanalo Gulch Sanitary Landfill Expansion has been changed. The City has stated a new goal of five years once all necessary permits are obtained. The five-year goal is based on the City's policy to seek, whenever feasible, increased use of alternative methods and technologies to the disposal of municipal solid waste in landfills. This goal represents a major effort by the City to work with the immediate community, while fulfilling its mission to provide for the safe and effective disposal of municipal solid waste from all of Oahu.

The five-year goal to seek only limited expansion of the landfill will be reflected in a forthcoming Final EIS which will address the concerns stated in your letter.

SPECIFIC COMMENTS

- 1 "The 'expansion project' constitutes a new landfill."

- 2. The proposed project is based on use of an existing facility with major waste handling infrastructure in place. The expansion area will be entirely contained within the 200 acres of the property. It is therefore incorrect to refer to this facility as a "new" landfill.
- 3. "The SEIS fails to include a cultural impact assessment as required by Chapter 343, HRS."
- 4. A Cultural Impact Assessment will be provided in the forthcoming Final EIS.
- 5. "The SEIS fails to adequately discuss flood control measures."; and, "Surface water and hydrology."
- 6. This issue was discussed in the RDSEIS and the forthcoming Final EIS will provide further information concerning 1) storm water controls and adherence to requirements of the State and City and County of Honolulu; and, 2) surface water, hydrology, and engineering at the site to ensure no adverse impacts.
- 7. "The SEIS fails to adequately describe fugitive dust control measures."
- 8. The amount of water required for dust control will vary according to conditions. During dry periods water is provided to a water truck with sprinklers via an existing supply line provided through the Board of Water Supply. There is no limitation on the amount of water used from this source.
- 9. We are required to cover refuse every day by the Department of Health (DOH). The amount of cover material required for the expansion area will be based on the area of the operating cell that is open on any given day of use. The overall amount of cover material needed for the expansion area of 14.9 acres will be less than is required for the existing landfill area of 64.5 acres. The source of the cover material is from on-site excavation.
- 10. Control of infiltration and leachate at the landfill is regulated in accordance with requirements of DOH. The Final EIS will further explain and provide information concerning the existing and proposed expansion area in relation to control of infiltration.
- 11. "The SEIS fails to adequately discuss impacts of the expansion on the groundwater."
- 12. This issue was addressed in the RDSEIS and further discussion concerning site hydrology and potential for adverse impacts to groundwater resources will be provided in the Final EIS.

11. "The SEIS fails to adequately discuss mitigation measures to control litter."
As noted in the RDSEIS, there are two primary sources of litter associated with the landfill: 1) wind blown litter, and, 2) litter along highways.
Since start up of the proposed plan for expansion of the landfill, refuse delivery operators and drivers have been notified that any vehicles that are not properly secured will be prohibited from delivering refuse loads to the landfill. Some refuse loads have already been turned away, and commercial refuse drivers have been notified regarding the seriousness of ensuring against littering the highway.
14. "The SEIS fails to adequately analyze the alternatives to the proposed action."
As noted, the proposed 15-year expansion plan has been revised to five years. Therefore, a revised alternatives analysis will be provided in the forthcoming Final EIS.
15. "Incorporation by reference of KOCA comments."
Please be advised we will respond directly to individual comment letters received from the public.

We appreciate your review of the subject document and the time you have taken to provide comments. Should you have any further comments, please contact Ms. Wilma Namunart of the Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22)

Sincerely,


TIMOTHY STEINBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

7. "The SEIS fails to adequately analyze the economic impacts of the proposed project."
8. "The SEIS fails to adequately analyze the social impacts of the proposed project on the surrounding communities."
A socioeconomic impact assessment will be prepared to ensure that the Final EIS properly describes the potential for impacts associated with expansion of the landfill for a five year period. The City is well aware of the potential for adverse impacts associated with the operation of a major public facility such as the Waimanalo Gulch Sanitary Landfill. At the same time, the RDSEIS indicates that the existing landfill which became operational in 1989, apparently did not substantially limit, impair, or preclude development or growth of the area.
9. "The SEIS fails to adequately discuss mitigation measures to control odor."
The comprehensive management of odor will be addressed on a short- and long-term basis. Short term measures as provided in the Final EIS will continue to involve use of odor neutralizers, combined with management practices designed to reduce or minimize odor sources. Queuing of refuse vehicles, which was previously occurring at the entry to the landfill before business hours, is now handled by permitting entry up to the area of the scale house. This action has helped to reduce the potential for impacts to the adjoining properties within Ko Olina and along Fannington Highway. Future plans may involve installation of odor misters between the area of the scale house and the perimeter fence to provide treatment of refuse loads entering the landfill. In addition, please be advised that some vehicles are now being refused entry because of odor and vector related issues.
Longer term management of odor is a key concern and actions are underway by the Department of Environmental Services. Some of these are already described in the RDSEIS and combined, are expected to markedly improve odor management. In summary this involves: 1) installation of a landfill gas recovery system; 2) construction of a processing facility at Sand Island Wastewater Treatment Plant which will divert sewage sludge from the landfill; 3) expansion of H-POWER to increase waste handling volume; and, 4) adoption of new, but only viable technologies which will lead to further reduction of odor generating waste. Additional detail for these items will be provided in the Final EIS.

10. "The SEIS fails to adequately discuss air quality impacts."
Waimanalo Gulch Sanitary Landfill is a Title V facility regulated by the Environmental Protection Agency (EPA). This requires that air emissions such as explosive gasses be monitored at the site to ensure against potential threats to public health and safety. As noted in the RDSEIS, the facility employs use of impervious liner materials to block the flow of gas. Monitoring equipment is also employed to detect any accumulation of gas (to date there have been no significant accumulations of explosive gas). Finally, the proposed gas recovery system will use a proven system which will effectively manage the site and health and safety of workers and the community.

Wilma Namunnart
June 19, 2002
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June 19, 2002

Department of Environmental Services
Attn: Wilma Namunnart
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

Re: Waimanalo Gulch Sanitary Landfill;
Revised Draft Supplemental Environmental Impact Statement

Dear Ms. Namunnart:

We represent Ihilani Hotel, LLC, owner of the Ihilani Resort and Spa ("Ihilani"). As a member of the Ko Olina Community Association ("KOCA"), we join in KOCA's comments on the Revised Draft Supplemental Environmental Impact Statement ("DEIS") prepared for the proposed Waimanalo Gulch Sanitary Landfill. By this letter, we also submit the following additional comments.

The City and County of Honolulu ("City") proposes to build a 60.5-acre landfill near the site of the existing Waimanalo Gulch Sanitary Landfill, which is located near the Ihilani. The DEIS for the proposed project does not meet the requirements of the Hawai'i Environmental Policy Act ("HEPA"), Hawai'i Revised Statutes ("HRS") § 343 et seq. The DEIS is deficient in its discussion of at least five areas of concern: (1) surrounding land uses; (2) air quality; (3) subsurface migration of landfill gas; (4) cultural resources; and (5) alternatives to the proposed project.

1. Surrounding Land Uses

HEPA regulations require an environmental impact statement to discuss the impact of a proposed action on surrounding land use:

The draft EIS shall include a statement of the relationship of the proposed action to land use plans, policies, and controls for the affected area. Discussion of how the proposed action may conform or conflict with objectives and specific terms of

approved or proposed land use plans, policies, and controls, if any, for the area affected shall be included. Where a conflict or inconsistency exists, the statement shall describe the extent to which the agency or applicant has reconciled its proposed action with the plan, policy, or control, and the reasons why the agency or applicant has decided to proceed, notwithstanding the absence of full reconciliation. The draft EIS shall also contain a list of necessary approvals, required for the action, from governmental agencies, boards, or commissions or other similar groups having jurisdiction. The status of each identified approval shall also be described.

Hawai'i Administrative Rules ("HAR") § 11-200-17(h). The cursory treatment of land use concerns in the DEIS does not comply with this rule. Discussion of land use matters in the DEIS is limited to a description of major development projects in the Ewa Region and a discussion of proposed efforts to mitigate impacts of the proposed project on such developments. The DEIS does not discuss the "relationship of the proposed action to land use plans, policies, and controls" applicable to the area surrounding the proposed project.

For example, the DEIS must address the applicability of zoning laws. The site of the proposed project is located in the State of Hawai'i's agricultural district. The City must obtain a "special permit" from the City Planning Commission and the State Land Use Commission before using land having more than 15 acres within a state-classified agricultural district for a landfill. HRS § 205-6. A special permit may be granted for an "unusual and reasonable use," but only after certain criteria have been met. HRS § 205-6(a); HAR § 15-15-95(b). One of the guidelines for determining whether a project constitutes an "unusual and reasonable use" is whether "[t]he desired use would not adversely affect surrounding property." HAR § 15-15-95(b)(2).

Furthermore, the site of the proposed project is also zoned by the City in the general agricultural zoning district ("AG-2") pursuant to its zoning code, the Land Use Ordinance ("LUO"). The proposed project is a "waste disposal and processing" facility within the meaning of the LUO. LUO § 21-10.1. Waste disposal and processing—an industrial use—in an AG-2 zoning district requires a conditional use permit-major. LUO § 21-3 & Table 21-3. A conditional use is permitted only if the proposed use "will not alter the character of the surrounding area in a manner substantially limiting, impairing or precluding the use of surrounding properties for the principal uses permitted in the underlying zoning district." LUO § 21-2.90-2.

The DEIS does not adequately analyze whether the proposed landfill would adversely affect surrounding property or limit or impair nearby developments such as the Ihilani. The impacts of the proposed project on surrounding land uses are not limited to odor, litter, and traffic, which are the four impacts identified in the DEIS. The DEIS does not address other impacts on land use, such as visual impacts or aesthetics. The DEIS should explain how a proposed landfill that always will be visible from certain vantage points would be aesthetically compatible with resort, recreational, and residential facilities in the area.

living near the project area. The DEIS determines that air quality in the project is relatively good due to Hawaiian wind patterns. For information on Hawaiian wind patterns, the DEIS consults the 1983 edition of the Atlas of Hawai'i. This is inadequate. The DEIS should incorporate a study of wind patterns specific to the proposed project site and the surrounding area to assess the effect of such wind patterns on the distribution and dispersion of odor-causing emissions in the surrounding area. A wind study is doubly necessary if the City intends to take the position that siting the proposed waste disposal facility less than 1,500 feet from property located in the City's country district is appropriate "due to prevailing winds." LUO § 21-5.680.

Furthermore, the DEIS is deficient in not describing with specificity how the proposed project complies with Clean Air Act requirements applicable to landfills. The Environmental Protection Act recently promulgated the New Source Performance Standards ("NSPS"), which affect new landfills designed to hold 2.5 million megagrams (2.755 million tons) or 2.5 million cubic meters (3.27 million cubic yards) or more of waste over their lifetime. 60 C.F.R. § 60.752. As of March 12, 1996, a landfill that reaches the threshold mass and volume must install a gas collection and control system if it emits greater than or equal to 50 megagrams per year of non-methane organic compounds ("NMOCs"). *Id.* The gas collection and control system must destroy NMOCs at 98% efficiency, either by flaring or gas-to-energy recovery. *Id.* Landfill operators must also meet specific recordkeeping and reporting requirements. §§ 60.757, 60.758.

The proposed project is estimated to hold 9 million cubic yards of waste over its lifetime, thus meeting the threshold mass and volume levels under the NSPS. The DEIS states that the proposed project will employ a gas recovery and monitoring system. However, the DEIS does not describe the system in sufficient detail. It cannot be determined from the DEIS that the gas recovery system will be adequate to destroy NMOCs at 98% efficiency as required by the NSPS.

3. Subsurface Migration of Gas

LFG can migrate off-site through soil. Contaminated soil gas has the potential to migrate into building foundations, presenting an inhalation exposure to residents and non-residents. Exposure to LFG can result in adverse health impacts such as an increased risk of cancer. In Nassau County, New York, for example, exposure to soil gases migrating from the Port Washington Landfill was correlated with a significant excess of cancer and leukemia incidence.

The DEIS does not adequately address measures to prevent subsurface migration of LFG from the proposed landfill. The proposed project does not appear to employ a system for monitoring LFG beyond the proposed landfill site. In addition, there has been no study of soil gas pathways in the project area through which LFG may migrate. The DEIS should be updated to include discussion of these measures to deter the potential impact of subsurface LFG migration.

4. Cultural Resources

The DEIS does not adequately discuss impacts on cultural resources as required by HEPA. HEPA defines an environmental impact statement as

The DEIS assumes the proposed project's compatibility with surrounding land uses because it further assumes that the project area is currently industrial in character, as evidenced by the presence of the existing adjacent landfill. The history behind the development of the area, however, indicates that the landfill was intended to operate only for a limited time so as not to continually interfere with business, recreational, residential, and resort uses in the area. Major residential and resort projects in the area were developed with the understanding that cessation of landfill operations was imminent and that once the existing landfill was closed, graded, and revegetated, the area would not be industrial in character. The proposed landfill is thus a reversal of the City's land use policy that necessitates analysis of the compatibility of the proposed project with other uses in the area.

Moreover, the LUO states that "[n]o waste disposal and processing facility shall be located within 1,500 feet of any zoning lot in a country, residential, apartment, apartment mixed use or resort district." LUO § 21-5.680. According to the maps in the DEIS, the proposed project will be less than 1,500 feet away from lots designated in the country district. *E.g.*, TMK #9-2-03:30-35. There may be other zoning lots within 1,500 feet of the proposed project that are in a country, residential, apartment, apartment mixed use or resort district, but the DEIS fails to identify the zoning under the LUO of all properties within 1,500 feet. The same provision in the LUO provides: "When it can be determined that potential impacts will be adequately mitigated due to prevailing winds, terrain, technology or similar considerations, this distance may be reduced, provided that at no time shall the distance be less than 500 feet." LUO § 21-5.680. The DEIS has not demonstrated that the potential impacts can be mitigated to the point where the proposed project may be sited less than 1,500 feet from the nearby zoning lots within the country district. If the proposed project contemplates a variance from those provisions of the LUO, the DEIS should identify such variance as a required permit or approval and it should explain how the City intends to justify the granting of such variance.

2. Air Quality

The analysis in the DEIS of the proposed project's impact on air quality is inadequate for three reasons. First, the discussion of air quality does not incorporate reliable data. Second, the DEIS does not employ scientific methods to assess the impact of migrating odors. Third, the DEIS does not describe how the proposed project complies with the Clean Air Act.

The DEIS should be revised to include data on emissions of landfill gases ("LFG") from the existing and proposed landfills. The DEIS discusses LFG emissions in a generalized context and refers to a study on LFG emissions done by the City in 1977. The DEIS does not reference (for benchmarking purposes) the current composition or level of ambient emissions specific to the existing landfill, much less project the composition and quantity of LFG emitted by the proposed landfill. Without such data, the DEIS cannot accurately assess the significance of the proposed project's impacts on air quality.

The migration of objectionable odors is a significant concern of siting a landfill near residences and resort facilities. Odor management is discussed in the DEIS, but not in a manner permitting a confident determination that odor will not significantly impact persons working or

units in the project area. The study also noted anecdotal evidence that native Hawaiians regarded Waimanalo Gulch as sacred. In addition, a field visit to Waimanalo Gulch was attended by three representatives of the Wai'anae community, among others. As a result of the visit, one community representative desired to hold further discussions with Hawaiian elders regarding cultural resources in Waimanalo Gulch. Based on these information-gathering efforts, the DEIS concludes that the proposed project is not anticipated to result in potential for negative adverse impacts to cultural resources.

This conclusion is not a fully analyzed or informed one. The testimony of kama'aina witnesses, including Hawaiian elders familiar with the area, is often cited as a reliable source of information on the cultural significance of a location and was not considered in the DEIS. Moreover, the DEIS appears to dismiss the significance of the modern shrine complex, petroglyphs, and offerings because they lie outside the proposed project site. Under Public Access, Shoreline Hawaii v. Hawaii County Planning Commission, 79 Hawaii'i 425, 903 P.2d 1246 (1995) ("PASH"), which is cited in Ka Pa'akai, cultural resources located in areas outside of a project site may warrant protection or management. In sum, the DEIS should identify all cultural resources in or around Waimanalo Gulch, with the aid of unexplored sources such as kama'aina testimony, and should assess impacts of the proposed project on all cultural resources in the Waimanalo Gulch area, regardless of whether they lie inside or outside of the proposed project site.

5. Alternatives Analysis

An environmental impact statement must analyze alternatives to the proposed action and their environmental effects. HRS § 343-2; HAR § 11-200-17(f). Among the alternatives considered in the DEIS for the proposed project were alternative technologies for waste disposal and alternative locations. The discussion of alternatives in the DEIS requires significant revision.

The discussion of alternative technologies is procedurally and substantively flawed. The DEIS applied a two-tier screening process to narrow the field of over 50 technologies and methods for waste disposal to three alternative technologies. In the first tier of the screening process, the technologies were rated on criteria based on a score of 1-3 (1 = low level of compliance with a given criterion; 2 = medium level of compliance; 3 = high level of compliance). The seven technologies with the highest total scores were selected for consideration under the second tier of the screening process, which tier evaluated the seven technologies using another set of criteria with the same scoring system to produce a short list of three technologies. The technologies on the short list were discussed individually in detail.

The use of the three-point scale used in the screening process excessively forecloses discussion of alternative technologies. In the second tier of screening, for instance, one point separated the three highest-scoring technologies from the fourth- and fifth-ranked technologies. Yet, the DEIS seriously considered only the top three technologies. The scale should be expanded to ensure that exploration of a viable technology is not abandoned in error.

an informational document . . . which discloses the environmental effects of a proposed action, effects of a proposed action on the economic welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

HRS § 343-2 (emphasis added). HEPA regulations require the proposing agency to evaluate whether the proposed activity has a significant effect or impact on cultural effects. HAR § 11-200-2. Specifically, HEPA regulations provide:

The draft EIS shall include in a separate and distinct section a description of all irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. . . . Agencies shall avoid constraining the term "resources" to mean only the labor and materials devoted to an action. "Resources" also means the natural and cultural resources committed to loss or destruction by the action.

HAR § 11-200-17(k) (emphasis added).

The requirement that an environmental impact statement discuss cultural effects was underscored in a recent case, Ka Pa'akai O Ka'aina v. Land Use Commission, 94 Hawaii'i 31, 7 P.3d 1068 (2000), in which the Hawaii'i Supreme Court addressed the need for assessment of "cultural impacts" in a regulatory scheme similar to HEPA. In Ka Pa'akai, the court held that the State Land Use Commission, in considering a petition for reclassification of land use boundaries, must make specific findings and conclusions as to:

- (1) the identity and scope of "valued cultural, historical, or natural resources" in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area; (2) the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken by the [the agency] to reasonably protect native Hawaiian rights if they are found to exist.

94 Hawaii'i at 47, 7 P.3d at 1084. Although Ka Pa'akai did not involve HEPA, the court's holding was influenced by the fact that the Hawaii'i legislature in 2000 amended HEPA to require evaluation of the effects of economic development on cultural practices. Id. at 47 n.28, 7 P.3d at 1084 n.28.

The existing effort to identify cultural resources in Waimanalo Gulch is incomplete. A historical and archaeological study of Waimanalo Gulch conducted in preparation of the DEIS found evidence of Hawaiian customary practices in or near the project area: (1) a modern shrine complex and petroglyphs located along the base of a large outcrop ledge above Farrington Highway; (2) offerings in the immediate vicinity of the shrine complex; and (3) three petroglyph

The discussion of alternative technologies is also substantively flawed. Both tiers of the screening process use cost as a criterion (i.e., "economic risk" in the first tier and "past economic performance" in the second tier). This is contrary to environmental impact statement rules, which require a description in the DEIS of "alternatives which could attain the objectives of the action, regardless of cost, in sufficient detail to explain why they were rejected." HAR § 11-200-17(f) (emphasis added).

Furthermore, the DEIS discusses each technology as a stand-alone alternative for diversion of waste from landfills. The DEIS does not consider the alternative of using a combination of technologies. To the extent this alternative was not explored because of the cost of implementing more than one technology, environmental impact statement rules require that the alternative be discussed regardless of its cost.

The discussion of alternative sites for a landfill is similarly flawed. The DEIS screened a list of 42 potential landfill sites using three sets of criteria. The first set of criteria is taken from federal regulations governing municipal solid waste landfills. See 40 C.F.R. pt. 258. The second criterion is the storage capacity for waste generated in the City for a period of approximately 15 years. The third set of criteria is composed of technical and resource factors. This final level of screening uses a modified version of the three-point scale discussed above (i.e., sites receive a score of 0 points, 5 points, or 10 points with regard to each factor). After completing the screening process, the DEIS selected four sites for further consideration.

The capacity of an alternative site to hold waste generated in a 15-year period should not be a criterion in the screening process. Built into the criterion is the assumption that building a single landfill with the capacity to hold fifteen years' worth of waste is the best alternative. The DEIS does not consider the alternative of constructing one or more landfills with smaller capacity in locations less objectionable than the Wai'anae coast. The DEIS should be revised to consider this alternative and to eliminate the 15-year capacity criterion from its analysis of alternative sites.

The screening of alternative sites based on the technical and resource factors is flawed in three respects. First, for reasons already discussed, the three-point scoring system should not be used. If each site is truly to be rated from a scale of zero to ten, the scores should range from zero to ten rather than be fixed at zero, five, or ten.

Second, the costs associated with developing, operating, and using the site are considered part of the technical and resource factors. Again, environmental impact statement rules require discussion of an alternative regardless of the costs associated with the alternatives. The cost criterion should be eliminated.

Third, the DEIS does not adequately consider the criterion of compatibility with surrounding land uses. In discussing this criterion, the DEIS states: "The existing land use situation on Oahu provides no ideal conditions where the siting of a landfill would prove fully compatible with surrounding land uses." Accordingly, the DEIS assigns all alternative sites a score of zero for this criterion. The DEIS fails to recognize that while full compatibility with

surrounding land uses may be unattainable, sites nonetheless differ in their degree of compatibility. The DEIS should redo its rating of alternative sites under this criterion.

Finally, it should be noted that the alternatives analysis requires revision in light of the City's plans to implement new waste disposal technology and practices, as outlined in the Mayor's State of the City address on January 29, 2002. The waste disposal measures mentioned in the address include the following: (1) increasing the capacity of H-POWER by 50%; (2) building a solid-waste separation facility at the H-POWER site; (3) acquiring seven additional acres at the H-POWER plant for the creation of a new recycling technology park; (4) developing plasma arc technology; (5) transforming sewage sludge from the wastewater treatment plant at Sand Island into a soil amendment. Each of these measures, if implemented, has the potential to significantly reduce the volume of waste disposed at the proposed project. The alternatives analysis should be revised to account for anticipated reductions in the waste stream.

Thank you for the opportunity to comment on the DEIS for the Waimanalo Gulch Sanitary Landfill. We look forward to your responses to our comments. Please forward a copy of the Final Supplemental Environmental Impact Statement to us when it is issued.

Sincerely,

Gino L. Gabrio

Gino L. Gabrio

for

CADES SCHUTTE FLEMING & WRIGHT
A Limited Liability Law Company

cc: Mayor Jeremy Harris
Brian Takeda, R.M. Towill Corp. ✓
Office of Environmental Quality Control,
State of Hawai'i
Ihialani Hotel, LLC

MANAGEDB:197293

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

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KRISTY HARRIS
MAYOR

TIMOTHY E. STERNBERGER, P.E.
DIRECTOR

FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 02-158

December 23, 2002

Mr. Gino L. Gabrio
Cades Schutte Fleming & Wright
1000 Bishop Street, Suite 1200
Honolulu, Hawaii 96813-4216

Dear Mr. Gabrio:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 19, 2002. We acknowledge your concerns regarding the operation and planned expansion of the Waimanalo Gulch Sanitary Landfill.

GENERAL COMMENT

The 15-year proposal for expansion of the Waimanalo Gulch Sanitary Landfill has been changed to five-years. The five-year goal is based on the City's policy to seek, whenever feasible, increased use of alternative methods and technologies for the disposal of municipal solid waste. This represents a major effort by the City to work with the immediate community, while fulfilling its mission to provide for the safe and effective disposal of municipal solid waste from all of Oahu.

Surrounding Land Uses

- Further discussion of the relationship of the proposed action to surrounding land uses and potential for socioeconomic impacts will be provided in the forthcoming Final EIS.
- As noted in the RDSEIS a Special Use Permit will be filed for the subject project. Since publication of the RDSEIS the City Department of Planning and Permitting has determined that the existing facility and the proposed expansion are considered a "public use" under the Land Use Ordinance and that a Conditional Use Permit is not required.
- The relationship of the project to surrounding land uses is based on development of the site in 1989. Since that time, the RDSEIS documented the growth of the area. The presence of the landfill apparently did not substantially limit, impair, or preclude development of the area.

Mr. Gino L. Gabrio
December 23, 2002
Page 2

- We have searched our records extensively and found no documentation of any commitment to cease landfill operations by a certain date. We, therefore, cannot respond to the assertion that major projects in the area were developed with the understanding that cessation of landfill operations was imminent.

Revision of Applicable Sections of the RDSEIS

The project Final EIS will address concerns expressed about the following issues in relation to the current proposal to seek a five-year expansion:

- Air Quality and Subsurface Migration of Landfill Gas – Further discussion of landfill gas monitoring practices in relation to the Clean Air Act will be provided.
- Cultural Resources – A Cultural Impact Assessment will be provided.
- Alternatives Analysis – A revised discussion of both alternative technologies and landfill sites will be provided.

We appreciate your review of the subject document. Should you have any further comments, please contact Ms. Wilma Namunnart of the Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STERNBERGER, P.E.
Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

based on the currently existing SEIS, which seeks an additional 60.5 acres of new landfill area, immediately adjacent to the existing landfill, which area is estimated to have sufficient capacity to handle the island's landfill needs for 15 years, based on today's waste stream flow. We have urged the City to amend the SEIS to address the new information and plans (discussed herein) that have evolved since the SEIS was prepared. Because the City has decided not to amend the SEIS, we are only able to, and must, comment on the existing SEIS.

Since the preparation of the attached documents, additional information has been obtained concerning the landfill and related matters. Therefore, in addition to the comments provided in the enclosed documents, we make the following comments, which shall be considered part of KOCA's comments to the SEIS:

A. As presented by the City on June 10, 2002, the City has committed to closing the Waimanalo Gulch Landfill within 5 years. Additionally, the City's May 15, 2002 press release stated that the City would seek only a 5-year expansion of the landfill. Therefore, the 60.5-acre expansion of the landfill proposed in the SEIS is unnecessary and should not be approved. We look forward to reviewing and commenting on the City's "limited" expansion.

B. Based on the City's planned 50% expansion of H-Power, which Mayor Harris announced as part of a waste management masterplan in his State of the City Address on January 28, 2002, the MSW stream to be dumped directly into any landfill will be significantly reduced. This will result from both the increased capacity at H-Power and the elimination of down time for H-Power for maintenance (which down time currently results in all MSW being deposited at the landfill). Based on these plans, it makes little sense to expand the existing landfill to an area that, based on today's MSW dumping needs, will have a life of 15 years. Based on the figures provided in the SEIS and by the City, the expanded H-Power facility will be able to handle all of Oahu's "burnable" waste leaving only a minimal amount of waste to be handled by a landfill. H-Power is a proven technology that the City has been using for years, and its effectiveness is reliable and easily calculated. The effects of the expansion of H-Power must be considered in the City's plans and must be addressed by the SEIS. As the SEIS exists now, without more information from the City concerning the planned H-Power expansion, we are unable to comment on the effect that the City's new waste master plans will have on the landfill and the surrounding communities. The SEIS must be amended to include the City's plans and the foreseen effects of the H-Power expansion, and the public must have the opportunity to understand and comment on these changes.

C. The City announced plans also includes the development and implementation of alternative technologies. If these technologies are successful, there will be a significant reduction in and perhaps elimination of the flow of MSW and ash to any landfill. Under the currently disclosed plans by the City, work on these technologies has commenced and evaluation of initial testing of these technologies may be done over the next 2-3 years. The City stated on June 10, 2002 that their goal is to have alternative technologies operational by the end of 2005. Furthermore, the City plans to have a new Sand Island disposal facility for sludge and green

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June 19, 2002

City & County of Honolulu
Department of Environmental Services
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Attn: Ms. Wilma Namunmaat

Revised Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion, Dated May 2001 ("SEIS")

Ms. Namunmaat:

On behalf of the Ko Olina Community Association and its members (collectively "KOCA"), attached are KOCA's comments to the SEIS. A complete list of the KOCA members is included in the attached McCutchen Letter. The enclosures includes:

1. Comment Letter to SEIS prepared by McCutchen Doyle Brown & Enersen, attorneys for KOCA, dated September 18, 2001 ("McCutchen Letter")
2. Engineering Report titled "Alternative Landfill Options Report for Municipal Solid Waste Disposal City and County of Honolulu, Hawaii," prepared by EA Engineering, Science and Technology, Inc. ("EA Report") attached to McCutchen Letter; and
3. Economic information/analysis for the Ko Olina Resort and Marina, showing both existing and projected construction and employment at the Resort. This information is provided in connection with the comments in both the McCutchen Letter and EA Report concerning the lack of economic and socioeconomic analysis in the SEIS.

You will note that the attached documents were prepared for the September 21, 2001 comment deadline, which was ultimately extended to June 19, 2002.

In connection with our comments, we note that the City has recently committed to close the Waimanalo Gulch Landfill within five (5) years. This commitment was presented by Mr. Frank Doyle at the June 10, 2002 informational meeting held by the City, following a May 15, 2002 press release by City Managing Director Ben Lee providing that the City would be seeking only a 5-year expansion of the landfill. Given the timing of the June 10, 2002 announcement, nothing has yet been put in writing by the City concerning the planned closure of the landfill. There are numerous issues and questions as to how the landfill closure will take place and how the City proposes to limit its expansion of the landfill for a 5-year period, which are not addressed by the existing SEIS. Therefore, KOCA's comments to the SEIS contained herein are

waste operational in the next 18 to 24 months. Given this work, it does not make sense for the City to seek a 15-year expansion of the Waimanalo Gulch Landfill without, at a minimum, addressing these potential changes in MSW flow.

D. Based on the foreseen changes in waste streams, the City should not seek a 60.5-acre expansion, as requested in the SEIS. A smaller and shorter expansion (i) is appropriate, (ii) will be sufficient to handle the City's waste planning needs, and (iii) provides time for the City and its citizens to evaluate alternative technologies and alternative sites to determine the City's future waste management plans.

E. In addition to the reasons cited in the attached documents, the SEIS must re-evaluate potential landfill sites that were previously rejected due to a lack of capacity. The current SEIS analyzes potential sites' capacity based on today's MSW flows. Because these flows will be significantly reduced, potentially within two years, the SEIS must re-evaluate potential landfill sites.

F. As discussed in the enclosures, the City has failed to evaluate numerous alternative sites that will have a much lesser impact on the growth foreseen for Kapolei and West Oahu. These potential sites include the Ameron site and Wailua areas identified in the EA report, as well as other City owned properties in the Kalaheo area. As has been previously discussed with the City, KOCA is willing to continue working with the City to find alternative landfill sites. Our engineering consultant, EA Engineering, is continuing its work on this matter and is attempting to understand the City's waste capacity needs based on the H-Power expansion and Sand Island plant. We were initially pleased to receive an additional confirmation from the Environmental Services Department on April 10, 2002 that the City will close and reclaim the Waimanalo Gulch Landfill upon the acquisition of a suitable alternative site. However, we were later dismayed that, on the same day, the Environmental Services Department sent out a letter to Ms. Linda Porter, in which it stated that the Waimanalo Gulch Landfill "must be utilized to the fullest extent possible before turning to other potential, and precious, land resources on Oahu." We have also attached these two letters for your reference. These contradictory statements from the City, on the same day, caused significant concerns regarding the City's efforts on this matter.

G. We are also concerned about some of the significant and material matters that were not disclosed in the SEIS, and that have only surfaced due to the investigations completed by our consultants. For example, the SEIS does not discuss the fact that there are separate dumping pits for MSW and H-Power ash, or the related fact that this currently proposed expansion is only for the MSW dumping area. We have since come to understand that the ash pit has approximately 6 years of life remaining and that there may be plans to subsequently seek an expansion of the ash pit at Waimanalo Gulch in the near future. This information is significant to a full analysis of the City's plans for the landfill, and the fact that this was not publicly disclosed in the SEIS is of great concern. Another fact that was not disclosed in the SEIS is the fact that the cost of hauling H-Power ash is the responsibility of the H-Power operator, provided that the ash is dumped within a certain radius of the H-Power plant. This is a material matter to consider in the

economic analysis of the alternative waste management plans and is likely to significantly bias the City's analysis of alternate sites. This is the type of economic factor that must be balanced against the economic harm that will be caused by the expansion of the existing landfill site at Waimanalo Gulch. The failure to disclose or discuss this information in the SEIS was improper and increases our concerns regarding the SEIS.

H. We must again emphasize the fact that the SEIS has failed to evaluate and analyze the economic, socio-economic and cultural impacts of the proposed expansion. This is a statutory requirement of HRS Section 343-2. This is not only a significant and potential fatal flaw of the SEIS, but an analysis of the economic impacts of the expansion at Waimanalo Gulch would show significant risks and damage, while such an economic analysis of various alternative sites would show little economic impact.

I. In connection with the necessary economic analysis, the City is more than aware that the Waimanalo Gulch Landfill will likely have a significant negative impact on the Ko Olina Resort. This year, in Senate Bill 2907, the State Legislature recognized that:

Further development planned by the State and the city and county of Honolulu to enhance the west side of Oahu and develop the second city of Kapolei and Ko Olina Resort and Marina would bring extensive economic benefits and result in the creation of thousands of construction and permanent jobs. The legislature believes that Ko Olina can play a pivotal role in regenerating Oahu's tourism economy. (SB2907, Section 1).

The Resort is currently the largest construction project in the State, and the potential economic impact that the Resort will bring to Hawaii, through its existing hotel, timeshare, residential, commercial and recreational projects by companies like Marriott Vacation Club International, Marriott Hotels, Mass Mutual, Brookfield Homes, Armstrong Builders, Alexander & Baldwin, Weinberg Foundation, and Intco is immeasurable. Additionally, with the help of SB2907, the Resort is planning to build a world class aquarium/marine park attraction for the State, and has obtained commitments from Hilton Hotels, Intrawest Resorts and others to build new hotel, timeshare and commercial projects at the Resort if SB2907 is signed by the Governor. The Department of Business and Economic Development and Tourism has estimated that these projects will create approximately \$186,000,000 of new state tax liability (including general excise, transient accommodations, and corporate and personal income tax) over the next ten years.

Considering the economic hardships that have been experienced statewide since September 11, 2001 and the likelihood that the State's economic struggles will continue for some period of time, the need for the City to take a hard look at the economic impacts of the Landfill have become of utmost importance. Every City action must consider the impact on Hawaii's economy. The City must deal with the island's landfill needs within today's economic

environment - in the big picture, there are better solutions than the City's proposed 15-year expansion.

There is no need to proceed with the expansion of the Waimanalo Gulch Landfill currently proposed in the SEIS. Instead, the City should move forward with the expansion of H-Power and should properly re-evaluate potential alternate sites, based upon the minimal amount of remaining MSW that will not be handled by the expanded H-Power, the Sand Island sludge and green waste, recycling, alternative technology and other facilities. Additionally, the City must amend the SEIS to address the issues contained in these comments so that the public may evaluate and comment on all of the now relevant information. Most importantly, the City must re-evaluate and reduce its 60.5-acre expansion of the Waimanalo Gulch Landfill proposed in the SEIS.

The City must reach a solution that makes sense for the entire island and one that will not damage Hawaii's most significant construction and visitor industry project. A five-year closure plan for Waimanalo Gulch Landfill will provide the City with more than sufficient time to plan Oahu's future waste management needs. The City must, however, provide the public with the opportunity to review and comment on its proposed 5-year "limited" expansion of the Waimanalo Gulch Landfill and its plans for closure and reclamation of the Landfill. We look forward to the opportunity to provide our comments on the new direction the City is taking.

Based on KOCA's comments and the City's announced plans, the currently proposed 60.5-acre expansion should not go forward.

Sincerely,

Ko Olina Community Association



By: Kenneth Williams
Its: General Manager

Cc: Honorable Mayor Jeremy Harris
R.M. Towill Corporation
Office of Environmental Quality Control
Ko Olina Community Association Members

DEPARTMENT OF ENVIRONMENTAL SERVICES
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IN REPLY REFER TO:
#E-02-196

December 23, 2002

Mr. Kenneth Williams, General Manager
Ko Olina Community Association
92-619 Farmington Highway
Ko Olina, Hawaii 96707

Dear Mr. Williams:

Subject: Revised Draft Supplemental Environmental Impact
Statement (RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 19, 2002. We acknowledge your concerns regarding the operation and planned expansion of the Waimanalo Gulch Sanitary Landfill and have prepared the following in response:

1. Response (attached) to letter from McCutchen, Doyle, Brown and Enersen, LLP, dated September 18, 2002;
2. Thank you for the copy of the "Alternative Landfill Options Report for Municipal Solid Waste Disposal," dated September 17, 2001. We appreciate the information you provided and will incorporate the concerns you raise in the forthcoming Final EIS; and,
3. Thank you for the economic information/analysis for the Ko Olina Resort and Marina you provided. We have forwarded this information to our socioeconomic analysis consultant for use in preparation of a Socioeconomic Impact Assessment for the subject project.

We appreciate your review of the subject document and understand that this issue will find no easy solutions. We ask for your continued patience and discussion concerning this matter. Should you have any comments, please contact Ms. Wilma Namunnat of the Refuse Division at 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 688-2985 (ext 22)

Sincerely,

Frank J. Doyle
FRANK J. DOYLE
Director

cc Waste Management of Hawaii, Inc.

September 18, 2001

City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Attention: Ms. Wilma Namunmart

**Comments On Revised Draft Supplemental Environmental Impact Statement
for the Waimanalo Gulch Sanitary Landfill Expansion**

This firm represents the Ko Olina Community Association (KOCA).

KOCA requests that we submit these comments on behalf of KOCA and its constituent members, the owners of real property located within the Ko Olina Resort and listed on Attachment A to this letter.

In short, the May 2001 Revised Draft EIS for the Waimanalo Gulch Landfill Expansion project ("the 2001 EIS") appears to be little more than a make-weight, post-hoc rationalization for a decision already made. Because the City has not yet conducted a good faith exploration of alternative means of addressing the island's solid waste problems, the City should extend the life of the Waimanalo Gulch landfill only two years while conducting the type of studies required by H.R.S. § 343.

We set forth below the general conceptual deficiencies in the 2001 EIS, followed by comments addressed to specific inadequacies of the 2001 EIS. We close with a recommendation for City action.

General Comments

The Waimanalo Gulch landfill is nearing capacity, and the City needs to find another means of disposing of its solid waste. We understand that the City told the public twelve years ago that Waimanalo Gulch would be closed and that the City would find alternative locations or means of disposing of the island's solid waste. That decision is reflected, among other places, in the 1984 Revised EIS, where the City stated that only 57 acres of the Waimanalo Gulch site would be used for the landfill, and explained that

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topography and slope precluded use of other areas of the site for that purpose.¹ Now, however, the City proposes to reverse that decision without fully exploring solid waste disposal options.

The City has already permitted the Waimanalo Gulch landfill to expand to 64 acres of the site on the theory that limited expansion was necessary while the City explored its options. The 2001 EIS was obviously intended to document the City's hard look at alternative locations and means, and provide the reader with a comparison of the relative environmental merits of each alternative. However, the 2001 EIS appears designed only to argue, defensively, that there is nothing wrong with the decision the City has already made to add a new, 60-acre landfill site next to the existing 64-acre landfill at Waimanalo Gulch.² The 2001 EIS suggests that the City views the new 60-acre site as simply an extension of the existing landfill, but this view is misleading and wrong. Given that the old site is to be closed, and the new site is at roughly twice the elevation of the old, and considering the new site is larger than the area studied in the 1984 EIS, it is clear the City's current proposal for a landfill in Waimanalo Gulch is a new and different proposition.

The 2001 EIS summarily concludes there will be no substantial adverse impacts from creating a new landfill next to the existing landfill at Waimanalo Gulch, but it does not fully explain or support that conclusion.³ The 2001 EIS fails to respond to the comments submitted on the April 2000 Draft, and fails to provide adequate or complete information about the Waimanalo Gulch site. As one example, when KOCA commented

¹ The summary section of the Revised Environmental Impact Statement for Leeward Sanitary Landfill at Waimanalo Gulch Site and Ohikilo Site (1984) states at pages at S-5 and S-7 that approximately 80 acres of the Waimanalo Gulch site are usable for landfill purposes. However, that same document, at page 2-1, promises that only 57 acres would be used as a landfill.

² The 2001 EIS refers to the existing landfill site as covering 86.5 acres, but the references to 86.5 acres includes land covered by administrative facilities. The actual size of the current landfill is apparently only 64 acres.

³ Furthermore, the 2001 EIS ignores information that may show that the existing landfill at Waimanalo Gulch may not be operating in compliance with current permit conditions. See Attachment B to this letter.

that there was no examination or discussion of the visual impacts a new 60-acre site would have given its higher elevation and given the existence of nearby resort guest rooms several stories off the ground, the 2001 EIS only provided an illustration of how the landfill might look from an elevated hotel room. There is no attempt to discuss or evaluate the visual impacts depicted in that illustration, let alone any attempt to compare the visual impacts of the proposed new 60-acre site to visual impacts of alternative means of disposing of the island's solid wastes.

The law requires a detailed consideration of alternatives in an EIS. The alternatives analysis in Appendix G to the 2001 EIS is, however, legally inadequate, as it does little more than list sites that have been under consideration for years. Appendix G rejects alternative sites via a single line entry in a single chart, according to criteria that are not explained or applied to the Waimanalo Gulch site. Appendix G also goes through the useless exercise of documenting the fact that the City has investigated the Waimanalo Gulch site while it has not, for example, conducted groundwater or species surveys at other sites, then uses that lack of environmental review as the basis for excusing the need for further environmental review. Finally, Appendix G does not consider the possibility of splitting the current waste stream at Waimanalo Gulch into more than one waste stream for disposal at different landfill sites.⁴

The 2001 EIS also contains no analysis of the economic impact the construction of a new 60-acre landfill site, at a peculiarly visible elevation, so close to resort areas, will have on the new city of Kapolei, Makakilo, KOCA members or their neighbors. The 2001 EIS never compares the financial benefits of operating the landfill to the havoc wreaked upon the island's most important private industry—tourism. In effect, the 2001 EIS assumes without explanation that private resort operators should be forced to bear almost the full weight of the burden of siting a new landfill at such a high elevation so close to resort facilities, while acknowledging that it is the City as a whole that will reap the benefits of the project.

⁴ In a report prepared for KOCA by EA Engineering, Science, and Technology, Inc. ("EA Engineering") and entitled *Alternative Landfill Options Report for Municipal Solid Waste Disposal, City and County of Honolulu, Hawaii* ("EA Report"), EA Engineering suggests that viable alternatives exist for disposing of Oahu's waste at multiple landfill sites. The report is included as Attachment C, and is submitted as an independent comment on the EIS.

Also, the 2001 EIS never factors the financial benefits of operating a landfill into its assessment of the costs of alternative sites. Some alternative sites are dismissed because they rate poorly on acquisition costs when compared to the fact that the Waimanalo Gulch site is already under City control. However, the 2001 EIS makes no attempt whatsoever to determine whether acquisition costs are really all that important in light of the financial rewards of operating a landfill, and certainly never weighs the resulting, net financial cost against the comparative environmental and economic benefits of siting a new landfill in a place that would not be so devastating to Oahu's main growth center.

Specific Comments

Specific deficiencies in the 2001 EIS are as follows.

Comment 1. *Project Description Is Not Accurate.* The 2001 EIS does not properly describe and assess the project. Rather than narrowly examining the impacts associated with the expansion of the existing Waimanalo Gulch Landfill, the project addressed in the 2001 EIS should be management of Oahu's solid waste over the long term. Expansion of the existing Waimanalo Gulch Landfill, at best, postpones the question of finding a long-term solution to Oahu's solid waste disposal problem by 15 years. The lack of a long-term approach in the 2001 EIS to the solid waste problem on Oahu leaves open the question of whether the City and County of Honolulu will request further expansion of the Waimanalo Gulch site in 15 years. Without an analysis in the 2001 EIS of the long-term solid waste disposal problem on Oahu, it is not possible to assess the impacts of the proposed expansion of the Waimanalo Gulch Landfill fully. City Ordinance 9-1.1(a)(6)(b)(1) mandates a reduction in the City's solid waste - "By the end of 2000, at least 75 percent of the solid waste generated within the city shall be recycled, reused, composted or otherwise diverted from incineration or placement in a landfill". and further requires an annual review of compliance by the City's department of public works. The 2001 EIS contains no discussion of the City's progress in complying with that requirement, or its plans for doing so in the future, or the impact such progress, or lack thereof, has on its landfill requirements.

Comment 2. *Proposed Project Is a New Landfill.* The description of the project as an "expansion" of an existing landfill is misleading. The City and County of Honolulu plans to close and reclaim the existing 64-acre landfill at Waimanalo Gulch and replace it with the equivalent of a new 60-acre landfill adjacent to and upslope from the existing landfill. While the new landfill will be able to utilize some of the infrastructure from the existing landfill, the new landfill also will occupy a different portion of Waimanalo Gulch that is nearly as large as the existing landfill. Accordingly, rather than referring to an expansion of the existing Waimanalo Gulch Landfill, the 2001 EIS should

more accurately describe the project as the equivalent of development of a new landfill adjacent to the old (existing) landfill.

Comment 3. Project Description Is Misleading. The description of the project is misleading in another respect as well. If the project is approved, the City will not leave the existing 64-acre site as it is, but will close the landfill and reclaim the site. This notion is especially important to the alternatives analysis. While the 2001 EIS assumes that the project would, for example, simply expand an existing "scar" on the hillside, in fact the new landfill will disturb new territory next to a closed, covered and revegetated site. From this perspective, it can be seen that the impacts of siting a new landfill next to the existing Waimanalo Gulch facility are little different than siting a new landfill next to any other vegetated site.

Comment 4. Analysis of Alternatives Is Not Rigorous and Complete. Hawaii law requires a draft EIS to contain a rigorous assessment of alternatives, H.A.R. § 11-200-17(f). The comparison of alternative sites in Table 5-4 of Appendix G where the two alternative sites (Maiti and Makaiwa) are compared with expansion of the Waimanalo Gulch is misleading and biased. The table assigns ranking scores to each site based on six criteria. All of Waimanalo Gulch's 40 points are derived from the fact there is an existing landfill at the site (10 points each (the best score) for cultural resources, technical viability, economic development costs, and land acquisition). The Waimanalo Gulch site receives the highest score in each of these categories simply because a landfill already exists at the site. Given these criteria, it is virtually impossible for any of the alternative sites to compete with the advantage that is given to the Waimanalo Gulch expansion alternative because it is the location of the existing landfill. Furthermore, as discussed in these comments, the scoring process failed to consider other material issues.

Comment 5. 2001 EIS Does Not Consider Impacts on the Economy. The 2001 EIS does not consider the economic impact that the expansion and continued operation of the Waimanalo Gulch Landfill will have on the Ewa Region, Oahu, and the State of Hawaii. There is no question that the Ewa Region is one of, if not the fastest growing, area on Oahu. The City is fully aware and involved with the growth of the City of Kapolei and the development of the Ko Olina Resort and Marina, and the continued revitalization of the Leeward Coast economies because of these projects. The 2001 EIS, however, fails to examine, or at a minimum even recognize, the effect of the new landfill area on these economic drivers. The 2001 EIS assumes that an economic benefit will exist because the landfill provides a vital public service; however, there is no analysis of how a landfill at the Waimanalo Gulch site impacts the overall City economy, or whether an alternative site would have significantly less economic impact. The 2001 EIS neglects to consider one of the most significant impacts that will result from the expansion of the Waimanalo Gulch Landfill.

Comment 6. Analysis in the 2001 EIS Is too Narrow. The description of the project, the analysis of alternatives, and the discussion of impacts and mitigation measures are too narrow. They reflect an assumption that the existing site is the best site because it presents the least permitting and development problems since an existing landfill is already situated in Waimanalo Gulch. This assumption does not allow for the proper evaluation of the economic and environmental impacts associated with the proposed new landfill or an evenhanded consideration of alternative sites. The 2001 EIS puts too much emphasis on the institutional benefits derived from developing a new landfill in the site of an existing landfill. The purpose of an EIS is not to rubberstamp the status quo; an EIS must evaluate the impacts of the proposed project and take a hard look at alternatives.

Comment 7. 2001 EIS Does Not Adequately Consider New Landfill Sites. The 2001 EIS does not evaluate the option of developing a new landfill at a new site that will mitigate or eliminate the litter, odor, and visual impacts found at the Waimanalo Gulch site. Instead, the 2001 EIS dismisses alternative sites as not practical or too costly, without reaching that conclusion the analysis in the 2001 EIS does not account for the economic and environmental benefits associated with closing and reclaiming the existing landfill in Waimanalo Gulch. Thus, the assessment of alternative sites in the 2001 EIS is incomplete and inadequate.

Comment 8. Costs of Acquiring New Site Not Evaluate in Light of New Revenues. The 2001 EIS does not assess the costs of acquiring a new site in light of the economic revenues any landfill would generate by charging tipping fees based on H-POWER costs as opposed to landfill operation costs. According to information published in the May 1, 2000 edition of Waste Age Magazine, in an article by Edward Repa of the National Solid Waste Management Association, the average tipping fee at landfills in the United States in 2000 was about \$32 per ton. Tipping fees at Waimanalo Gulch Landfill are over \$72 per ton and over \$80 with taxes and other fees.

Comment 9. Analysis of Alternatives is Inadequate. The assessment of alternative sites in Appendix G disqualifies 38 of the 42 alternative sites because the sites either do not satisfy federal regulatory requirements or involve groundwater problems, but the 2001 EIS provides little detailed explanation of these federal regulatory or groundwater problems. The 2001 EIS dedicates 105 pages in section 4 of Appendix G to describing the location of the 42 alternative sites, but in section 5 of Appendix G the 2001 EIS dismisses 38 of these sites in eight pages using a set of tables that proclaim that a specific site does not meet some requirement. The analysis of why these 38 sites are unacceptable lacks the substance necessary to determine whether these sites truly are unacceptable for the reasons provided in the 2001 EIS.

Comment 10. *Assessment of Alternatives Based on Groundwater Is Inaccurate.* In considering alternative sites, as discussed in Appendix G, the City has completely misunderstood existing legal requirements regarding landfill siting as it relates to the presence or absence of threats to groundwater. Of the 42 sites considered, 26 were disqualified for "Protection of Natural Resources-Groundwater."⁵ However, there is no discussion how groundwater would be threatened by siting a landfill in such locations. The City makes reference to the "Underground Injection Control (UIC)" line⁶ and the "Groundwater Protection Zone (GPZ)" line, but under applicable law such lines do not bar siting a landfill within their boundaries. The UIC line deals primarily with the subsurface injection of fluids. The State Department of Health administrative regulations, promulgated under the relevant statutory provisions, bar siting certain classes of injection wells, *not landfills*, in proximity to groundwater. The GPZ and UIC lines merely establish an area within which an applicant is required to demonstrate the absence of potential harm to groundwater. The City has undertaken no analysis of any of the alternative sites to determine whether there is, in fact, any groundwater that would be threatened by a sanitary landfill, and has stressed that the landfill in fact does *not* threaten groundwater due to the technology (e.g., liners and leachate monitoring) employed.⁷ It is instructive to contrast this absence of analysis with the analysis done on the Waimanalo Gulch site, where the City has determined there are no potable groundwater sources in the area and the closest non-potable source is approximately 3,500 feet distant.⁸

Comment 11. *Rationale for Disqualifying Alternatives Is Not Consistent.* The 2001 EIS disqualifies 29 of the 42 alternative sites for failing to meet the City's 15-year capacity requirement. But the original, 1984 EIS, supplemented by the present submission, indicates that a 5-year capacity requirement is all that is necessary. Absent some comparison of changed conditions, there is no basis or explanation for this

⁵ See Appendix G, Table 5-3, at 5-8.

⁶ The City's discussions of the UIC line mislabel it as an "Underground Infiltration Control" line, suggesting that the City has misunderstood the concept and purpose of the underground injection control line entirely. Further, the City incorrectly refers to the "No Pass Zone" as being administered both by the State's Department of Health and by the City's Board of Water Supply, when it is the latter which in fact administers that zone.

⁷ *But see* Question 1 in Attachment B.

⁸ See City and County of Honolulu, Draft Environmental Impact Statement: Waimanalo Gulch Sanitary Landfill Expansion (April 2000) at 1-11.

peremptory change in requirement, which seems designed, together with the misinterpretation of the effect of the UIC and GPZ lines, merely to assure that Waimanalo Gulch is the only possible location for the new landfill.

Comment 12. *Alternatives Analysis Is Confusing.* The analysis of alternative sites in Appendix G is confusing and inconsistent, making the entire analysis appear makeweight. For example, the Ohukilo site was considered in the 1984 EIS and proposed as a landfill site, but apparently not developed because of the implementation of a solid waste incineration program that would reduce the need for landfill space. Then, in the April 2000 EIS, this same site was disqualified because of supposed cost concerns that had not been mentioned in 1984. Now, in the 2001 EIS, the site suddenly faces constraints due to groundwater contamination concerns. All this demonstrates that the City has not given this alternative, or any of the alternatives, the hard look required by H.R.S. § 343.

Comment 13. *Alternatives Analysis Lacks Assessment of Key Impacts.* In the assessment of alternatives included in Appendix G, there is no comparison, among the alternative sites, of key issues such as impacts on scenic resources, impacts on the economy of the local community, and litter and odor abatement. There is no attempt to evaluate or compare the relative geophysical attributes of the sites, or the suitability of the geological attributes of each alternative site for a landfill. The 2001 EIS does not evaluate alternative sites with respect to potential flood issues or the location of the sites relative to the 100-year flood plain. The 2001 EIS also does not consider locating a landfill closer to a quarry, eliminating the need to transport rock and fill between the landfill and the quarry. Finally, the 2001 EIS does not consider whether other sites would have beneficial traffic impacts resulting from elimination of the dangerous left turns in and out of the Waimanalo Gulch site. The 2001 EIS must evaluate and compare the merits of all potential landfill sites on Oahu based on these key criteria.

Comment 14. *Assessment of Alternative Technologies is Inadequate.* The 2001 EIS does not adequately consider the use of new technologies for solid waste disposal. The reader is unable to determine whether siting a new landfill, involving the use of up-to-date technology and allowing for a comprehensive plan for the entire site, would be less likely to result in impacts from odor, litter, groundwater contamination and hazardous waste releases than would use of some of the infrastructure and facilities currently in use at the existing Waimanalo Gulch facility. Are there technologies that can be better employed at an entirely new site not hindered by the presence of an adjacent landfill undergoing closure processes? Could a new site be better planned to route and fence in delivery trucks to substantially reduce litter, noise and odor problems? Could a new site employ a method of delivery that is not as dependent upon delivery trucks that cause litter, noise and odor problems? There is nothing in the 2001 EIS that gives the

reader any assurance the City has even considered, let alone answered, these and similar questions.

Comment 15. Assumption Regarding H-POWER Plant Not Supported by Facts. The 2001 EIS is wedded to the idea that locating a landfill in Waimanalo Gulch is the most economical option because the H-POWER facility is nearby. A new landfill at a different location would require hauling the ash from the H-POWER facility a longer distance at greater cost to dispose of the ash. However, the 2001 EIS has no factual basis for reaching this conclusion. The 2001 EIS does not compare the cost of hauling the ash to a more distant landfill site against the full environmental and social costs of continuing to operate a landfill at Waimanalo Gulch. It is likely that the incremental costs of continuing a further distance is minimal compared to the costs already incurred for hiring the trucks and drivers and time and costs of loading and dumping the ash. The 2001 EIS does not evaluate whether despite the increased cost associated with hauling ash a greater distance, it still may be more economical to locate a landfill somewhere other than Waimanalo Gulch.

Comment 16. 2001 EIS Ignores the Distinction Between Ash and Solid Waste Pits. The 2001 EIS fails to disclose or discuss significant and material information regarding the existing Waimanalo Gulch Landfill. We now understand from various discussions with the City and Waste Management that the existing landfill is divided into two separate pits, one for H-POWER ash ("ash") and one for all other waste, including untreated municipal solid waste and sewage sludge (collectively "MSW"). Our consultants inform us that ash and MSW should not be combined due to potential chemical reactions and environmental concerns. We also understand that the new landfill is only for MSW and the existing ash pit has capacity for an estimated six years of additional use. Accordingly, an alternative MSW site need not allow for an ash disposal pit. Despite the extensive discussions in the 2001 EIS of H-POWER and the volume of ash being dumped at Waimanalo Gulch, there is no disclosure or discussion of these critical facts regarding the ash and MSW pits. This information is particularly significant to understanding the proposed expansion and to analyze possible alternatives.⁹ The 2001

⁹ The EA Report (see Attachment C) establishes that there is no justification for developing a single landfill site on Oahu for both ash and MSW—"the planning process should consider developing multiple sites to serve different waste streams." EA Report at 5.1. The alternatives analysis in the 2001 EIS should consider disposal of ash and MSW at different landfill sites.

EIS fails to disclose these facts and address their implications for the planning of Oahu's waste management.

Comment 17. 2001 EIS Completely Fails to Address Grease Waste Intake in Light of Commingling with H-POWER Ash. The alkaline ash from the H-POWER plant may combine with grease from the grease trap solidification treatment pit, resulting in soap. The 2001 EIS fails to discuss this issue, or provide a plan to address or manage the resulting soap. Assuming that the expansion site will receive grease along with H-POWER ash, the 2001 EIS should address the problems resulting from this combination.

Comment 18. New Highway Not Considered. The 2001 EIS takes no account of the effect of the completion of the H-3 highway, which shortens travel times to the Windward coast and makes sites located on the other side of the Koolau Mountains economic and practical alternatives. Many potentially usable sites, including the quarry site owned by Ameron Hawaii on the Windward side of the Koolau, have been ignored. Ameron Hawaii has even submitted a proposal to the City for the use of its site by the City as an alternative to Waimanalo Gulch (and its site lies outside both the UIC and GPZ lines), but the 2001 EIS makes no mention of either the site or the proposal.

Comment 19. City Does Not Consider Attributes of Ameron Site. The City fails to address and recognize that the Ameron site will provide approximately that same, if not more, capacity than the new Waimanalo Gulch site. The City also does not consider that the Ameron site is naturally hidden by the surrounding terrain and is minimally visible from the H-3 Highway. The Ameron site also has access points from H-3 and the Pali Highways which have existing traffic lights. Furthermore, upon completion of Ameron's operations, the site will have pits already excavated and there will be an adjacent quarry operation that can provide fill.

Comment 20. Analysis of Impacts on Visual Resources Is Inadequate. The analysis of impacts on visual and scenic resources from the expansion of the Waimanalo Gulch Landfill is inadequate. The 2001 EIS implies that any negative impact from the Waimanalo Gulch Landfill expansion will be offset by the reclamation work that will occur on the portions of the existing landfill that will be closed. The assessment of impacts on visual and scenic resources in the 2001 EIS is based on an assumption that because there is a landfill in Waimanalo Gulch now, the expansion of the current landfill merely continues the current use of Waimanalo Gulch as a landfill. The 2001 EIS then assumes that with reclamation of the closed portions of the existing landfill there will be no new visual impact from the expanded landfill. These assumptions are illogical.

Comment 21. Visual Impact Analysis Does Not Consider Impacts from the New Site. The analysis of impacts on visual and scenic resources is inadequate because it

does not consider the impact that a landfill located at a higher elevation in Waimanalo Gulch will have on nearby resort and residential developments. The 2001 EIS wrongly assumes that the addition of a new 60-acre landfill will result in essentially the same size visual impact as the existing landfill, and based upon that assumption concludes the project's impacts on visual and scenic resources will not be significant. The 2001 EIS also ignores the fact that the higher elevation of the new 60-acre site will make the new landfill more visible than the current landfill. The 2001 EIS also does not consider how the elevated new landfill site will ruin views from the ocean, the coast and the reef.

Comment 22. Assessment of Alternatives Does Not Consider Visual Impacts. The assessment of alternatives in the 2001 EIS does not adequately examine impacts on visual and scenic resources. In particular, the assessment of alternatives does not consider the benefits derived from closing and reclaiming the existing landfill at Waimanalo Gulch, and thus removing an eyesore that is visible from Farrington Highway and throughout the Ewa Region.

Comment 23. Assessment of Mitigation Measures for Visual Impacts Is Inadequate. The discussion of mitigation measures for impacts on visual and scenic resources resulting from the expansion of the Waimanalo Gulch Landfill is inadequate. The 2001 EIS offers as mitigation measures the propositions that grading will be conducted in a manner that will minimize the possibility of erosion, and that the landfill will be filled from one side to the other, and not all at once. The 2001 EIS also proposes adding landscaping "buffer strips" to mitigate the impacts on scenic resources that a new landfill located further up Waimanalo Gulch will have on nearby resort and residential developments. Controlling erosion or planting trees and vegetation around a landfill located high on a mountainside and visible for miles is not an adequate mitigation. The 2001 EIS must convincingly demonstrate how a buffer of trees and vegetation will effectively screen the landfill.¹⁰ Furthermore, a proper assessment of mitigation measures should consider how to screen the landfill from the ground level and from the elevated view planes that will exist at Ko Olina.

Comment 24. 2001 EIS Provides No Comprehensive Strategy for Dealing with Odors. The existing Waimanalo Gulch Landfill constantly receives complaints from

¹⁰ It is instructive to note that the original site was to have a 20 foot vegetative visual barrier, which either has not been installed or has had no effect on the visual impact of the existing site.

local residents and resort operators regarding odors. Despite efforts to manage the odor problem, the problem persists. The 2001 EIS identifies a list of measures intended to reduce odors, but the 2001 EIS does not propose a comprehensive strategy for the management of odors from all sources that will ensure effective mitigation of odors resulting from the expansion of the landfill. The 2001 EIS also fails to compare the relative merits of siting a landfill close to resort hotels, growing residential areas, and recreation areas versus siting a landfill where odors will not be so noticeable or proximate to so many people.

Comment 25. Analysis of Mitigation Measures for Odors Is Not Adequate. The description of mitigation measures in the 2001 EIS for controlling the production of on-site odors does not provide enough detail to evaluate whether these measures will be effective at reducing odors from either the existing or expanded landfill site in Waimanalo Gulch. The 2001 EIS does not provide a schedule for when these measures will be implemented, and no monitoring system is proposed to assess the effectiveness of these measures. Furthermore, discussion of the use of new solvents, implementation of a gas recovery system, and other proposed abatement options are not sufficient.

Comment 26. Discussion of Odor Abatement from Refuse Trucks Is Inadequate. The 2001 EIS suggests that queuing refuse vehicles on the area fronting the landfill scale house instead of on Farrington Highway will reduce odors. Why will trucks parked in front of the scale house produce less odors than trucks parked on the highway? Why does the 2001 EIS not consider other efforts to reduce odors from the trucks that haul the refuse to the landfill?

Comment 27. Alternatives Analysis Does Not Consider Odor Abatement. The analysis of alternative sites does not evaluate or compare sites based on the degree to which the surrounding community will be negatively affected by odors from the landfill operation. Alternative sites should be compared with and ranked against the Waimanalo Gulch site based on the impact that odors will have on surrounding communities.

Comment 28. 2001 EIS Does Not Adequately Assess Litter Abatement from Trucks. Litter from the Waimanalo Gulch Landfill and refuse trucks both entering and exiting the landfill is a significant problem that affects the quality of life of leeward residents and the economic success of local resorts. The 2001 EIS proposes a continuation, with some modifications, of ongoing efforts at litter reduction. Since these measures so far have not solved the problem, the 2001 EIS should propose the adoption of new methods for eliminating the litter problem. The 2001 EIS should evaluate new methods for litter reduction in sufficient detail to enable decisionmakers and the public to determine whether such methods would be practical for the Waimanalo Gulch Landfill.

Comment 29. *Discussion of Portable Fencing is Vague.* The 2001 EIS proposes employing portable fencing as a litter control device, but does not clearly describe this mitigation measure. Where and how will these portable fences be used? Will these fences be able to surround the proposed large acreage? What is the schedule for installing the fences? How will the effectiveness of these portable fences be evaluated? What options will be used if these portable fences are not effective at controlling windblown litter? Why are the fences portable and not permanent? What is the visual impact of this measure?

Comment 30. *2001 EIS Must Discuss Removing Paper and Lightweight Plastics.* The 2001 EIS suggests one alternative method for litter reduction—removal of paper and lightweight plastics going to the landfill. However, this alternative is dismissed with the conclusion that further analysis is required. Why was the analysis necessary to evaluate this alternative not completed? Under what conditions would the City and County of Honolulu implement this plan? This proposal requires further evaluation in the 2001 EIS.

Comment 31. *2001 EIS Should Contain Comprehensive Plan for Reducing Litter.* We understand that litter, especially litter that escapes from refuse trucks entering and exiting the landfill, is a significant problem that has not been adequately mitigated under existing policies. In fact, we understand, litter is currently blowing off site all the way into the ocean. The 2001 EIS suggests some additional options for controlling litter from refuse trucks but provides no recommendations on whether or how to implement these options. The EIS should propose a comprehensive plan for eliminating the problem of litter from refuse trucks. Suggestions on what might be considered in the future does not constitute proper mitigation of a significant impact.

Comment 32. *2001 EIS Should Discuss Prohibitions Against Refuse Trucks as Litter Abatement Measure.* The 2001 EIS lists several prohibitions against refuse vehicles that are supposedly under consideration, including refusing to accept vehicles without properly secured loads. Does the City and County of Honolulu plan to implement these additional prohibitions? If so, when? If not, why not?

Comment 33. *Alternatives Analysis Does Not Consider Litter Abatement.* The 2001 EIS does not evaluate litter problems at any of the alternative sites; thus, there is no factual basis in the 2001 EIS for determining whether an alternative site would entail less litter related problems than the Waimanalo Gulch site.

Comment 34. *2001 EIS Completely Fails to Address Its Grease Trap Solidification Treatment Pit Permit.* We understand that the Solid and Hazardous Waste Branch of the DOH issued a Grease Trap Solidification Treatment Pit Permit, which is set

to expire on August 1, 2004. The 2001 EIS fails to address whether a new permit will be needed and/or if a new pit will be established at the expanded site. Insofar as the existing landfill will be reclaimed and closed, the 2001 EIS should address whether the new site will be receiving grease wastes, whether the new site will be adding more grease than was anticipated to the existing pit or constructing a new grease trap solidification treatment pit, and what the impacts of either scenario will be.

Comment 35. *2001 EIS Fails to Address Adequately Any Plans to Control Surface and Subsurface Fires at the New Site.* The existing landfill has historically experienced numerous fires. The 2001 EIS does not adequately explain or address the City's plan for Emergency Management Response for the expansion site, or what the impacts of fires at the expanded site might be.

Comment 36. *Socioeconomic Impacts Not Evaluated.* Hawaii law requires an EIS to evaluate effects on economic and social welfare of a proposed action. H.R.S. § 343-2. The 2001 EIS does not adequately evaluate the socioeconomic impacts of an expanded landfill operation on the Ewa Region and the Waianae Coast. The Ewa Region is the fastest growing region of Oahu, and the development plan for the Waianae Coast proposes a planned community, golf course, and a resort right across Farrington. The City and County of Honolulu proposes to continue landfill operations for another 15 years at a site that is currently scheduled to be closed in two or three years. The 2001 EIS lists a handful of activities that the City and County of Honolulu and Waste Management are doing or will do to mitigate the impacts of the existing landfill and assumes that these will be adequate over the next 15 years. However, the 2001 EIS does not acknowledge the rapidly-changing nature of the area, or the fact that land-use conflicts will only increase over time. The 2001 EIS does not assess impacts on the local community out to 2017. This leaves no factual basis to identify or evaluate long-term mitigation measures.

Comment 37. *2001 EIS Does not Examine Impacts in Context of Future Growth.* The discussion of socioeconomic impacts in the 2001 EIS assumes the continuation of the current landfill operation for another 15 years. As noted in many of the comments above, the proper baseline for assessing impacts from the expansion of the Waimanalo Gulch Landfill is the comparison of a new landfill operation in Waimanalo Gulch with no landfill operation. The 2001 EIS ignores the fact that if the proposed expansion project is not approved, the residents of the Ewa Region will no longer be exposed to the effects of an operating landfill. The 2001 EIS must examine the socioeconomic impacts of operating a landfill in Waimanalo Gulch for another 15 years against a baseline where there is no operating landfill. The 2001 EIS does not even examine the most basic of questions: what will the economy and population structure of the Leeward Coast and Ewa Region look like in 2017 if the existing landfill site in Waimanalo Gulch closes in 2003? Until the 2001 EIS addresses this question, any

assessment of socioeconomic impacts or discussion of proposed mitigation measures is nothing but makeweight.

Comment 38. *Alternatives Analysis Does Not Consider Socioeconomic Impacts.* The 2001 EIS does not evaluate socioeconomic impacts at any of the alternative sites; thus, there is no factual basis in the 2001 EIS for determining whether socioeconomic impacts at an alternative site would be less significant than the socioeconomic impacts at the Waimanalo Gulch site.

Comment 39. *Inadequate Discussion of Land-Use Impacts.* The discussion of land-use impacts and mitigation measures in the 2001 EIS is inadequate and flawed. The 2001 EIS does not compare the impacts on neighboring land uses from the expansion and operation of the landfill for another 15 years with a baseline where the existing landfill is closed and reclaimed. As noted in previous comments, resorts near the existing landfill must deal with litter and odors from the landfill and the refuse trucks that serve the landfill. These resorts must also deal with and plan around the visual intrusion of the landfill. The 2001 EIS fails to ask a fundamental question as part of its baseline assumption—how might the land-use patterns around Waimanalo Gulch evolve if the existing landfill is closed and reclaimed in the next few years? The 2001 EIS must evaluate changes in land use from the expansion of the landfill based on a baseline assumption where the existing Waimanalo Gulch Landfill is closed.

Comment 40. *2001 EIS Does Not Consider Land-Use Impacts in Assessment of Alternatives.* The 2001 EIS does not evaluate land-use impacts at any of the alternative sites; thus, there is no factual basis in the 2001 EIS for determining whether land-use impacts at an alternative site would be less significant than the land-use impacts at the Waimanalo Gulch site.

Comment 41. *2001 EIS Fails to Address Adequately Impacts on Bordering Special Management Area.* The 2001 EIS acknowledges that the expanded landfill will border a Special Management Area ("SMA") at Kahe Point Beach Park, but does not adequately address the impacts the expansion may have on that SMA. The 2001 EIS similarly fails to address adequately how the expansion conforms with the objectives of the SMA designation, as described in H.R.S. § 205A-2. To the extent that the 2001 EIS discusses SMA objectives—e.g., recreational resources and historic resources—that discussion is tautological. The 2001 EIS offers little or no discussion of the other SMA objectives.

Comment 42. *Analysis of Surface Water Impacts Is Inadequate.* The analysis in the 2001 EIS of impacts from leachate on surface water from an expanded landfill operation at Waimanalo Gulch is inadequate. This analysis simply assumes that

the impacts from the expanded operation will be the same as those for the existing operation, and thus the 2001 EIS proposes no new mitigation measures. The 2001 EIS provides no factual analysis to support this conclusion. The new portion of the landfill will be on steeper terrain and the footprint of the two landfills together will be much larger. Moreover, past operations have demonstrated that current mitigation measures are not being followed. The combined effect of these factors on surface water quality should be examined more carefully in the 2001 EIS, and the 2001 EIS should provide a factual basis for its conclusions regarding future surface water impacts.

Comment 43. *Surface Water Impacts of Alternative Sites Not Considered.* The 2001 EIS does not evaluate surface water impacts at any of the alternative sites; thus, there is no factual basis in the 2001 EIS for determining whether an alternative site would entail less surface water impacts than the Waimanalo Gulch site.

Comment 44. *Groundwater Impacts Not Adequately Assessed.* The 2001 EIS does not consider the combined effect of the existing landfill in Waimanalo Gulch and the new adjacent landfill on local groundwater quality. Since the 2001 EIS has not evaluated what the long-term impact of burying additional solid waste in Waimanalo Gulch will be, there is no factual basis for the conclusion that groundwater impacts "are not anticipated."

Comment 45. *Noise Impacts Not Adequately Assessed.* The 2001 EIS does not evaluate the noise impacts on the surrounding community of a landfill located at a higher elevation in Waimanalo Gulch. The 2001 EIS assumes that the noise impacts from the expanded landfill will be the same as those of the existing landfill; however, the 2001 EIS ignores the fact that new landfill will be at a higher elevation, and thus noise may carry further. The 2001 EIS should contain a noise impact analysis based on the new location of the landfill in Waimanalo Gulch. In addition, the 2001 EIS does not assess noise impacts at any of the alternative sites; thus, the alternative sites cannot be fully evaluated.

Comment 46. *Traffic Impacts Not Adequately Assessed.* The analysis of traffic impacts is flawed because it assumes as a baseline the volume of traffic currently using the landfill. However, the more accurate baseline for assessing traffic impacts is the traffic associated with maintenance and use of a closed landfill site versus the traffic associated with an operating landfill. The 2001 EIS overlooks the fact that if the Waimanalo Gulch Landfill expansion is not approved, there will be no operating landfill in Waimanalo Gulch after 2003; and thus no refuse trucks entering and exiting the landfill site. The 2001 EIS does not consider the beneficial impacts that would result from eliminating the dangerous left turn maneuvers trucks entering and leaving the Waimanalo Gulch site currently must undertake. Traffic safety issues are not addressed adequately.

In addition, the 2001 EIS does not assess traffic impacts at any of the alternative sites; thus, the traffic situations cannot be compared.

Comment 47. 2001 EIS Fails to Address Adequately the Continued Traffic Impact on the Ko Olina Resort Community. The traffic assessment in the 2001 EIS acknowledges that there are at least 1,440 trucks traveling on Farrington Highway on a daily basis and that there are more than 500 trucks entering and exiting the landfill access road. The traffic assessment also anticipates that the daily traffic on Farrington will double in the future, due to the growth in the neighboring community. However, the assessment does not address the inevitable growth in waste produced by the surrounding communities, and does not address the continued impact on the local resort community of having more than 500 trucks traveling in and out of the landfill on a daily basis.

Comment 48. Impacts on Flora Not Fully Assessed. The analysis of impacts on flora due to the expansion of the Waimanalo Gulch Landfill does not compare impacts at the Waimanalo Gulch site with any of the alternative sites. The 2001 EIS must compare and assess all sites based on potential impacts on flora.

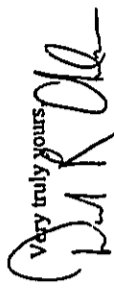
Comment 49. Impacts on Fauna Not Fully Assessed. The analysis of impacts on fauna due to the expansion of the Waimanalo Gulch Landfill does not compare impacts at the Waimanalo Gulch site with any of the alternative sites. The 2001 EIS must compare and assess all sites based on potential impacts on fauna.

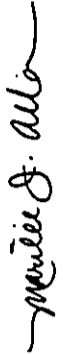
Comment 50. Impacts on Cultural Resources Not Fully Assessed. The 2001 EIS does not compare impacts on historic and archaeological resources at the proposed Waimanalo Gulch Landfill expansion site with any of the alternative sites. The 2001 EIS must compare and assess all sites based on potential impacts on historic and archaeological resources.

Recommendation

The 2001 EIS provides woefully insufficient information to enable the City to determine what alternative provides the best environmental and economic means of disposing of the island's solid waste. Accordingly, the City cannot make a decision regarding the island's future solid waste disposal needs without additional study and analysis. The City should fully and fairly explore various options for disposing of solid waste on the island. The City must consider seriously some solutions that are not predetermined by prior deals the City has made, or by the desire of City staff to follow the path of least resistance.

KOCA understands, of course, that these studies cannot be completed overnight, and that some arrangements must be made to dispose of wastes while the City is exploring other options. Accordingly, KOCA would have no objection to a limited extension of time within which the existing Waimanalo landfill may be operated, provided the City conducts the good faith studies of the comparative environmental and economic benefits and detriments of alternative sites that is required by H.R.S. § 343, under a set schedule.

Very truly yours,

David R. Andrews


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on behalf of Ko Olina Community Association

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Enclosures: Attachments A, B, and C

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Hon. Jeremy Harris
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ATTACHMENT B

Questions Regarding Compliance with Permit Conditions at Waimanalo Gulch Sanitary Landfill

The following is a list of preliminary questions identified on the basis of an initial review of documents relating to environmental monitoring and sampling at Waimanalo Gulch Landfill ("MSWLF").

1. Recent semi-annual groundwater and leachate monitoring reports (i.e., through October 2000) indicate that volatile organic compounds ("VOCs") have consistently been detected (i.e., in 4 out of 4 samples) in groundwater samples collected from monitoring well 07 and/or monitoring well M03 since December 1998 (ET, 31 March 1999; HLA, 16 September 1999; HLA 27 March 2000; HLA, 3 October 2000). These wells are identified as being downgradient of the MSWLF and are used to monitor potential releases to groundwater from the MSWLF.

Although concentrations of VOCs detected in these wells have been below drinking water standards (i.e., below Maximum Contaminant Levels ("MCLs"), the detection of these compounds may be indicative of potential releases from the MSWLF. This conclusion is consistent with the conclusions of the Groundwater Leachate Monitoring Plan for the MSWLF ("Monitoring Plan"), which states that VOCs will be used as organic "indicator parameters" because they "provide a clear contrast between leachate and non-leachate impacted groundwater, due to their absence in natural groundwater."

Provision (d)(3) of Section 11-58.1-16 of the State of Hawaii Title 11 chapter 58.1 regulations states that "an assessment monitoring program must be initiated if there is a statistically significant increase over background for one of the constituents listed in Appendix I ... at any monitoring well at the boundary." VOCs are one of the identified constituents in Appendix I and have been specifically identified in the MSWLF Monitoring Plan as organic "indicator parameters" which "will provide the earliest indication of a release from the MSWLF unit." Thus, while one goal of Federal and State landfill regulations is to assure that MCLs will not be exceeded in the uppermost aquifer at a relevant point of compliance, it is not the intent of these regulations to ignore detections of lower concentrations.

No information regarding any assessment monitoring related to the detection of these VOC concentrations was identified in the information reviewed. Has such monitoring been initiated? It should be noted that, prior to 1996, the detection limits for these VOCs as provided by the analytical laboratory used by the landfill were at or above their respective MCLs; therefore, earlier occurrences of these compounds in groundwater at the two available downgradient monitoring wells may have been historically missed.

2. VOCs detected in downgradient monitoring wells at the MSWLF include acetone and 2-butanone (ET, 31 March 1999). Monitoring reports for the MSWLF conclude that the presence of these VOCs in groundwater samples are the result of laboratory contamination, i.e., laboratory error. However, concentrations of these VOCs have also been detected in the ash monofill leachate samples at much higher concentrations (i.e., up to 1500 ug/l and 140 ug/l (WM, 3 July 1996; HLA, 27 March 2000), respectively. These data at such elevated concentrations indicate that these VOCs are likely present within the landfill leachate, and thus detections of these compounds in downgradient monitoring wells may be the result of releases from the MSWLF.

Has any further evaluation been completed to verify that detections of these compounds in groundwater samples collected from the available downgradient monitoring wells are the result of laboratory contamination and not indicative of VOC releases from the MSWLF?

3. Groundwater monitoring well M02 is located at the southern boundary of the MSWLF at the base of Waimanalo Gulch. Topographic data and surface drainage characteristics of the Gulch indicate that groundwater drainage from the landfill most likely occurs southward down the gulch toward this well. However, hydrogeologic evaluations presented in the MSWLF Monitoring Plan and semi-annual monitoring reports conclude that groundwater flow from the landfill is not to the south as indicated by the topography, but is deflected to the west due to the presence of lower permeability "caprock" sediments present at the southern base of the gulch where well M02 is located. Therefore, well M02 has been identified in the Monitoring Plan as an "upgradient" or "cross gradient" well to the landfill, and data from this well have not been used to assess potential impacts to groundwater resulting from leakage from the MSWLF.

Review of routine groundwater level data indicates, however, that large changes in the magnitude and direction of the hydraulic gradient may be occurring in the vicinity of well M02 and that this well may be downgradient of the landfill during selected periods of time. Data, as presented in MSWLF groundwater monitoring reports, indicate that water levels in well M02 were lower than water levels measured in identified "downgradient monitoring" wells M03 and M07 in 8 out of 21 monitoring events that were conducted between December 1992 and June 2000 periods (WM, 6 December 1995; WM, 9 February 1996; ET, 31 March 1999; HLA, 16 September 1999; HLA 27 March 2000; HLA, 3 October 2000).

Further, concentrations of monitored inorganic parameters (e.g., total dissolved solids ("TDS"), chemical oxygen demand, and alkalinity) detected in well M02 have generally been much higher than concentrations of these constituents detected in identified "downgradient monitoring wells." In addition, large variations in concentrations of monitored constituents in well M02 have been observed over time. For example, concentrations of TDS detected in groundwater

samples collected from M02 have varied from 3000 mg/l to as high as 11,000 mg/l between 1992 and 1999. The observed variations in the concentrations of these constituents may reflect the impacts of groundwater gradients in this area, that is, at times the groundwater flow direction may be from the landfill.

No evaluation of the identified southern shift in groundwater gradients or potential impacts to groundwater from the MSWLF in the area of well M02 has been identified in the information reviewed. Nor has there apparently been any evaluation of the implications these gradient shifts may have on the overall adequacy of the existing three-well groundwater monitoring system at the landfill.

Has any evaluation of the impacts from these gradient shifts been conducted to assess if higher concentrations of inorganic chemical constituents detected in well M02 could in part be the result of releases from the MSWLF?

4. Well M02 has also been used to evaluate upgradient ("background conditions") for the purpose of water quality evaluations; however, as described in question 3 above (a) this well is not consistently upgradient of other on-site wells (i.e., may at times be downgradient of other on-site wells), and (b) inorganic parameters detected in this well are much higher than other on-site wells. Therefore, the use of this well as a background well appears inappropriate and does not appear to meet the requirement of Provision (b)(1) of Section 11-58.1-16 of the State of Hawaii Title 11 chapter 58.1 regulations. This provision states that "a groundwater monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater-samples from the upper most aquifer that represent the quality of background groundwater that has not been affected by leakage from a unit."

No background data that meets these requirements could be identified within the reviewed materials for the MSWLF. Does such data exist?

5. On page 15 of the Groundwater Leachate Monitoring Plan, dated 7 October 1995, (RUST, 1995), it states that: "[G]roundwater table fluctuations are minor, but the groundwater flow direction shift slightly as evidenced in the quarterly monitoring reports. Based on the varied groundwater flow direction, two additional wells (MW-08, MW-09) are proposed downgradient of the leachate sumps as shown on Figure 2. This final plan will be amended to include the additional monitoring well construction, boring logs, cross section, etc., when the new wells are installed. The well installation report will be issued within 30 days of the completion of the drilling in accordance with the facility permit."

No further information regarding the installation of these wells or data from these wells or attempts to install these wells were identified in the information reviewed. Were these wells installed? If not, is there justification/documentation as to why these wells were not installed, particularly given the changes in the magnitude and direction of the hydraulic gradient discussed in question 3 above?

6. Batches of power plant ash are routinely tested for hazardous waste characteristics prior to placement as monofill in the landfill. While averaged results are not found to exceed hazardous waste criteria, lead concentrations detected in toxicity characteristic leaching procedure ("TCLP") conducted on some individual ash samples have exceeded hazardous waste criteria, i.e., leachable lead in the TCLP extract greater than 5 mg/l. These results indicate that potential leaching of lead should be a concern at the landfill due to the large quantities of ash disposed. Also, the correspondence in the file indicates identified events of unpermitted waste disposal, e.g., automobile batteries and paints (2 March 1998).

Why are lead, in particular, and other pertinent metals such as cadmium and zinc not included as current monitored constituents in groundwater in the downgradient monitoring wells at the landfill?

7. Concentrations of nitrate detected in historic groundwater samples collected from monitoring wells M03 and M02 have exceeded MCLs (WM, 14 October 1992). Why is nitrate not included as a current monitored constituent in downgradient monitoring wells at the landfill?

8. On 12 January 1998, the US Navy sought permission for disposal of soil containing low concentrations of PCBs from remedial activities. Were these or other soils containing PCBs accepted at the landfill?

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(RUST, June 1997) *RUST Environmental & Infrastructure, Inc. Groundwater and Leachate Monitoring Plan for the Waimanalo Gulch Sanitary Landfill, Ewa Beach, Oahu, Hawaii, 7 October 1995 (revised June 1997).*

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(WM, 6 December 1995) *Waste Management, Inc. Groundwater Monitoring Report Third Quarter 1995 Sampling Event Waimanalo Gulch Sanitary Landfill.*

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ALTERNATIVE LANDFILL OPTIONS REPORT FOR
MUNICIPAL SOLID WASTE DISPOSAL
CITY AND COUNTY OF HONOLULU, HAWAII

September 17, 2001

Prepared for
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Table 1. Landfill Site Screening

1. INTRODUCTION

1.1 PURPOSE AND SCOPE

This report has been prepared for the Ko Olina Community Association (KOCA) to present an option to the City and County of Honolulu's (City) plans to expand the Waimanalo Gulch Sanitary Landfill as presented in the June 2001 revised draft supplemental environmental impact statement (SEIS) currently soliciting public comment.

EA Engineering, Science, and Technology, Inc. (EA) prepared this report by reviewing available public documents and interviewing various people associated with the City's current solid waste management program. Our conclusions and recommendations set forth in this report are based on the information available at the time of its production, although we note that due to time constraints we were unable to verify or validate the data we were given, and that some public documents were reported as missing.

To prepare this report, EA performed the following tasks:

- Reviewed the City's current solid waste management program focussing on program components that affect waste volumes being landfilled.
- Reviewed and interpreted data provided by the City and Waste Management of Hawaii, Inc. (WMHI), the operators of the Waimanalo Gulch Landfill.
- Reviewed the applicability of alternative technologies that could potentially reduce waste volumes being landfilled.
- Developed a rationale for amending the landfill location evaluation criteria used by the City in the revised draft SEIS.
- Re-evaluated potential alternative Oahu locations for landfill siting based on the amended evaluation criteria.
- Formulated conclusions regarding possible alternative landfill scenarios that would allow the City to circumvent the need to expand the Waimanalo Gulch Landfill.

1.2 BACKGROUND

Currently, the City uses a multi-faceted solid waste management program to process and dispose of the solid waste generated on the island of Oahu. According to Mr. Frank Doyle, Deputy Director of the Department of Environmental Services (ENS), the City generates an estimated 1.3 to 1.5 million tons of solid waste each year. The waste is processed and disposed through a waste management system that includes recycling, composting, waste-to-energy, and landfilling.

Although various system components reduce the volume or toxicity of the waste, ultimately some portion of the waste stream is disposed in a landfill. On the island of Oahu, the ultimate disposal site for municipal solid waste (MSW) is the City-owned Waimanalo Gulch Sanitary Landfill. Located on the leeward side of the island in the City of Kapolei, the Waimanalo Gulch Sanitary Landfill is the ultimate disposal site for ash from the H-POWER refuse derived fuel

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(RDF) facility, sewage sludge from the island's wastewater treatment plants (WWTP), and unprocessed municipal solid waste (MSW). The landfill is operated on behalf of the City by WMHI.

In May 2000, the City published a draft SEIS to present the impacts of a proposed 60.5 acre expansion of the Waimanalo Gulch Landfill to provide for an additional 15 years of landfill life to the, then anticipated, 2002 closure date.

The draft SEIS was prepared to comply with Chapter 343 of the Hawaii Revised Statutes which governs the State's environmental impact statement process. The chapter establishes a system of environmental review to ensure environmental concerns are given appropriate consideration in the decision making process. In addition to exposing environmental concerns, an EIS in the State of Hawaii must also consider "...effects of a proposed action on the economic welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects." (HRS §343-2)

The expansion plan met with strong opposition from the community. Opposition to the planned expansion was voiced by many including KOCA, local neighborhood boards, area lawmakers, and various individuals. Major concerns related to the expansion focused on the following points:

- Incompatibility with surrounding land use: The landfill is located directly across Farrington Highway from the Ko Olina Resort & Marina (Ko Olina). Ko Olina is already zoned for commercial, resort, and residential development and, as a result, has become one of the major economic "drivers" for the State. An expansion of the landfill threatens current and potential investment and construction at the resort, directly affecting job creation and economic growth.
- Proximity to population centers: The landfill is located in the City of Kapolei, the designated second city for Oahu and the fastest growing part of the island. Expansion of the landfill is counter to regional planning efforts to develop the leeward side of the island for increased residential, commercial, and business development.
- Airborne impacts: Odors, dust, and litter are currently being carried towards increasingly populated residential and resort areas. The draft SEIS did not include information about these impacts or how they would be mitigated in the expansion area. The topography of the proposed expansion would only exacerbate the problem by depositing waste at higher elevations where wind gusts are more prevalent and blowing odors and dusts can spread to a larger area.
- Visual impacts: A means to limit the visual impact of the proposed expansion was not provided in the SEIS to allow others to evaluate the impacts that continued landfilling operations would have on the surrounding community. In addition, due to the sparse vegetation in the area, landscaping at the site will be of limited value in masking the appearance of the facility.

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• **Traffic impacts:** Current truck traffic into and out of the landfill is very heavy. Population growth patterns on Oahu indicate projected traffic densities along Farrington Highway will continue to increase. The impact of truck traffic on projected traffic densities must be taken into consideration.

• **Alternative technologies:** Alternative technologies, which would fundamentally change how the City handles the various aspects of the solid waste stream, were given little practical consideration in the SEIS. The Hawaii DOH administrative rules indicate that a draft EIS must describe alternatives which could "...attain the objectives of the action." (HAR 11-200-17 (f)). The regulation goes on to state:

"...Particular attention shall be given to alternatives that might enhance environmental quality or avoid, reduce, or minimize some or all of the adverse environmental effects, costs, and risks." (HAR 11-200-17 (f))

• **Alternative locations:** As with alternative technologies, the rationale behind how alternative sites were selected was not provided. Chapter 343 of the Hawaii Revised Statutes requires a "...rigorous explanation and objective evaluation of the environmental impacts of all such alternative actions."

• **Inequitable Distribution of "Costs":** While the Waimanalo Gulch Landfill does provide a "benefit" to the City by supplying a site for disposing of solid waste for the entire island, the associated "cost" for this system is disproportionately borne by the community surrounding the landfill in the form of odors, litter, visual impacts, truck traffic, and especially economic impacts for businesses in the area.

On the basis of the comments and concerns received, the ENV decided that an additional opportunity for public review and comment should be provided by publishing a revised draft SEIS at a later date.

In June 2001, the City published a revised draft SEIS for the proposed landfill expansion with the intent of addressing the comments and concerns raised the year before. The revised draft SEIS is very similar to the May 2000 version except for the addition of an appendix that contains a limited analysis of alternative technologies and alternative sites (hereafter referred to as Appendix G).

Leeward Oahu community opposition to the expansion remains strong. Community members do not feel their comments and concerns have been adequately addressed in the June 2001 revised draft SEIS. The City has extended the public comment period on the revised draft SEIS to September 21, 2001 to allow for the public to formulate and provide additional comments.

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2. EXISTING SOLID WASTE MANAGEMENT SYSTEM

Solid waste management programs are typically composed of a variety of elements. Waste reduction and reuse programs are used to reduce the size of the waste stream; recycling, composting, and incineration (with and without energy recovery) are used to reduce and process the waste stream into a useable form; and finally landfilling provides for final disposal. Generally, few people dispute the need for a landfill at the end of the solid waste management system. Proven technology in the solid waste industry has not advanced to the point where all byproducts of human waste can be reused in some form or another, hence the need to find a system for final disposal.

In order to understand how alternatives to landfilling, or alternative landfill sites, can be assessed, an understanding of the city's solid waste management system must be undertaken. This section describes the current solid waste management system on Oahu. It can be best categorized into collection, diversion, and disposal components.

2.1 COLLECTION

MSW within the City is collected by a combination of public and private waste haulers. Residential waste from single family homes is collected by the ENV Refuse Division; commercial and apartment building trash is collected by private haulers. This waste either goes to one of three transfer stations or directly to either the H-POWER facility or the Waimanalo Gulch Landfill.

For most residents, green waste (yard waste) is collected curbside on a monthly basis. On-call green waste collection is also available in some areas.

The City also operates six convenience centers throughout the island where residents can drop off wastes and recyclables.

Sewage sludge from the various City WWTPs is also collected and landfilled. The sludge is dewatered to approximately 30 percent solids/70 percent moisture at the individual WWTPs and loaded onto trucks for transport to the landfill.

2.2. DIVERSION

A number of waste diversion programs are in place to recycle and/or compost various waste streams. Programs in operation on the island include dropoff recycling centers, office paper and food waste recycling, green waste composting facilities, automobile processing, and asphalt and concrete reprocessing. The ENV estimates that, by weight, one-third of the entire solid waste stream for Oahu is recycled or composted.

It appears that the bulk of recycling activities revolve around large bulk items such as concrete, automobiles, tires, etc. While these programs are useful in reducing the waste stream and should be encouraged, they probably have the greatest impact on reducing or diverting waste from

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construction and demolition landfills rather than a MSW disposal facility such as the Waimanalo Gulch Landfill.

The City is planning to sign contracts in September 2001 for an in-vessel yard waste/sewage sludge composting system. Yard wastes composes about 17 percent (by weight) of the overall waste stream including material sent to either H-POWER or the landfill. WWTP sludge comprises about 10 percent (by weight) of the material placed in the landfill. The new composting systems, which are anticipated to come on line in the next couple of years will divert both of these waste streams from the landfill. While enough information is not available to make an accurate calculation of the impact of this program on the volume of material placed in the landfill, it is estimated that yard waste/sludge composting program could end up diverting up to 10 percent (by volume) of the material going to the landfill.

2.3 DISPOSAL

The City owns two disposal facilities that are operated by outside firms under contract to City: H-POWER and the Waimanalo Gulch Sanitary Landfill. Construction and demolition (C&D) debris is also disposed at a privately-owned C&D landfill, PVT Landfill, located in Nanakuli, about 2.5 miles north of the Waimanalo Gulch facility.

H-POWER is a refuse-derived fuel (RDF) waste-to-energy plant located within the Campbell Industrial Park and operated by Covanta, Inc. The RDF system takes the single family residential MSW collected by the ENV Refuse Division and runs it through a series of shredders, magnets, and screens to produce a relatively homogeneous fuel source that can be burned in suspension in a regular solid fuel boiler to generate electricity. The current system is designed to handle 1800 or 2000 tons per day (tpd), depending on the data source. Ash and residuals (*i.e.*, items that are not burned due to system limitations) from the plant are disposed at the landfill.

The Waimanalo Gulch Sanitary Landfill is operated by WMHI and is the only operating landfill on Oahu that accepts MSW. It also accepts ash and residuals from H-POWER and sewage sludge from the WWTPs. The MSW brought directly to Waimanalo Gulch Sanitary Landfill is mostly from private haulers. When H-POWER is down for maintenance, all MSW is disposed at the Waimanalo Gulch Landfill.

Operations at the landfill are divided between disposal of ash from H-POWER and disposal of all other waste streams (*i.e.*, MSW, C&D debris, WWTP sludge, H-POWER residuals, and other special waste streams). Only ash from the H-POWER facility is placed in the ash "cell" portion of the landfill. This area has an estimated six years of remaining capacity.

The remaining wastes are disposed in the main landfill cells. The initial cells of the Waimanalo Gulch Landfill are not lined as they were constructed prior to the implementation of federal regulations in 1993 governing the construction of municipal sanitary landfills. Landfill cells constructed after the 1993 rules took effect have a composite liner system consisting of a geocomposite liner material and a geomembrane. A leachate collection system is constructed on top of the liner system; collected leachate is recirculated back across the landfill. A stormwater

management system is in place to collect and handle stormwater runoff from the site and a gas collection system is under development. The main MSW cells of the landfill have an estimated two years of remaining capacity.

3. WASTE GENERATION AND DISPOSAL DATA

In evaluating waste disposal options, it is critical to have a complete understanding of the volume of waste to be handled by the system. Unfortunately, this information does not appear to be readily available and the information that was provided by various sources is inconsistent.

In preparing this analysis, waste disposal rates from a variety of sources were reviewed and compared. The results of this analysis are summarized below.

3.1 REVISED DRAFT SEIS DATA

The May 2001 revised draft SEIS bases its analysis of the waste stream on 1998 disposal data. Appendix G of the revised draft SEIS provided the most complete analysis of the waste stream. While detailed compositional studies were conducted, there is very little analysis on the volume of waste that is generated.

Figure 3-1 of Appendix G indicates that the Waimanalo Gulch Landfill received approximately 278,000 tons of municipal solid waste and 108,000 tons of ash in 1998. The landfill received waste from self-haul vehicles, private and city direct haulers, city transfer station trucks, private direct haulers of construction and demolition waste, and convenience center collections as well as the ash hauled from H-POWER. This figure also indicated that H-POWER processed 620,000 tons of waste in 1998.

Section 3.2.2 of Appendix G indicated that the landfill received 192,099 tons of municipal solid waste in 1998. There was no explanation as to what this number includes and it does not appear to be consistent with the information presented on Figure 3-1. If we assume the 192,099 ton figure refers only to municipal waste, it suggests that the landfill received approximately 86,000 tons of another waste stream (possibly WWTP sludge, other special waste streams, or construction and demolition waste).

In Section 4.2.2 of the same document, projections for the long-term disposal requirements for Oahu are presented. It indicates the City requires a 15-year site life given current and anticipated rates of waste generation. This subsection of Appendix G also states:

"The projected storage requirement is +12 million tons given 820,000 tons of MSW disposed of annually (1998). Of this amount, approximately 620,000 tons of annual capacity will be required to dispose of H-POWER ash, and approximately 200,000 tons for storage capacity from convenience centers, private waste haulers, and municipal sewage sludge (a component of MSW). This would translate into a minimum airspace requirement of 600,000 cubic yards per year for a total of 9 million cubic yards (600,000 cubic yards x 15 years)." (Appendix G, Section 4.2.2)

This storage capacity estimate was then compared to the estimated disposal capacity for a number of potential sites and the site life for each facility was determined by dividing the disposal capacity (in tons) by the storage requirements presented above.

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There are several problems with this analysis:

- While H-POWER is reported to process approximately 620,000 tons of waste each year, it only produces approximately 100,000 tons of ash, not 620,000 tons per year (tpy). When added to the remainder of the waste stream hauled directly to the landfill (approximately 200,000 tpy as mentioned in Section 3.2.2 or 300,000 tpy according to the information on Figure 3-1), the most the landfill is likely to receive is a total of 300,000 to 400,000 tpy of waste.
- Cubic yards and tons appear to have been used almost interchangeably in this analysis. Depending on how the numbers are analyzed, the SEIS suggests that the waste stream has an average density somewhere between 1400 and 2700 pounds per cubic yard. The density of the waste stream is based on a number of variables such as gate versus in-place yards, in the top of the fill versus at the bottom of the fill, ash versus MSW, etc., and is a critical factor in determining the life of a facility.

3.2 DATA FROM THE CITY AND COUNTY OF HONOLULU

The following information is summarized from various communications with Frank Doyle, Deputy Director of ENV for the City and Wilma Namunnart, Chief ENV Refuse Division Engineer.

- Approximately 1.3 to 1.5 millions tons of solid waste is generated each year on the island of Oahu.
- Of this total, 30 percent is processed through a system of yard waste composting, residential and commercial recycling, asphalt and concrete recycling, automobile reprocessing, tire processing, and other recycling and composting programs.
- 300,000 to 500,000 tons per year of construction and demolition waste is sent to a privately owned and operated construction and demolition debris landfill located on the leeward side of the island in Nanakuli.
- H-POWER is designed to handle 1800 tons per day of MSW.
- Waimanalo Gulch Landfill averages about 200 truckloads of waste into the facility per day. This is about 180 truckloads per day when H-POWER is operating and about 320 truckloads per day when H-POWER is not. About 180 truckloads per day are MSW, about 15-20 truckloads per day are H-POWER ash, and about 12-17 truckloads per day are residuals from H-POWER.

On the basis of the information presented, it would appear that up to 150,000 tons of MSW is sent to the Waimanalo Gulch Landfill each year. This amount is less than half the quantity of MSW that is received at the landfill as reported by WMHI.

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3.3 DATA FROM WASTE MANAGEMENT OF HAWAII

The following information was supplied by Steve Cassulo of WMHI, the contracted landfill operator.

- H-POWER is shut down for routine maintenance for 3 to 4 weeks at the beginning of the year, one week midyear, and periodically at other times of the year. When H-POWER is shut down, all waste is diverted directly to the Waimanalo Gulch Landfill.
- Waste tonnages at the landfill has been declining over the last few years. In 2000, the landfill received approximately 285,000 tons of unprocessed solid waste in addition to the ash and processing waste from H-POWER. In 1997, this number was 417,000; in 1998, this number was 339,000; and in 1999, this number was 263,000.
- According to tests conducted at the landfill, the average in-place density was approximately 1600 pounds per cubic yard for MSW and 1900 pounds per cubic yard for ash. (These values are not atypical for landfills located throughout the United States receiving similar waste streams.)
- In calendar year 2000, Waimanalo Gulch Landfill had 59,895 truckloads enter the facility. This averages to about 170 truckloads per day. No breakdown on the types of trucks or if the trucks were disposing of MSW, ash, or residuals were made available.

WMHI was not able to provide their calculations of the remaining usable volumetric capacity of the Waimanalo Gulch Landfill because they considered this proprietary information. They did indicate, however, that they provide this type of data annually to the Hawaii Department of Health (DOH) Office of Solid Waste as a condition of their solid waste management permit. These annual operating reports include data about the amounts of waste landfilled each year along with a surveyed mapping of the landfilled waste so that it can be compared to its permitted maximum elevation of 400 feet above mean sea level.

When queried, the DOH was able to provide WMHI's most recent annual operating report for the Waimanalo Gulch Landfill (July 1, 2000 to June 30, 2001) but indicated that files were missing and records for previous years were not available. The City, who also receives copies of these reports, was contacted in hopes to obtain their copies to allow tracking of historical trends in landfill disposal. The City indicated that errors were noted in the previous annual operating reports and that the records were being revised for resubmission.

These discrepancies are significant in that the actual volume of material placed in the landfill affects not only planning decisions but are integral to ongoing permit compliance. Financial decisions are also affected because WMHI is paid based on the tonnage of waste received at the landfill.

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3.4 ANALYSIS OF DATA

From the above analysis it appears that either appropriate planning records are not available or are not being utilized in preparing public planning documents. This was apparent in the discrepancies between the amounts reported in the revised draft SEIS and the amounts reported by WMHI as well as the discrepancies within the revised draft SEIS itself. These discrepancies are significant and can vary from 5 to almost 50 percent depending on how the data is interpreted. While some of the differences may be due to reporting periods (calendar years versus some other time frame), in other instances, the reasons for the discrepancies are not clear. However, in comparing the numbers, several things are apparent:

- H-POWER processes between 600,000 and 620,000 tpy of solid waste. At this production rate, and assuming it processes 2000 tpd of waste (the most often reported production rate), the facility operates from 300 to 310 days per year and is down approximately eight to nine weeks per year. During these down periods, all the waste is diverted directly to the landfill.
- The waste stream has been declining over the past four years. Since 1997, there has been over a 40 percent decrease in MSW going to the landfill. While the annual disposal rate increased somewhat in 2000 (up eight percent compared to 1999), the total amount of material placed in the landfill is still substantially lower than in 1997. According to Steve Cassulo, WMHI, most of this decrease appears to be related to waste stream diversions such as more construction and demolition waste going to the private construction and demolition debris landfill and green waste going to the composting facilities.
- Diversion programs are in-place and expanding, thereby reducing the flow of waste to the landfill. The proposed development of a yard waste/sewage sludge in-vessel composting program will continue this trend to divert waste from the landfill offsetting potential increases in volume from growth.
- Optimizing other diversion projects already in-place would continue to slow increases in the waste stream. Other cities in the U.S. that have developed strong diversion programs have found that increases in the use of these systems have slowed or stopped the growth in the waste stream.
- Significant increases in the waste stream are not anticipated in the near term. Given current economic conditions both in the United States and eastern Asia, this trend is not anticipated to rapidly change. Given this, and the current and proposed waste diversion programs, large increases in waste disposal rates for the landfill is not warranted in making projections for long-term disposal capacity.

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3.5 LANDFILL CAPACITY PROJECTIONS

After reviewing the various sources and estimates of waste disposal rates, EA concludes that the City's solid waste management system will need to provide for the following landfill disposal capacity in the future:

- MSW - 300,000 tons per year or 375,000 cubic yards per year
- Ash - 20,000 tons per year or 95,000 cubic yards per year
- Special waste - 45,000 tons per year (assumed to be materials rejected from H-POWER, C&D debris, and self haul loads) or 56,000 cubic yards per year.

For the most part this estimate is based on data obtained directly from WMHI, the annual operating reports that WMHI prepares for the Hawaii DOH, and professional judgement.

These estimates also assume MSW waste densities of 1600 lbs. per cubic yard and ash densities of 1900 lbs. per cubic yard as reported by WMHI.

A projected disposal volume of sewage sludge is not included here because the City is proposing to initiate contracts in September 2001 for a system to compost WWTP sludge and yard waste. In the event that the in-vessel bioconversion program (i.e., composting system) does not come on line, the City may install a fluidized bed incinerator to treat sludge waste. Since at least one of these systems are proposed to be on line within two years, capacity for this material does not need to be included in planning projections for a new landfill.

3.6 DAILY AND INTERMEDIATE COVER SOILS

Historically, landfills have placed 6 inches of daily cover over the waste at the end of the work day to limit the amount of blowing paper and the formation of vectors in the waste. In addition, areas where active filling is not occurring, but are not at final grade, are usually covered by intermediate soil covers 12 inches or more thick. These soil layers can account for up to 25 percent of the disposal capacity in a landfill. However, as the cost per cubic yard of landfill space has increased over the years, daily cover practices have changed. Most commercial landfills now either strip off most or all of the previous day's cover soils prior to placing fresh waste, use tarps or other removable covers at the end of the work day, use an inert or nonhazardous waste stream such as contaminated soils, or use foams or other compressible materials as cover soils. Because of this, the volume of space used for landfill daily and intermediate cover has been reduced and has not been factored into this analysis as a significant airspace requirement.

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4. ALTERNATIVE TECHNOLOGIES

Any evaluation of alternatives to current landfilling practices entails a review of newer solid waste management technologies. Section 3 of Appendix G of the revised draft SEIS presented a summary of potential alternative technologies to landfilling that were included in the report, "New Systems Research for Refuse Disposal (R. M. Towill, April 2000)." The study identified three waste disposal technologies with the potential for diverting solid waste from Oahu landfills. The alternative technology facilities identified as being worth further consideration were:

- Plasma generating station,
- Metal recycling plant, and
- Gypsum recycling plant

A notable omission to this list are alternatives such as expanding H-POWER or optimizing the current recycling programs. These alternatives may represent probably the best alternatives to controlling the amount of waste that ends up in the landfill.

- H-POWER currently plays a significant role in reducing the amount of waste going to the landfill and could be expanded to handle additional waste. An additional processing and/or combustion train (depending on which is the limiting factor in the current design) could be added to the existing operation to increase the percent of the material that is diverted from the landfill. This option was not evaluated and should be assessed to determine if it is technically and economically viable.
- Residential recycling programs are currently minimal but have the long-term potential to reduce the rate of growth in the waste stream. While a system of dropoff centers has been developed to provide recycling options to area residents, in general, dropoff programs have been found to have a limited impact on the waste stream. Typically there is less than 15 percent participation in these types of programs. On the other hand, curbside recycling programs in densely populated areas have been found to have a more significant impact on the waste stream. With a good public information program encouraging public involvement, participation rates as high as 85 percent have been reported. For example, the City of St. Louis Park, Minnesota had a tracking system tied to their collection program that allowed them to identify areas where participation rates were low. In these areas, special mailings and other programs were implemented educational programs to encourage participation in the curbside collection program.
- Recycling programs will not necessarily show an immediate impact on the waste stream since it takes time to develop an effective program but they can reduce the rate of growth in the waste stream. Short-term pilot studies of curbside collection programs have been tried on Oahu with mixed results. However, these types of program can be counterproductive in that it takes time and effort to develop a

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good recycling program and programs that come and go make residents cynical about their long-term viability.

Oahu has a significant problem with finding markets for the materials that do not involve shipping the bulk of the material off-island (and adding to the expense). However, throughout the United States, some of the most effective programs have been aimed at developing local markets for recycled materials. Efforts need to be made to develop these types of local recycling markets rather than to focus on expensive high-tech solutions to the waste problem.

This section illustrates that alternative technologies to current landfilling practices are an area that must be evaluated frequently as conditions within the City's solid waste management system and new technologies continue to evolve. The City must re-evaluate the cost effectiveness of the options presented in Appendix G, as well as an expansion of H-POWER and/or the expansion of recycling programs, to find the appropriate alternative(s) to current landfill practices.

5. ALTERNATIVE LANDFILLING SCENARIOS

The City currently uses the Waimanalo Gulch Landfill for final disposal of ash and residuals from H-POWER, sewage sludge from the City's WWTPs, and all MSW that cannot be processed at H-POWER. The proposed expansion of the Waimanalo Gulch Landfill, described in the revised draft SEIS, is based on the City's bias to continue to use a single landfill for final disposal of all of these waste streams. Even the alternatives analysis in Appendix G of the revised draft SEIS makes this same assumption; all alternative landfill sites must have the capacity to handle the disposal of all the current waste streams for a 15-year period.

This report suggests that viable and implementable alternative scenarios exist that entail splitting the currently landfilled waste streams to more than one landfill. This section addresses this bias and goes on to identify, screen, and evaluate potential alternate landfill sites able to handle specific portions of the waste stream.

5.1 JUSTIFICATION OF MULTIPLE LANDFILL SITES

The revised draft SEIS indicates that a major criteria for siting a proposed landfill involves determining if sufficient capacity exists. Section 4.2.2 of Appendix G based its justification for expanding the current landfill or developing another single landfill site, on the following rationale:

- Sufficient storage capacity is required given long term trends for increasing waste generation rates.
- It is difficult to site new landfills.
- There is a need to minimize potential for environmental impacts associated with more than one facility.
- There are economies of scale that should result in lower refuse disposal costs.
- There is a need for a facility that is adequately sized to handle periodic fluctuations in generation rates due to natural weather influences (e.g., storm debris).

While these issues need to be factored into the landfill planning process, singly or combined, they do not justify the single site approach to landfill siting and development. Each of the above rationales is discussed below.

- **Sufficient Storage Capacity.** Recent data, on Oahu and elsewhere in the United States, suggest a stable or downward trend in waste generation rates. While locally, some of the recent downward trend in waste generation may be related to economic conditions, overall a stable or declining waste generation rate would be more likely given the numerous waste diversion programs that have been implemented or are anticipated. Recent census data suggests that population growth on Oahu has stabilized over the past 10 years and visitor numbers are also

not growing at rates they once were. Current trends in waste generation rates should be considered in the establishing site capacity needs.

Difficulty in Siting New Landfills. Landfills are no more difficult to site if the process involves a series of major facilities, each designed to handle the entire island's waste for a period of time followed by a new siting process for another major facility, or two or more landfills, each handling a portion of the waste stream for an extended period. Rather than presenting the final results of the process to the community and expecting local acceptance of the results, involving the public in the landfill siting process throughout is the best way of addressing these difficulties. A common approach is to establish a comprehensive public education program to inform the public of the issues, raise awareness of potential options, identify alternatives to landfilling, develop programs to minimize waste streams, and solicit input into the planning process.

Minimizing Environmental Impacts. The potential risks to the environment posed by a landfill is a function of site conditions, site design, and site operations. A well designed and operated facility can address many poor site conditions; a landfill that is poorly designed and/or operated can cause environmental problems even if sited in a relatively suitable location. The landfill siting process and system oversight must address all three elements as they interrelate. This process is not necessarily more or less relevant to single or multiple site systems.

Economies of Scale. While it is true there are economies of scale associated with larger landfill operations, there are diminishing returns for facilities over 500 tons per day (tpd) in size. The savings with larger facilities usually originate from the fact that a landfill operator is able to charge lower tipping fees due to the large volumes of waste being handled. The tipping fee (currently \$72.25 per ton plus 12% solid waste special fund surcharge) charged to the Waimanalo Gulch Landfill users is based on the tipping fee charged at H-POWER and is set in the City's ordinances, not on the actual costs to operate the landfill. (Nationally, tipping fees at landfills in 2000, were approximately \$32 per ton.) Therefore, a larger facility does not necessarily represent cost savings for the residents of Oahu.

Storm Debris. While vegetation damage due to storm events is relatively common, a storm large enough to cause other property damage is relatively rare in the area. Proper storm debris management planning focuses on waste segregation so that vegetation from storm damage will be directed to green waste composting facilities, not to the landfill. In the event of a large storm or large storms, with associated property damage, waste segregation planning will direct much of this waste to the private construction and demolition debris landfill(s).

In addition, there are other negative factors associated with a single large landfill approach that were not addressed in the revised draft SEIS. Some of these factors are as follows.

Waste Transport. Heavy vehicle traffic is part for any landfill operation. Costs associated with trucking waste across the island to one facility can be appreciable. By locating a landfill near the point of waste generation, trucking costs can be minimized. Granted, finding a suitable landfill site near urban Honolulu, the waste centroid, may not be possible. But, if an alternate landfill site is connected to the waste generation point by a good road system able to handle the traffic, transport costs can be competitive with the current situation.

Truck Traffic. Construction of one major site concentrates large volumes of truck traffic in one area with resulting road congestion, potential traffic problems, and associated disruptions. Dispersed facilities reduce localized traffic congestion on area roadways.

Dumping ground mentality. Unfortunately, there is a tendency to continue to locate similar facilities in an area where one has been located before because patterns have been established. This can result in devaluing an area as more and similar facilities are located in the proximity. This is very apparent in the revised draft SEIS where all three of the potential sites are located within 4 miles of each other on the leeward side of the island.

Because there does not appear to be any overwhelming justification for developing a single landfill site to handle all the waste generated on the island (i.e., MSW, H-POWER ash, sewage sludge, etc.), the planning process should consider developing multiple sites to serve different waste streams.

5.2 SITE IDENTIFICATION

5.2.1 Site Identification Process

To identify potential landfill sites, a site selection process is undertaken. Appendix G of the revised draft SEIS presented the criteria previously used to screen potential sites, although no information was provided on how the initial list of sites were obtained. While a number of criteria were established, the SEIS process appeared to have focused only on a couple of the screening criteria used during the initial screening process (the regulatory criteria, the site capacity criteria, and the groundwater protection criteria). The other criteria were only considered once the selection process had reduced the evaluation to a relatively limited number of sites.

5.2.2 Siting Criteria

The siting criteria presented in Appendix G of the revised draft SEIS included regulatory design, operational, closure, and post closure requirements that would apply to any of the selected sites. These criteria needlessly complicates the selection criteria, focusing time and attention on irrelevant topics or ones that will not vary significantly from site to site. Generally, it is technically feasible to site a landfill almost anywhere on the island, if sufficient controls are placed on the facility. This means that in most instances, technology is not the driving factor in

siting a landfill. For this reason, the revised draft SEIS criteria were reevaluated, adding some additional criteria and deleting others. The final criteria is as follows:

- **Regulatory**
 - Airport restrictions
 - Floodplain restrictions
 - Wetland restriction
 - Fault areas
 - Seismic impact zones
 - Unstable areas
 - Impact on endangered species or sensitive areas
 - Impact on cultural resources
 - Tsunami zone
- **Transportation**
 - Access to site
 - Travel distance from major waste generating areas
- **Compatibility with Surrounding Land Use**
 - Protection of natural resources (Groundwater, Surface water)
 - Compatibility with current/planned land use
 - Screening
 - Water supply wells
- **Capacity Requirements**
 - Site capacity
 - Ability to expand site
 - Buffer zones

Regulatory requirements are requirements codified at the federal, state, or local levels. These requirements can include specific regulations on landfill siting as well as other general regulatory requirements to consider habitat for endangered species or environmentally sensitive areas when siting a wide range of types of facilities.

Transportation is a concern in landfill siting given the number of trucks that will utilize the facility on a daily basis. Road systems must be currently able to handle the traffic safely or be able to be upgraded. The distance to major waste generation areas is also a consideration. H-POWER contributes roughly one third of the material going to the landfill in the form of ash and residuals while the other two thirds comes in as unprocessed waste primarily from commercial haulers in the Honolulu area.

Compatibility with the surrounding land use can be one of the critical aspects of siting a new facility. This includes evaluating current and anticipated land use plans as well as residential and commercial growth patterns to make sure that the proposed landfill is compatible with the future uses of the area. High density development surrounding landfills can intensify the potential risks from landfill operations by increasing the number of potential receptors in the immediate area.

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Historically, the City's Board of Water Supply (BWS) restricted the activities and/or types of development that can be located above selected groundwater recharge areas on Oahu. Since 1987, the Hawaii State Department of Health (DOH) has administered this responsibility. BWS and DOH policy established a geographical boundary line around the perimeter of Oahu, so that activities that have the potential to degrade the island's potable water supply were restricted inward of this line.

In 1984, the Department of Health established the Underground Injection Control (UIC) line to ensure Oahu's groundwater quality was protected from subsurface wastewater injection systems. The UIC program, like the groundwater recharge "Pass/No Pass line," established a geographic boundary line around the perimeter of Oahu above which (in elevation) injection of wastewater is restricted. While the UIC line and groundwater recharge "Pass/No Pass" lines do not specifically prohibit landfill development in these areas, it is good planning to consider the potential impact of a leak from a landfill and the potential consequences on the island's main aquifers.

The potential site capacity as well as expansion capacity and buffer zones should be considered in the initial planning stages for siting a landfill. The SEIS adopted a 15-year planning horizon although justification for that time frame is not clear.

5.3 SCREENING OF SITES

In the SEIS, the City developed a list of 42 landfill sites that met the requirements for a preliminary screening based on the regulatory siting criteria presented above. On Table 4-1 of the Appendix G the site capacity for each of these sites is provided, listed in tons; on Table 5-2, the same capacity is listed in cubic yards. Because site life is typically calculated in cubic yards of capacity, we have assumed that disposal capacity is presented in cubic yards. For this analysis, a revised site life was calculated using the waste disposal rate estimates from Section 3 and the in-place density estimates provided by WMHI. On the basis of this analysis, 22 sites met the site capacity screening requirements (15 years) set in the SEIS if the facility received only MSW; 18 sites met the site capacity requirements if they accepted MSW and special waste; and 12 sites met the site capacity requirement for the entire waste stream.

Due to the time constraints and lack of available information, it is not possible to recheck the disposal capacity estimates for all the sites being screened. For this analysis, one site (Kapaa 1) was selected and a preliminary estimate of the disposal capacity was prepared. This preliminary evaluation indicated that the site had significantly more capacity available (up to 50 percent or more depending on the final site layout) compared to the estimate presented in Appendix G of the revised draft SEIS. Because of the lack of detailed topographic information for the site, it is not possible to make an exact estimate of the disposal capacity of the site, however, this preliminary analysis suggests that more detailed review of potential sites would yield other sites that could provide adequate capacity for an economically and technically viable facility. The structure of the SEIS, by making the site life screening criteria the primary upfront criteria early in the site select process when very little design information is available, screened out a number of potentially feasible sites without sufficient evaluation.

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5.4 EVALUATION OF POTENTIAL ALTERNATIVE SITES

During this analysis, two additional alternative sites, as well as the Kapaa I site, were reevaluated. This information was compared to expansion of the Waimanalo Gulch facility. Table 1 presents a evaluation of the four sites based on the site selection criteria presented in Section 3.2.2.

Ameron Quarry has been identified as a possible long-term disposal site that was not included in the revised draft SEIS Appendix G. The isolated location of the quarry and the surrounding industrial land use in the area are both compatible with landfill development. The quarry is completing operations in the existing excavation and is developing a new excavation area. Projections by Ameron suggest that quarrying may be completed in the current excavation in approximately five years. The entire quarry consists of bedrock classified as Koolau Series Basalt. The site is outside the UIC Line and the Groundwater Protection Zone line. Rainfall in this area has been estimated to be approximately 45 inches per year.

- **Regulatory:** The site meets the primary regulatory mandatory criteria.
- **Traffic:** The site has access to major highways (H-3 and Pali Highway). During site design, it would be necessary to maintain access to the existing quarry operations. The site is approximately 10 miles from Honolulu.
- **Compatibility with land use:** Currently the site is used as a quarry operation with quarrying anticipated to continue in the area for the next five years. The site is well screened and not visible from any populated areas on the island. Once quarrying operations in the current area are complete, it will be necessary to reclaim the area for long-term use. Landfill operations are a compatible concurrent use and allows for reclamation of the site in a cost efficient and environmentally sound manner.
- **Capacity:** Based on a May 2000 report prepared for Ameron by Austin, Tsutsumi & Associates, the site has a 9.2 million cubic yard capacity. If only MSW that is not processed at H-POWER is disposed at the Ameron site, the site would have an estimated 24-year life.

Kapaa I was one of the sites identified in the Appendix G alternative siting study. Soils at the site have been classified as silty clay and clay loam depending on the steepness of slope they are encountered on. Soils on the steepest slopes have been classified as "Rock Land" and are found on the ridge tops. Underlying site soils is the Koolau Series Basalt bedrock. The site is outside the UIC Line and the Groundwater Protection Zone line. An estimated 60 acres of landfill is potentially available at the site for landfill development. Rainfall in this area has been also estimated to be approximately 45 inches per year.

- **Regulatory:** The site meets the primary regulatory mandatory criteria.

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• **Traffic:** The site has access to major highways (Pali Highway or H-3) and is located away from populated areas. The main access road is primarily used by truck traffic to and from the Ameron Quarry. The site is located approximately 10 miles from Honolulu.

• **Compatibility with land use:** The site is relatively isolated. To the west is the Ameron Quarry, a large industrial (rock quarry) operation, the former Kapaa landfill, and to the north is a City Waste Transfer Station. To the east is a large wetland area which serves as a buffer to the City of Kailua. Le Jardin Academy, a small private school, is located to the south but is well screened by natural vegetation and topography.

• **Capacity:** If only MSW that is not processed at H-POWER is disposed at Kapaa I, the site would have an estimated 8.1 year life time using SEIS site capacity estimates. This increases to over 12 years if the revised capacity calculations are considered.

• **Waialua Area.** One area that was not considered during the SEIS was the north shore of Oahu in the Waialua area. Potential Waialua sites are located off Farrington Highway at or near the base of the Waianae Mountains. The lowlands near the base of the Waianae Mountains are classified as clay loam and the upper slope soils are classified as rocky or stony steep land with little soil cover. Bedrock in the lowlands is most likely Waianae Series basalt with limestone (old reef deposits) in some areas. Rainfall in this area has been estimated to be approximately 30 inches per year.

- **Regulatory:** Site location and design would need to consider the location of Dillingham Air Field to be certain the site is far enough east so that the airport is not a location restriction.
- **Traffic:** Access to major thoroughfares is in Wahiawa (H-2). Routes beyond that are secondary but do have a history of heavy vehicle and truck traffic from the time when sugar cane agriculture was prevalent in the area. The site is approximately 25 miles from Honolulu.
- **Compatibility with land uses.** The primary advantage of this area is the lack of development which would allow a landfill to be sited prior to growth occurring. Adequate space could be identified and developed during the initial stages of design. The UIC line in the Waialua area apparently follows the mapped geographical feature, Farrington Highway, which is close to and parallels the shoreline. To site a landfill in this area would require detailed studies of local groundwater flow patterns and regulatory approval.
- **Capacity:** Due to uncertainty of location in the general area, capacity could not be estimated.

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Waimanalo Gulch was identified as the preferred expansion site in the Appendix G alternative siting study. The site is outside and UIC Line and the Groundwater Protection Zone line. An estimated 65 acres of landfill is potentially available at the site for landfill expansion. Rainfall in this area has been estimated to be approximately 20 inches per year.

- Regulatory: The site meets the primary regulatory mandatory criteria.
- Traffic: The site is located off H-1, approximately 20 miles west of Honolulu. Traffic exiting the site is required to cross H-1 and accelerate quickly to match traffic flow patterns from the west. Truck traffic will pose a greater risk to other vehicles in the future as the population increases along the leeward coast. The revised draft SEIS indicates that a projected 94 percent increase in normal vehicular traffic volume in the area is anticipated according to the 1995 "Oahu Regional Transportation Plan" published by the Oahu Metropolitan Planning Organization.
- Compatibility with land use: The Ko Olina area is zoned for commercial, resort and residential development and, as a result, has become one of the major economic "drivers" for the State. Expansion of the landfill threatens current and potential investment and construction at the resort, directly affecting job creation and economic growth. In addition, the landfill is located in the City of Kapolei, the fastest growing part of the island. Expansion of the site is counter to regional planning efforts to develop the leeward side of the island for increased residential and commercial development.
- Capacity: Given the proximity of the landfill to H-POWER, it is unlikely that only the MSW waste stream would be sent to this facility. The site has an estimated site life of 17.1 years.

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6. CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSIONS

1. The City plans to expand the Waimanalo Gulch Sanitary Landfill to provide needed additional MSW disposal capacity for the island of Oahu. The expansion plans are described in a revised draft SEIS that is currently soliciting public comment.
2. A review of available information indicates that viable, and easily identifiable, options to expanding the current Waimanalo Gulch Sanitary Landfill exist that were not entertained in the revised draft SEIS.
3. The revised draft SEIS documents do not conform to the minimum standards required under state laws. The revised draft SEIS fails to address how the proposed expansion, or any of the alternatives, address the social, cultural, and economic effects of any of the actions. Public comment on previous versions of the SEIS and in other forums has indicated that issues such as compatibility with surrounding land use, proximity to population centers, quality of local environment, economic effects to the leeward coast, visual impacts, traffic impacts, etc., still need to be addressed in a meaningful manner.
4. Available waste volume information is inconsistent and inadequate. In order to evaluate the proposed landfill expansion or any viable alternative, a solid understanding of waste amounts must be known. This criterion determines what types of options can be considered. In a review of available data, there was no consistency in waste volumes currently being disposed or in projected disposal requirements. Disposal volumes for MSW, ash, sewage sludge, etc., reflect similar discrepancies. Waste volume discrepancies are noted within sections of the SEIS as well as between the revised draft SEIS, information released to the public, and data provided to the State of Hawaii DOH.
5. These data discrepancies made evaluation of alternatives difficult because waste volumes were not consistent between data sources. The conclusions regarding waste generation rates and volumes stated in Section 3.5 of this report are based on professional judgement using available information.
6. Alternatives to landfilling were given minimal review and did not include such obvious alternatives as expanding H-POWER or increasing recycling programs. The City is pursuing development of a yard waste/WWTP sludge composting program which will significantly reduce the volume of waste into the landfill although this was not addressed in the revised SEIS documents.
7. The site selection process was flawed. While numerous sites were identified initially, more than half of these sites were inside the UIC/Pass-No Pass line and were ruled out on that basis alone. If the UIC/Pass-No Pass line was a mandatory siting criteria, time and effort should not have been spent on identifying potential sites within this area. In addition, a number of identified sites were in such obviously inappropriate locations (for example, Diamond Head or Koko craters) that any realistic review would have rejected them upfront. The

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apparent aim appeared to be to pad the process with inappropriate sites leading to the selection of the desired alternative.

8. The focus of the siting study was identification of a single large landfill site near H-POWER. All three "suitable" sites were within a couple of miles of each other along the leeward side of the island. Serious consideration did not appear to have been given to other locations on the island.
9. This approach to landfill siting continues the current practice of "dumping" the disposal problem on the leeward coast community even though the growth in this area (recent as well as planned) is incompatible with landfill development.
10. Several alternative sites were identified that were not evaluated in the original study. One example, was the Ameron Quarry which is nearing the end of operations in its current excavation and is planning to move operations to an adjacent area. A landfill at the Ameron Quarry location is desirable for the following reasons:
 - Landfill operations are compatible with the surrounding land use particularly with the current quarry operations
 - The site is not located near population centers
 - The site is not visible from any populated area of Oahu
 - The site has a larger capacity than the proposed Waimanalo Gulch landfill expansion
 - The site is outside the UIC line
 - The site is near roads able to handle truck traffic
 - The site is physically closer to much of the waste generation points on Oahu

The development of a landfill in this area would also allow reclamation of the current quarry in a cost-effective, environmentally sound manner. Ownership/operational issues would need to be resolved with the site's owners as well as timing on the start of landfilling operations at the site. Nevertheless, the site represents a viable option to expansion of Waimanalo Gulch Landfill.

6.2 RECOMMENDATIONS

The following recommendations were developed on the basis of this review of the draft SEIS:

1. Withdraw the revised SEIS and plans for the proposed expansion of Waimanalo Gulch.
2. Establish a records management system that allows tracking of information pertinent to making planning decisions.
3. Continue to pursue the development of alternative technologies. This includes evaluating the potential for expanding H-POWER; expanding existing recycling programs; working with local developers on new technologies where appropriate. New or alternative technologies that will dramatically reduce landfilling volumes are needed. Due to

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development pressures and groundwater protection issues, Oahu is very limited in the number of areas remaining that can be used for landfilling waste. Long-term solutions to landfilling, or the means to drastically reduce waste volumes that must be landfilled, must be continually pursued.

4. Pursue development of a landfill at the Kapaa 1 site with longer range plans being for developing a landfill at the Ameron quarry site. Long-term development of the Ameron site as a landfill serves both the goals of long-term disposal capacity for solid waste and provides for reclamation of the current quarry operations.

Ko Olina Resort & Marina
Current and Planned Permanent Employment

	Rooms or Units	Factor	Number of Jobs
HOTEL			
JW Marriott Inland Hotel	387	Actual	550
Remaining Resort Hotel Units	3,613	1.20	4,336
Total Hotel Units	4,000		
TIME SHARE			
Ko Olina Beach Club (Marriott Vacation Club)	750	0.67	503
Resort Time Share Units	2,250	0.67	1,508
Total Time Share Units	3,000		
CONDOMINIUMS			
Ko Olina Fairways Townhomes	280	Actual	7
Kail Lani	120	0.025	3
Cocokai Plantations- Brookfield	270	0.025	7
Remainder Condo Units	330	0.025	8
Total Time Share Units	1,000		
COMMERCIAL			
Wai'ahoe Wedding Chapel	1	On-site/contract	25
Ko Olina Golf Club		Actual	93
Ko Olina Marina & Store		Actual	50
Ko Olina Marina- Multi Purpose Club/Rees		Estimated	50
Ko Olina Marina- Multi Purpose Building		Actual	10
Commercial @ 0.005 per SF	500,000	Estimated	2,500
Proposed Seagull Schools		Estimated	25
Proposed Elementary School		Estimated	50
Ko Olina Community Association (KOCA)			
KOCA Staff		Actual	5
KOCA- Maintenance		Actual	19
KOCA- Alpha Team- Resort Security		Actual	55
KORA- Ko Olina Resort Operators Association		Actual	2
KO Olina Development- Resort Office			
KOD- Ko Olina Development Office		Actual	3
Other Resort Activities			
Hawaiian Cultural Center		Estimated	125
Paradise Cove Luau		Estimated	175
Total Permanent Employment			10,108

Ko Olina Resort - Potential Construction Projects and Jobs

Project	Projected Construction Jobs per \$mil*	Jobs per million dollars of construction costs, from The Hawaii Input-Output Study by DBEDT, 1992 Benchmark
Attractions and Educational Facilities	15.12	\$ 100,000,000
Number of Units		\$ 225,000
Construction Cost per Unit		\$ 810,000,000
Hotel Rooms	13.44	\$ 10,888
Time Share	13.44	\$ 8,318
Condominiums	9.77	\$ 1,407
Square Foot		\$ 500,000
Construction Cost per Sq. Ft.		\$ 150
Commercial	15.12	\$ 1,134
Totals		\$ 1,647,750,000
		23,255

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1009 ULUOHA STREET, SUITE 308, KAPOLEI, HAWAII 96707
Phone: (808) 892-5159 • Fax: (808) 892-5113



TIMOTHY E. STERNBERGER, P.E.
DIRECTOR
FRANK J. DOYLE, P.E.
DEPUTY DIRECTOR
IN REPLY REFER TO:
RE 02-197

December 24, 2002

Mr. David R. Andrews, Esq., and Ms. Manlee J. Allan, Esq.
McCulchen, Doyle, Brown & Enersen, LLP
Three Embarcadero Center
San Francisco, California 94111-4087

Dear Mr. Andrews and Ms. Allan:

Subject: Revised Draft Supplemental Environmental Impact Statement
(RDSEIS) Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated September 18, 2001, which we received in a transmittal from Mr. Kenneth Williams, General Manager, Ko Olina Community Association, on June 19, 2002. We acknowledge your concerns regarding the operation and planned expansion of the Waimanalo Gulch Sanitary Landfill.

GENERAL COMMENTS

The area and timeframe for the Waimanalo Gulch Sanitary Landfill Expansion have been changed. The City has stated a new goal of five years, once all necessary permits are obtained. The five-year goal is based on the City's policy to seek, whenever feasible, increased use of alternative methods and technologies for the disposal of municipal solid waste. This goal represents a major effort by the City to work with the immediate community, while fulfilling its mission to provide for the safe and effective disposal of municipal solid waste from all of Oahu.

The five-year goal to seek only limited expansion of the landfill will be reflected in a forthcoming Final EIS which will address the concerns stated in your letter.

We note your concerns related to the following:

- When the 1984 EIS for Waimanalo Gulch was written, soil samples seemed to indicate it would be financially unreasonable to excavate that material to create additional landfill capacity. While operating the landfill,

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Page 2

Management of Hawaii, Inc., has found that, except for small areas, the site does not require blasting or other costly excavation methods so the expansion beyond the currently permitted area can be accomplished economically.

- The permitted area of the existing landfill is 86.5 acres. We confirm that on-site administrative and operations requirements use approximately 22 acres of the 86.5 acres.
- We note your concerns government groundwater monitoring as described in Attachment B, to your letter. However, we defer the regulation of monitoring compliance and evaluation requirements to the State Department of Health, under whose jurisdiction the existing and proposed project must comply. Accordingly, we have forwarded your concerns to them.

SPECIFIC COMMENTS

"Comment 1. Project Description is Not Accurate."

Further discussion of the City's long-term plan for managing waste disposal on Oahu will be provided in the Final EIS. Because the site-specific situation at Waimanalo Gulch is involved, we believe that further discussion of the five-year plan in relation to this site is both appropriate and applicable.

"Comment 2. Proposed Project Is a New Landfill."

The proposed project is based on use of an existing facility with major waste handling infrastructure in place. The reduced size of the expansion area will be entirely contained within the existing 200 acres of the property. It is not appropriate to refer to this facility as a "new" landfill.

"Comment 3. Project Description Is Misleading."

The proposed project is appropriately described because it will involve expansion of an existing municipal sanitary landfill. Actually, "expansion" is the most logical and appropriate term because we seek to "increase the extent, number, volume, or scope of" the existing Waimanalo Gulch Sanitary Landfill and because, unlike a new landfill, the project will not require the construction of permanent, onsite facilities, such as an administration building, scalehouse, maintenance facility, fueling station, utilities, or access roads. Nor does the City gain anything by calling the project an expansion rather than:

Mr. David R. Andrews, Esq., and Ms. Manilee J. Allan, Esq.
December 24, 2002
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are the same for both. The City does not believe that calling it an expansion has misled anyone about the true nature of the project.

"Comment 4. Analysis of Alternatives Is Not Rigorous and Complete."

Because of the revised proposal for a reduction in use of the project site, a revised alternatives discussion will be provided in the forthcoming Final EIS.

"Comment 5. 2001 EIS Does Not Consider Impacts on the Economy."

To ensure that the Final EIS properly describes the potential for impacts associated with expansion of the landfill for a five-year period, a socioeconomic impact assessment will be prepared.

"Comment 6. Analysis in the 2001 EIS Is too Narrow."

"Comment 7. 2001 EIS Does Not Adequately Consider New Landfill Sites."

"Comment 9. Analysis of Alternatives is Inadequate."

Discussion of both alternative technologies and landfill sites in the context of a five-year plan will be provided in the project Final EIS.

"Comment 8. Costs of Acquiring New Site Not Evaluate in Light of New Revenues."

Landfill tip fees are set equivalent or higher than the H-POWER tip fee as a policy decision. The reason for setting the landfill tip fee higher than actual costs is to conserve landfill capacity. A high landfill tip fee encourages recycling, since it is more economical to recycle materials rather than dispose of them. Although the tipping fees at Waimanalo Gulch Sanitary Landfill are higher than the average tipping fee at landfills in the United States, the situations are not comparable. In other communities, residents are charged for landfill disposal. In Honolulu, they are not. In other communities, single-family household residents pay user charges for refuse collection. In Honolulu, they do not. Other communities have access to large areas of land suitable for landfill, which are unavailable on an island. Other communities have opportunity for low-cost transport (rail and/or trucking) to neighboring counties/state for disposal options. In Hawaii, we must ship our waste by barge or ship to neighboring counties/states.

"Comment 10. Assessment of Alternatives Based on Groundwater Is Inaccurate."

The policy decision to not site a landfill within the Groundwater Protection Zone and Underground Injection Control Line is based on the need to ensure protection of a precious and finite resource. The State Department of Health (DOH), which adopted the Hawaii Groundwater Quality Protection Strategy in 1990, provides for a policy of

Mr. David R. Andrews and Ms. Manilee J. Allan
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anti-degradation' which serves to guide our siting of municipal landfills. According to DOH:

"The degradation of the quality of groundwater resources that may compromise existing or future beneficial uses will not be allowed or permitted within the State of Hawaii. As a matter of priority, all existing and projected future underground sources of drinking water will be given the highest levels of protection."

The DOH policy further states,

"The burden of proof that proposed activities will not degrade groundwater rests with the permit applicant. Any uncertainties will be resolved in favor of protecting the groundwater resources. This policy shall be implemented by all regulatory programs in the Department of Health which have a potential impact on groundwater quality."

Therefore, while it is possible to site a landfill within both the Underground Injection Control Line and Groundwater Protection Zone, the potential for damage to Oahu's potable groundwater resource is one which the City finds to be unacceptable. The bases for our policy are: 1) unlike many mainland municipalities, there are no alternatives which will readily replace the Oahu groundwater resource, that is, Oahu's potable groundwater resources are the only source for municipal drinking water; 2) there are alternatives for the siting of a municipal landfill which lie outside the Underground Injection Control Line and Groundwater Protection Zone.

"Comment 11. Rationale for Disqualifying Alternatives Is Not Consistent."

"Comment 12. Alternatives Analysis Is Confusing."

"Comment 13. Alternatives Analysis Lacks Assessment of Key Impacts."

"Comment 14. Assessment of Alternative Technologies is Inadequate."

As noted, the proposed 15-year expansion plan has been revised to five years. A revised alternatives analysis will be provided in the forthcoming Final EIS.

Your stated concerns and comparison between the 1984 EIS and 2001 RDSEIS are noted. The 15-year landfill requirement as described in the RDSEIS was based on: 1) the need to maximize use of Oahu's limited land resources; and, 2) the difficulty in acquiring and permitting a municipal sanitary landfill given ongoing urban development of Oahu. These factors are constraints which did not exist with the same intensity in 1984 as they do today.

Hawaii Groundwater Quality Protection Strategy, State Department of Health, March 12, 1990.

Mr. David R. Andrews and Ms. Manilee J. Allan
December 24, 2002
Page 5

"Comment 15. Assumption Regarding H-POWER Plant Not Supported by Facts."

We agree that the cost of hauling ash to any landfill should not be the sole determinant for selection of a site. At the same time, Waimanalo Gulch Sanitary Landfill is an existing facility with potential for future use based on in-place infrastructure paid for by Oahu's taxpayers. We believe it is in the public interest to maintain use of the facility until a new location for disposal of ash can be found or a proven technology can be implemented which will eliminate the need for continued use of the landfill.

"Comment 16. 2001 EIS Ignores the Distinction Between Ash and Solid Waste Pits."

The proposed use of the site will involve an area of expansion which is intended to address Oahu's municipal solid waste needs for an approximate five-year period. H-POWER ash will continue to be disposed of in the existing area designated for ash monofill.

"Comment 17. 2001 EIS Completely Fails to Address Grease Waste Intake in Light of Commingling with H-POWER Ash."

Waimanalo Gulch Sanitary Landfill is a facility permitted by the State DOH to accept liquid containing solid waste, such as the grease wastes you describe. Reapproval for use of Solidification Pits for Liquid-Containing Solid Waste was authorized by DOH on August 1, 1999, and is set to expire on August 1, 2004. According to DOH:

"Approval is granted to utilize a portion of the ash monofill for the purpose of operating these solidification pits. The liquid-containing waste will be solidified within a prepared area of approximately 15 feet by 30 feet. The ash material within the monofill has been shown to be an effective liner by a proof within the application." (DOH letter of April 6, 2002).

Both ENV and Waste Management of Hawaii, Inc., share your concern that we properly manage the Waimanalo Gulch resource. Independent scientific testing by consultants is regularly used to verify that we are operating in accordance with Federal, State and County regulations. There have been no instances of groundwater contamination from our operations.

"Comment 18. New Highway Not Considered."

"Comment 19. City Does Not Consider Attributes of Ameron Site."

The H-3 Highway is not relevant to the more important issue of whether an appropriate site in Windward Oahu can be found for a municipal solid waste landfill. The Ameron Quarry site, for example, is not appropriate for use as a municipal solid waste landfill

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due to the stated intention of Ameron International, Inc., to continue to use the site for quarry operations and storm water retention.²

"Comment 20. Analysis of Impacts on Visual Resources Is Inadequate."

"Comment 21. Visual Impact Analysis Does Not Consider Impacts from the New Site."

"Comment 22. Assessment of Alternatives Does Not Consider Visual Impacts."

"Comment 23. Assessment of Mitigation Measures for Visual Impacts is Inadequate."

The Final EIS will update the potential for visual impacts associated with the area proposed for the five-year plan.

While we consider visual impacts to be important, the larger issue for selection of alternative landfill locations should depend on fundamental requirements, such as geology, capacity, lifespan, protection of flora and fauna resources, environmental concerns including groundwater, and related factors. Since visual impacts are important, all alternative sites and Waimanalo Gulch were given the same rating in the Final EIS.

"Comment 24. 2001 EIS Provides No Comprehensive Strategy for Dealing with Odors."

"Comment 25. Analysis of Mitigation Measures for Odors is Not Adequate."

"Comment 26. Discussion of Odor Abatement from Refuse Trucks is Inadequate."

"Comment 27. Alternatives Analysis Does Not Consider Odor Abatement."

The comprehensive management of odor will be addressed on a short- and long-term basis. Short-term measures as provided in the RDSEIS will continue to involve use of odor neutralizers, combined with management practices designed to reduce or minimize odor sources. Queuing of refuse vehicles, which was previously occurring at the entry to the landfill before business hours, is now handled by permitting entry up to the area of the scale house. This action has helped to reduce the potential for impacts to the adjoining properties within Ko Olina and along Farrington Highway. Future plans may involve installation of odor misters between the area of the scale house and the perimeter fence to provide treatment of refuse loads entering the landfill. In addition, some vehicles are now being refused entry because of odor and vector related issues.

Long-term management of odor is a key concern, and several actions are underway by ENV. Some of these are already described in the RDSEIS and, combined, are expected to markedly improve odor management. In summary this involves:

- 1) installation of a landfill gas recovery system;
- 2) construction of a processing facility at

²Letter from Ameron International, dated February 5, 2002.

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Sand Island Wastewater Treatment Plant which will divert sewage sludge from the landfill; 3) expansion of H-POWER to increase waste handling volume; and 4) adoption of new, but viable, technologies that will lead to further reduction of odor generating waste. Additional detail for these items will be provided in the Final EIS.

Concerning alternative sites, the development of any program to mitigate odors is an important consideration; however, it is important to note that:

1. Technology exists which can markedly improve control of odors. Technology-based solutions, such as use of odor misters and gas recovery, must be within the context of a larger program which reduces or eliminates the source of the odor. The City is already moving in this direction with the decision to a) divert sewage sludge (a major odor source) from Sand Island Wastewater Treatment Plant by conversion to fertilizer pellets; b) expand H-POWER; and c) adopt new, but viable, technologies for the reduction of municipal refuse; and
2. ENV and Waste Management of Hawaii, Inc., understand that use of short-term solutions, such as deployment of odor misters, cannot by itself constitute an effective program. This is why additional, comprehensive measures have been initiated.

As stated in the subject RDEIS, under ideal circumstances a landfill would be sited in locations with no potential for impacts to the public. However, because of ongoing urbanization pressures on Oahu, lack of developable space, and growth of the Ewa region in particular, it is not now possible to develop a landfill site which will have no potential for impacts to communities which may surround the site. Therefore, mitigation measures that address odor in alternative locations will necessarily require the adoption of a similar strategy to first address odors through use of odor neutralizing solvents, followed by a longer term program for reducing odors from the source.

"Comment 28. 2001 EIS Does Not Adequately Assess Litter Abatement from Trucks."

We do not agree that ongoing efforts to better manage loss of refuse from trucks have been unsuccessful. Refuse companies and drivers have been warned that any vehicle that is not properly secured will be prohibited from delivering its loads to the landfill. Some refuse loads have already been turned away, and commercial refuse drivers are on notice regarding the seriousness of preventing littering along the highway.

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"Comment 29. Discussion of Portable Fencing is Vague."

"Comment 30. 2001 EIS Must Discuss Removing Paper and Lightweight Plastics."

"Comment 31. 2001 EIS Should Contain Comprehensive Plan for Reducing Litter."

"Comment 32. 2001 EIS Should Discuss Prohibitions Against Refuse Trucks as Litter Abatement Measure."

"Comment 33. Alternatives Analysis Does Not Consider Litter Abatement."

Portable fencing in use at Waimanalo Gulch is designed to be readily moved to active cells during delivery of refuse loads and during changes in wind patterns. The existing fences will be supplemented with additional fences which can be constructed on an as-needed basis.

Although we believe the litter fences are an important tool which assists in our control of litter. Additional measures for litter control include: permanent fencing, use of a new vacuum device MadVac, which reduces the time needed for workers to clean up an area; employing cover material as soon as possible within open cells to reduce the incidence of windblown litter; and use of work crews on 24-hour standby to cleanup areas that may be affected by windblown litter migrating off-site.

We agree that the removal of lightweight paper and plastic products will help to reduce the potential for windblown litter. We do not agree, however, that this issue has been dismissed. For example, the proposed expansion of H-POWER and adoption of newer viable technologies will markedly increase our capacity to handle lightweight paper and plastic products.

As indicated, measures to discourage littering from refuse trucks have been put into place.

Finally, we do agree that litter control for any landfill site is an important consideration. Similar to the issue of visual impacts, we believe the larger issue for selection of an alternative landfill site should and must depend on fundamental requirements involving whether a site can sustain a landfill. The general control of litter, therefore, must be applied to any and all sites designated for landfill use.

"Comment 34. 2001 EIS Completely Fails to Address Its Grease Trap Solidification Treatment Pit Permit."

See response to Comment No. 17.

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"Comment 35. 2001 EIS Fails to Address Adequately Any Plans to Control Surface and Subsurface Fires at the New Site."

Fire control is handled through onsite operational practices which minimize the potential for surface and below-surface fires. As noted in the RDSEIS, earth stockpiles, fire breaks, and a 6,000-gallon water truck are maintained to permit immediate response to any fires. Operating procedures ensure appropriate handling of fires, should any occur. To date, there have been no instances where fire control was found to be ineffective.

"Comment 36. Socioeconomic Impacts Not Evaluated."

"Comment 37. 2001 EIS Does Not Examine Impacts in Context of Future Growth."

"Comment 38. Alternatives Analysis Does Not Consider Socioeconomic Impacts."

A socioeconomic impact analysis, including the examination of impacts in the context of future growth, will be provided in the Final EIS.

"Comment 39. Inadequate Discussion of Land-Use Impacts."

"Comment 40. 2001 EIS Does Not Consider Land-Use Impacts in Assessment of Alternatives."

"Comment 41. 2001 EIS Fails to Address Adequately Impacts on Bordering Special Management Area."

Further information concerning these issues will be provided in the forthcoming Final EIS.

"Comment 42. Analysis of Surface Water Impacts is Inadequate."

"Comment 43. Surface Water Impacts of Alternative Sites Not Considered."

"Comment 44. Groundwater Impacts Not Adequately Assessed."

Further information concerning surface and groundwater hydrology will be provided in the Final EIS.

"Comment 45. Noise Impacts Not Adequately Assessed."

Landfilling activities planned for expansion of the site are set back within the property and bounded by the adjoining slopes of Waimanalo Gulch. Construction machinery and refuse vehicles transiting the site are required to be property equipped with mufflers to reduce potential for noise impacts.

Mr. David R. Andrews and Ms. Manlee J. Allan
December 24, 2002
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"Comment 46. Traffic Impacts Not Adequately Assessed."

"Comment 47. 2001 EIS Fails to Address Adequately the Continued Traffic Impact on the Ko Olina Resort Community."

We do not agree that traffic impacts or continued use of the site for landfilling have not been adequately assessed. Concurrence for the findings of the RDSEIS was provided from the State Department of Transportation (DOT) on August 30, 2001. According to DOT:

"The proposed expansion is not anticipated to have a significant impact on our State highway facilities."

Concurrence from the City Department of Transportation Services (DTS) was provided on September 26, 2001. According to DTS:

"As stated in our August 21, 2000 memorandum regarding the subject project, the proposed project does not affect streets under City jurisdiction. For this reason, we have no objection to the proposed project."

There are no traffic impacts from operations of the existing landfill on Ko Olina. Therefore, we do not anticipate there will future traffic impacts based on continued operations from the proposed area of expansion.

"Comment 48. Impacts on Flora Not Fully Assessed."

"Comment 49. Impacts on Fauna Not Fully Assessed."

We agree that a comparison of potential adverse impacts to flora and fauna resources at alternative sites is important; therefore, all alternative sites and Waimanalo Gulch were given the same rating, rather than using flora and faunal resources as a determining factor. We further agree that should an EIS be undertaken for development of a new alternative site, that a detailed flora/fauna assessment is necessary.

"Comment 50. Impacts on Cultural Resources Not Fully Assessed."

Further information concerning this item will be provided in the forthcoming Final EIS.

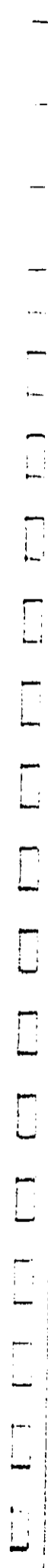
Mr. David R. Andrews and Ms. Marilee J. Allan
December 24, 2002
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We appreciate your review of the subject document and the time you have taken to provide comments. Should you have any further comments, please contact Ms. Wilma Namunnart of the Refuse Division at (808) 692-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at (808) 668-2985 (ext. 22).

Sincerely,


TIMOTHY E. STEINGER, P.E.
Director

cc: Waste Management of Hawaii, Inc.
R.M. Towill Corporation



**Additional Public Response
to Proposed Project**

PETITION

TO: Attn: Wima Namumart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimanalo Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement:

NAME (Print)	SIGNATURE	ADDRESS & DATE
Lori Wong	<i>Lori Wong</i>	92-1220 Aliinui Drive 10/10/01
Maria-Avon Marriah	<i>Maria-Avon Marriah</i>	92-1220 Aliinui Dr. 10/11/01
Mae Rosen	<i>Mae Rosen</i>	92-1220 Aliinui Dr. 10/17/01
Jim Richeson	<i>Jim Richeson</i>	92-1220 Aliinui Dr. 10/17/01
SANDY BISKEY	<i>Sandy Biskey</i>	92-1140 PAWANA ST 10/19/01
BOB Reynolds	<i>Bob Reynolds</i>	92-813 WAINOHA ST. 10/23/01
Margaret K. Nuunom	<i>Margaret K. Nuunom</i>	87-1065 Nana Kuli Ave. 10/23/01
Joe Saito (Joe Saito)	<i>Joe Saito</i>	94-1105 Heape St. Napo HI 9674
Alonca Jimenez	<i>Alonca Jimenez</i>	91-1060 Puanaeole St. EWA BEACH 01
Tanya Loudermilk	<i>Tanya Loudermilk</i>	91-1115 Welowelo St Kapolei
Veneria W. Paananu	<i>Veneria W. Paananu</i>	92-1220 Aliinui Dr. Kapolei HI
Clay Stone	<i>Clay Stone</i>	1944 KUAAPA PL 10/23/01
Nafasta X. Kalfas	<i>Nafasta X. Kalfas</i>	91-1017 Hl Kapu St Kapolei 10/25
Robert @ Chuan	<i>Robert @ Chuan</i>	89-316 Puu Aie
Stacie Phillips	<i>Stacie Phillips</i>	5122 L Kuni St.
Danie Rego	<i>Danie Rego</i>	94-1045 Luniakui St. 10/28 Kapolei HI 96708
JAN RISELEY	<i>Jan Riseley</i>	92-915 MAINE PL 20-201 KAPOLEI HI 96707
Alice Ramaila	<i>Alice Ramaila</i>	P.O. Box 1109 Waimanalo HI 96191
Jason Fernandez	<i>Jason Fernandez</i>	91-960 Pegasus St EWA BEACH
MATTHEW ULY	<i>Matthew Uly</i>	87-251 Hokele St. Maui, HI 96

PETITION

TO: Attn: Wilma Narummart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813.

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimanalo Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement.

NAME (Print)

SIGNATURE

ADDRESS & DATE

Scott Ashwood, Mr

[Signature]

92-1230 Alimui Dr. Kapolei, HI 96763

Clayton Beaver

[Signature]

92-1220 Alimui Dr. Kapolei, HI

PETITION

TO: Attn: Wilma Namunnart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813.

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimanalo Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement.

NAME (Print)	SIGNATURE	ADDRESS & DATE
Ross Butterfield	<i>Ross Butterfield</i>	94-1475 Po Kono St. Waiipahu, HI 96797 10/30/01
Christine Yehiko Hart	<i>Christine Yehiko Hart</i>	93-973 Maekaha Dr #21 Kapolei HI 96707 11/7/01
Nanea Ymaha	<i>Nanea Ymaha</i>	91-1020 Puuhou St #125 Aiea Beach HI 96706
Rossan L Perry	<i>Rossan L Perry</i>	178 Dinai Dr Wahiawa HI 96786
Suzuko Rivera	<i>Suzuko Rivera</i>	84-939 Honoapi Rd Waimanalo HI 96795
Diane Maki	<i>Diane Maki</i>	42 West Melenkio Dr Kapolei HI 96707
Lavis T. Kono	<i>Lavis T. Kono</i>	94-436 Kilauea St Waiipahu HI 96797
Natasha Skaltas	<i>Natasha Skaltas</i>	91-1117 Hukapu St Kapolei HI 96707 11/7/01
Michelle Taylor	<i>Michelle Taylor</i>	86-138 Kakaipala St

PETITION

TO: Attn: Wilma Namumart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimanao Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement:

NAME (Print)	SIGNATURE	ADDRESS & DATE
Emilia Cabanglan	Emilia Cabanglan	86-917 Pahano
Benjamin Cabanglan	Benjamin Cabanglan	86-917 Pahano
Frank Castillo	Frank Castillo	87-559 Kulaupuna
Raymond Castillo	Raymond Castillo	87-559 Kulaupuna
Frieda Castillo	Frieda Castillo	87-559 Kulaupuna
James Castillo	James Castillo	87-559 Kulaupuna
Jack Whrig	Jack Whrig	86-917 Pahano
Norman Cudjesta	Norman Cudjesta	87-559 Kulaupuna
Robert Beachey		85175 Fairingla Hwy Waenae
Cecilia Cusper		85-934 Lihue St. A-134 Wainae Cecilia Cusper
Gary C. Barrett		87-169 Plainina Wainae Hwy
Robert E. Oberkat		HARBORE
RESZNA L. ALVAREZ	Resna L. Alvarez	87-252 ST. JOHN'S RT
JAMES L. OLIVER	James L. Oliver	85-218 ALAZMA ST
Jody L. K. Cleveland	Jody L. K. Cleveland	87-94 Kulaupuna
Smriti Mersby	Smriti Mersby	84 State Parkway
Shula Kaluhura		85-175 Jan Hwy
James Aki		85-175 Jan Hwy
Thermit Williams		Keau beach park
Joby Ledward		Keau beach park P.O. Box 242

Waimanao 96792

PETITION

TO: Attn: Wilma Nannumart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimana'o Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement:

NAME (Print)	SIGNATURE	ADDRESS & DATE
Leslie Kopuaka	<i>Leslie Kopuaka</i>	Kedau Beach Park
Ameliodo A. Rubin	<i>Ameliodo A. Rubin</i>	Waianai Valley
Edward Louis Edward Torres	<i>Edward Louis Edward Torres</i>	85-317 Aloha St. Waianai
Ronett K. Leong	<i>Ronett K. Leong</i>	87-150 Lualei Pl.
WANDA S. GARCIA	<i>Wanda S. Garcia</i>	85-282 McArthur St
Olinda K. Patreus	<i>Olinda K. Patreus</i>	Orange St. Makaha
Gerry N. Lopes	<i>Gerry N. Lopes</i>	85175 Farr Hwy
Alberta K. Tripp	<i>Alberta K. Tripp</i>	84-166 P. Manuka St.
Annie Pua	<i>Annie Pua</i>	86-1803 Maali Rd
Paulette Chafin	<i>Paulette Chafin</i>	84-740 Kili Dr #1029
Nancy Pinauna	<i>Nancy Pinauna</i>	86-774 Liliue St
AMBERLY STINEMAN	<i>Amberly Stineman</i>	84-1012 Lahaina St.
Brianna Moore	<i>Brianna B.N. Moore</i>	84-700 Farr Hwy
SHARON SEABROOKS	<i>Sharon Seabrooks</i>	87-125 Meikani St #679
PAGE HAGEN	<i>Page Hagen</i>	87-115 Naipalana Rd
ANGEL SANTIAGO	<i>Angel Santiago</i>	P.O. BOX 140
JESSECA BASSETTE	<i>Jessica Bassette</i>	87-1526 Farr H
Deanne Salvador	<i>Deanne Salvador</i>	
Jody L. K. Cleveland	<i>Jody L. K. Cleveland</i>	84-166 Lahaina St
Dorothy Pierce	<i>Dorothy Pierce</i>	

PETITION

TO: Attn: Wilma Namumart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

DUE: Deadline to be received by the City - Tuesday, November 20, 2001

WE, the undersigned are STRONGLY OPPOSED to the Waimanalo Gulch Sanitary Landfill Expansion, as well as locating any further landfills within the Leeward Coast District as identified in the Revised Draft Supplemental Environmental Impact Statement:

NAME (Print)	SIGNATURE	ADDRESS & DATE
Tony Ortiz	[Signature]	Keolu Beach 1024
Shirley Jaffuan	[Signature]	Keolu
[Signature]	[Signature]	Housewife Sewer
[Signature]	[Signature]	Beach
Melissa Kalanianaʻaʻi	[Signature]	Boat Harbor
John Lucas	[Signature]	81931 Oahu
Anne Madeira	[Signature]	85-259 Oahu
[Signature]	[Signature]	87-886 Oahu
[Signature]	[Signature]	84-568 Oahu 10/24/01
[Signature]	[Signature]	87-116 Oahu
Toby Leonard	[Signature]	P.O. Box 10214
David Spalding	[Signature]	POKIA BAY
[Signature]	[Signature]	66-138 Kaneohe
Glenn Ah Nee	[Signature]	Keolu Beach
Lionel Lindley	[Signature]	85-890 Wai'anana R
Naomi Araneta	[Signature]	Maile Beach Park
Muriel DeCanti	[Signature]	Wai'anana HI 96792
Bernadette Awana	[Signature]	85-1463 Kapaehahi St
Alstead ANDERSON	[Signature]	POKIA Beach
[Signature]	[Signature]	87-559 Kapaehahi St

PETITION

TO: Attn: Wilma Namunani, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

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NAME (Print)

SIGNATURE

ADDRESS & DATE

Paul Blakemore Paul Blakemore 87-117 MALI DR. #101

Gay C. Barrett Gay C. Barrett 87-169 Ploveria St

~~Simon Kamae~~ Simon Kamae 86-164 Maehala Rd

Simon Kamae Simon Kamae 86-164 Maehala Rd

Margaret A. Kau Margaret A. Kau 87-288 G St. Johns Rd

Lida DeFeo Lida DeFeo P.O. Box 1153 Waiwae

MANUEL G. MCINTOSH Manuel McIntosh 84-717 Moa St

Ms. Donna M. Pule Ms. Donna Pule 86-116 Pokai Bay St

Joy St. P.O. Box 1094 Waiwae 96792

Joy St. P.O. Box 2523 Waiwae

Alicia Manning 87-288 G St. Johns Rd.

Robert Barland 85-933 Bayview At. Waiwae 10/23/01

Michaela Isella 85-933 Bayview St Waiwae 10/23/01

Shirley L. Lippert P.O. Box 1094 Waiwae

JOANNE RAMENOS Joanne Ramenos Naieku Beach Park

Lucy Rose Dunger Lucy Rose Dunger 80/23/01

KATHY KONO Roberta W. 8/26/01

AMICA BARKER 87-1526 Parr Hwy 10/24/01

M. Lynne M. Cronin 87-138 Liliana St 10/24/01

ALAN PERKINS 87-137 Liliana St

PETITION

TO: Attn: Wilma Namumart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

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NAME (Print)	SIGNATURE	ADDRESS & DATE
Rimehana DeCambra	<i>Rimehana DeCambra</i>	85-909 Lihue Ct, 9670
Preston DeLoe	<i>Preston DeLoe</i>	P.O. Box 400
Francine K. Ekau	<i>Francine K. Ekau</i>	87-170 Puakalani St.
Keoni Alensonorin	<i>Keoni Alensonorin</i>	86-908 Ihukou St.
Eunice Ching	<i>Eunice K. Ching</i>	87-146 Makaha St.
Catherine P. Crabb	<i>Catherine P. Crabb</i>	87-116 St. Johns Rd
Albert Wong	<i>Albert Wong</i>	P.O. Box 540, Waialeale, 9679
SKERIE CRISTOBAL	<i>Skerie Cristobal</i>	85-744 Lihue St
Ella M. Lopez	<i>Ella M. Lopez</i>	85-744 Lihue St
Rajmoud M. Al-Hadi	<i>Rajmoud M. Al-Hadi</i>	P.O. Box 1000
MARTIN MCGONAGLE	<i>Martin McGonagle</i>	89-880 KEGONIA PL.
HENRY MURATA	<i>Henry Murata</i>	89-1584 FARMINGTON
Edwin Stanley	<i>Edwin Stanley</i>	SEWERS
ALDINE PEEPLES	<i>Aldine Peoples</i>	KEAAU, BEHUPA
STEPHAN M. RALPS	<i>Stephan M. Ralps</i>	P.O. 4101 Waimanalo
Clat Camara	<i>Clat Camara</i>	Pohani Bay Beach
YVONNA GONCALVES	<i>Yvonna Goncalves</i>	87-139 Kalahele
ALFRED PERREIRA	<i>Alfred Pereira</i>	P248 Kalahele St
VIOL ET AKAU	<i>Violet Akau</i>	P.O. Box 384 Waimanalo
MARGARET WEEKS	<i>Margaret Weeks</i>	84-552 Manuka St

PETITION

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NAME (Print)

SIGNATURE

ADDRESS & DATE 10/11/01

Talisayan, Muriel Muriel Talisayan 85-957 I. MIPONO ST. Wai'anana

KOKO LYDIA Lydia Koko 85-186 MacArthur St. Wai'anana

Gloria Chong Gloria Chong 86-060 Hoahia St. Wai'anana

BERNICE CORDEIRO Bernice Cordeiro 87-131 Malama St. Wai'anana

KIHLANI WHEELER Kihlani Wheeler 87-365 Heleluma Wai'anana

Lisa Valdez Lisa Valdez 84-754 Alamaiku St. 44-B Wai'anana

Carolyn Ah Mook Sang Carolyn Ah Mook Sang 86-142 Hokuukali St. Wai'anana

Talisayan, Salvador Salvador Talisayan 85-957 I. MIPONO ST. Wai'anana

Blinger, Marko Marko Blinger 85-957 I. MIPONO ST. Wai'anana

Carly Pabon Carly Pabon 87-383 Heleluma St. Wai'anana

Anna Achua Anna Achua 84-711 LAHANA, Wai'anana

Harriet Palmero Harriet Palmero 85-215 G. KA. KEA ST. Wai'anana

Patricia L. Saron Patricia L. Saron 85-2121A Wai'anana Vly Rd. Wai'anana

Justina Bini Justina Bini 87-116 Malama St. Wai'anana

Maggie Consejo Maggie Consejo 87-383 Heleluma St. Wai'anana

David Kearney David Kearney 85-167 McArthur ST. Wai'anana

Ruth Castellano Ruth Castellano 84-268 Puhua St. Wai'anana

Nancy Pazo Nancy Pazo 87-140 St. John Rd. Wai'anana

Hona Kye Hona Kye 87-146 Malama St. Wai'anana

Faye Faye Faye 85-1115 Palapala Pl. Wai'anana

Faye Faye Faye 85-1115 Palapala Pl. Wai'anana

Faye Faye Faye 85-1115 Palapala Pl. Wai'anana

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NAME (Print)	SIGNATURE	ADDRESS & DATE
LEROY GARLYO	<i>LeRoy Garlyo</i>	Keaau Beach 10/20/01
JOSEPH TORRES	<i>Joseph Torres</i>	Keaau Beach
Martin C. McCracken	<i>Martin C. McCracken</i>	84186 Kepiwohi
Sherril Rodrigues	<i>Sherril Rodrigues</i>	Keaau Beach
Charles K. Pannu	<i>CHARLES K. PANNU</i>	85-195 FAREWELL RD #230 WAIAICHI HI 96792
Bernardo Dorwela	<i>Bernardo Dorwela</i>	84-444 Keaunui St
MARILYN LIBSIA	<i>Marilyn Libsia</i>	85-760 LILUAE ST
ROXANNE MAMALI	<i>Roxanne Mamali</i>	95810 Old Gov't Rd Waimanalo
Michelle Don	<i>Michelle Don</i>	84-1000 ALA MANA
Louis Smith	<i>Louis Smith</i>	87-288 E ST JOHN RD
Benjamin Johnson	<i>Benjamin Johnson</i>	86-233 Puhou Rd
Olga Kuewa	<i>Olga Kuewa</i>	85-419 Waianae Valley
Thomas Lopez II	<i>THOMAS LOPEZ II</i>	89-118 MOKI AWE ST, WAIKANAHI
T. L. Gray	<i>T. L. Gray</i>	P.O. Box 1275 Waiwae HI
S. SARAGOSA	<i>S. Saragosa</i>	47-288 LILUAE ST JOHN R
JAMES ALAN SR	<i>James Alan Sr</i>	9517th St Waimanalo Rd Pearl City
Alicia K. P. Levy	<i>Alicia K. P. Levy</i>	84409 Teuani Pl Waiwae
RUDY KEAHOE	<i>Rudy Keahe</i>	87-119 LILUAE ST
Lynna D. Lago	<i>Lynna D. Lago</i>	P.O. Box 2865 Keaunui
Sharlene Kea	<i>Sharlene Kea</i>	

PETITION

TO: Attn: Wilma Namunnart, Refuse Division, Department of Environmental Services, City & County of Honolulu, 650 S. King St., Honolulu 96813

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NAME (Print)	SIGNATURE	ADDRESS & DATE
Talisayan, Pedro	Pedro Talisayan	85-958 Imipono St Wai 96797
Talisayan, Richard	Richard Talisayan	85-958 Imipono St Wai 96797
Ms. DONNA H. Pule, Donna Pule	Donna Pule	86-116 POKAI BAY ST.
MATTHEW M. MORRIS	Matthew Morris	84-705 HALEI ST.
Carita L. Medeiros	Carita L. Medeiros	85-303 KAHAI PL.
PATRICK SILVA	Patrick Silva	84-1111 HANA ST.
JoAnn C Lucas	JoAnn C Lucas	84-251 B. HANA ST.

NO MORE LANDFILLS ON THE LEEWARD SIDE

We protest the recent announcement by the City and County of Honolulu that only Leeward sites remain as alternative sites for the landfill to replace Waimanalo Gulch. The Leeward side has had two City and County landfills and currently has an active landfill licensed to receive hazardous waste. We do not want more!

One site mentioned as a location for a landfill is the Ma'ili quarry area. This area is not acceptable for the following reasons:

- Ⓐ This area is adjacent to Ma'ili Elementary School, already identified as having environmental problems caused by dust, fly infestation, unpleasant odors and inadequate drainage during heavy rains. It is wrong to create any potential for additional hazards for our children.
- Ⓑ There is only one road, Farrington Highway, leading into the Leeward side from everywhere else. The required traffic in large trucks associated with a landfill is unacceptable given our current problems with congestion and pedestrian and vehicular safety.
- Ⓒ The roads leading off Farrington Highway to any possible site are narrow and are difficult for large trucks to turn into, creating hazards for local traffic. Additional traffic of large vehicles is unacceptable.

We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
Richard Kai Opunui	Waianae 96792 85-060 Glenmonger St. Opunui	<i>[Signature]</i>	6/8/01
Guinea Blossom Kekua	Waianae 96792 86-050 Glenmonger St. Guinea Blossom Kekua	<i>[Signature]</i>	6/8/01
Geraldine Kekua	Waianae 96792 86-050 Glenmonger St. Geraldine Kekua	<i>[Signature]</i>	6/8/01
Jakob J.K. Kekua	Waianae 96792 85-1278 Koolina St. Jakob J.K. Kekua	<i>[Signature]</i>	6/8/01
Jennifer I.K. Opunui	Waianae 96792 85-1278 Koolina St. Jennifer I.K. Opunui	<i>[Signature]</i>	6/8/01
Charlene N. Schutte	Waianae 96792 85-1267 Koolina St. Charlene N. Schutte	<i>[Signature]</i>	6/9/01
Tommy K. Sitzerle	Waianae 96792 85-1267 Koolina St. Tommy K. Sitzerle	<i>[Signature]</i>	6/9/01
Ed Schutte	Waianae 96792 85-1267 Koolina St. Ed Schutte	<i>[Signature]</i>	6/9/01
SLAVENNE SCHUTTE	Waianae 96792 85-1267 Koolina St.	<i>[Signature]</i>	6/9/01
Diana Marie Kekua	Waianae 96792 85-1278 Koolina St. Diana Marie Kekua	<i>[Signature]</i>	6/9/01
Jonathan W. Goweria	Waianae 96792 87-845 Makino Rd. Jonathan W. Goweria	<i>[Signature]</i>	6-11-01
Joseph P. Opunui	Waianae 96792 85-1278 Koolina St. Joseph P. Opunui	<i>[Signature]</i>	6/20/01

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Print Name	Address	Signature	Date
ALICE MOORE	Parakea Valley Towers Apt, 1639	Alice Moore	5/30/01
A. M. Tucker	84-740 Kili Dr #1128, Waianae 96792	A. M. Tucker	5/30/01
P. B. EPRA	MAKAI VALLEY TOWERS, EMPLOYEES.	P. B. EPRA	5/31/01
J. L. Miranda	84-740 Kili Dr. Waianae HI 96792	J. L. Miranda	5/31/01
RONALD P. LAE SR.	87-1029 Iki Iki Rd	Ronald P. Lae Sr.	5/31/01
MICHAEL W. GILLESPIE	84-714 ALA NAHAHUKU ST 95C	Michael Gillespie	5-31-01
JOHN TATSON	84-740 KILI DR.	John Tatson	5-31-01
Paula A. Murphy	Marakea Valley Towers #1626	Paula A. Murphy	6-1-01
Colfred D. Candia	84-790 Kili Dr #323	Colfred D. Candia	6-1-01
Douglas Frick	84-680 Kili Dr #1403	Douglas Frick	6/1/01
T. O. T. S. S. S.	84-710 Kili Dr #1218	T. O. T. S. S. S.	02 JUN 2001
L. Chum	84-770 Kili Dr #1838 Waianae HI 96792	L. Chum	6/2/2001

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Print Name	Address	Signature	Date
HALINANI MATSUMOTO	2009 AAMANU ST., P.C., HI 96782	<i>Halinaani Matsumoto</i>	5/24/01
Gray H. Matsumoto	2009 AAMANU ST. P.C. HI 96782	<i>Gray H. Matsumoto</i>	5/29/01
Walter Tamura	2004 AAMANU ST. P.C.	<i>W. E. T.</i>	5/29/01
Wendy Lum	2015 AAMANU ST. P.C.	<i>Wendy K. O. Lum</i>	5/29/01
KARETA KEANU	2010 AAMANU ST. P.C.	<i>Kareta Keanu</i>	5/29/01
Joseph A. KEANU	2010 AAMANU ST. P.C.	<i>Joseph A. Keanu</i>	5/29/01
Josephine M. KALOIA	2305 AHAMOA ST. P.C.	<i>Josephine M. Kaloa</i>	5/29/01
DAVID ST. KALOIA	2305 AHAMOA ST. P.C.	<i>David St. Kaloa</i>	5/29/01
Leona P. Agui	2305 AHAMOA ST. P.C.	<i>Leona P. Agui</i>	5/29/01
Lani Pihukula	2305 AHAMOA ST. HI 96782	<i>Lani Pihukula</i>	5/29/01
Nelson K. KALOA	25-1048 D. AINAMAKUA DR. HI 96789	<i>Nelson K. Kaloa</i>	5/29/01
TINA KALOIA	95-1048 D. AINAMAKUA DR. MILILANI 96789	<i>Tina Kaloa</i>	5/29/01

NO MORE LANDFILL ON THE LEEWARD SIDE

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We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
WILLIAM ABSHER	WAIANAЕ, HI. 87-402 KULAWAE ST	W.L. Absher	26 JUN 01
George Sancang	Waihanawana 192 Karsten Dr. WAIANAЕ, HI.	<i>[Signature]</i>	26 JUN 01
LOUANN ABSHER	87-402 KULAWAE ST, WAIANAЕ, HI.	<i>[Signature]</i>	26 JUN 01
JEFF KOZLOWSKI	6028 PUAHA KAUHA, HI WAIANAЕ, HI 96792	Jeff Kozlowski	26 JUN 01
DOMINIC BASTIEN	96-402 KULAWAE ST WAIANAЕ, HI 96792	Dominic Bastien	26 JUN 01
Leanne Caperna	91-415 Aiea St WAIANAЕ, HI 96792	Leanne Caperna	26 JUN 01
DENNIS WILSON	87-405 KULAWAE ST, WAIANAЕ, HI 96792	Dennis Wilson	26 JUN 01
SCOTT SUAREZ	87-396 KULAWAE ST, WAIANAЕ, HI 96792	Scott Suarez	26 JUN 01
LOUI TANAKA	87-404 KULAWAE ST WAIANAЕ, HI 96792	Lou Tanaka	26 JUN 01

NO MORE LANDFILL ON THE LEEWARD SIDE

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Print Name	Address	Signature	Date
DEBRA WHITTEN	85-750 KANUPUNI PLACE	<i>Debra Whitten</i>	5/29/01
Lydia Perry	87190 Maloimani St #B-29	<i>Lydia Perry</i>	5/30/01
Loa Williams	8786 Keolu Rd	<i>Loa Williams</i>	5/30/01
June Gallero	87-338 Kulaume St.	<i>June Gallero</i>	6/4/01
FAYE SIMONS	87189 St John's Rd.	<i>Faye Simons</i>	6/5/01
ARIN ANNE ST	87-121 KULUWAHI ST	<i>Arin Anne St</i>	6/5/01
Cindy Mauai	P.O. BOX 2471 Waianac HI 96792	<i>Cindy Mauai</i>	6/5/01
Maha Keopuhiwa	87-879 A Paakea Rd	<i>Maha Keopuhiwa</i>	6/5/01
Alama Lau	87-112 B Keliikipi St.	<i>Alama Lau</i>	6/5/01
Shayee K. Langley	97-330 B Farr. Hwy	<i>Shayee K. Langley</i>	6/6/01
Koreylene K. Anchetta	87-190 Makona St. # B-23	<i>Koreylene K. Anchetta</i>	6/6/01
Debra May	85-926 Imipono St. 96792	<i>Debra May</i>	6-7-01

NO MORE LANDFILLS IN THE LEEWARD SIDE

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We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
MARY LORENZO	87-360 Kulaarupuni St Wai'anae HI 96792	Mary Lorenzo	5-4-01
CHERYL BOTELHO	" "	Cheryl Botelho	5-4-01
ROSA L Baldisano	" "	Rosa L. Baldisano	5-4
Caryleen DeLaCruz	87-144 Linakoh St	Caryleen DeLaCruz	5/4
Fulton DeLaCruz	87-144 Linakoh St	Fulton DeLaCruz	5/4
Patricia Aquino	87-144 Linakoh St	Patricia Aquino	5/4
Dora Hatori	87-177 Hilo St #3	D. Hatori	5/4
Manuel J. Garueta	same	Dr. Garueta	5/4
Sunday K. Kalauea	85-1288 Kamehaha St	Sunday Kalauea	5/4
Patricia K. Ivin	87-1608	Patricia K. Ivin	5/4
LYDIA N. KATSUDA	87-739A MEALUK RD. WAI'ANA HI 96792	Lydia Kalauea	5/15/01
CHERYL LEE K. AHO	87-288 F ST. JOHNS RD. WAI'ANA HI 96792	Cheryl Lee K. Aho	5/15/01

NO MORE LANDFILLS ON THE LEEWARD SIDE

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Print Name	Address	Signature	Date
Trudy Young	85-1166 Kaneohe Street, Waianae, HI	Trudy Young	5/15/01
Godfrey Young	85-1166 Kaneohe Street, Waianae, HI	Godfrey Young	5/15/01
Patsy K. Lewis	89-346 B Kaulahiki Ave, Waianae HI	96792	5/16/01
FINNELL WILSON'S	86-222 Kauli St	Waianae HI 96792	5/16/01
Raymond Kea	84-710 Kili Dr. Waianae HI	96792 R. Kea	5/16/01
Beverly K. BRASH	87-240 A1 St. Johns Rd, MAIHI, HI	96792	5/16/01
Changping Wu	84-588 Kepone St, Waianae	96792	5/16/01
Diabe Ott	85-130 Alawa Pl. Waianae	96792	5/17/01
Rebecca Hadley-Schlosser	98-719 Iho Pl. #5-402 Aiea	94701 Rebecca Hadley-Schlosser	5/17/01
JULIETTE HERRING	81-1029A HAKIMO RD WAIANAE	96792 Juliette Herring	5/17/01
WHEEM KAUO	01-080 WAAPUKI OT IMAIWA, HI	96792 WHEEM KAUO	5/17/01
DOKIAN HORIO	2273 Auhuhu St. Pearl City	HI 96782 Dokian Horio	5/18/01

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Trent A. Sypriano	85-133 Ala Wai S.I. Waiānana HI 96792	Trent A. Sypriano	5-8-01
William Kailiānu	Ma'ili Elem. Sch. 87-360 Kulanupui St. Waiānana HI	William Kailiānu	5-9-01
Rachel L. Kailiānu	SAME AS ABOVE	Rachel Kailiānu	5-9-01
KETIECHELIE M.K. HO'OMANA	P.O. Box 1443 WAIANAE, HI 96792	Ketiechelie M.K. Ho'omana	5-9-01
CAROLSEAN Z. WOODS	87-133 KOPIKANE ST. WAIANAE, HI 96792	Carolsean Z. Woods	5/9/01
DANON A. WOODS	84-160 Noholio Rd. same as above	Danon A. Woods	05-09-01
Ku'iaha Deke Com	87-144 Linakala St. Waiānana HI 96792	Ku'iaha Deke Com	5/9/01
ESROOY KANE	1531 KAMUPOA DR. WAIANAE HI 96792	Esrooy Kane	5/9/01
Dorlene Baxter	85-175 Farrington Hwy. #4321	Dorlene Baxter	5-14-01
Livy Curran	87-216 Heleluia St.	Livy Curran	5/14/01
Timothy J. Bradley	85-658 Farrington Hwy	Timothy J. Bradley	5/16/01
Monica Makekai	84-151 ST. JOHNS RD. WAIANAE, HI 96792	Monica Makekai	5/16/01

RECEIVED

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Christine Lewis	87-118 Kulakampuni St	Christine Lewis	5/8/01
Faith Tom	87-322 Kulakampuni St	Faith Tom	5/8/01
Terry Miyamoto	84-182 Kepue Pl.	Terry Miyamoto	5-8-01
Reinaldo Corpuz	91-1011 Panapanepuhi St. Ewa Beach HI	Reinaldo Corpuz	5-9-01
Nancy Patterson	84-632 Widemann St., Waianae	Nancy Patterson	5/9/01
Toni Domingo-OKA	87-147 St. John's Waianae, HI	T. Domingo	5/9/01
Diane Black	94-415 Punona St, Mililani	Diane Black	5/9/01
Angela Lawrence	909 Ala Nardala St. Hon. HI 96818	Angela Lawrence	5-9-01
Lauren Aki	84-802 Fricke St., Waianae, HI 96792	Lauren Aki	5-9-01
Leilani Arakaki	94-870 Lumianau St, Waipahu, HI 96797	Leilani Arakaki	5/9/01
Cindi Saito	95-115 Halekua St. Mililani	Cindi Saito	5/9/01
Yvette Sakamoto	87-143 Kulakampuni, Waianae, HI 96792	Yvette Sakamoto	5/9/01

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Pinell Wilks	86-222 Kawili St.	Pinell Wilks	7/24/01
Kathryn Culb	87-2123 Malione St	Kathryn Culb	7/24/01
Suzette Green	87-420 Kulanue St	Suzette Green	7-27-01
Jany Sabas	87-190 Malione St	Jany F. Sabas	7-27-01
Roxanne Kunewa	86-614 Puhukui Rd.	Roxanne K. Kunewa	7/26/01
Dayna Kunewa-March	87-172 Keliikipi St. DIO	Dayna K. Kunewa	7/26/01
Paula Bradshaw	87-118 L.I.A.A. St.	Paula Bradshaw	7-27-01
Pauline Lopez	87-190 Maliana St.	Pauline Lopez	7-27-01
JoAnn Bright-Hurst	87-157A Kakaluan St.	JoAnn Bright-Hurst	7-27-01
Gregory P. Pungent	85-750 KAUPUNE PL	Gregory P. Pungent	7-27-01
Christine J. Norder	87-133 Lopi Kona St	Christine J. Norder	7/28/01
Quincy K. O'Day	89-240 MOKIAUWAI ST.	Quincy K. O'Day	7/28/01

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Print Name	Address	Signature	Date
Abrapete Kāneakua	66-437 Pikai Hale iwa 9612	<i>Abrapete Kāneakua</i>	5/9/01
Debbie Otaoua	814-380 Kulawae St.	<i>Debbie Otaoua</i>	9/6/92 5/9/01
Elsapeta T. Nuko	84-588 Kepuo St. Waiānana	<i>Elsapeta T. Nuko</i>	5/10/01
Joan Santos	94-206 Aniani Pl. #201 Waipahu 96797	<i>Joan Santos</i>	5/10/01
Charmaine Vienna	85-175 Four Hwy	<i>Charmaine Vienna</i>	5/10/01
Catherine Tanida	3215 Ala Ilima St. A1209 Hon 96818	<i>Catherine Tanida</i>	5/10/01
Danidee Asuncion	85-115#F Ala Aka & #Waiānana	<i>Danidee Asuncion</i>	5/10/01
Barbara Khamayr	85-1372 Waiānana Vly Rd Waiānana	<i>Barbara Khamayr</i>	5-15-07
Michelle Nakazato	3859 Nolea St. Hon. HI 96816	<i>Michelle Nakazato</i>	5-14-01
Pōhāi Kūkea	6117B Summer St. Hon. HI 96821	<i>Pōhāi Kūkea</i>	5/15/07
Cariann Sakai	1612 Alahoe St., Hon. 96817	<i>Cariann Sakai</i>	5/15/01

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Print Name	Address	Signature	Date
Michael Josefovicy	871610D Farrington Hwy	Michael Josefovicy	5-4-01
Michael Kehler	871610F Farrington Hwy	Michael Kehler	5-4-01
Jammy Molina	87-16066 Farrington Hwy	Jammy Molina	5-4-01
Charlotte Caulk	87-916A Farrington Hwy	Charlotte Caulk	5/4/01
Lina Treu	871606B Farrington Hwy	Lina Treu	5/4/01
Lawrence Baldissano	87-1608C Farrington Hwy	Lawrence Baldissano	5/4/01
JEFF GARD	PO BOX 247	Jeff Gard	05-05-01
CAROL KEKUA	94-1144 LUMIAUUA ST.	Carol Kekuā	5/7/01
MARVIN N KEKUA	94-1144 LUMIAUUA ST. WAIKANAHI, HI 96797	Marvin N Kekuā	5/7/01
Jeanette Nekota	95-1008 KAHANAWA ST. MILAUA	Jeanette Nekota	5/7/01
Janice Kahawai	PO BOX 333 WAIKANAHI HI 96797	Janice Kahawai	5/7/01
John Waihanaka	87-1516 E Farrington Hwy	John Waihanaka	5/7/01

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Print Name	Address	Signature	Date
Rosa Baldisano	87-1608C Farr. Hwy	Rosa Baldisano	5/4/01
Liliana Mercado	87-1608 D FARR. HWY.	Liliana Mercado	5/4/01
Laura Baldisano	87-1608C Farr. Hwy	Lawrence Baldisano	5/4/01
Jerilee Soares	87-1608 B Farr. Hwy	Jerilee Soares	5/11/01
Regina Anakaul	87-1608 Farr Hwy	Regina Anakaul	5/4/01
Monique Lopez	87-1641 Farr Hwy	Monique Lopez	5/4/01
Maui W. Moku	87-1612 Farr. Hwy	Maui Moku	5/04/01
Yonise Fenumalai	87-1612 B FARR HWY #3	Yonise Fenumalai	5/4/01
Wendell Miguel	87-1612 Farr Hwy	Wendell Miguel	5/4/01
JANA JESUS	87-1610-B FARR. HWY	JANA JESUS	5/04/01
Maria Jesus	87-1608 B FARR HWY #3	Maria Jesus	5/04/01
Lauren Jones	87-1610 D FARR HWY	Lauren Jones	5/4/01

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RITA GRILHO	87-129 KUALA PLACE WAIANAE	<i>[Signature]</i>	05/16/2001
Dee Fanning	87-801 Apana Rd Waianae	<i>[Signature]</i>	5/17/01
GAYLENE JONASSEN	87-173 Maipela St #8 Waianae	<i>[Signature]</i>	5-14-01
cp noelani pavao	87-832 Helekula way 96742	<i>[Signature]</i>	5-18-01
Adele Gaballo	86-550 Ikaolua Rd. Waianae	<i>[Signature]</i>	5-22-01
Tabatha Gaballo	86-85-775 Waianae Valley Rd. Waianae	<i>[Signature]</i>	5-22-01
Franelle Kvakim	87-133 Makoa St. Waianae	<i>[Signature]</i>	5/22/01
DARNELE KOUZA	87-119 Kulaia Pl. Waianae	<i>[Signature]</i>	5/22/01
NORLYN BISOI	87-135 LOPIKANE ST. WAIANAE	<i>[Signature]</i>	5/24/01
Staci Cheek	87-185 Mamoalii Pl. Waianae	<i>[Signature]</i>	05-25-01
JENNIFER RAMIREZ	87-107 Manuiahua Pl Waianae	<i>[Signature]</i>	5-25-01
KATHLEEN PARRIS	86-220 KAWILI ST WAIANAE	<i>[Signature]</i>	5/27/01



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NOLENE WICKINSON	84-770 Kili Dr #339	Nolene Wilkinson	6/5/01
SUSANNE CHAPMAN	84-770 KILI DR.	S. Chapman	6-5-01
Glen Wilkison	84-740 Kili Dr #526	Glen Wilkison	6-6-01
Bob Krohne	84-710 Kili Dr #1514-1504	Bob Krohne	6-6-01
Edna Ikeda	84-929 A Lane St.	Edna Ikeda	6-6-01
Patricia Woods	85-313 Old Plantation Rd #6	Patricia Woods	6/6/01
Charon Hoopili	85-313 Alohiki St. Waianae	Charon Hoopili	6/8/01
KAREN SANKA	84-740 Kili Drive	Karen Sanka	6/8/01
Pon Sose	89-907 Mokuiaue St.	Pon Sose	6-08-01
Timothy Harper	84-770 Kili Drive #940	Timothy Harper	6/8/01
THOMAS HOOPILI	8710 Kili Dr.	Thomas Hoopili	6-8-01
MURRAY KAPOHA	84-710 Kili Drive Apt 1313	Murray Kapoha	6-11-01

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Paul & Young	84-680 KILI DR #1406	Paul & Young	6/13/01
Melaine Peck	84-770 KILI DR. 435	Melaine Peck	14/6/01
Auella Tripp	84-710 KILI DR #2015	Auella Tripp	6/14/01
HARTMAN, G.	84-710 KILI DR #1416	G. Hartman	6/15/01
Sylvia Rivera	84-740 KILI DR #1650	Sylvia Rivera	6/20/01
W. BRACKEN	84-710 KILI DR #911	W. Bracken	6/20/01
F GOMES	84-710 KILI DR.	F. Gomes	6/21/01
Virginia Black	84-770 KILI DR #1038	Virginia Black	6-23-01
Ivy Ohira	87-151 Palakamana Ct. Maianala	Ivy Ohira	6-25-01
EDWARD KENNETH WERNER	17-1864 MOHUKI ST. NANUKULI	Edward Kenneth Werner	
Diane S. Brandon	84-710 KILI DR #1636	Diane S. Brandon	6-25-01

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Carmy Bell	P.O. Box 893777 Mililani, HI 96787	<i>Carmy Bell</i>	6/12/01
Fred Bell	P.O. Box 893777 Mililani, HI 96789	<i>Fred Bell</i>	6-12-01
CHEPULLEN BIKI	85-1268 KOOLINA ST. WAIMANALO HI 96792	<i>Chepul Biki</i>	6-23-01
LOKATI KOKI	2128 TANTANUS DR HONO HI 96813	<i>Chiki Koki</i>	6-23-01
Christine N. Schutte	87-422 KULICAPUNI ST. WAIMANALO, HI 96792	<i>Christine N. Schutte</i>	6-23-01
<i>Adriana K. Nahaia So.</i>	<i>85-1279 KOOLINA ST. WAIMANALO, HI 96792</i>	<i>Adriana K. Nahaia So.</i>	<i>6-25-01</i>
Vellene Cruz	1036 Mananvili loop Kailua, HI: 96734	<i>Vellene Cruz</i>	6-25-01
Davidine H. Farris	85-1279 Kamehiki St	<i>Davidine H. Farris</i>	6-25-01
George J. Farris	1185-1269 Kaneaki St	<i>George J. Farris</i>	
JOSEPH Y.K. YU LIN.	85-1273 KOOLINA ST.	<i>Joseph Y.K. Yu Lin</i>	
LOLA L.C. YU LIN	85-1273 KOOLINA ST.	<i>Lola L.C. Yu Lin</i>	
RAYMOUNT	KAHANANUI 85-1068 PILOKEA ST	<i>Raymount Kahananui</i>	

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GEORGINA KAHLE	89-280 MAHE AVE, NANAKULI, HI 96712	<i>Georgina Kahle</i>	6/15/01
Olivia R.K. Murray	89-643 Pohokani Ave Wai'anae	<i>Olivia R.K. Murray</i>	
ANALIKA NAHUKU	89-215 NANAKULI AVE, NANAKULI, HI 96712	<i>Analika Nahuku</i>	6/15/2001
JAMIE PAWNESS	87280 Holoopo St Wai'anae HI 96712	<i>Jamie Pawness</i>	6/15/2001
Ronald R. LOPES	84-606 Kepue St.	<i>Ronald R. Lopes</i>	6/15/2001
FRANCIS M. MAIKOWSKI	91-200 NA'INA PL EWA BEACH HI 96706	<i>Francis M. Maikowski</i>	6/15/01
JESSICA FALETOI	1049 KAWLOKA BL. PEARL CITY HI, 96782	<i>Jessica Faletoi</i>	6/15/01
Glen Naone	87-422 Kulaupuni St. Wai'anae, HI 96712	<i>Glen Naone</i>	6/15/01
Kita Cocoroti	86-308 Hokuaiana Pl. Wai'anae HI 96712	<i>Kita Cocoroti</i>	6/15/01

NO MORE LANDFILLS ON THE LEEWARD SIDE

We protest the recent announcement by the City and County of Honolulu that only Leeward sites remain as alternative sites for the landfill to replace Waimanalo Gulch. The Leeward side has had two City and County landfills and currently has an active landfill licensed to receive hazardous waste. We do not want more!

One site mentioned as a location for a landfill is the Ma'ili quarry area. This area is not acceptable for the following reasons:

- Ⓐ This area is adjacent to Ma'ili Elementary School, already identified as having environmental problems caused by dust, fly infestation, unpleasant odors and inadequate drainage during heavy rains. It is wrong to create any potential for additional hazards for our children.
- Ⓑ There is only one road, Farrington Highway, leading into the Leeward side from everywhere else. The required traffic in large trucks associated with a landfill is unacceptable given our current problems with congestion and pedestrian and vehicular safety.
- Ⓒ The roads leading off Farrington Highway to any possible site are narrow and are difficult for large trucks to turn into, creating hazards for local traffic. Additional traffic of large vehicles is unacceptable.

We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
Jose Galariada Jr	84-793 Hanalei St	<i>Jose Galariada Jr</i>	6/22/01
Margaret Galariada	84-793 Hanalei St	<i>Margaret Galariada</i>	6/22/01
Jesse Galariada Sr	84-793 Hanalei St	<i>Jesse Galariada Sr</i>	6/23/01
Donyal Galariada	84-793 Hanalei St	<i>Donyal Galariada</i>	6/22/01
Ben Santana	87-179 A Alama'ika'i	<i>Ben Santana</i>	6/23/01
Joel Galariada	84-793 Hanalei St	<i>Joel Galariada</i>	6/23/01
McL Santan	84-664 Ala Mahika #77A	<i>McL Santan</i>	6/23/01
Annie Rubin	P.O. Box 1166	<i>Annie Rubin</i>	6-24-01
ANGELINA KAWAHA	P.O. Box 1166	<i>ANGELINA KAWAHA</i>	6/24/01
Michelle Moore	PO Box 1166	<i>Michelle Moore</i>	6/24/01
Yvonne Waiyalelo	84-807 Hanalei St	<i>Yvonne Waiyalelo</i>	6/24/01
Doreen Lauer	84-785 Hanalei St	<i>Doreen Lauer</i>	6/24/01

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Print Name	Address	Signature	Date
Dorothy J. Koanyi	87-265 Lauke St.	<i>Dorothy J. Koanyi</i>	6-15-01
Kalei Young	86533 Kalona Road	<i>Kalei Young</i>	6-15-01
Vernon Spaul	91-1091 Kekuane Hwy	<i>Vernon Spaul</i>	6-15-01
Jeanette Reis	86-203 MOELUA ST. WAIANAIE, HI	<i>Jeanette Reis</i>	6-16-01
Sandy Souza	86-907 Pukui Pl. Waianae HI 96792	<i>Sandy Souza</i>	6/16/01
CHARLOTTE	84-116 Kapekape Pl. Waianae, Hawaii	<i>Charlotte</i>	6/16/01
Sharon Leonida	86-730 Kabanipale St. Waianae	<i>Sharon Leonida</i>	6/16/01
Nethu Annidaac-Lepido	87-151 Liliuaa Street Waianae	<i>Nethu Annidaac-Lepido</i>	6/16/01
Qonda Williams	PO BOX 1695 96792	<i>Qonda Williams</i>	6/18/01
Phyllis DUNCAN	84-817 MOUA ST WAIANAIE, HI 96792	<i>Phyllis Duncan</i>	6/20/01
ANTONIANA AUA	84-817 MOUA ST WAIANAIE, HI	<i>Antoniana Aua</i>	6/20/01
Jlyn Ballant	89-430 Kapekape Ave	<i>Jlyn Ballant</i>	6/21/01

NO MORE LANDFILLS ON THE LEEWARD SIDE

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We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
DODY LIDESATA	84-991 NAVALA ST MALANA	<i>Dody Lidesata</i>	06/08/01
NADINE NAVARRO	84-986 B HANA ST. MAKAHA	<i>Nadine Navarro</i>	6/09/01
ERIC NAVARRO	84-986B HONA ST. MAKAHA	<i>Eric Navarro</i>	6/9/01
Lei-keen Stanton	89-1109 Paikau Rd. Waianae	<i>Lei-keen Stanton</i>	6/9/01
Cheryl E. Willing	89-373 MOKIAWE ST. NANAKULI	<i>Cheryl E. Willing</i>	6-9-01
Tashalynn Willing	89-373 MOKIAWE ST. NANAKULI	<i>Tashalynn E. Willing</i>	6-9-01
William W. Willing	89-373 MOKIAWE ST. NANAKULI	<i>William W. Willing</i>	6-9-01
Abel "Mama" Raposa	89-683 MOKIAWE ST. NANAKULI	<i>Abel "Mama" Raposa</i>	6-10-01
HARRY M. RAPOSA	89-683 MOKIAWE ST. NANAKULI	<i>Henry M. Raposa</i>	6-10-01
Bridget M. Raposa	89-683 MOKIAWE ST. NANAKULI	<i>Bridget M. Raposa</i>	6-10-01
Sky Stone	1941 KUPAPA PL Hon, HI 96919	<i>Sky Stone</i>	6-10-01
Shari Santos	1521 NANAKULI ST	<i>Shari Santos</i>	6-12-01

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We do not want another landfill developed off the Leeward side.

Print Name	Address	Signature	Date
William & Ida Tom	P.O. Box 2503	[Signature]	6/13/01
J. Murnigh	89-043 Pshakumu Ave	[Signature]	6/14/01
H. Lynch	87-554 Wilma St.	[Signature]	6/14/01
Hattie Mendez	87-112 Lioapa St	[Signature]	6/14/01
D. Heeda	87-224 Mikana St.	[Signature]	6/14/01
Eloise Goshert	87-094 Haleakala Ave.	[Signature]	6/14
Aweenyee A. Gonzalez	87-129 Nanalili Pl	[Signature]	6/14
RONALD ESTRELA	85-117 H AIA WMLUA ST	[Signature]	6/14
Josie K. Keoloha	Waianae Valley	[Signature]	6/14
Sheila Zane	7087-231 Alakahe St	[Signature]	6/14
Walter Kamada	87-173 Kauharae St	[Signature]	6-14-01
Monana J. Jahnu	85-1088 Kopuaia Pl.	[Signature]	6/14

I hereby certify that the above is a true and correct copy of the original as filed in the office of the City and County of Honolulu, Department of Planning and Community Development, on this 14th day of June, 2001.

NO MORE LANDFILLS ON THE LEEWARD SIDE

We protest the recent announcement by the City and County of Honolulu that only Leeward sites remain as alternative sites for the landfill to replace Waimanalo Gulch. The Leeward side has had two City and County landfills and currently has an active landfill licensed to receive hazardous waste. We do not want more!

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We do not want another landfill developed on the Leeward side.

Print Name	Address	Signature	Date
Emilee Sperry	85-791 Farr. Hwy.	Emilee Sperry	6/9/01
Shaena L. DeQuinz	89-604 Haterakala Ave	Shaena L. DeQuinz	6/9/01
Herlani DeLa Cruz	89-604 Haterakala Ave	Herlani DeLa Cruz	6/9/01
Jeanne Ridings	84-716 A Farr. Hwy	Jeanne Ridings	6/9/01
Sunshine S. Aiona	87-131 Puatilanani St.	Sunshine S. Aiona	6/9/01
McKenzie	85-863 Farr. Hwy	McKenzie	6/9/01
Mark Keamo	85-167 McArthur St	Mark Keamo	6/9/01
Amelia Pualani	89-531 Moikawa St	Amelia Pualani	6/9/01
Dee Gocong	3003 Ala Napua Pl. #218	Dee Gocong	6/9/01
Reno Wilcox	3003 Ala Napua Pl. #218	Reno Wilcox	6/9/01
Popula Pualani	89-1988 Komanihewa St.	Popula Pualani	6/9/01
Shapeta Cedeno	87-157 - Hekeheke St #4	Shapeta Cedeno	6/9/01

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One site mentioned as a location for a landfill is the Ma'ili quarry area. This area is not acceptable for this development for the following reasons:

- ③ This area is adjacent to Ma'ili Elementary School, already identified as having environmental problems caused by dust, fly infestation, unpleasant odors and inadequate drainage during heavy rains. It is wrong to create any potential for additional hazards for our children.
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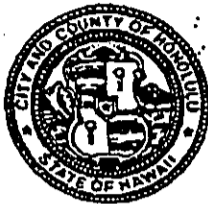
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Print Name	Address	Signature	Date
Tiana Stanton	87-1109 Paakea Rd. Waiānae HI 96792	Tiana Stanton	6/10/01
Elaine Higuachi	P.O. Box 598 Waiānae HI 96792	Elaine Higuachi	6/12/01
ROSETTE MAMUAD	8753 MANUAHUA E ST Waiānae HI 96792	Rosette Mamuad	
Jeddie C. Cekumar	85-175 Farr. Hwy #404 Waiānae HI 96792	Jeddie C. Cekumar	6-12-01
PHYLLIS A FIGUEROA	85-175 Farr Hwy #C427 Waiānae HI 96792	Phyllis A Figueroa	6-12-01
Mary Lou Pratt	85-791 Farr. Hwy Waiānae, HI 96792	Mary Lou Pratt	6-12-01
LISA HOLT	85-570 Monomona Pl Waiānae, HI	Lisa Holt	6/12/01
SELENA SCHAUKE	91-200 Makina Pl. Ewa Beach 96706	Selena Schauke	6/12/01
Rebecca Zetter	87-200 Waiola St. Waiānae 96792	Rebecca Zetter	6/12/01
AMICEL K. SABASTIANI	89-1079 Kapiolani St. Waiānae 96792	Amicel K. Sabastiani	6/13/01
Antoinette G. Waiamau-Nunukuha	89-316A Pua Ave Waiānae HI 96792	Antoinette G. Waiamau-Nunukuha	6-13-01
Cremevieve Nahulu	89-215 Nanea Kuli Ave. 96792	Cremevieve Nahulu	

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-5358 • Fax: (808) 527-5864

JEREMY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

FRANK J. DOYLE, P.E.
CHIEF

IN REPLY REFER TO:
RE 01-120

**WAIMANALO GULCH SANITARY LANDFILL EXPANSION
PUBLIC INFORMATION OPEN HOUSE**

**MONDAY, JULY 16, 2001
11:00 a.m. - 2:00 p.m.**

**GROUND FLOOR MEETING ROOM
KAPOLEI HALE
1000 ULUOHIA STREET**

The City and County of Honolulu Refuse Division of the Department of Environmental Services will be holding a public Open House on the Revised Draft Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion. The Open House will provide the public a chance to talk one-on-one with people knowledgeable about the following areas of the EIS topics: alternative technology, alternative sites, operations, scheduling, recycling/H-POWER and any other issues that are of concern. Individuals interested in discussing these aspects of the EIS may come anytime between 11:00 a.m. and 2:00 p.m. on Monday, July 16, 2001. The Open House will be held at Kapolei Hale, 1000 Uluohia Street, Kapolei, Hawaii.

QUESTIONS:

Call Wilma Namumnart at 527-5378
or Herb Lee at 262-3261

Aloha!
Welcome to the City's Open House.

Subject: The Revised Draft Environmental Impact Statement regarding the proposed expansion of Waimanalo Gulch Sanitary Landfill, Leeward Coast, O'ahu.
Public review and comment period: June 8 to August 7, 2001.

What is an Open House?

The primary purpose of an Open House is to afford the general public an opportunity to get information specific to their needs and or concerns. Not everyone will have the same questions or concerns. This format enables the participant to direct questions to a specific resource person responsible for either studying or compiling the information contained in the draft study.

During the designated time that was announced in the media, participants can come whenever they wish, stay as long as necessary and address topics that interest them in any order they choose.

Finally, it is hoped that the information received can help the public to make an informed comment by the public comment deadline for this report which is Tuesday, August 7, 2001 at 4:30 p.m.

Where do I send my comments or concerns?

You can submit comments as follows:

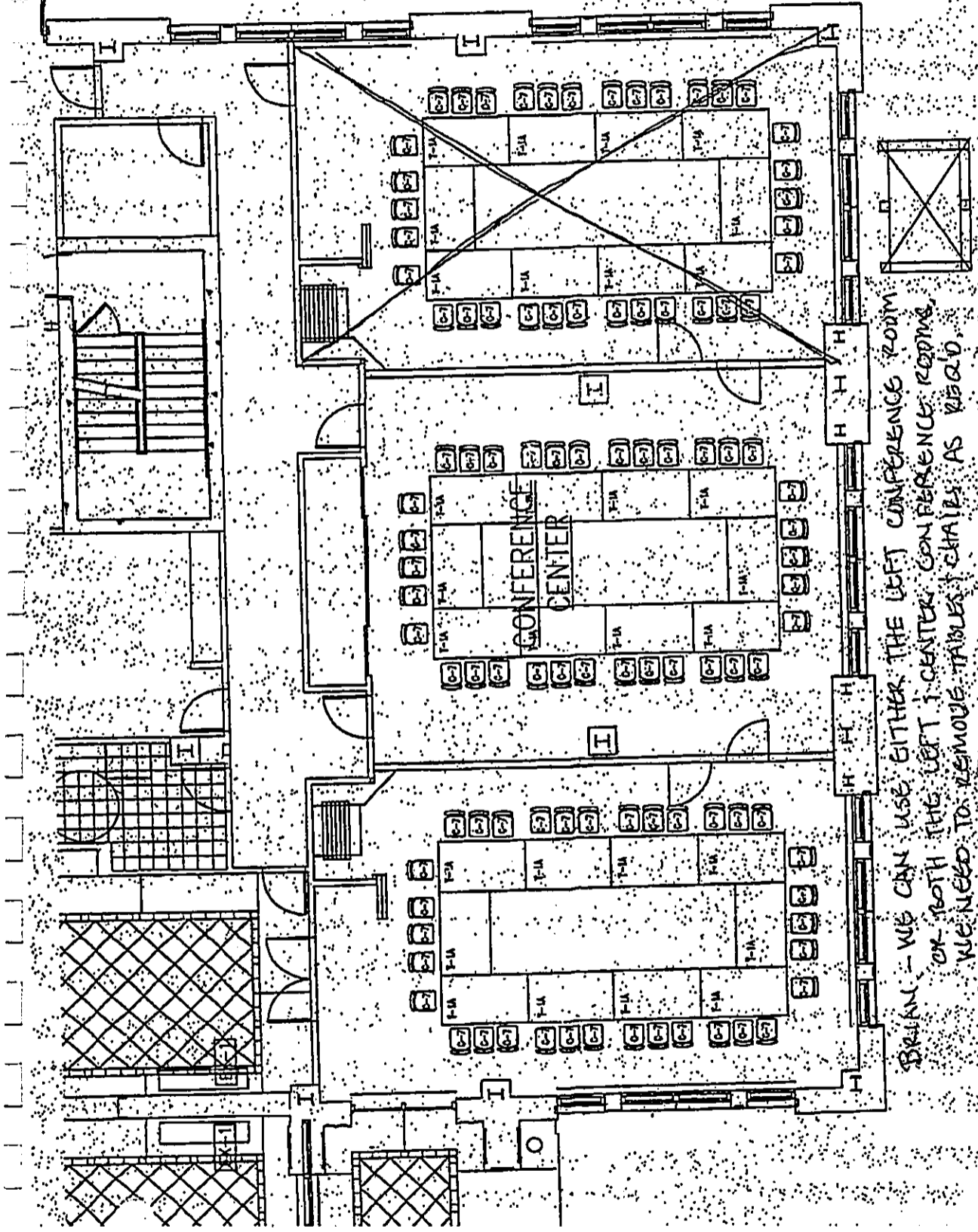
1. Fill out public comment sheet provided at Open House;
2. Mail comments to address on public comment sheet;
3. Submit in person to _____
4. Email _____

If I have additional questions later, whom do I contact?

You may call Wilma Namumnart, City Refuse Division at 527-5378 or Herb Lee, Jr. Community Liaison at 262-3261. Information regarding the Draft report is also available 24 hours a day at the City's website: Opala.org. Hard copies of the report are also at your local libraries.

Mahalo for your interest and participation!

KAPOUOI HALL
FOR: NIILUA (ENV)
Scale: 1/8" = 1'-0"



BRIAN - WE CAN USE EITHER THE LEFT CONFERENCE ROOM
OR BOTH THE LEFT & CENTER CONFERENCE ROOMS.
WE NEED TO REMOVE TABLES & CHAIRS AS NEEDED.

7/16/01



Health of the Land

WAIMANALO GULCH LANDFILL
PRESS STATEMENT FROM HEALTH OF THE LAND

Health of the Land is a community based organization created to defend, protect and support the health and prosperity of lands along the Leeward Coast. We are opposed to the City's latest Environmental Impact Statement ("EIS") which proposes to "expand" the Waimanalo Gulch Landfill. In truth, the EIS proposes the addition of a completely *new* Landfill that almost doubles the size of the present one. The operation of the existing Landfill already raises health and environmental concerns which will only be increased by a *new* one. The economic viability of the Leeward Coast - and, in particular Ko Olina and Oahu's new city, Kapolei - could be significantly harmed by this *new* Landfill.

The growth of the Leeward Coast will impact the future of Oahu and all of Hawaii as it is the next area to provide an economic boom and social impact on the islands. Therefore, this issue is too big to be presented only at the neighborhood board level. A presentation, dedicated to the subject, needs to be made by City decision makers - after full and thorough disclosure.

We have asked the City to remove the current EIS from consideration and to work in a new spirit of community partnership with Health of the Land whereby Health of the Land would support a short term extension of the Landfill - not to exceed two years -- if the Mayor and the City's Department of Environmental Services will agree to close the Landfill within this period and to also make a firm immediate commitment to our community to find an alternative site.

It is essential that we resolve this problem without further delay.

Health of the Land • 92-783 Laaloa Place • Kapolei, Hawaii 96707
Phone: (808) 682-5577

3/10/2001

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
050 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-5358 • Fax: (808) 527-5864

JEREMY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

FRANK J. DOYLE, P.E.
CHIEF

IN REPLY REFER TO:
RE 01-171

WAIMANALO GULCH SANITARY LANDFILL EXPANSION
PUBLIC INFORMATION PRESENTATION

WEDNESDAY, SEPTEMBER 26, 2001
7:00 p.m. - 9:00 p.m.

GROUND FLOOR MEETING ROOM
KAPOLEI HALE
1000 ULUOHIA STREET

The City and County of Honolulu Refuse Division of the Department of Environmental Services will be holding a public information presentation on the Revised Draft Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion. The meeting presentation will include information on alternate sites, technologies and the City's preference for the expansion of the existing Waimanalo Gulch Landfill.

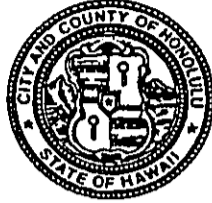
If you require special assistance or auxiliary aids of services to participate in this meeting (i.e., sign language interpreter), please contact Wilma Namumnart at least 72 hours prior to the hearing so arrangements can be made.

QUESTIONS:

Call Wilma Namumnart at 527-5378
or Herb Lee at 262-3261.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-5358 • Fax: (808) 527-5884



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

FRANK J. DOYLE, P.E.
CHIEF

IN REPLY REFER TO:
RE 01-120

**WAIMANALO GULCH SANITARY LANDFILL EXPANSION
PUBLIC INFORMATION OPEN HOUSE**

**MONDAY, JULY 16, 2001
11:00 a.m. - 2:00 p.m.**

**GROUND FLOOR MEETING ROOM
KAPOLEI HALE
1000 ULUOHIA STREET**

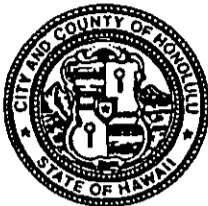
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or Herb Lee at 262-3261

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6863 • Fax: (808) 527-6875



JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-122

July 2, 2001

Mr. Kenneth Williams
General Manager
Ko Olina Resort and Marina
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Mr. Williams:

Subject: Revised Draft Environmental Impact Statement
for Waimanalo Gulch Sanitary Landfill Expansion

I was glad to meet members of your community at the Kapolei Neighborhood Board Meeting.

The Department has notified the Office of Environmental Quality Control that the public comment period for the Revised Draft Environmental Impact Statement for Waimanalo Gulch Sanitary Landfill Expansion will be extended to August 7, 2001. I have enclosed a copy of the letter for your information.

We are also scheduling a public information open house on July 16, 2001, from 11:00 a.m. to 2:00 p.m., at Kapolei Hale. Knowledgeable staff from the Refuse Division, Waste Management of Hawaii, Inc., and R.M. Towill Corporation will be available to share information on a one-to-one basis. Further details are on the enclosed notice.

Thank you for your participation in the EIS process.

Sincerely,


TIMOTHY E. STEINBERGER
Acting Director

Enclosures

cc: Steve Cassulo - Waste Management of Hawaii, Inc.
Joseph Hernandez - Waste Management of Hawaii, Inc.
Brian Takeda - R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR



RECEIVED

JUN 13 4 16 PM '01

GENEVIEVE SALMONSON
DIRECTOR

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

June 7, 2001

Ms. Wilma Namumart
City and County of Honolulu
Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Ms. Namumart:

Subject: Draft EIS for the Waimanalo Gulch Sanitary Landfill
Expansion

This is to confirm that the information received for the
distribution of the Draft Environmental Impact Statement for the
subject project has been verified, therefore, distribution of the
document may proceed.

If you have any questions, please call me at 586-4185. Thank
you.

Sincerely,

Jeyan Thirugnanam
Planner

Post-it® Fax Note	7671	Date	6/13	# of pages	1
To	Erin Tsuda	From	Kilms		
Co./Dept.		Co.			
Phone #		Phone #	527-5378		
Fax #	842-1937	Fax #			

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6683 • Fax: (808) 527-6675



JEREMY HARRIS
MAYOR

Brian
R.M. Towill

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-095

May 25, 2001

Dear Participant:

Attached for your review is a Revised Draft Supplemental Environmental Impact Statement (RDSEIS) which was prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Hawaii Administrative Rules, Title 11, Chapter 200).

TITLE OF PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
LOCATION: Oahu, District of Ewa
TAX MAP KEY: 9-2-3: 072 and 073
AGENCY ACTION: X APPLICANT ACTION: _____

YOUR COMMENTS MUST BE RECEIVED OR POSTMARKED BY: July 23, 2001
(minimum 45 day comment period)

PLEASE SEND ORIGINAL COMMENTS TO THE:

TO APPLICANT: City and County of Honolulu
ADDRESS: Department of Environmental Services
650 South King Street, 6th Floor
Honolulu, Hawaii 96813
CONTACT: Ms. Wilma Namumnart
PHONE: 527-5378

COPIES OF THE COMMENTS SHOULD BE SENT TO OEQC AND THE FOLLOWING:

APPROVING AGENCY OR ACCEPTING AUTHORITY: Mayor Jeremy Harris
ADDRESS: 530 South King Street, City Hall, Room 300
Honolulu, Hawaii 96813
CONTACT: Mr. Randall K. Fujiki, Director, Department of Planning and Permitting, c/o Mayor Jeremy Harris
PHONE: 523-4432

CONSULTANT: R.M. Towill Corporation
ADDRESS: 420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817
CONTACT: Mr. Brian Takeda
PHONE: 842-1133

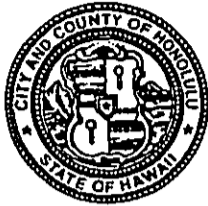
June 13, 2001 - We do not have any comments. If you have any questions, please call Laverne Higa at 527-6246.

ROSS S. SASAMURA, Director and Chief Engineer
Department of Facility Maintenance

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DEPARTMENT OF
FACILITY MAINTENANCE

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

REFUSE DIVISION
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6358 • Fax: (808) 527-5864



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TIMOTHY E. STEINBERGER, P.E. ACTING DIRECTOR	
FRANK J. DOYLE, P.E. CHIEF	

IN REPLY REFER TO:
RE 01-138

JEREMY HARRIS
MAYOR

July 24, 2001

Mr. Jeffery R. Stone
Ko Olina Resort & Marina
1157 Fort Street
Honolulu, Hawaii 96813

Dear Mr. Stone:

Subject: Waimanalo Gulch Sanitary Landfill

The deadline for public comment on the Revised Draft Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion is August 7, 2001. Alternative sites you may have identified for the landfill disposal of municipal solid waste and H-POWER ash will be included in the final document if you submit site selection information for each site by that date.

We recognize the large amount of work involved in finding and evaluating suitable sites. If you are unable to submit complete information by the deadline, please tell us what progress you have made, and we will report your efforts in the final document.

Sincerely,

John C. J. Lee

for FRANK J. DOYLE, P.E.

cc: Councilmember John DeSoto
R.M. Towill, Brian Takeda
Waste Management of Hawaii, Inc.

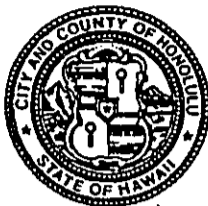
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42 Waipio	4.2
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44 Makakilo Quarry	

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DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-8863 • Fax: (808) 527-8875

JEREMY HARRIS
MAYOR



July 2, 2001

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-121

Ms. Genevieve Salmonson, Executive Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

Subject: Revised Draft Supplemental Environmental Impact Statement (RDSEIS)
for Waimanalo Gulch Sanitary Landfill Expansion, Waimanalo Gulch,
Island of Oahu - Notice of Extension of Public Comments
and Public Information Meeting

The Department of Environmental Services (ENV) is granting a 15-day extension for receipt of public comments for the subject RDSEIS, from July 23, 2001, to August 7, 2001. This extension will permit additional time for public review of the proposed project. Letters of notification will be forwarded to the Kapolei and Waianae Neighborhood Boards, elected officials representing the area of the proposed project, and individuals who have provided written comments or who have participated in prior public informational meetings for the project.

Please also be advised that a new public informational Open House will be held on July 16, 2001, from 11:00 a.m. to 2:00 p.m., at Kapolei Hale, Ground Floor, 1000 Uluohia Street, Kapolei. Notification for this meeting will be mailed and may be announced to the media. All members of the public are welcome to attend.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Steinberger", is written over the typed name.

TIMOTHY E. STEINBERGER
Acting Director

cc: Brian Takeda - R.M. Towill Corporation)
Joseph Hernandez - Waste Management of Hawaii, Inc.

CHAPTER 12
LIST OF PREPARERS

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SMS Research	John Kirkpatrick, Vice President
Cultural Surveys Hawaii (Archaeology)	Hallett H. Hammatt, Ph.D. David Shideler, M.A. Kehaulani Souza, Cultural Specialist Rodney Chiogioji
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Pacific Waste Consulting Group	Mark White, P.E., Principal
Phillip L. Bruner (Fauna)	Phillip L. Bruner, Assistant Professor of Biology BYU-H
Julian Ng, Inc. (Traffic)	Julian Ng, PE, President

CHAPTER 13
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APPENDIX A

Botanical Survey

BOTANICAL SURVEY
WAIMANALO GULCH LANDFILL EXPANSION
'EWA DISTRICT, O'AHU

by

Winona P. Char
CHAR & ASSOCIATES
Botanical Consultants
Honolulu, Hawai'i

Prepared for: R.M. TOWILL CORPORATION

August 1999

BOTANICAL SURVEY
WAIMANALO GULCH LANDFILL EXPANSION
'EWA DISTRICT, O'AHU

INTRODUCTION

The proposed landfill expansion area covers approximately 123 acres located at Waimanalo Gulch, 'Ewa District. The long, narrow gulch is characterized by steep gulch walls with numerous rock outcroppings and boulder piles. The vegetation on the project site and the surrounding, undeveloped lands was subject to a large fire about two years ago. Most of the vegetation, especially the grasses, has recovered, but there are many dead kiawe trees scattered on the sides of the gulch.

Field studies to assess the botanical resources on the proposed landfill expansion area were conducted on August 11 and 12, 1999 by a team of two botanists. The primary objectives of the field studies were to:

- 1) provide a description of the vegetation;
- 2) inventory the flora;
- 3) search for threatened and endangered species as well as species of concern; and
- 4) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

SURVEY METHODS

Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other botanical studies conducted in the general area.

Topographic maps were examined to determine terrain characteristics, access, boundaries, and reference points. A recently bulldozed, 4-wheel drive road, which begins behind of the existing landfill, provided the primary access onto the mauka portions of the expansion area.

A walk-through (pedestrian) survey method was used. Plant identifications were made in the field; plants which could not be positively identified were collected for later determination in the herbarium (University of Hawai'i, Manoa -- HAW), and for comparison with the recent taxonomic literature. Notes were made on plant associations and distribution, disturbances, substrate types, drainage, topography, exposure, etc.

The species recorded are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the field studies. A survey taken at a different time of the year and under varying environmental conditions would no doubt yield slight variations in the species list, especially of the weedy, annual plants.

DESCRIPTION OF THE VEGETATION

Two vegetation types are recognized on the landfill expansion area and are described below. An inventory of all the plants found on the project site during the field studies is presented in the checklist at the end of this report.

Kiawe Scrub

This vegetation type covers the majority of the expansion area. Kiawe scrub occurs on the gulch bottom and lower slopes on Lualualei extremely stony clay soil, 3 to 35 % slopes, "LPE" on the soil maps (Foote *et al.* 1972), as well as on the steep gulch walls classified as Rock Land, "rRK" on the soil maps. Exposed

rock covers 25 to 90% of the surface on the gulch walls.

The general physiognomy of the vegetation is very open kiawe (Prosopis pallida) forest, with 10 to 20% tree cover, and a somewhat dense cover of Guinea grass (Panicum maximum) between the trees. Scattered here and there are shrubs of koa haole (Leucaena leucocephala) and klu (Acacia farnesiana). Smaller shrubs or subshrubs of hoary abutilon (Abutilon incanum) and 'ilima (Sida fallax) are common. Many of the kiawe trees are dead but still standing from the recent fire. There are also many rounded, burnt clumps of grass, 3 to 6 inches tall. Some of the koa haole shrubs have resprouted from the lower rootstock area.

A few variations of the kiawe scrub vegetation can be observed in the field. For example, along the bottom of the gulch and the dry, boulder-strewn streambed, the kiawe trees tend to be somewhat denser, 40 to 50% cover, and taller, 20 to 30 feet; the trees on the steeper gulch slopes are about 15 to 20 feet tall. The bottom of the gulch tends to be somewhat moister and with deeper soil. Guinea grass forms a tall, dense cover in some areas. Other plants found here include sourbush (Pluchea carolinensis), castor bean (Ricinus communis), cocklebur (Xanthium strumarium), lantana (Lantana camara), and two ferns -- 'okupukupu (Nephrolepis multiflora) and wood-fern (Christella parasitica). The endemic wiliwili tree (Erythina sandwicensis) is also found along the bottom of the gulch.

Along the lower portion of the expansion site, where it lies adjacent to the paved road and existing landfill, the soil is somewhat deeper with fewer rock outcroppings. In this area, the grass cover is a mixture of buffelgrass (Cenchrus ciliaris) and pili grass (Heteropogon contortus). Scattered, smaller patches of pitted beardgrass (Bothriochloa pertusa) are common. Guinea grass is occasional and occurs as scattered clumps. Shrubs of klu

become more numerous in this area. This lower portion of the site has a somewhat greater variety of plant species, probably because of the deeper soil and exposure to the tradewinds.

Roadside Vegetation

The recently bulldozed road supports a few scattered patches of plants, primarily Guinea grass and a number of weedy, mostly annual species. Some of these plants are restricted to the roadside area. Weedy annuals include spiny amaranth (Amaranthus spinosus), Trianthema portulacastrum, coatbuttons (Tridax procumbens), slender amaranth (Amaranthus viridus), field bindweed (Ipomoea obscura), fuzzy rattlepod (Crotalaria incana), and apple of Peru (Nicandra physalodes). One small liliko'i vine (Passiflora edulis) and a few cherry tomato plants (Solanum lycopersicon) are also found on the road. In places, there are a few small shrubs of koa haole and sourbush.

DISCUSSION AND RECOMMENDATIONS

Waimanalo Gulch is a narrow gulch with steep slopes and numerous rock outcroppings and boulder piles. Two vegetation types are recognized on the area proposed for the landfill expansion. Kiawe scrub covers most of the site, while roadside vegetation is found on the recently bulldozed road mauka of the existing landfill.

A total of 72 plant species were inventoried on the proposed expansion area. The majority of the species, 63 (87.5%), are introduced or alien species; introduced species are all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact, that is, Cook's discovery of the islands in 1778. Nine (12.5%) species are native. Of these, eight are indigenous and one is endemic. Indigenous species are native to the Hawaiian Islands and elsewhere; these are the

'ilima (Sida fallax), 'uhaloa (Waltheria indica), koali 'awa (Ipomoea indica), hoary abutilon (Abutilon incanum), alena (Boerhavia glabrata), 'ilie'e (Plumbago zeylanica), popolo (Solanum americanum), and pili grass (Heteropogon contortus). The one endemic species is the wiliwili (Erythrina sandwicensis); endemic species are native only to the Hawaiian Islands.

None of the plants found during field studies is a threatened and endangered species or a species of concern (U.S. Fish and Wildlife Service 1999). Other botanical studies conducted for the landfill site (Environment Impact Study Corporation 1983; City and County of Honolulu, Department of Public Works 1984) and for the adjacent Maka'iwa Hills residential development (Char 1990) also recorded similar vegetation types and findings.

There is little of botanical interest or concern on the site as it is dominated by introduced plants such as kiawe, Guinea grass, koa haole, buffelgrass, etc. Evidence of past and recent fires can be found throughout the proposed expansion area. Portions of the kiawe scrub have also been used for grazing cattle. The native plants found on the site occur in similar habitats on lowland, leeward portions of all the main Hawaiian Islands.

Given the findings above, there are no botanical reasons to impose any restrictions, conditions, or impediments to the proposed use of the site. The proposed landfill expansion is not expected to have a significant negative impact on the botanical resources.

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PLANT SPECIES LIST -- Waimanalo Gulch Landfill Expansion

The following checklist is an inventory of all the plants observed on the project site during the field studies. The plant names are arranged alphabetically by families within each of three groups: Ferns, Dicots, and Monocots. The taxonomy and nomenclature of the Ferns are in accordance with Lamoureux (1988). The flowering plants, Dicots and Monocots, follow Wagner *et al.* (1990); the few recent name changes are those reported in the Hawaii Biological Survey series (Evenhuis and Miller, eds., 1995-1998).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name(s), when known.
3. Biogeographic status. The following symbols are used:
 - E = endemic = native only to the Hawaiian Islands.
 - I = indigenous = native to the Hawaiian Islands and elsewhere.
 - I? = questionably indigenous = data not clear is dispersal to the islands by natural or human-related mechanisms, but weight of evidence suggests probably natural.
 - X = introduced or alien = all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact, that is, Cook's discovery of the islands in 1778.
 - X? = questionably introduced = dates of introduction are very early; may possibly be indigenous or of Polynesian introduction, that is, brought to the islands by the early Polynesians before Western contact.
4. Presence (+) or absence (-) of a particular species within each of two vegetation types recognized on the project site (see text for discussion):
 - k = Kiawe Scrub
 - r = Roadside Vegetation

<u>Scientific name</u>	<u>Common name</u>	<u>Status</u>	<u>Vegetation type</u>	
			k	r
FERNS				
NEPHROLEPIDACEAE (Sword fern family) Nephrolepis multiflora (Roxb.) Jarrett ex Morton	'okupukupu, pamoho, ni'ani'au	X	+	-
THELYPTERIDACEAE (Wood-fern family) Christella parasitica (L.) Levl.	wood-fern	X	+	-
FLOWERING PLANTS				
DICOTS				
ACANTHACEAE (Acanthus family) Asystasia gangetica (L.) T. Anderson	Chinese violet, coromandel	X	+	-
AIZOACEAE (Fir-marigold family) Trianthema portulacastrum L.		X	-	+
AMARANTHACEAE (Amaranth family) Amaranthus spinosus L. Amaranthus viridis L.	spiny amaranth, pakai kuku slender amaranth, pakai	X X	- -	+ +
ASCLEPIADACEAE (Milkweed family) Stapelia gigantea N.E. Brown	carrion flower, Zulu-giant	X	+	-
ASTERACEAE (Daisy family) Ageratum conyzoides L. Bidens cynapiifolia Kunth Cyanthillium cinereum (L.) H. Rob. Emilia fosbergii Nicolson Pluchea carolinensis (Jacq.) G. Don Pluchea indica (L.) Less. Sonchus oleraceus L. Tridax procumbens L.	maile hohono West Indian beggar's tick little ironweed pualele pluchea, sourbush Indian pluchea, Indian fleabane sowthistle, pualele coat buttons	X X X X X X X X X	+ + - + + + + + +	+ - + + - - - - +

Vegetation type

Scientific name	Common name	Status	Vegetation type	
			k	r
<i>Xanthium strumarium</i> var. <i>canadense</i> (Mill.) Torr. & A. Gray	cocklebur, kikania	X	+	-
BUDDLEIACEAE (Butterfly bush family) <i>Buddleia asiatica</i> Lour.	dog tail, huelo 'ilio	X	+	-
CACTACEAE (Cactus family) <i>Opuntia ficus-indica</i> (L.) Mill.	panini, papipi	X	+	-
CHENOPODIACEAE (Goosefoot family) <i>Atriplex semibaccata</i> R. Br. <i>Chenopodium murale</i> L.	Australian saltbush 'aheahea	X X	+	- -
CONVOLVULACEAE (Morning glory family) <i>Ipomoea cairica</i> (L.) Sweet <i>Ipomoea indica</i> (J. Burm.) Merr. <i>Ipomoea obscura</i> (L.) Ker-Gawl. <i>Merremia aegyptia</i> (L.) Urb.	koali koali 'awa, koali 'awahia field bindweed hairy merremia, koali kua hulu	X? I X X?	+	- - + +
CUCURBITACEAE (Gourd family) <i>Coccinia grandis</i> (L.) Voigt <i>Momordica charantia</i> L.	coccinia, ivy gourd wild bitter melon	X X	+	- +
EUPHORBIACEAE (Spurge family) <i>Chamaesyce hirta</i> (L.) Millsp. <i>Chamaesyce hypericifolia</i> (L.) Millsp. <i>Euphorbia heterophylla</i> L. <i>Ricinus communis</i> L.	hairy spurge, garden spurge graceful spurge Mexican fireweed, kaliko castor bean, kofi	X X X X X	+	- + - -
FABACEAE (Pea family) <i>Acacia farnesiana</i> (L.) Willd. <i>Chamaecrista nictitans</i> (L.) Moench <i>Crotalaria incana</i> L. <i>Crotalaria pallida</i> Aiton <i>Crotalaria retusa</i> L. <i>Desmanthus pernambucanus</i> (L.) Thellung	klu partridge pea, lauki fuzzy rattlepod, kukaehoki smooth rattlepod, pikakani rattle-box, sauni virgate mimosa, slender mimosa	X X X X X X	+	- + + + - +

Vegetation type

Scientific name	Common name	Status	Vegetation type	
			k	r
<i>Erythrina sandwicensis</i> Degener	wiliwili	E	+	-
<i>Indigofera suffruticosa</i> Mill.	indigo, 'iniko	X	-	+
<i>Leucaena leucocephala</i> (Lam.) de Wit	koa haole, ekoa	X	+	+
<i>Macroptilium latyroides</i> (L.) Urb.	wild bean, cow pea	X	+	+
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	kiawe	X	+	:-
LAMIACEAE (Mint family)				
<i>Hyptis pectinata</i> (L.) Poit.	comb hyptis	X	+	-
<i>Leonotis nepetifolia</i> (L.) R. Br.	lion's ear	X	+	+
MALVACEAE (Mallow family)				
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon, ma'o	X	+	+
<i>Abutilon incanum</i> (Link) Sweet	hoary abutilon, ma'o	I?	+	+
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	X	+	+
<i>Sida ciliaris</i> L.	'ilima	X	-	+
<i>Sida fallax</i> Walp.	prickly sida	I	+	+
<i>Sida spinosa</i> L.		X	+	-
NYCTAGINACEAE (Four-o'clock family)				
<i>Boerhavia glabrata</i> Blume	alena, nena	I	+	-
PASSIFLORACEAE (Passion flower family)				
<i>Passiflora edulis</i> forma <i>flavicarpa</i> Degener	passion fruit, liliko'i	X	-	+
PLUMBAGINACEAE (Leadwort family)				
<i>Plumbago zeylanica</i> L.	'ilie'e, hilie'e	I	+	-
PORTULACACEAE (Purslane family)				
<i>Portulaca oleracea</i> L.	common purslane, pigweed, 'ihi	X	+	+
SOLANACEAE (Tomato family)				
<i>Nicandra physalodes</i> (L.) Gaertn.	apple of Peru	X	-	+
<i>Nicotiana glauca</i> R.C. Graham	tree tobacco	X	+	+
<i>Solanum americanum</i> Mill.	popolo	I?	-	+

<u>Scientific name</u>	<u>Common name</u>	<u>Status</u>	<u>Vegetation type</u>	
			<u>k</u>	<u>r</u>
<i>Solanum lycopersicum</i> L.	cherry tomato	X	-	+
STERCULIACEAE (Cacao family) <i>Waltheria indica</i> L.	'uhaloa, hi'aloa, kanakaloo	I?	+	+
VERBENACEAE (Verbena family) <i>Lantana camara</i> L. <i>Stachytarpheta jamaicensis</i> (L.) Vahl	lantana, lakana Jamaica vervain, owi, oi	X X	+	- -
MONOCOTS				
COMMELINACEAE (Spiderwort family) <i>Commelina benghalensis</i> L.	hairy honohono	X	+	-
POACEAE (Grass family) <i>Bothriochloa pertusa</i> (L.) A. Camus <i>Bothriochloa</i> sp. <i>Cenchrus ciliaris</i> L. <i>Chloris barbata</i> (L.) Sw. <i>Dactyloctenium aegyptium</i> (L.) Willd. <i>Eleusine indica</i> (L.) Gaertn. <i>Eragrostis cilianensis</i> (All.) Link <i>Heteropogon contortus</i> (L.) P. Beauv. ex Roem. & Schult. <i>Melinis repens</i> (Willd.) Zizka <i>Panicum maximum</i> Jacq. <i>Setaria verticillata</i> (L.) P. Beauv.	pitted beardgrass buffelgrass swollen fingergrass, mau'u lei beach wiregrass wiregrass, goosegrass stinkgrass pili, pili grass Natal redtop, Natal grass Guinea grass bristly foxtail, mau'u pilipili	X X X X X X X X I? X X X	+	- - + + - + - - + + + +

APPENDIX B

Survey of Avifaunal and Feral Mammals

SURVEY OF THE AVIFAUNA AND FERAL MAMMALS FOR THE PROPOSED
WAIMANALO GULCH LANDFILL EXPANSION PROJECT, OAHU

Prepared for:

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2 August 1999

INTRODUCTION

The purpose of this report is to summarize the findings of a bird and mammal field survey, conducted on 28 July 1999, of an approximately 100 acre site at Waimanalo Gulch, Leeward Oahu (Fig. 1.) Also noted for comparative purposes are references to pertinent literature and unpublished reports, including the 1984 EIS for the Waimanalo Gulch site.

The objectives of the field survey were to:

- 1- Document what bird and mammal species occur on the property. Note other birds and mammals that potentially could be found in this area given the types of habitat present on the site.
- 2- Provide some baseline data on the relative abundance of each species.
- 3- Make the primary focus of the survey an investigation of the presence or likely occurrence of any native fauna, particularly those that are listed as "Endangered" or "Threatened".
- 4- Determine if the property contains any special or unique resources important to native wildlife.

SITE DESCRIPTION

This 100 acre site is located in a narrow "V" shaped valley. A stream (dry except during brief flash floods) runs along the bottom

of the valley. Introduced vegetation dominates the plant communities. During the site visit the vegetation was sparse and dry. The present landfill and rock quarry are located makai of the proposed expansion site. Dry, barren, rocky cliffs form the sides of the valley and upper ridges mauka of the site. A recently cut road runs the length of the property proposed for landfill expansion (Fig. 1).

Weather during the survey was cloudy with a light, misty rain. Winds were from the east at 10 mph.

STUDY METHODS

The property was surveyed on 28 July 1999. The length of the site was walked using the new access road. The narrow valley made it possible to easily see and hear birds from the road. Field observations were made with the aid of binoculars and by listening for vocalizations.

All birds seen or heard were tallied. These data provide the basis for the relative abundance estimates given in Table One. Published and unpublished reports of birds known from similar lands nearby on Oahu were also examined in order to acquire a better perspective of the possible fauna that could occur in this region (Pratt et al. 1987, Hawaii Audubon Society 1993, Bruner 1989, 1990a, 1990b, 1992, 1993, 1996, 1999). The faunal checklist in the 1984 EIS was also consulted. Observations of feral mammals were limited to visual sightings and evidence in the form of scats and/or tracks. No attempts

were made to trap mammals in order to obtain data on their relative abundance and distribution. Such an effort was not possible nor necessary within the time constraints of the field study.

Scientific names of birds and mammals used in this report follow those given in Checklist of the Birds of Hawaii (Pyle 1997) and Mammal Species of the World (Honacki et al. 1992).

RESULTS AND DISCUSSION

Resident Endemic (Native) Birds:

No native landbirds were recorded on the survey. Given the location, elevation and type of habitats available at this site the absence of native landbirds was not unexpected. The Short-eared Owl or Pueo (Asio flammeus sandwichensis) forages in agricultural fields and pastures as well as in upland forested habitat (Hawaii Audubon Society 1993). It is listed as endangered by the State of Hawaii on the island of Oahu. Although this species was not recorded on this survey it potentially could forage in this area. I have seen Pueo at several locations in this region of Oahu during the past five years. Pueo nest on the ground and prefer tall grass.

Migratory Indigenous (Native) Birds:

Migratory shorebirds winter in Hawaii between the months of August through May. Some juveniles will stay over the summer months as well (Johnson et al. 1981, 1983, 1989). The most abundant shorebird species which winters in Hawaii is the Pacific Golden-Plover (Pluvialis

fulva). Plover forage in open areas such as mud flats, lawns, pastures, plowed agricultural fields and roadsides. Plover are extremely site-faithful and most establish winter foraging territories which they defend vigorously. Such behavior makes it possible to accurately census the plover population in a particular area (Johnson et al. 1989). No plover were recorded on this survey. This was not unexpected. At this time of year migratory shorebirds are on their arctic breeding grounds. The habitat at this site is not particularly attractive to plover. It is possible a few birds might utilize the tops of the ridges on either side of the valley. This species is not endangered or threatened.

Resident Indigenous (Native) Seabirds:

No seabirds were observed. The White-tailed Tropicbird (Phaethon lepturus) is commonly seen soaring along the rocky cliffs in this region of Oahu. Predators such as dogs and cats, along with human disturbance limit seabird nesting to a few isolated locations (Hawaii Audubon Society 1993). White-tailed Tropicbirds nest on cliffs. This behavior limits predator access. This species is not endangered or threatened.

Resident (Native) Waterbirds:

There is no wetland habitat suitable for native waterbirds on this property. No waterbirds were recorded or expected at this site.

Exotic (Introduced) Birds:

A total of 13 species of exotic birds were recorded during the course of the field survey. This list is similar to that obtained on other comparable lands by Bruner (1989, 1990a, 1990b, 1992, 1993, 1996, 1999). The 1984 EIS survey lists fewer species than were observed on this 1999 survey. This earlier survey uses some common names that have been changed in more current Checklists (Pyle 1997). The 1984 EIS Checklist for this area lists the relative abundance of all the observed exotic species as "occasional". It defines this status as: "limited; seen infrequently in the study area or restricted to one habitat or a few habitats". This rather imprecise designation provides little useful information about exotic species at this site. It is unlikely that all species in a particular region would have the exact same relative abundance. Table One gives the relative abundance of each species recorded on this 1999 survey. In addition to these species other exotic birds which potentially could occasionally occur on the property include: Barn Owl (Tyto alba), Skylark (Alauda arvensis), Ring-necked Pheasant (Phasianus colchicus), Gray Francolin (Francolinus pondicerianus), White-rumped Shama (Copsychus malabaricus), House Sparrow (Passer domesticus), and Chestnut Mannikin (Lonchura malacca).

Feral Mammals:

Cat (Felix catus) tracks were seen along the road into the valley. Small Indian Mongoose (Herpestes auropunctatus), rats (Rattus sp.) and mice (Mus musculus) were not seen but undoubtedly occur on the property. The endemic and endangered Hawaiian Hoary Bat (Lasiurus cinereus semotus) is rarely seen on Oahu (Tomich 1986, Kepler and Scott 1990). No bats were observed on the survey. This species is known to roost solitarily in trees and forages for flying insects using echolocation (Jacobs 1993). They used a variety of habitats including native forests, ranchlands, ponds and bays as well as urban areas (Jacobs 1991). The life history of this species is incompletely known. The most recent bat research on the Big Island has yielded some new insights into their behavior (Reynolds et al. 1998).

CONCLUSIONS

A short survey can only provide a limited view of the wildlife that may use the site. The number of species and their relative abundance may vary throughout the year due to resource (food, water) availability and reproductive success. Species which are migratory will only be an important part of the faunal picture at certain times during the year. Exotic species sometimes prosper for a time only to later disappear or become a less significant part of the faunal community (Williams 1987, Moulton 1990). Thus while only long term studies can provide a comprehensive view of the bird and mammal

populations in a particular area, some general observations related to bird and mammal activity at this site can be made. Below is a summary of the findings of this survey.

- 1- The site was surveyed by walking the entire length of the property. Census data on birds were obtained by keeping a running tally of all birds seen or heard.

- 2- No native resident landbirds were tallied on the survey. The native owl (Pueo) is endangered on Oahu but was not recorded on this survey. They have been recorded on nearby lands and probably forage on occasion in Waimanalo Gulch.

- 3- The migratory Pacific Golden-Plover, was not recorded. This species likely occurs on the property from August to May. It is a common migrant and is not endangered or threatened.

- 4- The list of exotic birds recorded on the survey (Table 1) was typical for this area and compared favorably with the data obtained by Bruner on other similar properties on Oahu. The list of exotic species recorded in 1984 for the EIS was more than doubled by this current survey.

- 5- Cats were recorded at this site. Rats, mice and mongoose probably occur in this area but were not found on this survey. The endangered Hawaiian Hoary Bat was not observed. This species is rarely seen on Oahu.

6- This property appears to have been significantly altered by introduced vegetation. No unusual or unexpected species were recorded.

7- The expansion of the landfill into this portion of Waimanalo Gulch will likely alter the species composition and relative abundance of introduced birds. Some species such as mynas, doves and egrets could increase in number. The native and endangered Pueo (Short-eared Owl) forages in a wide variety of natural and man altered habitats. If there is an increase in mice due to the landfill operation this might make the area more attractive to foraging Pueo.

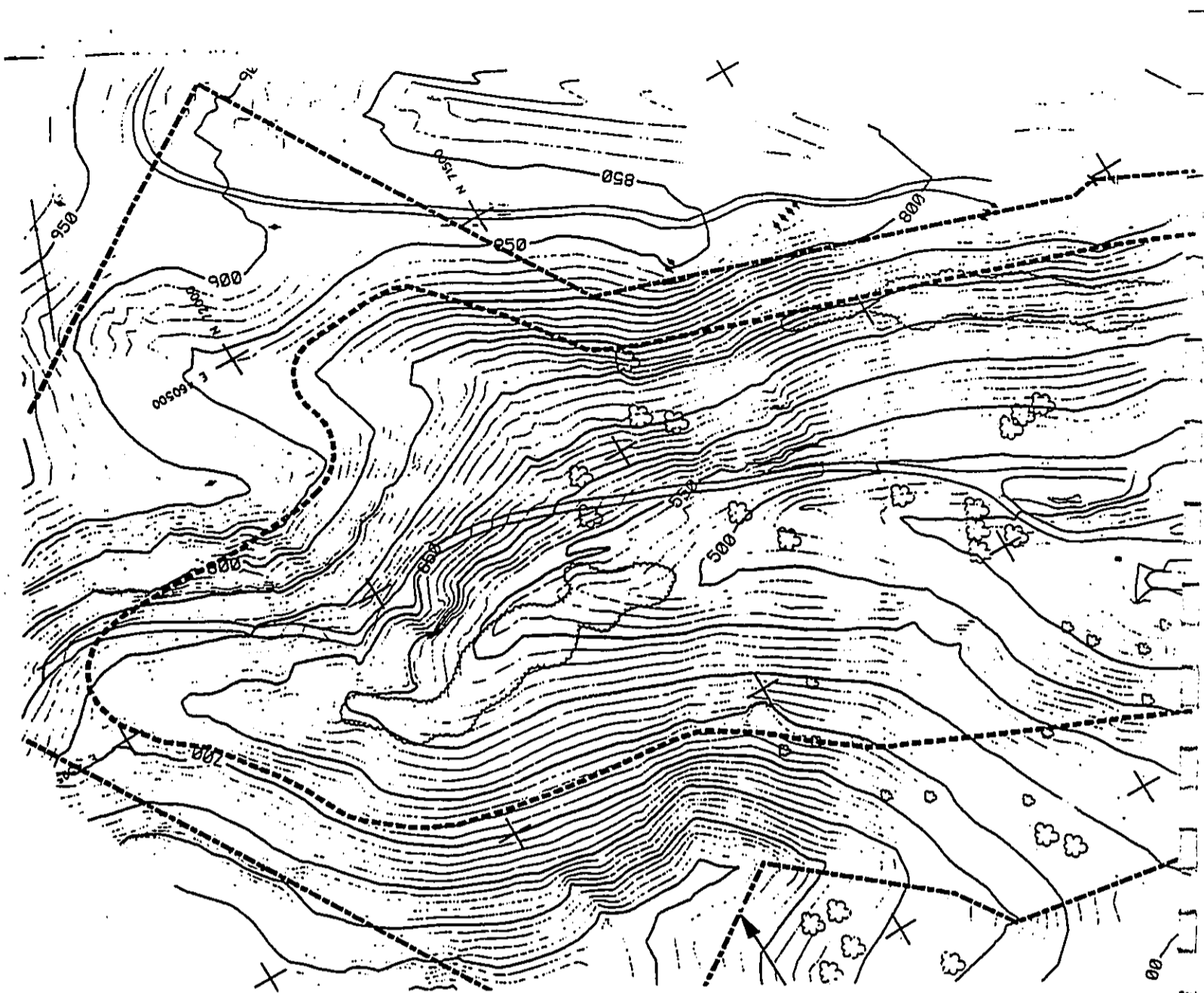


Fig. 1. Location of proposed Waimanalo Gulch Landfill Expansion Project. Faunal survey followed the road running through the center of the site.

TABLE 1

Introduced species of birds recorded on the site of the proposed
Waimanalo Gulch Landfill Expansion, Oahu.

COMMON NAME	SCIENTIFIC NAME	RELATIVE ABUNDANCE
Cattle Egret	<u>Bubulcus ibis</u>	U
Erckel Francolin	<u>Francolinus erckelii</u>	R
Rock Dove	<u>Columba livia</u>	C
Spotted Dove	<u>Streptopelia chinensis</u>	A
Zebra Dove	<u>Geopelia striata</u>	C
Red-vented Bulbul	<u>Pycnonotus cafer</u>	A
Common Myna	<u>Acridotheres tristis</u>	A
Japanese White-eye	<u>Zosterops japonicus</u>	R
Northern Cardinal	<u>Cardinalis cardinalis</u>	R
House Finch	<u>Carpodacus mexicanus</u>	U
Common Waxbill	<u>Estrilda astrild</u>	A
Nutmeg Mannikin	<u>Lonchura punctulata</u>	U
Java Sparrow	<u>Padda oryzivora</u>	R

KEY TO TABLE 1

Relative abundance = Number of times observed during the survey

A = abundant (30-50)

C = common (15-29)

U = uncommon (5-14)

R = rare (1-4)

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APPENDIX C

Traffic Assessment and Recommendations

Waimanalo Sanitary Landfill

Existing Traffic Conditions

Vehicular access to the Waimanalo Sanitary Landfill is provided by a two-lane roadway that connects with Farrington Highway at an unsignalized T-intersection located approximately 2.7 miles west of Palailai Interchange (access to Campbell Industrial Park). The access road is 0.1 mile west of the overpass serving the Ko Olina resort (Alii Nui Drive).

In this vicinity, Farrington Highway is a divided, four-lane road with a posted speed limit of 45 miles per hour. The landfill is located north (*mauka*) of the highway; traffic to and from Ko Olina resort south (*makai*) of the highway is served by ramps and an overpass in a trumpet interchange to the east of the landfill access road. An unsignalized intersection that provides access to Kahe Point Beach Park is located approximately 0.5 mile to the west; access to the Kahe Point power plant is located 0.3 mile farther to the west. Farrington Highway traffic flows are affected by traffic signals located at Piliokahi Street and Nanakuli Avenue, 2.2 and 2.7 miles west, respectively, of the landfill access road. Existing T-intersections with Waiomea Street (presently unsignalized but planned for signalization within two years, 0.8 mile from the landfill access road) and Laaloa Avenue (signalized, 1.3 miles from the landfill access road) are located to the east.

The landfill access road intersects Farrington Highway as the stem of a "T"-intersection. The intersection is channelized; vehicles approaching the highway from the landfill are controlled by a stop sign prior to crossing the westbound lanes of the highway to turn left and proceed eastbound. Left turns onto the highway are made across gaps in the westbound (toward Waianae) traffic stream into an acceleration lane in the highway median; this traffic must then merge with eastbound (toward Honolulu) traffic.

A yield sign controls vehicles making right turns onto the highway from the landfill access road; turns are made into gaps in the westbound traffic stream.

An auxiliary lane between an on-ramp from the Ko Olina interchange and the landfill access road serves as a deceleration lane for westbound traffic turning right into the landfill site. A separate left turn deceleration lane is provided within the highway median for eastbound traffic turning into the landfill site.

The State Highways Division estimates that the average daily traffic on Farrington Highway near the landfill is 36,000 vehicles per day, with 4.0% of this traffic being trucks. Traffic on the highway in recent years has fluctuated, but no definite trend is indicated by the recent estimates, as shown in Table (a).

Table (a)
AVERAGE DAILY TRAFFIC
 Farrington Highway, Palailai Interchange to Kahe Point

Year	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
Average Daily Traffic	36,496	37,728	38,800	37,662	35,852

Source: State of Hawaii, Department of Transportation, Highways Division
Traffic Summary, Island of Oahu - 1997

Traffic volumes vary with the day of week, with the highest volumes occurring on Fridays. Weekday peak hours typically occur between 6:15 and 7:15 AM and between 3:30 and 4:30 PM. Daily totals and peak hour data from traffic counts taken by the State Highways Division of highway traffic at Kahe Beach Park in February, 1997, are shown in Table (b).

Table (b)
TRAFFIC COUNT DATA, 1997
 Farrington Highway, east of Kahe Beach Park

direction of travel	<u>24-hour total</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>(both directions)</u>	<u>east</u>	<u>west</u>	<u>east</u>	<u>west</u>
Thursday, February 13	39,092	1,988	1,022	1,169	1,999
Friday, February 14	42,575	1,869	932	1,293	1,878
Saturday, February 15	35,045	1,139	714	1,201	1,142
Sunday, February 16	30,249	809	602	1,028	1,082
Monday, February 17 *	30,620	702	559	1,002	1,331
Tuesday, February 18	35,154	1,570	1,013	1,021	1,899

* (President's Day)

Source: State of Hawaii, Department of Transportation, Highways Division
Traffic Survey Data, Island of Oahu - 1997

Field observations indicate that the intersection of Farrington Highway and the landfill access road operates at acceptable conditions. Estimated volume of vehicles on the landfill access road is 70 vehicles per hour (total of entering and exiting traffic), during midday hours when highway volumes are approximately 2/3 of the peak hourly volumes.

During the peak morning and afternoon peak periods when traffic volumes on the highway are at their maximum levels, traffic volumes in and out of the landfill are about half of the maximum hourly volumes. Gaps in the highway traffic streams resulting from the

traffic signals at Laaloa and Piliokahi Streets provide periodic opportunities for landfill traffic to cross or enter the highway.

Future Traffic Conditions

The traffic volumes due to the proposed extension of the landfill are not expected to be any different from existing volumes. However, traffic volumes on the highway are expected to increase as population on the Waianae coast increases. The latest long-range transportation plan for Oahu* is based on projections that show the daily traffic across Kahe Point increasing to over 70,000 vehicles per day (from the existing 36,000) and morning peak hour traffic increasing to 2,880 vehicles per hour (from the existing 2,000) in the peak eastbound direction on Farrington Highway.

The movements which stop or yield to highway traffic would be more difficult if the forecasted 45% increase in peak hour traffic volumes on the highway occur. Delays to exiting traffic would increase as the number of acceptable gaps in the highway traffic stream decrease.

The installation of traffic signals at the intersection of the landfill access road and Farrington Highway is a possible mitigation measure to decrease delays. However, minor street volumes at the intersection would likely not meet the minimum volumes needed to satisfy any of the volume warrants for traffic signals. Proper timing of the nearest signals at Piliokahi Avenue (2.2 miles to the west) and at Waiomea Street (0.8 mile to the east) could provide gaps between platoons of traffic so that movements into and out of the landfill access road can continue to be made with minimal delay.

* Oahu Metropolitan Planning Organization, *Oahu Regional Transportation Plan*, November 1995. Tables 2-6 and 2-7.

APPENDIX D

*Socio-Economic Impact Assessment
of Waimanalo Gulch Sanitary Landfill Expansion*



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**SOCIO-ECONOMIC IMPACT
ASSESSMENT OF
WAIMANALO GULCH
SANITARY LANDFILL EXPANSION**

December 2002

Prepared for:

**Environmental Services Department,
City and County of Honolulu**

Waste Management of Hawaii, Inc.

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NCQA Certified
Hospitality Advisors, LLC

EXECUTIVE SUMMARY

The Project. The Refuse Division, Environmental Services Department, City and County of Honolulu proposes to extend the landfill area at the Waimanalo Gulch Sanitary Landfill, Ewa Development Plan area, Oahu, by 14.9 acres. The extension is estimated to provide additional capacity to meet Oahu's landfill needs for about five years. At the same time, the Division is renewing its efforts to reduce the waste stream and is pursuing the goal of closing the Waimanalo Gulch Sanitary Landfill.

Socio-Economic Context. The island of Oahu is the largest study area for this report, since it has a waste stream that deposited nearly 500,000 tons to the landfill in 2001. More immediately, the Ewa Development Plan (DP) Area and the Waianae Coast Sustainable Communities Area, with the communities of Ko Olina, Honokai Hale, Kapolei and Makakilo (in Ewa) and Nanakuli (in Waianae Coast) are selected for study because of concerns about impacts of waste hauling and landfilling. A small group of houses, Kahe Point Homes, is singled out as immediate neighbors of the landfill.

Oahu has been the center of Hawaii's economic and political life since the last century. It still has 72% of the population. With growth has come a need to develop new areas. This process has led to movement of landfills to outlying areas, as the surroundings of existing ones become urbanized. Waimanalo Gulch is the only operating municipal solid waste landfill on Oahu. A private landfill takes construction and demolition waste, and can also handle asbestos and oil-contaminated soils.

The Ewa DP area is a major focus for new development. Kapolei and its surroundings include residential, commercial, resort and industrial areas. On average, about 975 new homes have been built each year (from 1990 through 2001) in the Ewa DP area. About half are in the Kapolei area. Development of Ko Olina, at the western end of the area, slowed during the 1990s, but is now increasing. While population growth has been slowing islandwide over the last two decades, it has increased in Ewa. Ewa communities are characterized by young families with above-average incomes. New development could accelerate in the next few years as the State Department of Hawaiian Home Lands and a private developer taking over remnant lands at Barbers Point from the US Navy may both seek to produce new inventory quickly, increasing local housing available for low-income families.

The Waianae Coast has seen less growth in recent years, and City plans support little growth in this area. While the median age is well below the average, household sizes are larger than elsewhere on Oahu.

Community Concerns. In the research for this report, SMS interviewed three stakeholder groups and reviewed records of community concerns from the regions around the project site. They had very different perspectives:

- Members of the regional community express strong opposition to continuing operation of the Waimanalo Gulch Sanitary Landfill. They see the landfill as the source of air-borne dust, debris and odors, and as an eyesore. They understand the City as having committed, before the landfill opened in 1989, to closing it when the area then designated for landfill reached capacity. They further see the City as manipulating the EIS process to make the extension inevitable. Some accuse the City of "environmental racism," i.e., the location of unwanted land uses in low-income and minority communities. Others see Waimanalo Gulch as an impediment to the development of Ko Olina as a major resort, and view the project as simply prolonging the problem. While some view a landfill as needed on Oahu, they stress their opposition to continuing this City service in their region.
- Environmental specialists, including several people who send special wastes to the landfill, tend to see it as a necessary City facility, and as important for the well-being of the island community. They see the landfill as a valued resource for their firms and the wider community. They see landfill charges as reasonable, its operation as professional. They welcome the City's commitment to reduce the waste stream and see the need for increased recycling.
- Other members of the islandwide community emphasize the importance of the landfill to Oahu's prosperity. They tend to know little about the details of landfilling, but expect that alternative methods of waste disposal would be costly, and would hence tend to make prosperity harder to maintain and continue.

While many in the local community and others share both broad goals and interest in improved environmental practice, the deep suspicion of and opposition to the City and Waste Management of Hawaii, Inc. expressed by local community representatives are not shared by other stakeholders.

Impacts of the Project. The project continues an existing City service, rather than developing a new project. As such, its impacts lie in (a) continuing existing processes and relationships, (b) providing services over a period in which alternative technologies and further waste stream reduction can be explored, and (c) avoiding the consequences of the No Action Alternative. The report focuses on the first and last of these approaches to impact assessment, while recognizing the contribution of the project to other efforts to reduce the waste stream.

Economic Impacts: Waste Management of Hawaii, Inc. devotes a staff of 14 to work at or associated with the Waimanalo Gulch landfill. Indirect and induced jobs in Hawaii associated with this activity number 23. The total workforce income for direct, indirect and induced workers comes to \$1.46 million (2001 dollars). No population, housing, or fiscal impacts of the project are anticipated, since no new workforce is involved. Construction is an ongoing activity -- opening new cells for filling, digging and spreading cover material for other cells is done in the normal

course of operations - so no separate construction workforce and incomes are calculated.

Fiscal impacts of continuing operations are continued City and County costs and revenues of solid waste disposal, i.e., no new impact.

Public Facilities and Services: SMS considered potential impacts on police, fire, public education, library, medical, emergency, recreation and public transportation services, and found no impact due to the project.

Other Social Impacts: Continued operation of the landfill for another five years, once permits are obtained (taken with other practices) will assure effective near-term management of solid waste on Oahu and allow time for development of new waste disposal technologies.

Operation of the landfill according to standards developed in the course of the EIS review process should lead to much lower incidence of problems that have irritated members of nearby communities. Also, improvements in recycling and alternative technologies should lead over time to a reduction in the waste stream and should eliminate occasions on which garbage, rather than waste processed at H-POWER, goes straight to Waimanalo Gulch.

Recent community discussions have identified air-borne irritants - trash blowing from disposal trucks and from the landfill site, and odors - as recurring problems. Again, the appearance of the landfill has been viewed as detrimental to the community. The City and its contractor have responded with measures to control these. Such controls are part of mandated operations and hence part of the project. However, suspicion of the City and Waste Management is so strong among local community leaders that effective controls cannot be expected to lead to community recognition of improved practices, much less acceptance. Unless local community representatives come to know that operations meet or exceed standards, the expectation that the landfill is a continuing source of pollution will remain part of community life.

SMS analyzed the impact of proximity to the Waimanalo Gulch landfill on values of both single family and condominium properties. The model was strong enough to be able to account well for valuation of residential properties in Ewa and Nanakuli. Proximity to the landfill was not a consistent contributor to value: values increased with distance from the landfill for single family homes, but decreased for condominiums. Accordingly, we find no clear empirical basis for asserting that the landfill affects property values negatively.

Stakeholder claims that the southwest corner of Oahu has a disproportionate share of the island's locally unwanted land uses have a fairly evident basis in fact. However, many of the land uses in question are industrial activities in James Campbell Industrial Park, the site of employment for many residents of the region. The current location of the landfill relatively close to the industrial park limits travel distance (hence cost and likelihood of ash or residues falling off trucks) to and from

the H-POWER plant. However, the question of whether that efficiency outweighs the high concentration of unwanted land uses and the location of a waste disposal site just inland from a resort will bear review in future landfill siting decisions.

Implications of Alternative Approaches to the Landfill Problem.

The No Action Alternative would force the City or private parties to find new disposal mechanisms immediately. A separate study for this report identifies sites on the Big Island and in California as potential recipients of Honolulu's municipal solid waste (Pacific Waste Consulting Group, 2002).

The Big Island alternative could at best be a short-term solution, since disposal of Honolulu's waste at the West Hawaii landfill would radically limit Hawaii County's landfill resource at a time when its other landfill, in East Hawaii, has only a few months' life expectancy. If State authorities demand treatment of wastes to minimize risk of biological harm (e.g., spread of plant disease), the cost of disposal to the Big Island would be comparable to the cost of sending waste to the US Mainland. Infrastructure demands of transshipment to either location could be considerable:

- New container yard space would be needed on Oahu for MSW transshipment – and container yards are, in the long term, a very limited resource for the Harbors Division;
- To use existing barge or container ship services, MSW would be trucked from the H-POWER plant and transfer stations back to Honolulu Harbor, increasing the time it is on Oahu's most congested highways.

The new disposal process would cost somewhere between \$380 million to \$480 million annually at first. With reductions in the waste stream due to an additional boiler at H-POWER and new recycling activities, the annual cost could be lowered to \$250 million to \$325 million. (Cost estimates are for MSW and materials from H-POWER; the cost of transshipment of special wastes would be higher per ton. That cost was excluded from the calculation. The cost would be borne by taxpayers and the clients of commercial haulers, especially condominium and apartment residents. The distribution of the costs would depend on tipping fees. These would likely not be enough to cover costs, since the City must set fees at a level that will not trigger a massive increase in illegal dumping of commercial wastes. Even if tipping fees were very high relative to costs, however, real property taxes could increase by 22%. A low tipping fee could raise costs for the City that would justify tax increases equivalent to a 111% increase in property taxes. The No Action Alternative would also increase the cost of doing business in Hawaii.

Mitigation Measures. By reducing the proposed expansion to 14.9 acres, the City has already responded to community views, limiting the future life of the landfill. Impacts with potentially adverse effects on social life and the economy could be addressed through

- Controls over irritants (odors, litter) according to plans already being developed and implemented;
- Landscaping of exposed areas to minimize visibility of the landfill;
- Involvement of community stakeholders in oversight of mitigation activities and in site selection for any future landfill site. In light of current community suspicion, the City and Waste Management will not only need to meet agreed-on standards but be seen to do so. Continuing oversight by a community committee will be needed to develop local acceptance and hence to lower expectations of potential adverse impacts.

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1. INTRODUCTION

1.1 THE WAIMANALO GULCH SANITARY LANDFILL EXPANSION PROJECT

The Waimanalo Gulch sanitary landfill is on a site of about 200 acres near the southwest corner of Oahu, owned by the City and County of Honolulu (shown in Exhibit 1-A). Approximately 86.5 acres are in use. Of these, some 64.5 acres are used for the current landfill footprint. The rest is used for support services. The landfill opened in 1989. It is now Oahu's only landfill for municipal solid waste. (Another landfill, in Nanakuli, handles construction and demolition waste.) The Waimanalo Gulch landfill is operated by Waste Management of Hawaii, Inc.

As the landfill approached its permitted capacity, the City and County prepared an Environmental Impact Statement (EIS) for submittals to allow expansion of the site by some 60.5 acres. That proposal would have allowed continuing operation of the landfill for some fifteen years or more. The Revised Draft Supplemental EIS was issued in May 2001. Since that time, the City has taken additional steps, to continue to operate the landfill and to revise its proposal for expansion.

The City has separately requested permission from the State Department of Health to increase the height of the landfill to 430 feet above sea level, i.e., an increase of up to 40 feet in height in parts of the landfill. That permit, issued in September 2002, allows continuing operation of the landfill into 2003.

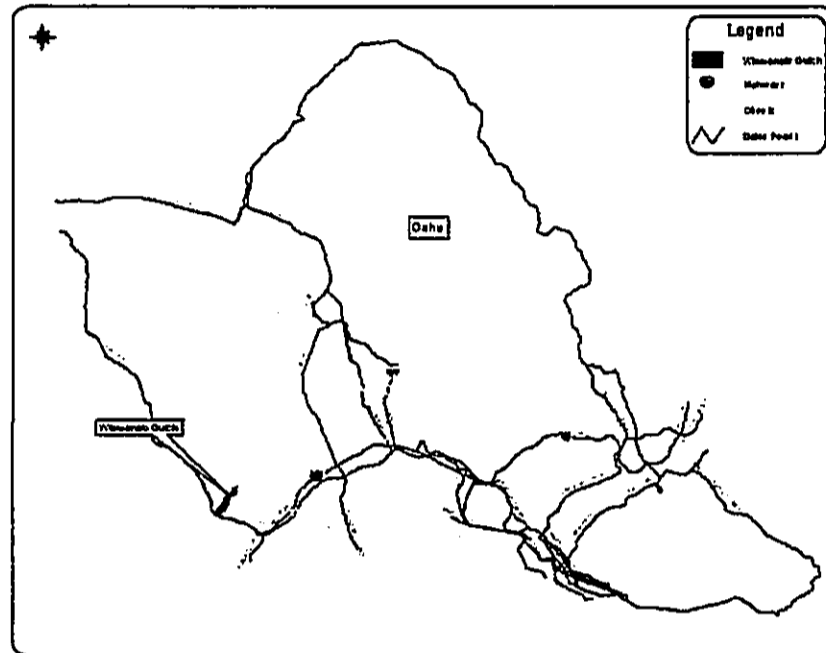
The City's 60.5-acre expansion proposal met with strong criticism (discussed in Section 3). The City was faulted, notably, for a perceived failure to embrace alternative technologies, for burdening the Waianae Coast area and Ko Olina with an undesirable land use, and for proceeding so slowly that the proposal was the only feasible alternative. In response, the City has revised its proposal:

- The City is now proposing to expand the landfill footprint by a total of **14.9 acres**, not 60.5 acres. Exhibit 1-B shows the proposed expansion, along the southeast side of the existing landfill. (The exhibit shows the area currently being used for landfill, the four cells that would be created under the expansion proposal, and some of the boundaries of the landfill site. The existing buildings on-site and access from Farrington Highway, which would not change under the expansion proposal, are not shown.)
- The City is committed to developing means to **reduce the waste stream going to landfill**. The City administration has proposed adding a third boiler at the H-POWER waste-to-energy plant, increasing capacity and minimizing the need to send municipal solid waste directly to the landfill when regular repairs and maintenance are being performed. A site next to the H-POWER

plant has been purchased for use as an Alternative Disposal Technologies Park. Increased recycling efforts are under way.

- City authorities are pursuing the goal of **closing Waimanalo Gulch** after the expansion area reaches capacity, i.e., after five years' landfilling. Steps to reach this goal include efforts to expand recycling and develop alternative waste disposal technologies. Also, the City will appoint a landfill advisory team to review landfill siting criteria and help to designate new sites (Steinberger 2002).

Exhibit 1-A: LOCATION MAP



1.2 PURPOSE AND SCOPE OF SOCIO-ECONOMIC IMPACT ASSESSMENT

A socio-economic impact assessment is conducted to establish, for the use of policy-makers and the public at large, information about a proposed project and its consequences that can help to reach planning decisions. It is typically appended to an Environmental Impact Statement. Where appropriate, this report points to other technical studies for more detailed examination of topics handled in them.

The analysis of impacts is approached through contexts that can affect the reception and consequences of the proposed development:

- This chapter provides an introductory account of the project;
- The next chapter discusses the socio-economic context of the project;

- The third chapter details the concerns of stakeholders with regard to the project, and places those concerns in relation to more general issues and concerns of Oahu communities.
- The following sections deal with potential project impacts. Economic and demographic impacts are estimated first. Impacts on public facilities are estimated in relation to existing and planned local facilities. Other social impacts, which are less easily quantified, are then discussed. Finally, mitigation of potentially adverse impacts is addressed, both as an ongoing process and as a series of actions, some of which have already been planned, which could improve the project.

Exhibit 1-B: DRAFT PROJECT PLAN



SOURCE: Waste Management, Inc., 2002.

2. SOCIO-ECONOMIC CONTEXT

2.1 THE STUDY AREA

The Waimanalo Gulch Sanitary Landfill serves the island of Oahu as the only landfill for municipal solid waste. Its service area is the study area. Within it, communities near the landfill are especially concerned, and residents see themselves as affected by landfill operations. Four geographic levels of potential impact (in Exhibit 2-A) may be distinguished:

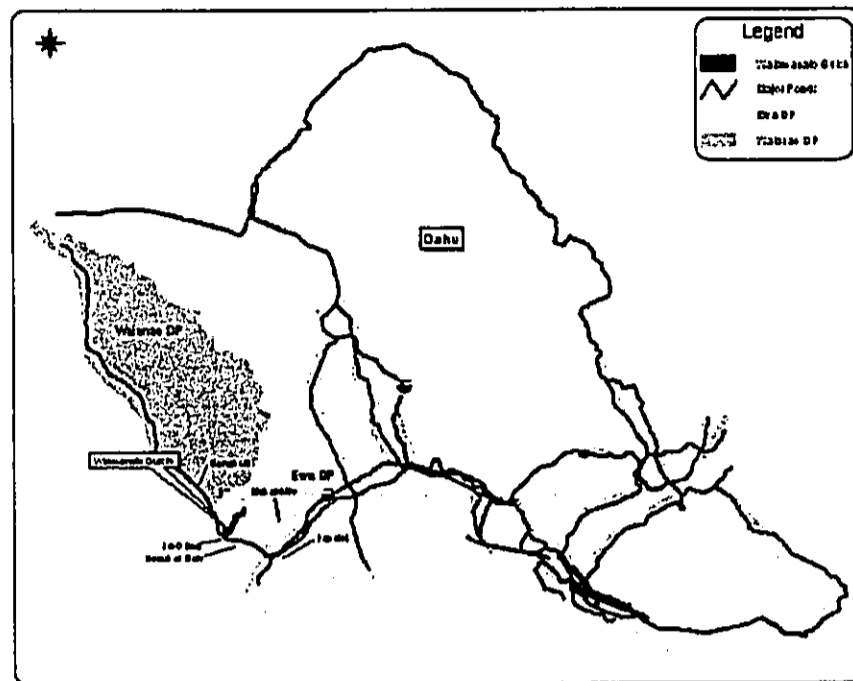
- **Immediate neighbors:** A few homes, with a sign identifying them as Kahe Point Homes, are located on Farrington Highway just beyond the entrance to the landfill.
- **Nearby communities:** These include Honokai Hale, Makakilo, and Kapolei in the Ewa Development Plan Area, and Nanakuli in the Waianae Coast Development Plan Area. The closest is the developing Ko Olina area, which has its entrance just across the highway from the entrance to the landfill. Residents and visitors in most of Ko Olina can see parts of the existing landfill.
- **Nearby areas:** Residents of the Ewa and Waianae Coast Development Plan Areas are potentially affected by landfill operations, if only as users of major roads on which municipal solid waste (MSW) is hauled to the H-POWER plant, and to Waimanalo Gulch.
- **The island as a whole** provides municipal solid waste and special wastes to the Waimanalo Gulch Sanitary Landfill.

2.1.1 Historical Background and Land Uses

Municipal solid waste disposal has long been a service of the City and County of Honolulu. A series of landfills and refuse dumps have been opened, used and closed. Earlier sites were largely low-lying areas, where solid waste helped to create usable acreage. Over time, urbanization has occurred near earlier sites, and the availability of new landfill sites has become problematic in part because much of the island is urbanized.

At earlier sites, open burning was used to reduce the amount of waste, until this practice was ruled out as producing air-borne pollutants (Young, ND). The Waimanalo Gulch Sanitary Landfill, opened in 1989, is now the sole permitted municipal solid waste disposal site on Oahu. It is a lined sanitary landfill, open for municipal solid waste, commercial waste, and special, non-hazardous, wastes. Construction and demolition waste goes to a private landfill in Nanakuli, about five miles from Waimanalo Gulch.

Exhibit 2-A: AREAS OF POTENTIAL IMPACT

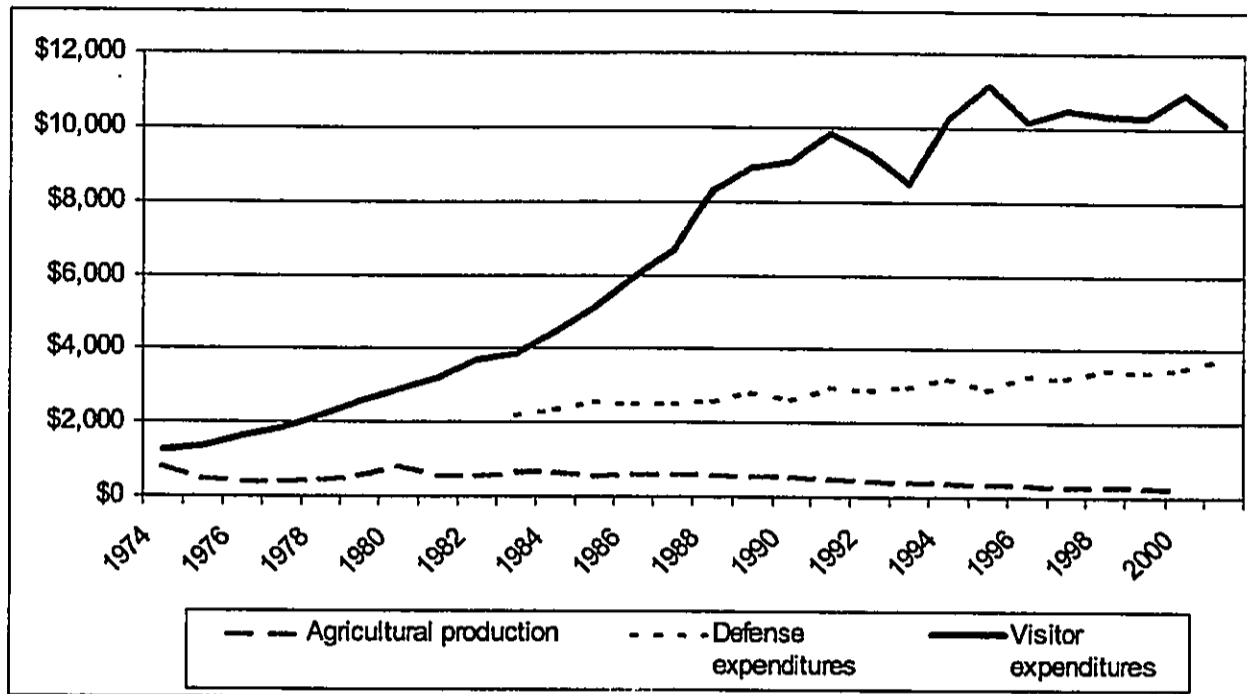


Island of Oahu

Oahu has been the political and economic center of Hawaii since the time of the Kamehamehas. It is the most urbanized island. It is also the island with by far the largest share of its land area owned or leased by the US military. (As of 1992, 21.2% of Oahu was in military hands [DBEDT 2002a].) After World War II, Hawaii residents moved to Oahu in record numbers. By 1980, Oahu had nearly 80% of the state's population, but with the ongoing growth in Neighbor Island economies, that figure has dropped to 72%.

As Hawaii's economic hub, Oahu saw the rapid growth of tourism after Statehood, supplanting agriculture and military spending as major sources of jobs and income. Oahu remains the financial and shipping center, so growth of resorts on other islands has been accompanied by continuing job growth on Oahu. Also, as Oahu and, to a lesser extent, Maui have more diverse economies than other islands, they have lower unemployment and higher average incomes than on other islands.

Exhibit 2-B: GROWTH OF TOURISM AS LEAD INDUSTRY IN HAWAII



NOTE: Values are millions of current dollars.

The trend in Exhibit 2-B shows the basis of Hawaii's economic growth and, in recent years, economic stagnation. It also shows a transition from industries that may take responsibility for a large part of their own waste (e.g., greenwaste burning in sugar mills, military-operated landfills) to ones that produce municipal solid waste in support of an added population.

EWA DEVELOPMENT PLAN AREA

Honolulu has long been Oahu's commercial and transportation center. More than three quarters of Oahu jobs have been located in the Primary Urban Center (including Honolulu, Alea and Pearl City). Concentration of activities in Honolulu has created problems of traffic congestion. Plans to develop a "Second City" at Kapolei on the Ewa Plain, which would be more than another bedroom suburb, responded in part to these problems. (Planning began in 1955, when Harland Bartholemew and Associates prepared the first Ewa region master plan for the Estate of James Campbell, the major landowner. By 1974, the concept of a separate city had emerged. In 1986, the Estate proposed a detailed implementation plan for a city center, and named it Kapolei.)

Geographically, Ewa consists of a plain and the foothills of the Waianae mountains. The plain was arid. While much of the eastern side of the plain was dedicated to sugar until Oahu Sugar Company closed in the mid-1990s, the western side also had ranch lands. The US Navy had land at both Puuloa (Iroquois Point and Puuloa),

to the east, and Kalaeloa (Barbers Point Naval Air Station), to the west. Barbers Point NAS, with some 3,709 acres, was a major land use for the area. The Naval Air Station closed in 1999, but its airfield is now operated by the State Department of Transportation for general aviation.

Kapolei land uses include a large industrial area, with areas for both heavy industry (in the 1,367-acre James Campbell Industrial Park) and lighter industry plus new technologies (in the Kapolei Business Park) and area for commercial and office development in the City of Kapolei urban center. As Oahu's largest industrial area, Campbell Industrial Park has been developed over decades. About 85% is currently owned in fee by tenants. Currently, some 210 businesses are located in the industrial park, with about 4,500 workers (personal communication, Jeannie Schultz, Kapolei Property Development LLC, December 2002). At its northern edge, Barbers Point/Kalaeloa Harbor was created as a second harbor for Oahu. To the south of the industrial area, about a mile offshore, are a buoy and pipeline designed to allow oil tankers to off-load their cargo without docking in harbor.

Residential areas developed along Farrington Highway and, as of 1962, uphill in Makakilo. At Kapolei, new residential development has been led by the State, as master developer of the Villages of Kapolei. The Villages and adjoining developments have rivaled developments along Fort Weaver Road, to the east, and Millilani in Central Oahu as new residential areas with continuing growth through the last decade.

While industrial and residential development proceeded over recent years, many of Kapolei's residents still commute to Honolulu. Growth in the center of Kapolei has been spurred by relocation of banking activities and both State and City offices. The Campbell Estate stresses Kapolei's advantages as a wired community, with direct access to satellite and fiber-optic network communications.

Finally, Ko Olina was developed as a resort complementing the rest of Kapolei. Its innovative man-made coves provide recreational areas and frontage for hotels. A privately-owned marina offers berth space for boats. Plans called for as many as 8,700 housing units. These were planned with vacation markets in mind. However, actual development has been mixed, including a hotel, a time-share resort (currently being finished) and townhouse condominium properties. One project, The Fairways at Ko Olina, was sold to the resident market, while new projects have aimed at both second- and first-home buyers (The Coconut Plantation and Kai Lani).

WAIANAE DEVELOPMENT PLAN AREA

Waianae is relatively isolated, with one major roadway, Farrington Highway, open to link the region to the rest of Oahu. Until World War II, the Waianae region was also linked to the rest of Oahu by rail, as the rail line went up the coast and around Kaena Point to Haleiwa.

The region is known for a distinctive "country" lifestyle based in the Native Hawaiian culture of many residents. Households have long been larger than in nearby regions.

The Waianae Coast consists of a series of valleys linked by the coastal road and beach parks. Nanakuli, about three miles from Waimanalo Gulch, includes large areas of Hawaiian Home Lands. Lualualei includes Navy lands (used for ammunition storage and communications) and as well as civilian areas. Maili includes a new subdivision, Maili Kai, as well as older homes, farms, and a transitional housing site. Waianae has the district court and is a major local population center. Makaha has a golf course and a small resort, now closed, along with a mix of housing. Finally, Makua Valley has been used by the US Army for artillery practice. This has been opposed by local citizens, whose group, Malama Makua, has pressed for demilitarization of the valley.

2.1.2 Nearby Communities

Oahu communities are discussed in this section first by describing major changes in demographics over the last decade, and then through close comparison of 2000 Census data. Exhibit 2-C indicates that Oahu's population growth has been slowing over recent decades, a trend mirrored on the Waianae Coast. As a major site for housing development, the Ewa area saw higher growth in the 1970s and the 1990s.

Exhibit 2-C: POPULATION GROWTH IN STUDY AREAS

<i>Population</i>					
	1960	1970	1980	1990	2000
City and County of Honolulu	500,409	630,528	762,565	836,255	876,156
Ewa	NA	24,235	35,585	42,983	68,718
Waianae	16,452	24,077	31,487	37,411	42,259
Average Annual Rate of Growth					
		1960-70	1970-80	1980-90	1990-2000
City and County of Honolulu		2.3%	1.9%	0.9%	0.5%
Ewa DP			3.9%	1.9%	4.8%
Waianae DP		3.9%	2.7%	1.7%	1.2%

Census data for Oahu (in Exhibit 2-D) show demographic changes at the island level. In the last decade:

- The population has aged greatly, with the median age climbing 3.5 years to 35.7 years;
- While the cohorts between age 20 and age 35 have shrunk, the number of persons age 75 and over has increased by about two-thirds of the 1990 levels;
- The number of family households has only grown slightly, but the number of households headed by single women has increased sharply;
- Single-person households have come to form 21.6% of all households; and
- The average household size, which has been declining for decades, reached 2.95.

Housing data show a strong increase in owner-occupied units. These now constitute 54.6% of occupied housing units. In the early 1990s, housing policy focused on a crisis in supplying housing for the middle-income "gap group." By 2000, the increase in the actual number of housing units is modest, but that increase has been concentrated in fee simple homes for mid-range buyers. At the same time, the young persons and families likely to add demand both for rentals and for "starter" homes in the fee simple market form a smaller group than in 1990, partly due to emigration.

Data on particular communities near the project site (in Exhibits 2-E to 2-H) bring out some of the distinctive characteristics of these areas:

- The Ewa DP area has a young population. Households are larger than the average (3.69 persons per household, vs. 2.95 persons in the average household for Oahu as a whole) and tend to be affluent. The regional median household income is 115% of the island median. Fewer households have social security, retirement or public assistance income than elsewhere on Oahu. Workers living in the Ewa DP area are diverse in occupation, but even fewer are in agriculture than islandwide. Commuting times are long, and a third of the workforce normally drives over 45 minutes to work.
- Among the Ewa communities of interest in this report, Ko Olina/Honokai Hale¹ stands out in several ways. Its population tends to be older, with a median age of 36.8, slightly higher than the island median. Most households do not have members younger than 18. The median household income level is much higher than in the other communities studied. However, the share of children under 18 living with family who are below the poverty level is comparable to that found in the Waianae Coast, suggesting that the young families in this area face an economic situation very different from that of their older neighbors.

¹ In the Census tables, "Ko Olina" consists of Census Tracts 86.09 and 86.10, and includes Honokai Hale as well as Ko Olina.

- The Waianae Coast Sustainable Communities Plan area ("DP area" in Exhibits 2-E to 2-H) also has a young age structure (with a median age of 28.5) and even larger households. (the median household size is 3.97.) Incomes tend to be below the island median, and dependence on public assistance - 25.5% of households - is high. While commuters' use of public transportation was slightly higher than in Ewa, over 80% of workers still drove to and from work, and mean travel time to work was high (41.9 minutes).
- Nanakuli Census data are much like the data for the Waianae Coast region. Household sizes are especially large (with a median size of 4.65 persons/household). In three-generation households, grandparents are more likely than elsewhere to be responsible for grandchildren.

EXHIBIT 2-D: DEMOGRAPHIC CHANGES, OAHU, 1990-2000

Subject	1990	2000	Change	
			Number	Percent
Total population.....	836,231	876,156	39,925	4.8
SEX AND AGE				
Male.....	425,994	440,518	14,524	3.4
Female.....	410,237	435,638	25,401	6.2
Under 5 years.....	61,931	56,849	-5,082	-8.2
5 to 9 years.....	58,558	60,425	1,867	3.2
10 to 14 years.....	53,191	57,574	4,383	8.2
15 to 19 years.....	54,992	57,176	2,184	4.0
20 to 24 years.....	75,418	65,376	-10,042	-13.3
25 to 34 years.....	156,619	130,624	-25,995	-16.6
35 to 44 years.....	130,573	137,278	6,705	5.1
45 to 54 years.....	81,899	117,239	35,340	43.2
55 to 59 years.....	34,560	42,705	8,145	23.6
60 to 64 years.....	36,658	33,173	-3,485	-9.5
65 to 74 years.....	58,279	62,474	4,195	7.2
75 to 84 years.....	25,939	42,504	16,565	63.9
85 years and over.....	7,614	12,759	5,145	67.6
Median age (years).....	32.2	35.7	3.5	10.9
18 years and over.....	631,618	667,398	35,780	
Male.....	320,656	333,139	12,483	3.9
Female.....	310,962	334,259	23,297	7.5
21 years and over.....	592,601	631,039	38,438	6.5
62 years and over.....	113,889	136,945	23,056	20.2
65 years and over.....	91,832	117,737	25,905	28.2
Male.....	42,867	51,694	8,827	20.6
Female.....	48,965	66,043	17,078	34.9
RELATIONSHIP				
Total population.....	836,231	876,156	39,925	4.8
In households.....	802,338	845,211	42,873	5.3
Householder.....	265,304	286,450	21,146	8.0
Spouse.....	158,438	156,195	-2,243	-1.4
Child.....	259,193	253,649	-5,544	-2.1
Own child under 18 years.....	172,112	167,706	-4,406	-2.6
Other relatives.....	74,876	96,718	21,842	29.2
Under 18 years.....	(NA)	35,471	(NA)	(X)
Nonrelatives.....	44,527	52,199	7,672	17.2
Unmarried partner.....	6/ 10,436	14,420	3,984	38.2
In group quarters.....	33,893	30,945	-2,948	-8.7
Institutionalized population.....	6,365	5,809	-556	-8.7
Noninstitutionalized population.....	27,528	25,136	-2,392	-8.7

Exhibit 2-D, Cont.

Subject	1990	2000	Change	
			Number	Percent
HOUSEHOLDS BY TYPE				
Total households.....	265,304	286,450	21,146	8.0
Family households (families).....	197,294	205,672	8,378	4.2
With own children under 18 years.....	92,583	91,022	-1,561	-1.7
Married-couple family.....	158,438	156,195	-2,243	-1.4
With own children under 18 years.....	76,217	70,442	-5,775	-7.6
Female householder, no husband present	27,773	35,138	7,365	26.5
With own children under 18 years.....	12,479	15,235	2,756	22.1
Nonfamily households.....	68,010	80,778	12,768	18.8
Householder living alone.....	51,006	61,963	10,957	21.5
Householder 65 years and over.....	14,868	20,021	5,153	34.7
Households with individuals under 18 years.....	(NA)	108,247	(NA)	(X)
Households with individuals 65 years and over.....	(NA)	80,464	(NA)	(X)
Average household size.....	3.02	2.95	-0.07	-2.3
Average family size.....	3.50	3.46	-0.04	-1.1
HOUSING OCCUPANCY				
Total housing units.....	281,683	315,988	34,305	12.2
Occupied housing units.....	265,304	286,450	21,146	8.0
Vacant housing units.....	16,379	29,538	13,159	80.3
For seasonal, recreational, or occasional use.....	4,462	6,856	2,394	53.7
Homeowner vacancy rate (percent).....	0.6	1.6	1.0	166.7
Rental vacancy rate (percent).....	4.3	8.6	4.3	100.0
HOUSING TENURE				
Occupied housing units.....	265,304	286,450	21,146	8.0
Owner-occupied housing units.....	137,910	156,290	18,380	13.3
Renter-occupied housing units.....	127,394	130,160	2,766	2.2
Average household size of owner-occupied units....	3.23	3.13	-0.10	-3.1
Average household size of renter-occupied units....	2.80	2.74	-0.06	-2.1

NOTE: SMS views change in the number of vacant housing units for seasonal, recreational, or occasional use as partly due to changes in enumeration practice.

SOURCE: Hawaii State Data Center, based on US Census Bureau "Table DP-1. Profile of General Demographic Characteristics: 2000" Geographic area series (May 2001).

Exhibit 2-E: DEMOGRAPHIC CHARACTERISTICS, ISLAND AND SELECTED AREAS, 2000

	City & County of Honolulu	Ewa DP	Waiānae DP	Makakilo GDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Population	876,156	57,265	42,259	13,156	17,441	1,680	10,814
Male	50.3%	50.4%	50.0%	50.3%	50.3%	50.9%	49.8%
Female	49.7%	49.8%	50.0%	49.7%	49.7%	49.1%	50.2%
Age							
Under 5	6.5%	9.2%	8.9%	8.6%	8.4%	6.2%	8.8%
5 to 9	6.9%	10.0%	9.7%	9.2%	10.2%	6.9%	9.9%
10 to 14	6.6%	8.3%	10.0%	8.4%	9.2%	6.8%	10.7%
15 to 19	6.5%	8.6%	9.5%	6.7%	7.1%	5.8%	10.4%
20 to 24	7.5%	6.0%	7.4%	6.0%	5.1%	5.1%	7.5%
25 to 34	14.9%	17.8%	13.0%	15.6%	15.8%	17.6%	12.7%
35 to 44	15.7%	18.0%	14.3%	18.0%	18.8%	18.3%	14.7%
45 to 54	13.4%	10.3%	11.9%	13.2%	11.3%	14.8%	10.9%
55 to 59	4.9%	3.6%	4.2%	4.7%	3.4%	5.9%	4.4%
60 to 64	3.8%	3.0%	3.1%	3.6%	2.8%	5.1%	3.2%
65 to 74	7.1%	4.6%	5.0%	4.3%	4.5%	5.9%	4.4%
75 to 84	4.9%	2.1%	2.4%	1.5%	2.7%	2.9%	2.0%
85 and over	1.5%	0.6%	0.7%	0.3%	0.9%	0.7%	0.4%
Median Age	35.7	30.9	28.5	32.4	31.4	36.8	27.2
Education							
Population 25 years or over	579,998	34,596	23,183	8,097	10,419	1,266	5,541
Less than 9th grade	7.3%	8.2%	6.4%	2.7%	10.4%	6.3%	7.1%
9-12 grade, no diploma	7.9%	9.3%	15.7%	7.2%	8.8%	7.3%	17.5%
High School graduate	27.8%	28.3%	45.3%	27.7%	27.1%	31.7%	49.0%
Some college/Associate degree	29.2%	34.5%	24.4%	38.2%	32.4%	30.2%	19.8%
Bachelor degree	18.9%	15.3%	6.1%	19.5%	16.7%	14.8%	4.9%
Graduate/Professional degree	9.0%	4.5%	2.1%	6.8%	4.6%	9.6%	1.7%
School Enrollment							
Population 3 years or older in:	234,038	17,143	13,283	4,148	5,644	345	2,188
Preschool	5.5%	5.7%	5.3%	7.9%	6.1%	2.6%	4.1%
Grades K through 8	45.7%	54.8%	56.0%	51.4%	55.5%	41.7%	58.8%
Grades 9 through 12	20.6%	20.9%	56.9%	17.8%	20.3%	25.2%	27.3%
College or Graduate School	28.0%	18.8%	11.8%	22.9%	18.2%	28.7%	9.8%

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

Exhibit 2-F: HOUSEHOLDS, ISLAND AND SELECTED AREAS, 2000

	City & County of Honolulu	Ewa DP	Waiānae DP	Makakilo GDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Type							
Family HH	71.8%	84.9%	83.6%	82.7%	86.1%	78.8%	90.2%
With Own Children Under 18	31.8%	49.3%	43.3%	44.2%	52.5%	26.9%	46.0%
Non-family HH	28.2%	15.1%	16.4%	17.3%	13.9%	21.0%	9.8%
Householder living alone	21.6%	10.6%	11.9%	11.3%	10.8%	15.7%	6.7%
HH with members under 18	37.8%	57.5%	57.6%	51.4%	59.2%	37.1%	64.8%
HH with members 65 years and over	28.1%	19.1%	23.2%	15.1%	21.2%	21.0%	24.0%
Grandparents in HH							
Grandparent(s), grandchildren under 18 in same HH	36,668	3,145	3,182	554	895	77	750
Grandparent(s) responsible for grandchildren	28.1%	26.3%	36.3%	22.0%	24.0%	0.0%	46.5%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

**Exhibit 2-G: HOUSEHOLD INCOMES, ISLAND AND SELECTED AREAS,
1999**

	City & County of Honolulu	Ewa DP	Waianae DP	Makakilo COP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Household Income Distribution	286,731	15,498	10,532	3,913	4,623	561	2,249
Less than \$10,000	7.3%	3.0%	11.6%	28%	3.9%	2.1%	7.2%
\$10,000 to \$14,999	4.1%	2.4%	6.8%	0.5%	2.6%	3.2%	9.9%
\$15,000 to \$24,999	9.9%	6.9%	12.7%	6.4%	6.2%	5.7%	11.3%
\$25,000 to \$34,999	11.1%	9.8%	10.8%	7.6%	8.7%	2.5%	11.3%
\$35,000 to \$48,999	15.4%	15.0%	15.2%	17.1%	13.6%	10.9%	16.7%
\$50,000 to \$74,999	20.6%	29.5%	22.0%	27.8%	30.8%	27.1%	22.3%
\$75,000 to \$99,999	13.4%	18.9%	10.8%	18.9%	19.7%	25.0%	11.4%
\$100,000 to \$149,999	12.3%	11.8%	7.8%	15.6%	10.7%	18.5%	7.8%
\$150,000 to \$199,999	3.3%	1.7%	1.3%	2.8%	2.4%	1.6%	1.2%
\$200,000 or more	2.5%	1.2%	1.3%	0.8%	1.4%	3.4%	0.8%
Median Income	\$51,914	\$59,583	\$42,451	\$66,515	\$60,585	\$74,063	\$42,388
HH: Selected Income Sources							
Social Security Income	27.5%	18.7%	25.7%	17.9%	21.0%	29.7%	24.5%
Retirement Income	21.9%	18.1%	20.5%	6.5%	6.1%	27.0%	23.5%
Public Assistance Income	6.8%	7.7%	25.5%	22.6%	21.8%	10.1%	23.0%
Individuals Below Poverty Level	83,937	3,103	9,146	663	809	170	2,251
% of Persons under 18	12.9%	7.7%	29.1%	7.3%	7.3%	30.4%	27.0%
Children under 18 ref'd to household hd.	12.4%	9.3%	28.7%	7.1%	4.9%	29.1%	24.5%
Persons ages 18 to 64	9.0%	14.9%	18.1%	4.1%	5.1%	9.3%	18.9%
Persons ages 65 or more	7.4%	8.1%	10.3%	3.6%	24.3%	4.5%	8.7%
Unrelated individuals	23.8%	41.2%	40.5%	12.4%	22.0%	3.7%	45.4%

NOTE: "HH" = household.

SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

**Exhibit 2-H: LABOR FORCE CHARACTERISTICS, ISLAND AND
SELECTED AREAS, 2000**

	City & County of Honolulu	Ewa DP	Waiānana DP	Makakūlo CDP	Kapolei	Ko Olina/ Honokai Hale	Nanakuli
Labor Force							
Population aged 18 or over	691,015	40,945	29,444	9,523	12,233	1,410	4,752
In Armed Forces	38,682	2,434	216	316	271	27	20
Potential Labor Force	652,333	38,511	29,228	9,207	11,962	1,383	4,732
% Actually in Civilian Labor Force	62.6%	63.1%	58.6%	72.7%	69.1%	66.0%	87.5%
Actual CLF	408,638	24,298	17,137	6,898	8,267	913	4,139
Male CLF	209,959	12,406	9088	3,389	4,298	438	2,154
Female CLF	198,679	11,892	8069	3,309	3,971	475	1,985
Labor Force Participation							
Male CLF	67.5%	68.0%	64.7%	76.2%	67.6%	78.8%	83.4%
Female CLF	58.2%	61.8%	53.1%	70.0%	65.1%	69.6%	51.8%
Unemployed							
Male CLF	6.9%	5.8%	15.2%	5.8%	5.7%	0.0%	18.2%
Female CLF	5.6%	5.5%	14.6%	4.6%	5.1%	2.5%	12.3%
Employed CLF							
By Selected Industry							
Agriculture, forestry, fishing	1.1%	0.5%	2.8%	0.5%	0.4%	0.0%	0.8%
Construction	5.4%	6.5%	8.6%	8.5%	6.2%	16.2%	7.9%
Manufacturing	3.8%	5.2%	4.5%	4.3%	4.9%	3.4%	4.3%
Wholesale Trade	3.4%	3.1%	4.3%	2.8%	3.2%	2.6%	4.0%
Retail Trade	12.2%	13.0%	13.2%	13.7%	12.0%	6.2%	9.8%
Transportation and utilities	6.5%	6.7%	8.9%	8.8%	7.2%	5.3%	13.1%
Information	2.7%	2.1%	1.3%	2.6%	2.2%	0.6%	1.7%
Finance, Insurance, Real Estate	7.5%	7.7%	5.3%	8.8%	9.2%	6.9%	6.1%
Professional, Mgmt, Admin.	9.9%	8.8%	8.1%	8.1%	8.8%	11.0%	9.5%
Education, Health, Social Services	19.9%	19.1%	17.7%	16.9%	16.6%	19.2%	17.3%
Recreation, Lodging, Food Services	13.8%	12.7%	12.3%	8.4%	13.9%	10.1%	10.9%
Other Services	4.5%	4.4%	4.7%	3.2%	4.8%	6.0%	5.5%
Public Administration	9.3%	10.1%	7.2%	12.5%	10.4%	12.5%	9.4%
By Occupation							
Management and Professional	33.8%	26.6%	21.8%	30.5%	28.1%	30.6%	17.5%
Service	19.6%	23.4%	22.0%	15.8%	24.5%	18.9%	20.0%
Sales and Office	29.1%	28.8%	26.7%	30.8%	29.0%	26.6%	29.8%
Farming, Forestry, and Fishing	0.7%	0.3%	1.5%	0.4%	0.1%	0.0%	0.8%
Construction, Mining, Maintenance	8.1%	9.5%	13.0%	12.5%	9.5%	17.0%	9.5%
Production, Transportation	8.8%	11.4%	15.0%	10.0%	8.8%	6.9%	22.5%
Commute to Work	412,250	25782	14,314	6525	7853	928	2,271
Drove Alone or Carpooled	80.8%	86.0%	83.7%	91.6%	88.3%	92.0%	82.4%
Other Transp. (Public, Walked, Other)	16.3%	12.2%	15.2%	6.4%	11.0%	3.4%	14.7%
Worked at Home	2.9%	1.9%	2.1%	2.1%	1.7%	4.6%	2.8%
Travel Time More than 45 Minutes	8.9%	34.2%	45.8%	31.8%	35.1%	24.9%	33.7%
Mean travel time (in minutes)	27.3	36.5	41.9	35.3	39	29.2	35.8

NOTE: "CLF" = Civilian Labor Force.

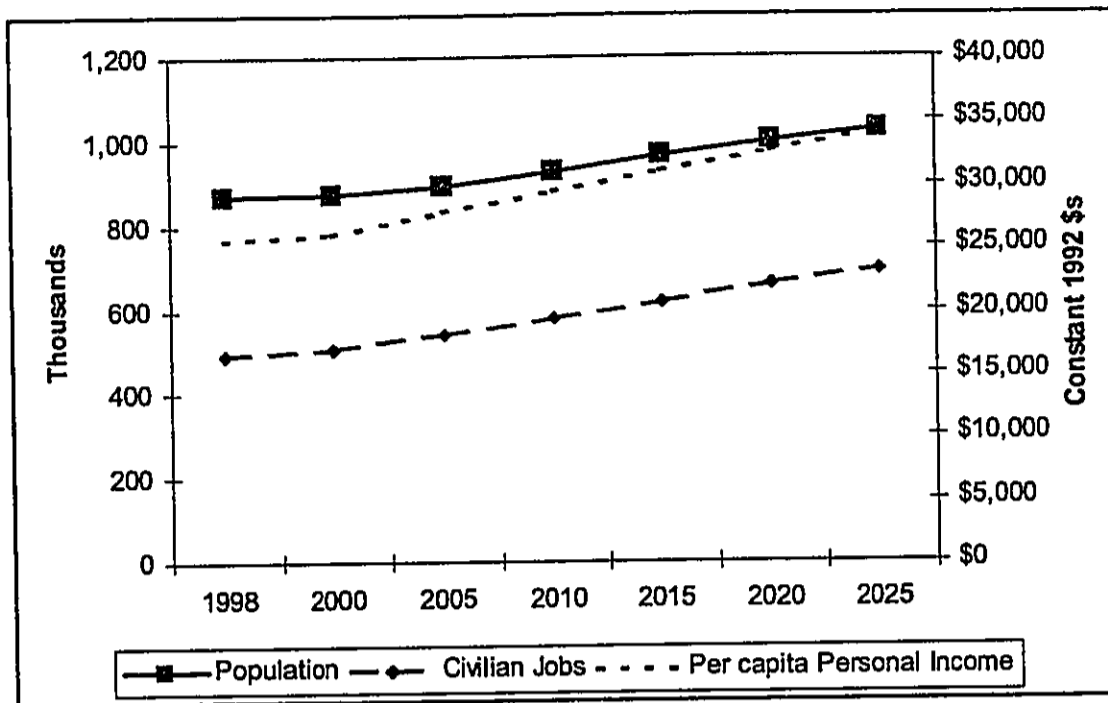
SOURCE: US Census of Population and Housing, 2000. Tables developed by SMS from SF1 and SF3 data available for download from www.census.gov.

2.2 EMERGING SOCIO-ECONOMIC TRENDS

2.2.1 Island and State Trends

Forecasts for the next few years by local economists point to a resurgence in visitor arrivals and steady economic growth (DBEDT, 2002c; Laney, 2002; Dicus, 2002). Over the long term, the State's forecast emphasizes slow growth in the economy and population, as shown in Exhibit 2-I.

Exhibit 2-I: FORECAST ECONOMIC AND POPULATION GROWTH FOR CITY AND COUNTY OF HONOLULU, TO 2025



NOTE: State projections to 2025 were issued before 2000 census results were available. New projections are likely to come out in the next year or two.
SOURCE: DBEDT 2000.

Average annual growth rates of about 1.5% to 2% are forecast for jobs, output and population. Tourism is expected to continue to be the major economic driver. While Waikiki is expected to remain Hawaii's densest and largest tourism destination, Neighbor Island resorts are expected to attract an increasing share of visitors.

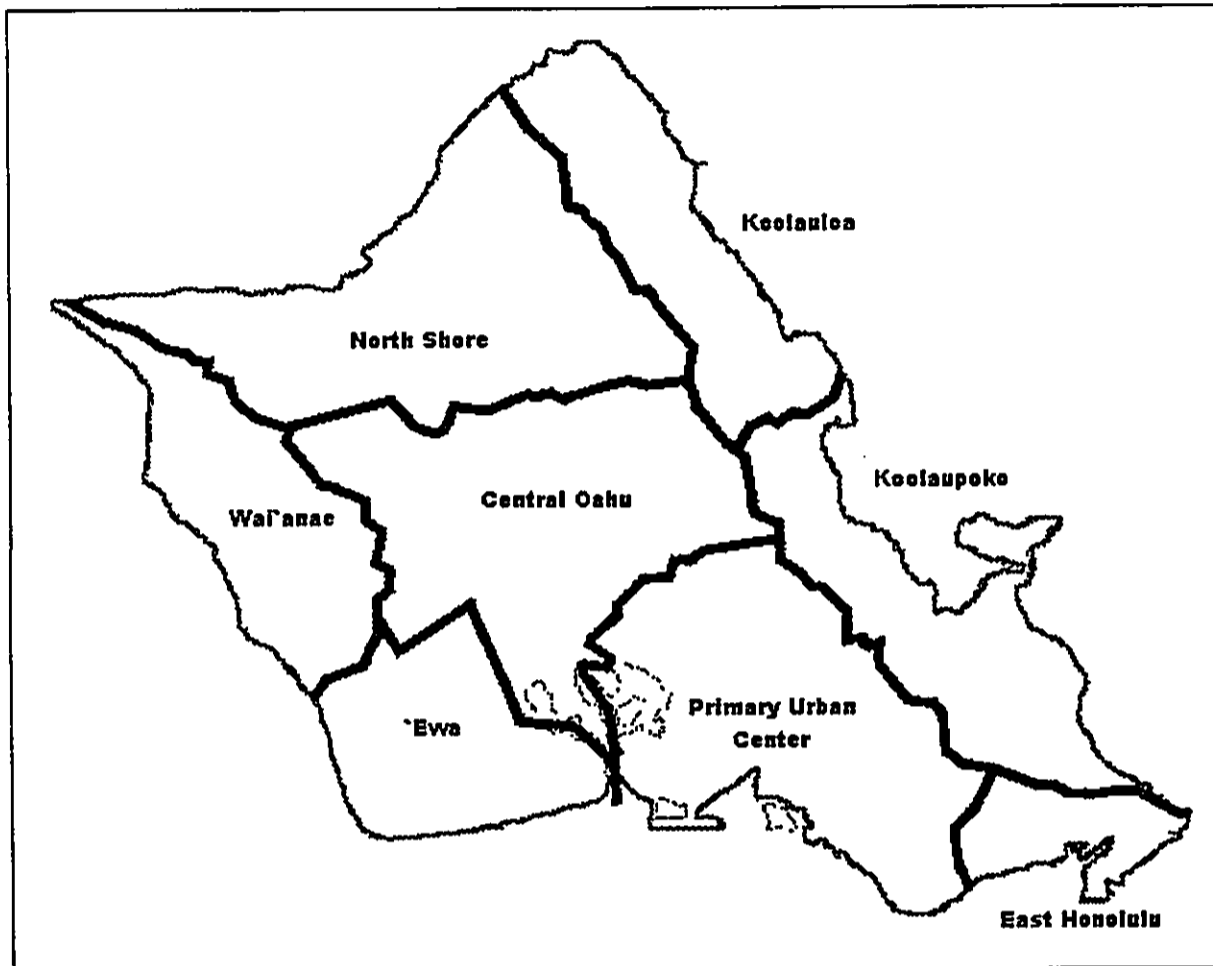
Hawaii's tourism firms and planners have sought ways to increase the stability of the visitor industry. One aspect of this attempt has been investment in Waikiki, seeking to revitalize the visitor plant and attract new generations of tourists. Next, major hotel firms are developing new time share properties, both on Oahu and in the Neighbor Islands. Time shares in Hawaii developed by firms such as Hilton, Marriott and Starwood sell at high prices, and the units reach and retain extremely high occupancies. This was apparent after September 11, 2001, when hotels experienced sharp declines in visitor numbers, but time share properties saw nearly all guests come to use their reserved blocks of time as soon as air travel conditions permitted.

2.2.2 Regional and Local Development Trends

City plans identify the Primary Urban Center (Honolulu, Aiea, Pearl City), Ewa and Central Oahu (outlined in Exhibit 2-J) as the sites for housing and population

growth. Exhibit 2-K shows that the result anticipated by City officials implies that Ewa will have more than 100,000 residents, becoming a larger residential market than Koolaupoko (Kailua/Kaneohe). (The exhibit combines the recently revised population distribution used as a guide for City planning with the most recent State forecast for the island's population.)

Exhibit 2-J: DEVELOPMENT PLAN AREAS OF OAHU



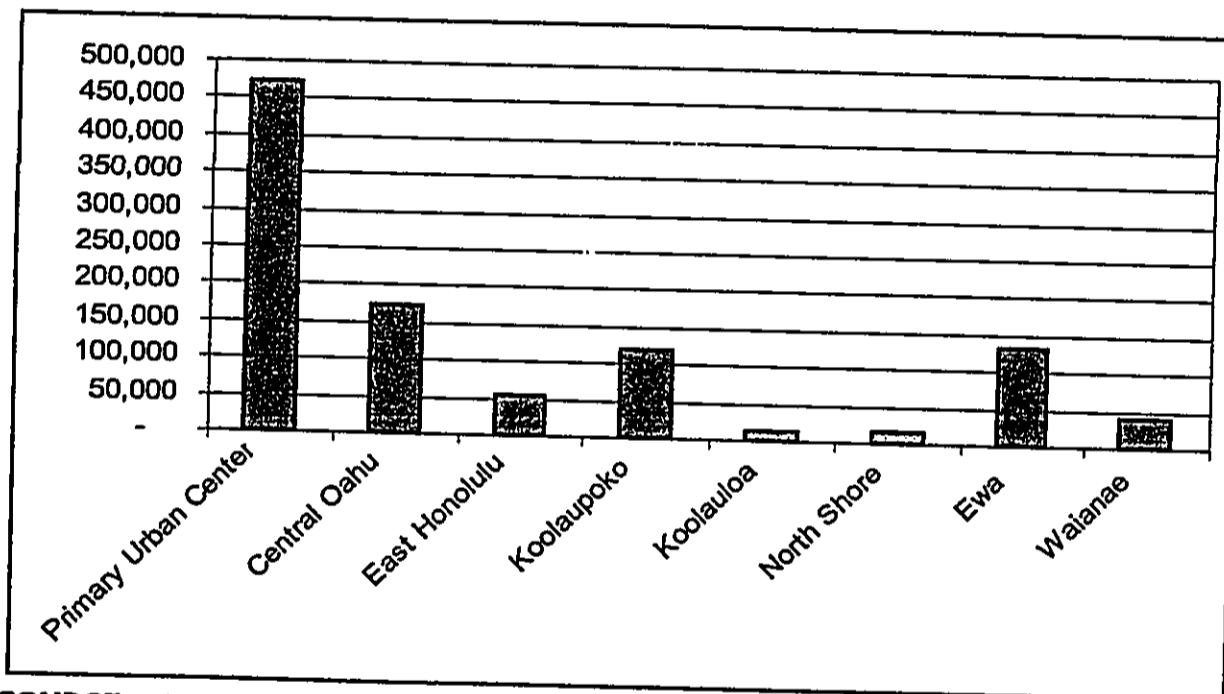
NOTE: The City and County of Honolulu currently refers to three areas – the PUC, Ewa and Central Oahu – as “Development Plan areas” and the remainder as “Sustainable Communities areas,” highlighting the point that little new development is encouraged in the latter areas.

2.2.3 Planned and Proposed New Development in the Regions Near the Project

Currently, Kapolei is extensively developed – but large areas are still available for residential growth. Two sites may see accelerated development in the next few years:

- The Navy is negotiating a contract with a partnership led by Fluor Corporation whereby the private-sector party would redevelop Ford Island for the Navy and in return would gain extensive lands on Oahu. The contractor will take possession of land at the closed Barbers Point NAS with multifamily housing and space for additional development. Since this is probably the easiest resource in the contract that can generate cash flow quickly, renovation and expansion of that housing seems likely to happen soon.
- The State Department of Hawaiian Home Lands has rights to parts of the Villages at Kapolei, and has been exploring ways to make homes available to their beneficiaries (e.g., sale of housing, self-help construction, and rent-to-own arrangements). The newly designated Director of the Department, Micah Kane, has pledged to accelerate awards of land and homes to beneficiaries. On Oahu, this is likely to involve new leases at Kapolei and in Nanakuli.

Exhibit 2-K: GENERAL PLAN RECOMMENDED POPULATION DISTRIBUTION, 2025



SOURCE: Resolution 02-205, CD1, Amending the Population Distribution Policies of the General Plan of the City and County of Honolulu.

Leeward Oahu saw major commercial and retail development in the 1990s. This continues, as a new shopping center, The Marketplace, joins the Kapolei Shopping Center, a K Mart and smaller complexes.

At the Ko Olina Resort, two upscale townhome projects and a major time share property are being developed. The Marriott Ocean Club has plans for growth, and will likely expand in response to market demand over the next decade.

Development of jobs in the area over the next decades is less certain than residential and retail development. Employment at James Campbell Industrial Park has stayed at about the same level for the past five years. Space in the City of Kapolei and Kapolei Business Park could attract office and light industry jobs from other parts of Oahu.

Oahu's demand for electric power will lead to development of additional generation capacity by the end of this decade. First, a third boiler is planned at H-POWER, which currently supplies about 7% of Oahu's electricity. In addition, a new plant might be located at Kahe Point, about a mile from Waimanalo Gulch, if built by HECO, or in James Campbell Industrial Park, if built by a private provider. In both cases, the location is economically motivated, because of nearby sources of fuel.

3: COMMUNITY ISSUES AND CONCERNS

This section identifies community issues that shape views of Waimanalo Gulch Sanitary Landfill and the expansion proposal. It deals first with sources for the account, then with general issues shaping responses, and then with specific responses to the proposed expansion.

3.1 SOURCES AND METHODOLOGY

Major sources for the account of issues and concerns were:

- Interviews with selected persons who SMS took to be knowledgeable about communities and activities relating to the project. Exhibit 3-A lists those interviewees.
- Minutes of the Makakilo/Kapolei/Honokai Hale and Waianae Coast Neighborhood Boards, both for the range of concerns addressed by these groups and for specific discussions of Waimanalo Gulch. Minutes for 2002 were reviewed along with earlier discussions of the landfill.
- Newspaper reports of community concerns and of meetings at which concerns with regard to the landfill emerged.
- Comments on the Draft Supplemental EIS incorporated in the Revised Draft Supplemental EIS (R.M. Towill Corporation, 2001).
- Summaries of comments at community meetings held between January 2001 and September 2002.

3.2 COMMUNITY ISSUES AND CONCERNS INDEPENDENT OF THE PROJECT

For several years, Hawaii residents have responded to polls on the major issues facing the community by pointing to the economy and education as of highest importance for Hawaii. For example, in the "People's Pulse" poll, these two issues have led the poll all eleven times the poll has been conducted since September 1999. Currently, 51% of respondents see the economy as the leading issue, while 42% cite education (Enterprise Honolulu, 2002). Other issues mentioned included crime, government reform, health care, and resource management. The most recent results (from mid-2002) were reported by Senatorial District, as shown in Exhibit 3-B.

Exhibit 3-A: PERSONS INTERVIEWED

Interviewees were asked to share their knowledge, not represent their groups or organizations. Affiliations are shown to indicate some of the experience and knowledge interviewees brought to discussion. No suggestion is made that listed groups or organizations support the project.

William Aila	Harbor Agent, Waianae Boat Harbor
Walter Albertson	Solid Waste Administrator, Tesoro Hawaii Corporation
James Bannigan	President, Hawaii Metal Recycling, Inc.
Stephen Bradley, MD	Interim Director, Waianae Coast Comprehensive Health Center
JingBo Chang	General Manager, Pacific Commercial Services
M. Kioni Dudley	Member, Makakilo/Kapolei/Honokai Hale Neighborhood Board
Michelle Elabon	Director of Marketing and Sales, Rainbow Waste, Inc.
Henry Eng, AICP	Community Development Manager, Estate of James Campbell
Ruth Gabaylo	Resident, Kahe Point Homes
Colleen Hanabusa	Senator, Hawaii State Senate District 21 (including project site)
Ralph F. Harris	President, Association of Apartment Owners Ko Olina Fairways
Jeffrey S. Hart	Environmental Specialist, The Environmental Company
Duke Hospodar	Resort Operations Director, Ko Olina Community Association
Jeff Iwasaki	Eckerd Brandes, Inc.
Kamaki Kanahele	Director, Native Hawaiian Traditional Healing Center, Waianae Coast Comprehensive Health Center
Shad Kane	Makakilo/Kapolei/Honokai Hale Neighborhood Board Honolulu Police Department, Lieutenant (Retired) School Safety Manager, Waianae Intermediate School
Tamlynn Keliikoa	Project Coordinator, Metropolitan Painting
Andrew R. Keith	Senior Environmental Scientist Hawaiian Electric Company, Inc.
Pete Ludlam	Training Site Environmental Specialist, Hawaii Army National Guard

Exhibit 3-A, Continued

Interviewees were asked to share their knowledge, not represent their groups or organizations. Affiliations are shown to indicate some of the experience and knowledge interviewees brought to discussion. No suggestion is made that listed groups or organizations support the project.

Richard McMillan	Environmental Program Manager US Coast Guard
Jeffrey C. Morrell, P.E.	Principal Engineer and Operations Manager, LFR, Inc., Honolulu Office
Wayne H. Muraoka	Vice President, Armstrong Properties
David F. Murphy	Development Director, Hawaii Region, Brookfield Homes
Richard Payne	Environmental Specialist, Chevron USA
Dennis Poma	Executive Vice President, Advanced Compliance Solutions, Inc.
Linda Porter	Director, Ko Olina Fairways Home Owners Association
Buddy Reed	CEO, NCNS Environmental, Inc.
Glenn Soma	Commercial Harbors Planner, Harbors Division Hawaii State Department of Transportation
C. Michael Street	Project Manager, US Filter
Amy Tanaka	Property Manager, Kahe Point Homes
Maeda Timson	Member, Makakilo/Kapolei/Honokai Hale Neighborhood Board
Hans R. Toebler	General Manager, Kalaeloa Cogeneration Plant
Jennifer VandeBrake	Compliance Specialist, Hawaii Army National Guard
Ken Williams	General Manager, Ko Olina Resort Marina Ko Olina Community Association
Ken Windram	Project Manager, US Filter
Nick Wong	President, NCSN Environmental, Inc.
Robert G. Wright	General Manager, Paradise Cove Luau
George Yamamoto	Makakilo/Kapolei/Honokai Hale Neighborhood Board Honolulu Police Department, Captain, Kapolei Station

The Neighborhood Boards have addressed a wide range of concerns, including operations and expansion of Waimanalo Gulch. Major topics of discussion before the Makakilo/Kapolei/Honokai Hale Board (No. 34) have included:

- *Site selection for University of Hawaii at West Oahu:* The Makakilo/Kapolei/Honokai Hale Neighborhood Board has pressed the State and its planners to choose a site large enough to allow development of a separate campus.
- *Kalaeloa revitalization:* While the Barbers Point Naval Air Station closed in 1999, the Navy still retained ownership of roadways in early 2002 and sought local government to take over responsibility and liability for the roads. Also, Neighborhood Board No. 34 heard about plans for rezoning, needed for eventual redevelopment of the area.
- *The Kapolei library:* State funds for construction did not cover the cost of stocking the library with books. Community members have come forward both to supply books and to press for State action.
- *Proposed elderly housing in Ewa Villages and Kapolei.* Representatives of the developers (St. Francis Healthcare System and Hawaii Village Associates) presented plans and answered questions. Board Members emphasized the importance of these facilities being open to all.

The Waianae Coast Neighborhood Board (No. 24) also spent much of its time in 2002 on capital improvement and development issues. However, these tended to involve repair and restoration of resources, rather than new development. Major topics included:

- Water main breaks and the water main replacement program of the Board of Water Supply;
- Development of a Waianae Coast Emergency Access Route, a bypass alternate to Farrington Highway;
- The Makua Valley Environmental Impact Statement, dealing with use of this area by the Army for live fire practice;
- Development of Kaupuni Community Park; and
- Self-Help Housing (Hawaii Intergenerational Community Development and Consuela Zobel Alger Foundation proposals).

3.3 COMMUNITY ISSUES WITH REGARD TO PROJECT

Stakeholders see the project in light of four major viewpoints:

- A history of interaction between nearby communities and ENV and/or Waste Management;

- Hawaii's dependence on tourism and failure to adopt environmentally sensitive practices which would sharply limit landfilling;
- A need to have facilities and services to meet public needs in changing situation; and
- The difficulty, after a decade's stagnant economy, of developing and continuing a recovery.

Respondents typically cited more than one of these perspectives as grounds for their views. Members of communities near Waimanalo Gulch usually focused on an account of planning and operations at the landfill, supplemented by environmental concerns or a view of Leeward Oahu as the source of new economic ventures that deserve support. Environmental specialists saw landfill operations as crucial for Oahu, but also recognized environmental goals as very important. Some made the explicit point that landfill operations are necessary to support other means of dealing with the waste stream. Along with many of the environmental specialists, other interviewees in Hawaii's commercial sector emphasized the need to provide City services at reasonable cost in support of economic growth for Oahu.

Exhibit 3-B: MAJOR COMMUNITY ISSUES, MID-2002

	Total Sample	Dist. 19 Kapolei to Waikale	Dist. 21 Nanakuli to Makaha
Sample	2,500	100	100
Mean age of respondents	NA	44.8	44.2
Important Issues	<i>Share (%) mentioning:</i>		
Economy	51	65	55
Education	52	46	36
Crime, Drugs	21	9	18
Political, Gov't Reform	NA	13	12
Resource Management	NA	10	7
Health Care	NA	3	3
Overcrowding	NA	1	1
Social Issues	NA	0	0

NOTE: Survey conducted June 20 to July 17, 2002 with a random sample of registered voters and potential voters. Results from the total sample are presented graphically, for Economy, Education, Crime (13%), Drugs (8%) and Traffic (4%). The eight-issue break out shown in the table is used to report for the Senatorial district sub-samples. No definition of "resource management" is given: presumably this category covers not only traffic but environmental issues.

Exhibit 3-C divides stakeholders into three groups. The second and third overlapped: agency and corporate representatives knowledgeable about waste were

largely environmental specialists. The latter two groups also shared the view that the presence of a municipal solid waste sanitary landfill on Oahu was of great value, and the City should make sure that its landfill service continued to operate at relatively low cost.

Some of the issues listed in Exhibit 3-C deserve further discussion. At this point, the aim is simply to describe stakeholders' concerns. City responses and ongoing or proposed mitigations will be discussed later.

Exhibit 3-C: ISSUES AND CONCERNS WITH REGARD TO PROJECT

	Nearby Areas	Stakeholder Groups	
		Environmental Specialists	Islandwide Business, Users
Landfill Operations Current	Source of Irritants: Litter from trucks Litter (bags) from site Odors Unightly (landscaping still to be done) Traffic	Efficient, needed Operation seen as professional	Needed
2003-2008	Viewed as continued imposition on area, result of failure to plan ahead	Needed to continue service; no alternative feasible in time frame	Needed Seek low-cost, dependable service
City Planning and Commitments	Criticized as slow, not offering viable alternatives Little acceptance of planning criteria (e.g., UIC line)	Largely supportive of ENV's processes General acceptance of planning criteria	
The Expansion Proposal	Claim Mayor Fasi made promise: no extension Opposed as one more extension	Accepted as needed to gain time for alternatives	Supported
Location of Landfill	Seen as "environmental racism" Seen as inappropriate given Ko Olina, Kapolei growth	Appropriate: proximity to H-Power Appropriate near heavy industry	Most see as appropriate
Alternatives	Away from Leeward Oahu -- beyond that, responsibility is City's	Need alternative; see off-shore alternatives as costly, uncertain	View off-shore alternatives as a significant new cost of doing business

3.3.1 Local Community Concerns

Irritants: Community leaders have experienced or have been told of problems due to litter from trucks to and from H-POWER and the landfill, and litter blowing off the landfill. Waste Management of Hawaii normally assigns a worker each day to clean up litter, and screens and fences are placed on the landfill site to capture litter. Still, Ko Olina managers say that they must assign additional workers to patrol for litter. While the most obvious litter consists of plastic grocery bags and similar light bags, neighbors at Kahe Point Homes and at Ko Olina Fairways blame the landfill for dust and dirt in their homes. (At Kahe Point, the fact that some residents are asthmatic makes dust a strong concern.) Odor control has also been an issue, especially for Ko Olina stakeholders.

Landscaping: Ko Olina residents want the landfill not to be visible from their community. Waianae Coast residents note that it is also visible from Farrington Highway about a mile to the north.

City Plans and Promises: Over the past few years, interactions between community leaders and representatives of the City and landfill operators have progressed in important ways. Efforts to mitigate irritants have been developed, and City proposals have changed. Nonetheless, the process has been extremely frustrating for some community participants. They believe that Mayor Fasi promised, when landfill planning began in 1984, that operations would not last longer than originally planned. They see the City and Waste Management as soliciting comments, but doing little except to continue in a long review and permitting process that rules out steps other than the City's preferred course of action. Some reject established criteria (e.g., the Department of Health's Underground Injection Line and the Board of Water Supply's Groundwater Protection Line) as not truly scientific.

Location of Landfill: For some in the local community, the key issue is, simply, "Why us?" Rationales for locating the landfill between the Waianae Coast and Ewa do not displace the conviction that these regions have a disproportionate share of unwanted land uses sited by local government. Kapolei and Ko Olina are planned growth areas; local stakeholders argue that the landfill is an incompatible land use near a resort and emerging city.

3.3.2 Concerns of Stakeholders Outside the Local Community

Local community residents tended to view municipal solid waste as offensive, and have little to say about particular types of waste. Others noted reasons why efficient and economical landfilling of particular types of waste was important:

- *Special wastes* (e.g., telephone poles) are not hazardous materials but their disposal raises environmental concerns. Hence the availability of a lined and monitored sanitary landfill licensed to take them is important.

- *Ash* and other wastes from H-POWER and proposed new technologies for reducing the waste stream were mentioned as inevitable. Implementation of plans to reduce the waste stream is only possible with a landfill to handle residues.
- *Debris* after hurricanes and other disasters: A few interviewees noted that a major hurricane leaves great volumes of debris which must be removed in the course of repair and renovation. In the absence of a landfill, removal of debris would be slower and far more expensive.

The concerns with cost noted in Exhibit 3-C usually were expressed (in response to SMS questions about alternatives to landfill operations) as a reluctance to incur additional costs. A few informants went much further, arguing that disruption of the municipal waste stream could have consequences for investment. They saw any withdrawal by the City from handling of municipal solid waste and special wastes as leaving users at greater risk of liability for damage: without the City and State to guarantee effective landfill operations, producers of waste would be likely to be held liable as "deep pockets" in multi-defendant lawsuits. One went so far as to argue that no national-level company would be willing to locate operations in a locale with such a risky waste disposal system.

4: IMPACT ANALYSIS

4.1 ANALYTICAL APPROACH AND TERMINOLOGY

In a socio-economic impact assessment, impacts are *differences* in future states associated with implementation of a project – not differences between present and anticipated future conditions. In most cases, the leading difference is between building a proposed development at a given site or not developing the site. The current case is different, in that expansion of landfill operations at the Waimanalo Gulch site allows existing activity to continue for some five years' time, instead of a new activity. Also, the current case involves the only site at which this City service can be accomplished on Oahu in the near term.

Impacts of the project can be perceived in three distinct contexts:

- (a) Because the project is, in terms of landfill operations, continuation of existing activities, those activities must be treated as existing, not new.

COMMENT: This approach basically contrasts the future with project to the present, and hence it is not analytically adequate. It must be kept in mind, however, to resist analysis of impacts that implicitly counts them as new demands or stimuli.

- (b) The period in which the expanded landfill is expected to be used will allow exploration of alternative disposal technologies and reconsideration of alternative landfill sites. Need for the project can be asserted as rooted in the time needed to replace the existing landfill. In this light, timely development of new disposal technologies can be seen as a consequence of the project.

COMMENT: This line of argument deserves consideration, but the present study is restricted to assessing impacts of continued landfill use. Alternative technologies are considered experimental by experts. The City has no assurance either that new technologies will greatly reduce the waste stream needing disposal in a landfill, or that agreement can be reached on an alternative landfill site.

- (c) The project can be considered in relation to the No Action Alternative. Any account of a No Action Alternative must address the question of *how* that service would be performed if the Proposed Action is not implemented:

Proposed activity → Expanded site
No change in staffing
Reduction of waste stream through other means,
but no change in basic disposal service delivery*

No action alternative → No use of expansion area
Closure of Waimanalo Gulch as of 2003
City and contractor do not operate a landfill in the
period 2003 to 2008 (due to time needed for
selection, permits, construction of any new landfill)
Reduction of waste stream through other means*,
and shipment of ash, non-combustible wastes, and
other materials off-island.

*In all cases, the City expects to pursue recycling and alternative technologies for refuse processing and disposal, to reduce the waste stream needing landfill disposal.

COMMENT: Off-island sites for MSW could, at least hypothetically, include the West Hawaii landfill and landfills on the US Mainland. In a separate study, the immediate costs of disposal of Honolulu's wastes at these sites have been analyzed (Pacific Waste Consulting Group, 2002). The costs that could reasonably be associated with off-island landfilling are discussed in section 5.

4.2 ECONOMIC AND DEMOGRAPHIC IMPACTS

This section deals with the standard calculations of economic impacts (employment, incomes, population and housing, and fiscal impacts) focusing on the consequences of implementing the proposed action. The larger economic consequences of pursuing the No Action Alternative are explored in Section 5.

4.2.1 Employment and Wages

Expansion of the sanitary landfill involves both construction and operations. In this project, the two occur at the same time. Excavation of new cells provides cover material for the landfill. The same personnel are involved in both excavation and filling, i.e., in construction and operations.

Operation of the Waimanalo Gulch Sanitary Landfill currently involves 14 jobs and a payroll of nearly \$750,000 (2001 dollars). Using multipliers in the State Input-Output Model (DBEDT 2002a), SMS estimates that landfill operations support another 23 workers in indirect and induced jobs, as indicated in Exhibit 4-A. (Indirect jobs are created by a firm's spending, e.g., purchase of supplies and

equipment from vendors. Induced jobs are created as members of the direct and indirect workforce spend money in the local economy.)

In contrast, the No Action Alternative would need a workforce on Oahu to prepare materials for shipment to off-island landfills. The size of that workforce could well be nearly as large as the project workforce. Accordingly, no employment impact is anticipated with the project.

Exhibit 4-A: EMPLOYMENT AND WAGES, WITH PROJECT

Direct Jobs	14
Indirect and Induced Jobs	23
Direct Payroll	\$748,000
Indirect and Induced Wages	\$712,622

NOTES: Direct jobs and payroll from Waste Management of Hawaii, Inc.

4.2.2 Population and Housing Impacts

The jobs associated with continued expansion and operations at the Waimanalo Gulch Sanitary Landfill are continuing jobs, rather than new ones. As a result, no new population is associated with the jobs, much less demand for housing. Also, as noted above, the Oahu workforce associated with the No Action Alternative could be as large as with the landfill. Accordingly, no difference is expected between population and housing impacts associated with the workforce.

4.2.3 Fiscal Impacts

Fiscal impact calculations typically involve property taxes (for the City and County) created with redevelopment of a parcel, and the excise and income taxes (for the State of Hawaii) associated with new transactions, typically with the construction of new facilities. However, as City property used for a public service, the Waimanalo Gulch Sanitary Landfill does not generate property taxes. Also, no new construction jobs are associated with the project, only the ongoing work of creating landfill cells and finding cover material. Accordingly, no new State revenues can be projected.

Fiscal impacts associated with the No Action Alternative are estimated in Section 5.

4.3 IMPACTS ON PUBLIC FACILITIES AND SERVICES

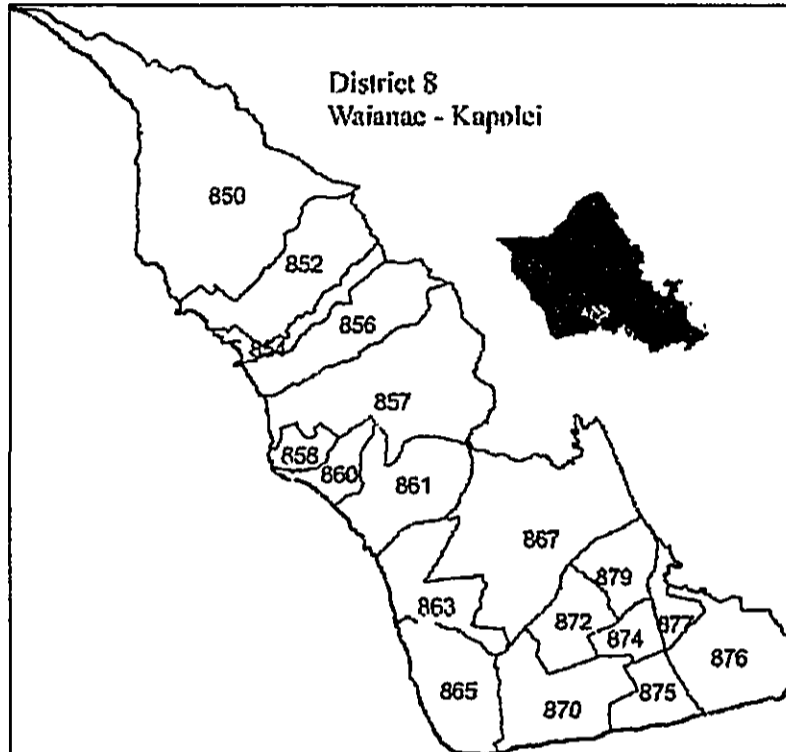
4.3.1 Police Protection

Existing Conditions: Honolulu Police Department District 8 encompasses the Waianae Coast, Makakilo, Ewa Plain, and the city of Kapolei. The district has a total land area of 128 square miles and approximately 35 miles of coastline. District 8 has

18 beats, shown in Exhibit 4-B. The district headquarters is in Kapolei. A substation is located in Waianae, providing a base of operations for officers patrolling the Waianae Coast.

Future without Project: The Honolulu Police Department has found it difficult to fill its ranks in the face of budgetary limits and competition from Mainland US police forces recruiting officers from Hawaii.

Exhibit 4-B: HONOLULU POLICE DISTRICT 8



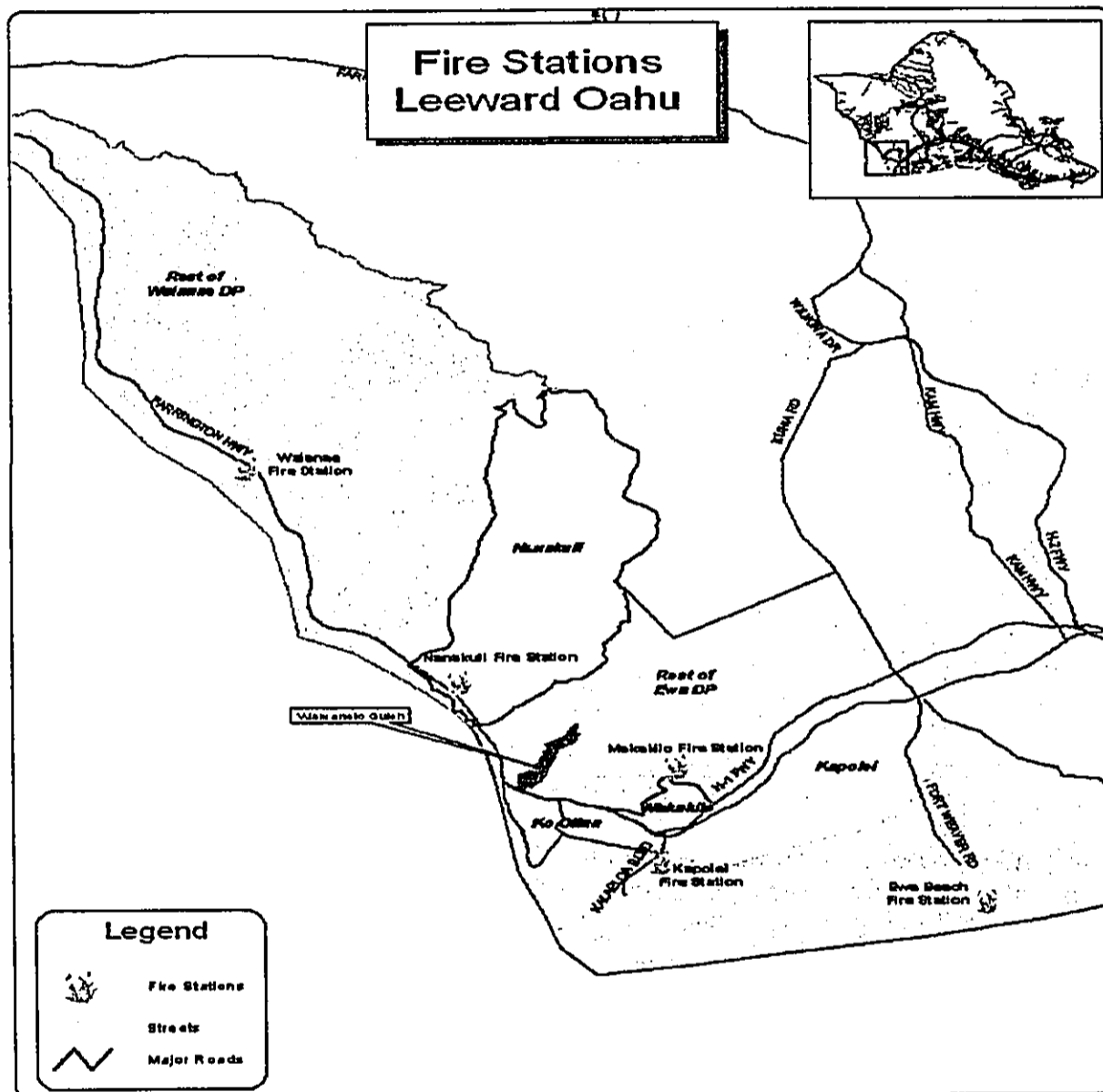
SOURCE: Honolulu Police Department website (www.honolulupd.org/).

Future with Project: Commenting on the Draft EIS, Honolulu Police Department officials noted that there may be an impact on calls for police service in the area while the landfill is being expanded (letter of June 29, 2000, from Lee. D. Donohue, Chief of Police, to Kenneth E. Sprague, in RM Towill 2001). As described above, construction of a lined sanitary landfill is a continuing process, conducted on-site, which does not bring additional large trucks to the project site. The police concern was, in effect, that landfill operations could lead to calls from neighbors (due to litter, odors or other irritants) and hence increase demand for limited police time. Failure to control irritants, then, would have an impact on the ability of the Department to respond to other demands. Again, if mitigation of problems with litter on the highways calls for police to witness trash falling off trucks, to cite the offender, and to spend time in court, this activity would make demands on police officers' time, when they need to deal with other issues.

4.3.2 Fire Protection

Existing Conditions: Leeward Oahu is served by the Honolulu Fire Department's Fourth Battalion, as shown in Exhibit 4-C.

Exhibit 4-C: FIRE STATIONS, LEEWARD OAHU



The Kapolei Fire Station, Station 40, also serves as the headquarters for Battalion 4. The headquarters building houses an engine and a ladder truck. Station 28, in Nanakuli, has an engine and a tanker. Station 26, the Waianae Fire Station, also has an engine and tanker. Also housed in this fire station are the Waianae EMS units. The Makakilo Fire Station (No. 35) has a single engine. Station 24, the Ewa Beach Fire Station, has one fire engine.

Future without Project: No change in services is expected in the next few years.

Future with Project: Commenting on the Draft EIS, Honolulu Fire Department officials expressed the concern that access for fire apparatus be maintained throughout the construction and operations of the expanded landfill. Such access will be maintained. No impact is anticipated.

Some interviewees expressed concern that landfill debris could tangle electric lines running from the Hawaiian Electric Plant at Kahe and risk a fire or loss of power. Neither Fire Department nor Hawaiian Electric staff raised the issue, and Waste Management staff are confident that the lines in question are well insulated, making any risk of fire minimal.

4.3.3 Emergency Services

Existing Conditions: Emergency Medical Services Division staff and trucks are located at the Waianae Fire station and at St. Francis West Hospital in Ewa. A quick response unit, with a paramedic and a truck, but without the ability to transport patients, is located at the Navy medical clinic in Barbers Point. Also, it is Fire Department practice to co-respond to calls for emergency services.

Future without Project: The Division is considering funding applications to establish a new unit in Nanakuli and to upgrade its capability at Barbers Point to a full unit (personal communication, Assistant Chief Donald Gates, December 2002). No changes in staffing and facilities have been approved.

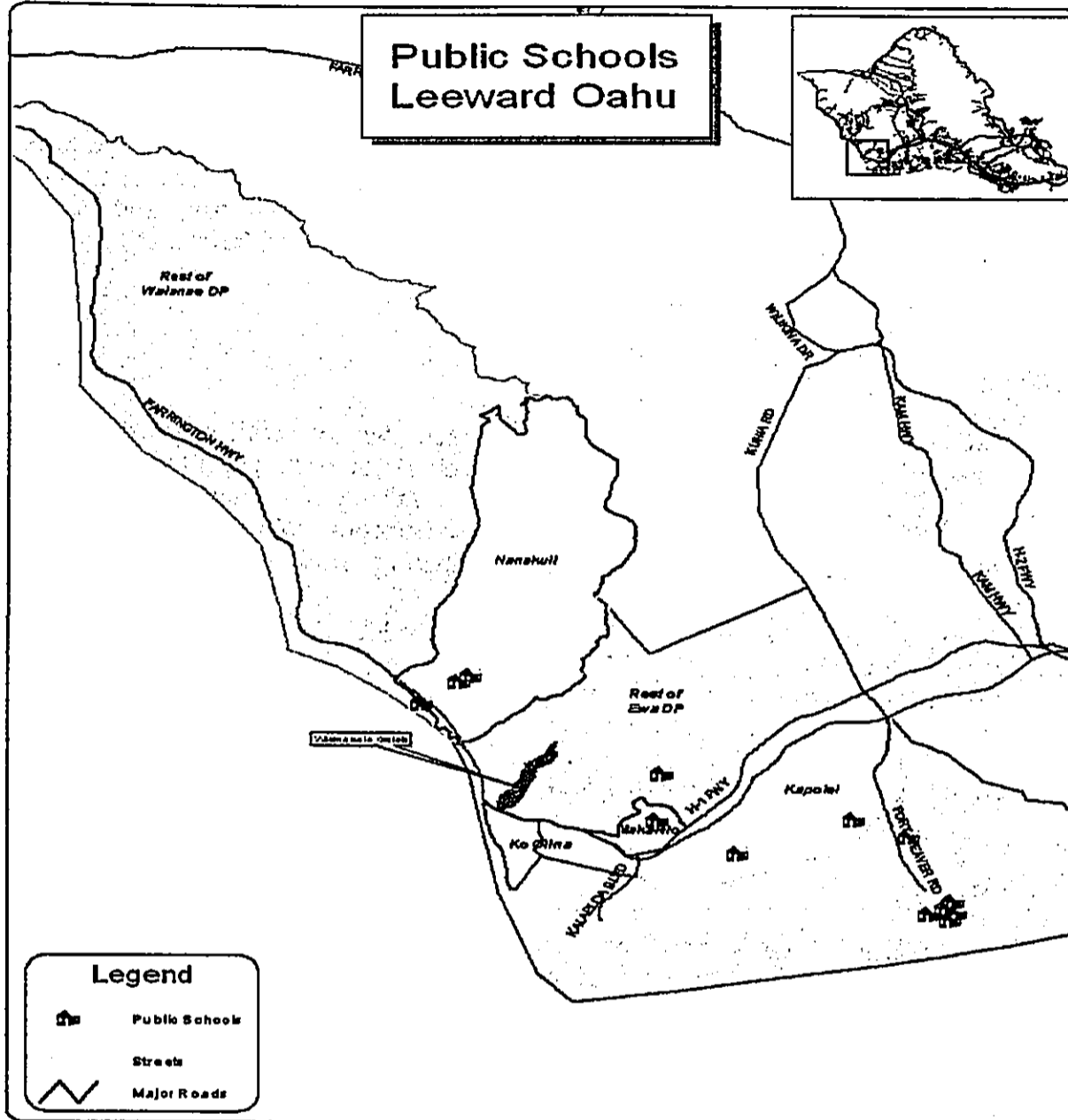
Future with Project: No impacts are anticipated.

4.3.4 Education

Existing Conditions: Leeward Oahu has seen growth in school populations and schools in recent years, notably in Kapolei where new middle and high schools have opened. Availability of primary school space remains a problem. (When space became available at Barbers Point Elementary as Navy families left nearby housing, many Makakilo families objected to assignment of their children to an older school, located several miles downhill from their homes.)

Exhibit 4-D shows the location of schools in the Ewa DP area and Nanakuli. (Additional schools are located in Maili and Waianae.)

Exhibit 4-D: PUBLIC SCHOOLS, EWA AND NANAKULI



Future without Project: No major change is expected in the next few years. Continued development of Kapolei High School is planned. A possible new primary school in Ko Olina has been discussed for some time, and developers' plans show a location for a school. However, the site has not been accepted by the Department of Education, and it is smaller -- six acres rather than twelve -- than DOE planners prefer. No funds have been requested, much less obtained, for such a school, and current school-age populations are not large enough to justify new construction.

Since the market niches to which Ko Olina developers are selling – notably second home buyers and retirees – are likely to have few school-age children, no significant increase in demand for a school is expected in this decade.

Future with Project: Since the project does not affect school service populations or school sites, no impact is anticipated.

4.3.5 Library Services

Existing Conditions: Hawaii's public libraries are operated by the State Department of Education. Libraries are open in Waianae and Ewa Beach. A new library has been built in Kapolei, but funds for collections were not included in the most recent legislative appropriation.

Future without Project: The 2003 Legislature is expected to provide moneys for a collection and staffing at Kapolei Public Library.

Future with Project: No project impact on library services is anticipated.

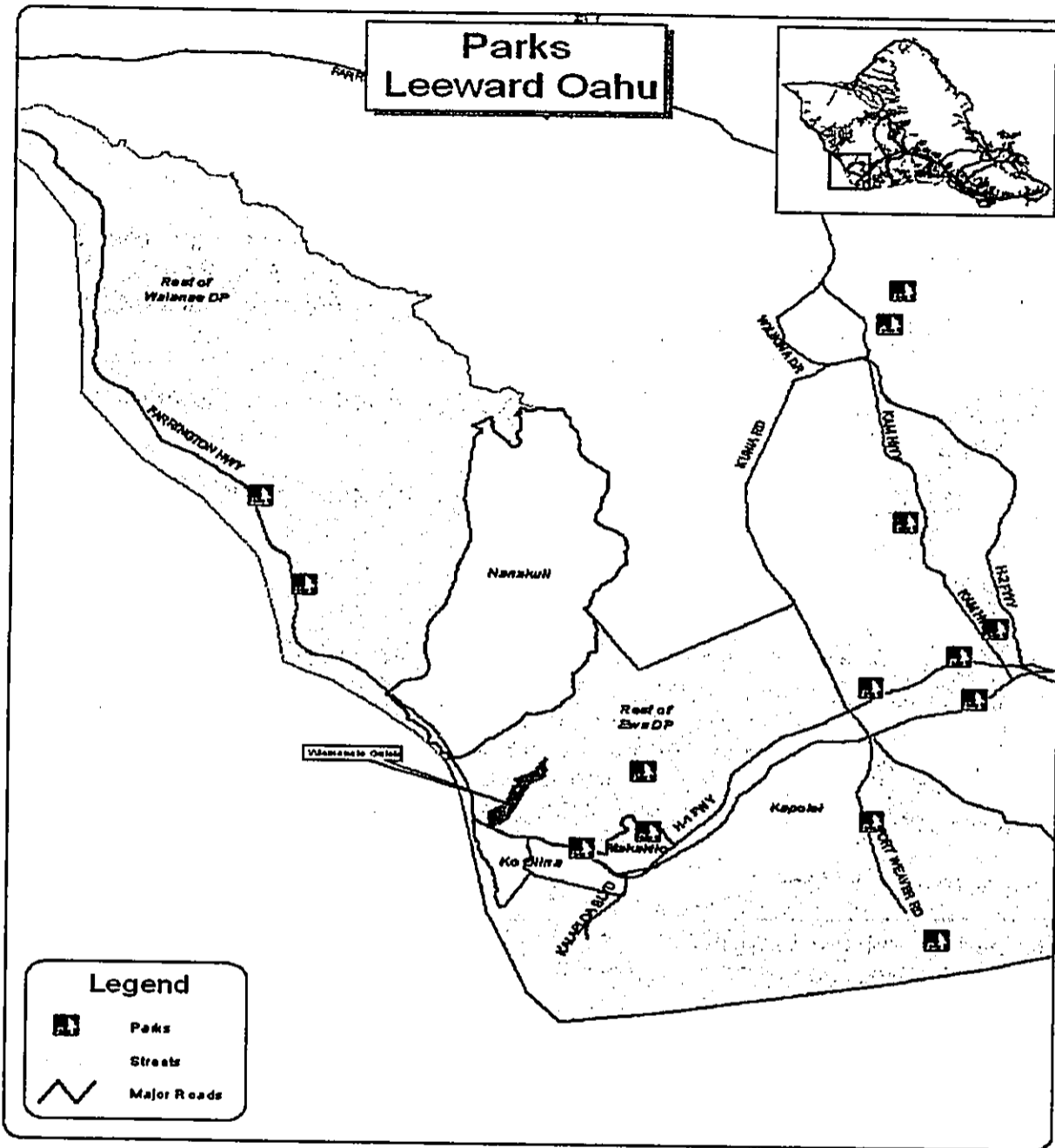
4.3.6 Parks and Recreation

Existing Conditions: District III of the City and County of Honolulu Parks and Recreation Department encompasses the 23 parks on the leeward side of Oahu. There are parks situated in each of the major residential zones. Also, beach parks are located along the Waianae Coast, at the tip of Barbers Point (in the Campbell Industrial Park) and in Ewa Beach. At Barbers Point NAS, White Plains and Nimitz Beach were popular. These are under joint Navy and Parks Department control.

Future without Project: After the closure of Barbers Point, much of the Navy land was conveyed to the City and County of Honolulu for eventual redevelopment as recreation and sports facilities. Funds for significant new development have not yet been allocated, so major changes are not likely in this decade.

Future with Project: No impact on parks and recreation services is anticipated.

Exhibit 4-E: PARKS, LEEWARD OAHU



4.3.6 Medical Services

Existing Conditions: Leeward Oahu is served by St. Francis West, a 100-bed hospital outside Waipahu, the Waiānana Coast Comprehensive Health Clinic, between Nanakuli and Waiānana, and clinics in Kapolei maintained by other health care providers.

Future without Project: SMS knows of no major changes in medical services planned for the region.

Future with Project: No project impact is anticipated.

4.4 OTHER SOCIAL IMPACTS

4.4.1 Social Consequences of Irritants Associated with Project

In the past, the Waimanalo Gulch Sanitary Landfill has been viewed as the source of noxious odors, dust, and litter in the surrounding area. These have been perceived as irritants, sources of both physical distress and community-level impacts. Also, trash falling from trucks going to H-POWER or the landfill has been an irritant for members of the Leeward Oahu community.

Dust blown the edge of the Waimanalo Gulch property, presumably much the same as any dust blown from the site to neighboring areas downwind, has been found to be derived from soil cover quarried on-site, rather than from ash or other materials brought to the landfill (Mountain Edge Environmental, Inc., 2002). The dust tested had only low levels of one metal (chromium), which is common in Hawaii soils.

In addition to air-borne materials, visibility of the landfill is of concern to some neighbors. They consider an identifiable landfill to be a detriment to the Ko Olina community.

Should these irritants continue, social consequences could follow:

- To the extent that dust from Waimanalo Gulch exacerbates health conditions (in the case of asthmatics in Kahe Point Homes) it would be a source of distress to them and their families;
- Dust and litter need to be cleaned up, demanding effort on the part of neighbors; and
- Community members, who have brought these irritants to the attention of the City and Waste Management of Hawaii, Inc., would see their concerns as being ignored.

Mitigations have been identified for all the irritants discussed above. Effective implementation of mitigation strategies will be discussed below as necessary to minimize social impacts as well as physical ones.

4.4.2 Social Consequences of Traffic to and from Waimanalo Gulch

Concern over traffic appears to this consultant to involve four distinct issues:

1. The entrance to Waimanalo Gulch is located just north of the access to Ko Olina from Farrington Highway, so trucks going to and from the landfill are visible to those who go to Ko Olina;
2. Trucks going to and from the landfill may litter on H-1 and Farrington Highway;
3. If traffic to and from Waimanalo Gulch increases, the risk of accidents could increase; and
4. In the event of a major accident near the entrance to the landfill, Farrington Highway could be blocked, affecting the entire Waianae Coast.

The social implication of the first issue appears to be that Ko Olina's reputation as a resort would be better protected if unsightly waste haulers were not on Farrington Highway. SMS appreciates that the sight of waste haulers does nothing to support a sense of Ko Olina as an isolated tropical retreat. However, much of the traffic going to and from the Waianae Coast consists of trucks, pick-ups, construction equipment - all of which may be inconsistent with a sense of Ko Olina as a retreat. Even if all traffic to and from Waimanalo Gulch ended, Farrington Highways would still be a major highway serving diverse communities in a dry, dusty area.

Next, the litter problem is a source of irritation for neighbors. Ko Olina corporate officials report that they delegate their own staff to pick up litter, since items such as plastic bags still blow onto their land even if Waste Management of Hawaii has personnel tasked to collect litter. Litter works against the effort being made by developers, real estate professionals and residents to experience Ko Olina as an upscale oceanfront area.

The third issue misses the fact that the project does not involve increased traffic. With improvements at H-POWER, in alternate disposal technology, and in recycling, the volume of materials going to the landfill is expected to decrease.

The fourth issue is an understandable concern, even though no accident at the landfill entrance has yet blocked the road. The City and County is developing an emergency access strategy for Waianae, and may look again into the question of gaining military permission to open the road through Kolekole Pass in case of emergency.

In sum, the key impact associated with traffic has to do with litter control, near the entrance to Waimanalo Gulch and along H-1 and Farrington Highways. Mitigation is discussed in Section 5.

4.4.3 Property Values

Both experts and the public at large usually expect that proximity to a landfill correlates with lower property values (Klein, 1999; Reichert, Small, Mohanty, 1991). The idea can be tested by modeling factors that contribute to property values. SMS ran regression and ANOVA analyses using data concerning 13,259 residential parcels and condominium units in Leeward Oahu (Tax Map Key Zones 8-7 to 8-9, 9-1 to 9-2).

The analysis and specific findings are described in Appendix B. The results can be summarized as follows:

- Data for single-family homes fit the hypothesis that property values increase with distance from the landfill up to a distance of about three miles. However, the condominium analysis shows a significant correlation of increased value and proximity to the landfill – the opposite result.
- In both cases, the regression analysis resulted in a model that explained most of the variance in the data. (Adjusted R^2 values were .686 for single family properties, and .704 for condominium properties. F values for the ANOVA were high, and both models were statistically significant, with p less than .001.)
- Most of the valuation was explained by such factors as land area, living area, number of buildings, number of stories of a house, number of baths, and choice of building materials.
- In the single-family case, the contribution of distance from the landfill amounted to \$4.08 per foot, i.e., values are expected to increase with distance (up to three miles) at this rate.
- For condominium properties, the trend close to the landfill went the other way: units near the landfill are much more valuable than ones at a mile's distance. The condominium units are much more closely clustered than single family ones. Also, the trend does not just disappear over a few miles; if anything, it reverses, since the highest value properties in the data set are located about five miles from the entrance to Waimanalo Gulch.

In sum, while a statistical argument can be made for claiming that single family values are lowered by proximity to Waimanalo Gulch, it cannot be applied to condominiums. The condominium data suggest that proximity to Waimanalo Gulch (along with the Ko Olina shore line and golf course) is worth about \$7.30 per foot within a range of 20,000 feet. With these inconsistent results, the prudent conclusion is that proximity to the landfill is not a factor with a strong, consistent impact on real property values.

4.4.4 Impacts on Local Communities

Two claims made by local leaders point to anticipated impacts that could have community-wide effect: (a) a loss of value and prestige for Ko Olina, and (b) a general sense of disenfranchisement or lack of power on the part of community stakeholders who have struggled to close the landfill.

The key evidence for the first claim would be a lag in sales in Ko Olina or an analysis showing that Ko Olina properties are lower in value because they are near Waimanalo Gulch. However, sales in Ko Olina are proceeding well, and the real property analysis of condominium units – such as are found in Ko Olina – showed that the Ko Olina properties had the highest value in the region. These points argue against any claim that Waimanalo Gulch has harmed Ko Olina as a development.

Additional evidence of an impact on Ko Olina comes from residents' complaints about litter and odors. If these keep on recurring as local problems, Ko Olina could well gain a reputation as an area affected by impacts from the landfill. Mitigation of these irritants will, hence, be necessary not only to help the individuals who are most affected but to protect the community's reputation.

The second issue can be treated as a problem of communications – ENV needs to listen carefully to local stakeholders and respond seriously to them in order not to alienate them from the City – or an objective problem of "environmental justice." (On "environmental justice," see the next section.) The communication issue could arguably affect community organization, since effective and cooperative local leadership cannot be expected if stakeholders see no value in working with the City. However, the City has formed a Community Oversight Committee to work on mitigation issues and is revising the EIS in response to community concerns. This framework can be a basis for assuring continuing communication, if not necessarily community satisfaction.

4.4.5 Environmental Justice: Relationship between the City and County and the Local Communities Surrounding Waimanalo Gulch

Under Executive Order No. 12898, dated February 11, 1994, federal agencies are required to address the potential for disproportionately high and adverse environmental impacts of their actions on minority and low-income communities. While this order does not apply to local governments, it has gone far to clarify notions of "environmental justice."

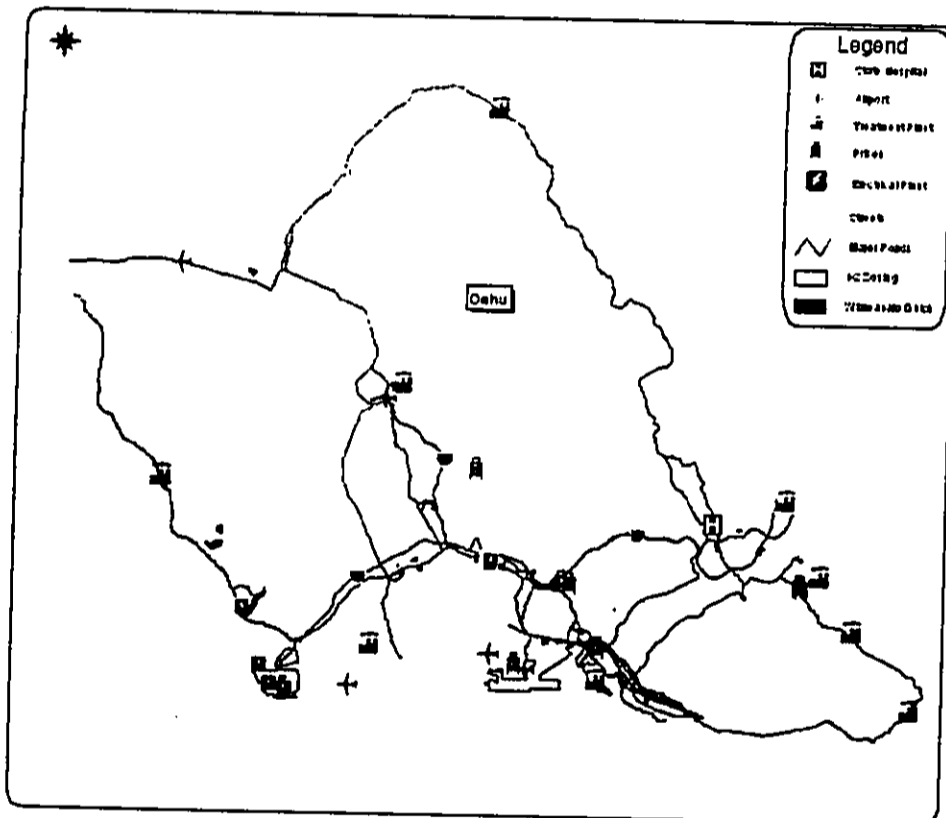
As noted earlier, Leeward Oahu community stakeholders have seen City use of Waimanalo Gulch as part of a pattern of locating undesirable land uses in their area. Exhibit 4-F offers some perspective on this claim by mapping several land uses found on Oahu. It includes areas with high densities, in Kalihi/Mapunapuna and along the southwest coast, between James Campbell Industrial Park and Kahe

Point. Clearly, the presence of the island's largest industrial park and oil terminal have attracted additional heavy industry (electrical generation plants).

The landfill site was chosen on the basis of environmental criteria. ENV argues that its siting decisions are based on objective factors, and is considering formation of a group to assess both siting criteria and the data. That group would then advise ENV on future siting decisions.

Next, the key question at issue in the Executive Order is whether disproportionate impacts occur, not whether unwanted land uses are located against the wishes of local citizens. On that ground, the test is whether location and operation of a landfill has major impacts on neighboring communities. The EIS argues that impacts are limited and subject to mitigation.

Exhibit 4-F: MAJOR LOCALLY UNWANTED LAND USES, OAHU



Finally, the notion of "environmental justice" does not apply clearly to Ewa, with its population of young families with median incomes higher than the island median. The Waiānae Coast, with a lower median income and high concentrations of Native Hawaiians and other Pacific Islanders does qualify.

4.4.6 Impacts on the Island Community

Expansion of the Waimanalo Gulch Sanitary Landfill and use of the landfill for five years after permits are obtained will allow the City and County of Honolulu and commercial operators to continue MSW collection and disposal with little change. It will further allow time for encouraging alternative disposal technologies. Currently, proponents of plasma gas vitrification and other technologies believe that these processes can be highly effective – but no example of conversion of MSW on the scale needed in Honolulu exists. Continuation of landfilling on Oahu will allow five years in which alternative technologies can be scaled up to meet local needs. Much like a firm automating bookkeeping or other processes, a municipality seeking to divert nearly all solid waste and dispose of the remaining ash and other materials outside its area cannot prudently switch to new technologies without keeping old ones available in case of need.

Expansion of the Waimanalo Gulch Sanitary Landfill will allow a relatively small window of opportunity for choosing an alternative landfill site, if so desired, and for permitting and initial construction of a new sanitary landfill.

The No Action Alternative would result in significant costs to Oahu residents and firms. These are described in the next section. In addition, the City's ability to respond to crises would be undermined. In the event of a hurricane or other major natural disaster, Honolulu could have large amounts of debris that must be cleared in order to rebuild. Without a landfill, the work of reconstruction will be slowed and made much more costly.

5: IMPLICATIONS OF NO ACTION ALTERNATIVE

5.1 POTENTIAL RESPONSES TO HONOLULU'S SOLID WASTE DISPOSAL PROBLEM

In most EISs, the No Action Alternative with which a preferred alternative is compared is easily described: it involves leaving a site undeveloped. In this case, a refusal to expand the existing sanitary landfill would have major consequences for all Oahu, forcing the City and County and others to respond to a looming crisis. Currently, some 500,000 tons are sent annually to Waimanalo Gulch. Closure of Waimanalo Gulch without a replacement that meets state and federal requirements for a MSW landfill would mean the City and commercial waste haulers would need to find alternative disposal mechanism immediately. A separate study for this report identifies sites on the Big Island and in California as potential recipients of Honolulu's municipal solid waste (Pacific Waste Consulting Group, 2002).

Oahu will need to respond to several challenges:

- Some orderly methods will be needed to keep disposing of a large amount of wastes;
- Oahu has existing and proposed technologies at Campbell Industrial Park – H-POWER and the planned alternative waste disposal technology park – that cannot be used without a large waste stream;
- If costs skyrocket, the incidence of illegal dumping (with serious health and safety impacts and high cost of cleaning up illegally dumped materials) will increase greatly;
- While some wastes could be exported to other islands in Hawaii, this activity would export the problem of limited landfill capacity. Most Hawaii landfills have little capacity for their current waste streams, much less additional materials from Oahu. The West Hawaii sanitary landfill stands out: it has a life expectancy of about 63 years with its current disposal stream (of 93,000 tons/year). It will soon handle additional wastes from East Hawaii, when the East Hawaii landfill reaches capacity. If much of Oahu's wastes went to Hawaii, the West Hawaii landfill's capacity would shrink to perhaps ten years. Exporting in Hawaii is, then, a poor environmental choice. It would also create friction between counties, and probably be opposed by the County of Hawaii. If State agencies found interisland transport of MSW to carry risks of biological contamination (e.g., spread of plant diseases, affecting agriculture), the cost of interisland waste disposal would be very close to the cost of US Mainland transshipment and disposal.

Under the No Action Alternative, the Department of Environmental Services (ENV) would continue to collect residential MSW and would accept commercial MSW at H-

POWER. Lacking a landfill, it would no longer accept commercial special wastes. Residential special wastes (e.g., bulky items) would be sorted, recycled to the extent possible, and exported when necessary. Sorting might reduce export costs by allowing shipment of like items that do not require special processing before transshipment.

Ash and residue from H-POWER and any residue from alternative waste disposal technologies would be exported to the Mainland US. Until there is a third boiler at H-POWER, and ENV can be sure that all putrescible wastes will be burned at H-POWER, it will probably need to autoclave MSW, sludge and non-incinerated residues from H-POWER to make sure these meet Federal and state requirements.

5.2 ESTIMATED COSTS FOR CITY AND TAXPAYERS

The cost of the MSW, ash, sludge and H-POWER residues to be transshipped is estimated as in the range of \$800 to \$1,000 per ton. More precise figures were developed by Pacific Waste Consulting Group on the basis of analysis of the waste stream, discussions with shippers, and consultation with Mainland haulers and landfill operators, but the above range is preferred here in light of possible additional capital costs and potential economies of scale.

Currently, Waimanalo Gulch takes special non-hazardous wastes of several kinds. Some of these are collected by the City from residents (e.g., bulky items); others are mostly collected by commercial haulers. Export of these special wastes could cost much more than \$1,000 per ton, and would vary depending on the size of the container needed for transshipment, treatment demanded by regulatory agencies, and permitting processes. For this report, the considerable cost of disposal of special wastes is acknowledged but not calculated. Presumably, the City would be responsible for disposal of special wastes collected through residential pick-ups, while commercial haulers would transship other special wastes for a fee.

Even without calculating the costs of special waste disposal, the new disposal costs involved in transshipment are considerable, as shown in Exhibit 5-A. The volume of waste materials to be exported was calculated based on current levels of recycling. As of the fourth year of the analysis, the third boiler at H-POWER and new recycling efforts were assumed to be in operation, reducing the waste stream by a third. Costs would decrease by a greater share, since the increased capacity at H-POWER would greatly decrease the volume of material needing treatment on-island before export.

Exhibit 5-A shows both costs and possible fee collections. SMS recognizes that any tipping fee will be set by the City and County on the basis of complex considerations (such as: cost of disposal, the risk of encouraging illegal dumping, the burden on apartment and condominium dwellers if commercial waste collection and disposal costs suddenly increase tenfold). We do not advocate any particular fee, but estimate fees collected at different rates. (Presumably, high rates would have a sharply negative impact on the volume of MSW delivered to the City by

commercial haulers, leading to illegal dumping and searches by those haulers for alternative means of disposal. At the high rates, then, the calculated revenues for the City from tipping fees are likely overestimated. The local economy would, however, still have to find funds to support disposal costs.)

Exhibit 5-A: COSTS OF TRANSSHIPMENT OF MSW

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Cumulative
Waste Materials (Tons)						
Total to Landfill	480,098	480,098	480,098	320,492	320,492	2,081,277
Commercial MSW	300,000	300,000	300,000	100,000	100,000	1,100,000
Other MSW, residue	95,677	95,677	95,677	111,304	111,304	509,638
Ash	84,421	84,421	84,421	109,188	109,188	471,639
Cost of Export (Millions \$s)						
@ \$800/ton	\$384.1	\$384.1	\$384.1	\$256.4	\$256.4	\$1,665.0
@ \$1,000/ton	\$480.1	\$480.1	\$480.1	\$320.5	\$320.5	\$2,081.3
Tipping Fee, Commercial MSW						
@ \$200/ton	\$60.0	\$60.0	\$60.0	\$20.0	\$20.0	\$220.0
@ \$400/ton	\$120.0	\$120.0	\$120.0	\$40.0	\$40.0	\$440.0
@ \$600/ton	\$180.0	\$180.0	\$180.0	\$60.0	\$60.0	\$660.0
@ \$800/ton	\$240.0	\$240.0	\$240.0	\$80.0	\$80.0	\$880.0
@ \$1,000/ton	\$300.0	\$300.0	\$300.0	\$100.0	\$100.0	\$1,100.0
Increase in Fees over Current Rate (1)						
@ \$200/ton	\$36.6	\$36.6	\$36.6	\$12.2	\$12.2	\$134.2
@ \$400/ton	\$96.6	\$96.6	\$96.6	\$32.2	\$32.2	\$354.2
@ \$600/ton	\$156.6	\$156.6	\$156.6	\$52.2	\$52.2	\$574.2
@ \$800/ton	\$216.6	\$216.6	\$216.6	\$72.2	\$72.2	\$794.2
@ \$1,000/ton	\$276.6	\$276.6	\$276.6	\$92.2	\$92.2	\$1,014.2
Minimal cost to be borne by taxpayers						
IF Disposal Cost: \$800						
Fee: \$200	-\$324.1	-\$324.1	-\$324.1	-\$236.4	-\$236.4	-\$1,445.0
Fee: \$400	-\$264.1	-\$264.1	-\$264.1	-\$216.4	-\$216.4	-\$1,225.0
Fee: \$600	-\$204.1	-\$204.1	-\$204.1	-\$196.4	-\$196.4	-\$1,005.0
Fee: \$800	-\$144.1	-\$144.1	-\$144.1	-\$176.4	-\$176.4	-\$785.0
Fee: \$1,000	-\$84.1	-\$84.1	-\$84.1	-\$156.4	-\$156.4	-\$565.0
IF Disposal Cost: \$1,000						
Fee: \$200	-\$420.1	-\$420.1	-\$420.1	-\$300.5	-\$300.5	-\$1,861.3
Fee: \$400	-\$360.1	-\$360.1	-\$360.1	-\$280.5	-\$280.5	-\$1,641.3
Fee: \$600	-\$300.1	-\$300.1	-\$300.1	-\$260.5	-\$260.5	-\$1,421.3
Fee: \$800	-\$240.1	-\$240.1	-\$240.1	-\$240.5	-\$240.5	-\$1,201.3
Fee: \$1,000	-\$180.1	-\$180.1	-\$180.1	-\$220.5	-\$220.5	-\$981.3

NOTES: Calculations by SMS based on discussions with Pacific Waste Consulting Group. All dollar calculations are in millions of dollars. Minimal costs to be borne by taxpayers are shown as negative to emphasize the point that these are calculated new costs.

(1) "Current rate" of \$78/ton goes into effect July 1, 2003. This does not include recycling surcharge and State surcharge.

Exhibit 5-A makes clear that taxpayers would face considerable new costs with the No Action Alternative. These are shown as "minimal": special wastes, the loss of commercial collections and revenues as tipping fees increase, and costs of clean up for illegal dumping are not considered. Still, the minimal cost ranges from a low estimated as \$84 million to \$420 million in the first year, or a total between \$565 million and \$1,861 million over five years.

The City could begin to charge user fees for residential collections, but much of the cost shown in Exhibit 5-A derives from operating a disposal system for which full costs cannot be recovered, even from commercial collections. Accordingly, the City General Fund would be tapped to meet the ongoing cost of disposal. The impact on property taxes, if the revenues were raised by that mechanism, would be large, as shown in Exhibit 5-B. The estimated increase in property taxes is far larger than any experienced by Oahu residents and businesses in recent years, as shown in Exhibit 5-C.

Exhibit 5-B: IMPACT OF NO ACTION ALTERNATIVE ON REAL PROPERTY TAX COLLECTIONS, YEAR 1

<i>In Millions of 2001 \$s</i>	
Real Property Tax Collections FY 2001	\$380.1
New Waste Disposal Costs	
Low End of Range	-\$84.1
High End of Range	-\$420.1
Increase in Real Property Taxes if New Waste Disposal Costs Covered by Property Taxes (Yr. 1)	
Low End of Range	22%
High End of Range	111%

Exhibit 5-C: REAL PROPERTY TAX COLLECTIONS, CITY AND COUNTY OF HONOLULU, FISCAL 1992-2001

	Collections (Million \$s)		Year to Year Change
	Actual	in 1992 \$s	
1992	\$388.5	\$388.5	
1993	\$419.1	\$406.0	4.5%
1994	\$427.5	\$403.1	-0.7%
1995	\$419.1	\$386.7	-4.1%
1996	\$417.0	\$378.9	-2.0%
1997	\$413.8	\$373.4	-1.4%
1998	\$404.4	\$365.7	-2.1%
1999	\$402.8	\$360.5	-1.4%
2000	\$399.1	\$351.1	-2.6%
2001	\$380.1	\$330.5	-5.9%

NOTES: Tax collections from City and County of Honolulu (2001). Constant dollar adjustment based on change in Consumer Price Index-Urban for Honolulu in DBEDT (2002a).

The increase in taxes necessitated by the No Action Alternative would, then, be at least four times the largest increase experienced by Oahu taxpayers in a decade - and it could be as high as twenty times the largest recent increase.

5.3 IMPLICATIONS FOR SOCIAL LIFE AND THE ECONOMY

The No Action Alternative would call for a new disposal mechanism, which would be need to meet current standards for public health, safety, and control over irritants. It would also add to existing demand for limited public facilities:

- ENV would need to purchase an autoclave large enough to handle wastes other than ash;
- Problems of odors and the need to control against leakage would arise at the site where containers were filled with material to be exported (presumably at H-POWER and/or Keehi transfer station) and at container terminals;
- Materials to be exported would have to be moved by highway from H-POWER back to Honolulu Harbor; and
- *New container yard space would be needed on Oahu for MSW transshipment* - and container yards are, in the long term, a very limited resource for the Harbors Division.

Exporting wastes would lessen impacts on the Waianae Coast DP area and Ko Olina, but would increase costs and traffic for the entire island community. Costs and road usage could be reduced slightly if materials were exported via Kalaeloa/Barbers Point Harbor. That harbor has yard space, but no berthing space from which MSW could be regularly shipped (personal communication, Glen Soma, Planner, Harbors Division, Hawaii State Department of Transportation, November 2002). Reliance on Kalaeloa/Barbers Point would, however, bring Honolulu's waste disposal problem close to Ko Olina once again.

Transshipment would add appreciably to the cost of doing business on Oahu. The increase in the cost of tipping fees (shown in Exhibit 5-A) amounts to about 0.1% to 0.6% of total estimated output of all Oahu business (based on State excise tax base for 2001 of \$54.6 billion). However, the cost would not be evenly distributed among businesses. The cost to condominium and apartment residents who pay commercial haulers for MSW hauling and disposal, or to small businesses with large waste streams, would be many times the average.

With sudden and steep increases in the cost of waste disposal, recycling would likely increase at a faster rate than at present.

6: MITIGATIONS

6.1 MITIGATION PROCESSES

Mitigation measures are appropriate when a project has demonstrable negative impacts on its environment. The project need not be responsible for solving pre-existing problems or general concerns over the future of the region or the community.

Measures to mitigate adverse impacts can be prescribed by experts, especially when impacts are matters of safety. When the strength and intensity of impacts is a matter of perception, mitigation should involve the affected parties. An important reason for this is that the attempt to work out solutions with affected parties can be empowering, and hence contributes to their quality of life.

6.2 POSSIBLE MITIGATION MEASURES

By reducing the proposed expansion to 14.9 acres, the City has already responded to community views, limiting the future life of the landfill.

Next, mitigation activities have been designed to deal with irritants (odors, litter) and with the visible evidence that the landfill exists. SMS sees consistent implementation of these as appropriate responses to adverse physical impacts and to community perceptions that residents in nearby areas are being adversely affected by the landfill. Based on reports from Ko Olina, it may be necessary to increase the hours spent by Waste Management of Hawaii, Inc. personnel assigned to litter control, in order to control a greater share of litter from the landfill on the landfill property itself.

Litter on the highways is a somewhat different problem. ENV has stressed to waste haulers that wastes cannot be carried in open trucks from which litter can fall, and has suggested that the Honolulu Police Department cite all offenders for highway littering. However, HPD has a manpower problem, and cannot devote officers' time to this duty without skimping on other duties. Alternative steps to minimize litter along the highways could include

- (a) Encouraging the waste hauling companies to take responsibility for cleaning up these roadways;
- (b) Encouraging citizens to report violations to ENV and to the police;
- (c) Communicating to waste haulers the seriousness of ENV's opposition to highway littering; and perhaps
- (d) Developing disincentives such as fines for waste haulers who litter the highways.

SMS sees need to involve community stakeholders in devising and overseeing mitigation activities and in site selection for any future landfill. In light of current community suspicion, the City and Waste Management will not only need to meet agreed-on standards but be seen to do so. Continuing oversight by a community committee is a necessary, if not perhaps sufficient, step toward local acceptance and hence lowering community expectations of potential adverse impacts.

ENV has already convened a Community Oversight Committee that met in June, August and September 2002. Continuing meetings of that committee or a successor group in which ENV or Waste Management can show improvement in mitigating adverse impacts will be needed to address, over a period of months or years, community antagonism to the Waimanalo Gulch sanitary landfill, its operators and ENV.

APPENDIX A: HANDOUT USED IN INTERVIEWS

WAIMANALO GULCH LANDFILL EXPANSION

The City and County Department of Environmental Services is proposing to expand the Waimanalo Gulch Landfill by 14.9 acres – enough to continue operations for about five years. The City needs this time to expand the H-POWER plant and determine the amount of municipal waste that can be handled by alternative technologies.

The proposed expansion is a smaller footprint and for a shorter time than originally proposed. The new version of the Environmental Impact Statement will discuss the following alternatives:

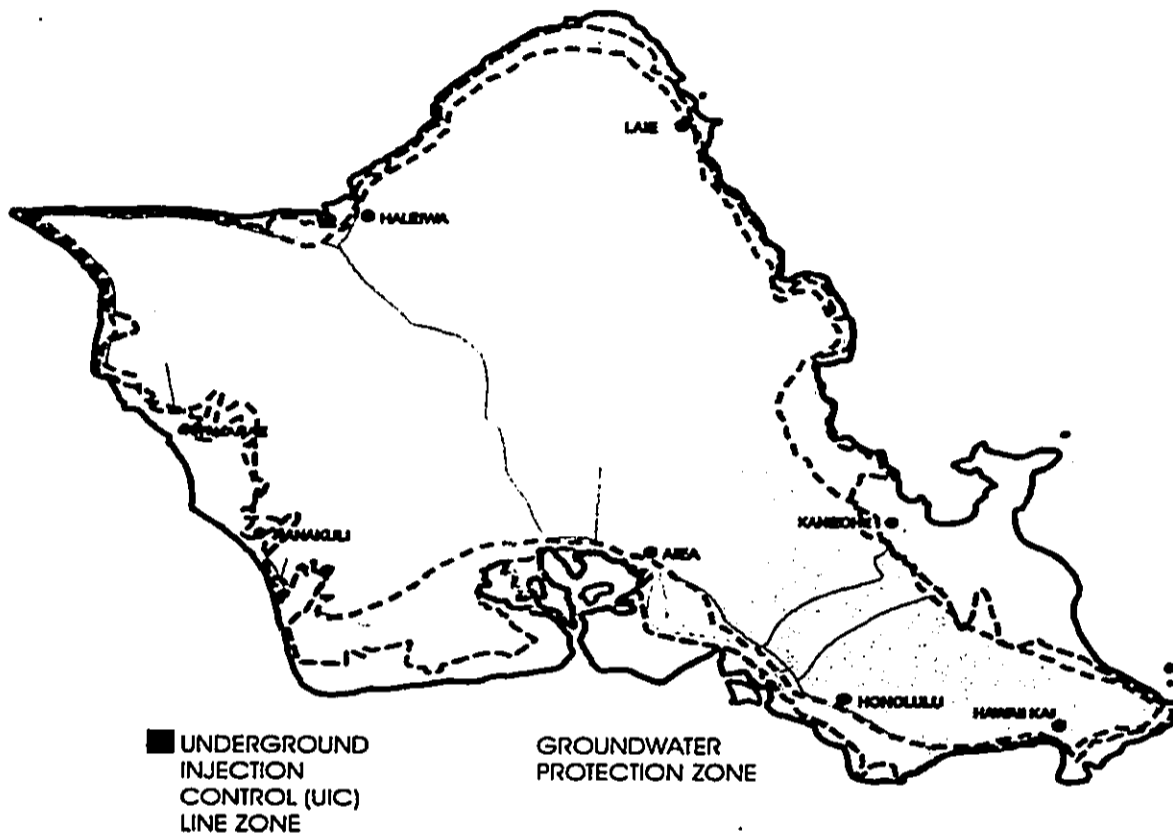
- The proposed 14.9-acre expansion, accompanied by development and testing of alternative technologies, with the objective of closing the municipal waste landfill.
- Trans-shipment of municipal waste off-island (accompanied by development of alternative technologies).
- Starting another landfill at another location (accompanied by development of alternative technologies).
- No expansion, with the consequence that Honolulu will have no municipal waste landfill disposal site.

SMS Research is conducting a socio-economic impact assessment of the expansion proposal. As part of that work, we are talking to many different stakeholders to make sure we learn about community views, concerns, and ideas about ways to reach a solution to municipal waste problems. Issues of particular interest to SMS include:

- How does the current municipal waste disposal system affect the community?
- What would be the impact of keeping the landfill open to 2008?
- What would be the impact of closing the landfill in 2003?
- Can the landfill be operated in a way that would minimize problems for the community?
- What would be the impact of closing the landfill, and disposing of municipal waste elsewhere on Oahu?
- What would be the impact of shipping municipal waste off-island?

Our interview results will be reported in a public document. We list the people who contribute their views, and we describe community concerns, but individual respondents' views are kept confidential.

If you have further questions about the proposed expansion, please call Wilma Namumart, Acting Assistant Division Chief, Refuse Division (692-5378). If you have questions about SMS's study, please contact John Kirkpatrick (440-0703, jkirk@smshawaii.com). Thanks!



*DOH Underground Injection Control Zone/
BWS Groundwater Protection Zones*



Waimanalo Gulch Sanitary Landfill

APPENDIX B: REAL PROPERTY ANALYSIS

Approach. Using the City's Real Property Tax records (in the TMK database kept by Hawaii Information Services, Inc.), SMS analyzed 13,259 residential parcels and condominium units in Leeward Oahu (TMK zone 9, sections 1 and 2; zone 8, sections 7, 8 and 9). The aim was to develop a hedonic pricing analysis that would account for the range of values in the area, and then to assess the extent to which proximity to the Waimanalo Gulch Sanitary Landfill contributed to values.

There are basically two approaches available to address this question. Small-sample studies involve comparing a property near the landfill with comparable properties elsewhere, and estimating how much of the difference in value is due to the landfill. The tasks of identifying comparable properties, and ruling out other factors that may contribute to value, are complex and the choices involved may be debatable. A large-sample approach avoids this problem.

The study addresses two questions: Does the proximity to the landfill have a significant impact on values? If so, what is that impact? The basic hypothesis is that value is the result of multiple factors, including qualities of housing and community or environmental features:

$$P = B_0 + B_1H_1 + B_1H_2 + \dots B_1H_n + B_2I + B_3X + B_4D + C + e$$

Where P = Combined assessed value of land and improvements
H = Housing variables (size, construction, etc.)
I = Income
X = Community characteristics
D = Distance from landfill
C = A constant, and
e = Error term.

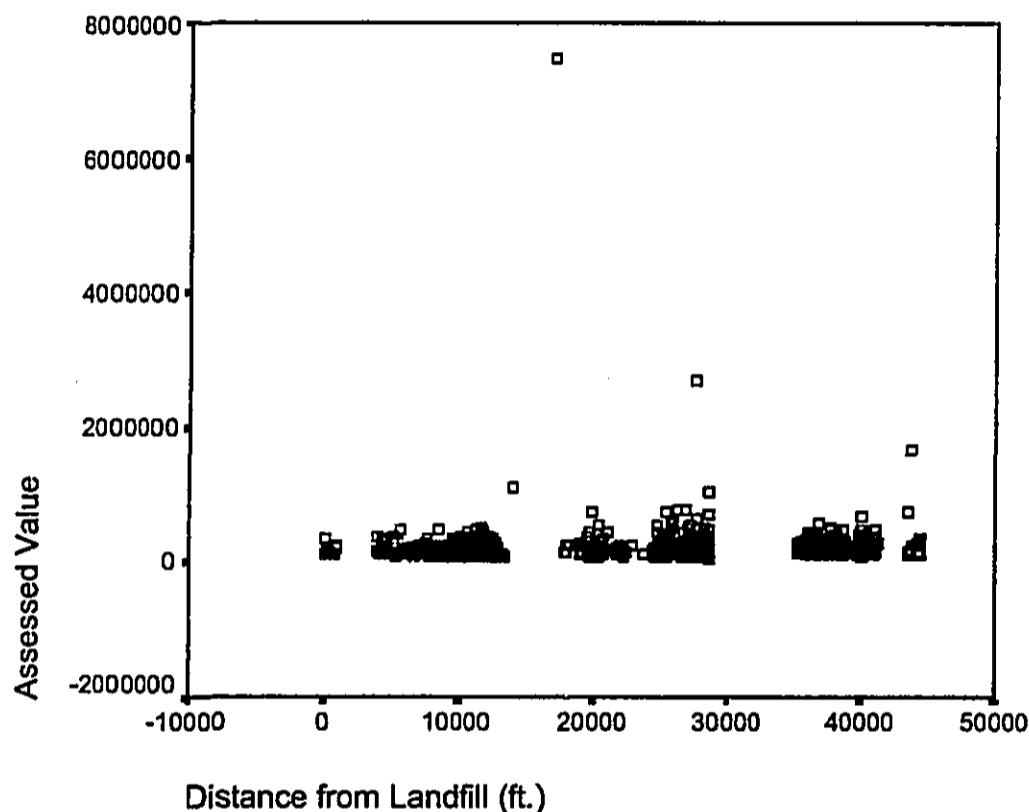
Factors. Many factors can contribute to the value of a house. Housing characteristics used in the model include land area, living area, bathrooms, half bathrooms, stories, interior material, exterior material, interior construction, year built, recreation rooms and number of buildings on the property.

Community characteristics are summed in a variable, "Neighborhood," created by assessors who identify contiguous areas with comparable homes. Income was treated as a separate community characteristic, derived from year 2000 Census data median income for the census tracts in which the parcel lay.

Taken together, the various factors accounted for property values well. The factors did not all contribute equally to the results. The most important components of value were construction characteristics (flooring, exterior wall material), when the structure was built and whether multiple structures were on a parcel, living area, number of bathrooms, and distance from the landfill (in feet). These factors proved significant on the analysis of single family homes.

Scatter box plots were made to check whether the trend for value to covary with distance from the landfill extended throughout the data set and to identify problems with heteroscedasticity in the regression. The following scatter box plot was generated for single family dwellings (PITT Code 100):

Exhibit B-A: VARIATION IN VALUE WITH DISTANCE FROM LANDFILL, SINGLE FAMILY HOMES



It is clear that the nearest single family homes to the landfill are modest in value. There appears to be a positive correlation between distance from a landfill up to approximately 15,000 to 20,000 ft. Then, the trend weakens. This fits with the hypothesis of a value impact associated with the landfill, since there is no reason to expect such an impact to continue for many miles' distance.

When the model is run with single family homes less than 15,000 feet away in distance from Waimanalo Gulch, the adjusted R^2 is .686 -- a pretty good predictor of assessed values. (The adjusted R^2 is the proportion of variation in the dependent variable that is explained by the model.) The ANOVA table below shows that the model is significant in predicting the assessed value of single family homes.

Exhibit B-B: ANOVA ANALYSIS, SINGLE FAMILY HOMES

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.58E+12	27	2.068E+11	237.164	.000 ^a
	Residual	2.53E+12	2898	872124590.1		
	Total	8.11E+12	2925			

a. Predictors: (Constant), LOC1, Exterior Wall: Plywood, Interior Material: Other, Exterior Wall: Stucco, Year built1, Total living area, Exterior Wall: Brick/4-in-HT, floor material: Resil Tile, Half baths, Exterior Wall: 8-in-HT, Rec rooms, Bldgs, floor material: Pine, floor material: Hardwood, Exterior Wall: Masonite, Exterior Wall: Fir/Pine, Stories1, Exterior Wall: Other, TWO_RACE, Interior Construction: Single Wall, floor material: Other, Full baths, Interior Material: Plaster, Neighborhood: 9265, Interior Construction: Double Wall, Land area, Interior Material: Wood

b. Dependent Variable: Assessed Value

The factor-by-factor correlation analysis is shown in Exhibit B-C. It shows the following factors to be significant:

- 1 Total living area: For every increase in one square foot of living area, the expected assessed value will increase \$43.50;
- 2 Each full bathroom adds \$8,574 to the assessed value of the home;
- 3 Each half bathroom adds \$5,300 to the assessed value of the home;
- 4 Year built: This factor accounted for \$40 per year;
- 5 Masonite exterior walls: This factor accounted for \$23,111;
- 6 Fir/Pine exterior walls: This factor accounted for \$12,774;
- 7 Brick/8-in-HT exterior walls: This factor accounted for \$29,014;
- 8 Single wall interior construction accounted for \$36,735;
- 9 Double wall interior construction accounted for \$48,043;
- 10 For each square foot of land area, the assessed value rose \$4,10;
- 11 Homes in the neighborhood 9265 (Makakilo) had \$123,878 higher value than others in the sample; and
- 12 For each foot away from a landfill, the property value rose \$4.08.

Exhibit B-C: CONTRIBUTION OF FACTORS, SINGLE FAMILY VALUATION

	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	-96,144.7	42,359.0		-2.3	0.023
Interior Material: Wood	-35,469.9	14,310.9	-0.2	-2.5	0.013
Interior Material: Plaster	-18,001.8	14,417.1	-0.1	-1.2	0.212
Interior Material: Other	-48,917.7	14,577.4	-0.2	-3.2	0.001
Interior Construction: Single Wall	36,735.1	13,240.6	0.2	2.8	0.006
Interior Construction: Double Wall	48,043.2	13,087.7	0.2	3.7	0
Floor material: Hardwood	-4,165.4	2,043.2	0.0	-2.0	0.042
Floor material: Other	-2,090.4	1,751.2	0.0	-1.2	0.233
Floor material: Pine	-668.4	3,373.9	0.0	-0.2	0.843
Floor material: Resil Tile	2,827.5	1,848.7	0.0	1.5	0.126
Exterior Wall: 8-in-HT	29,014.1	7,321.8	0.1	4.0	0
Exterior Wall: Fir/Pine	12,774.8	4,862.7	0.0	2.6	0.009
Exterior Wall: Masonite	23,111.5	2,805.4	0.1	8.2	0
Exterior Wall: Other	2,760.0	1,941.5	0.0	1.4	0.155
Exterior Wall: Plywood	-4,927.8	3,577.5	0.0	-1.4	0.168
Exterior Wall: Stucco	-10,601.5	9,570.3	0.0	-1.1	0.268
Year built1	40.2	15.8	0.0	2.5	0.011
Stories1	-40,164.6	7,972.9	-0.1	-5.0	0
Full baths	8,674.6	1,063.0	0.1	8.2	0
Bldgs	6,594.6	4,840.3	0.0	1.4	0.173
Rec rooms	-4,914.4	3,015.3	0.0	-1.6	0.103
Half baths	5,300.2	1,149.4	0.1	4.6	0
Total living area	43.5	1.3	0.6	33.6	0
Land area	4.1	0.7	0.4	6.0	0
TWO_RACE	-48,097.3	56,523.4	0.0	-0.9	0.395
Neighborhood: 9265	123,878.0	24,393.1	0.2	5.1	0
Distance from Landfill (less than 15,000 ft)	4.1	0.8	0.1	4.8	0

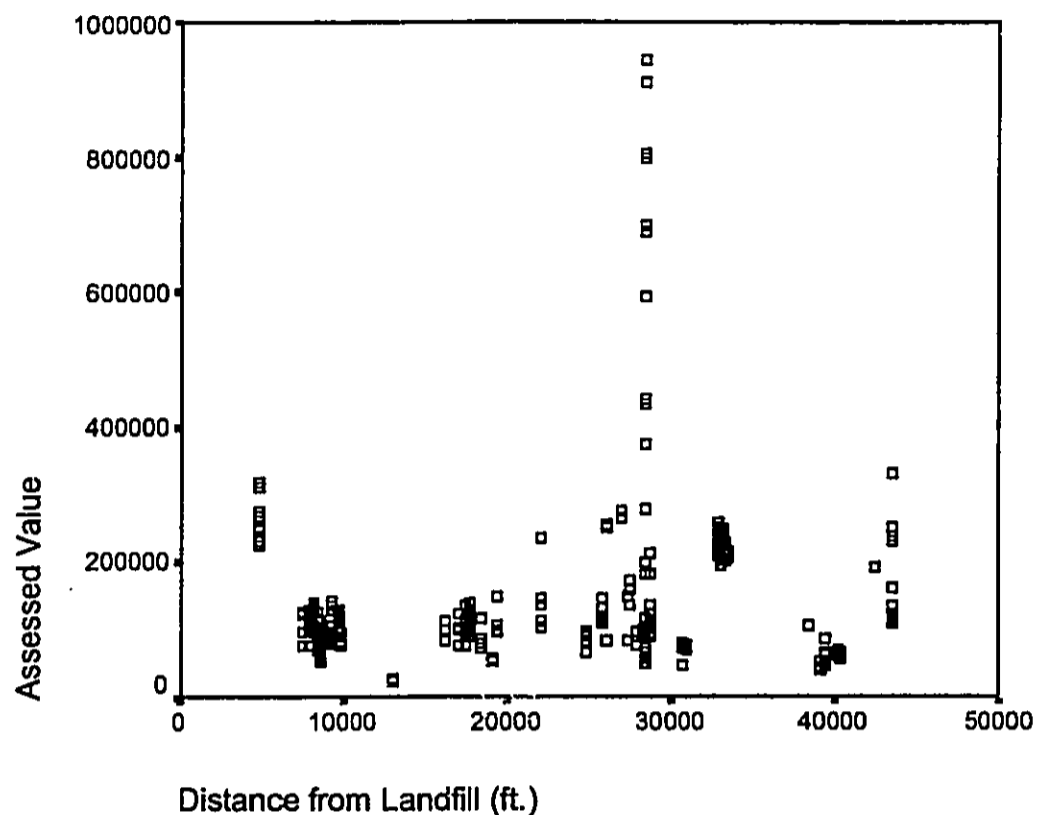
Dependent Variable: Assessed Value

Condominium analysis. The same model that was applied to single family homes, was also applied to housing units in the same area with a condominium designation.

One change was needed in design: each condo property is a "neighborhood" in and of itself, with distinctive amenities and characteristics. Hence, the Neighborhood factor used in the last analysis could not be included.

A scatter box plot of condominium unit values and distance from the landfill, shows even greater heteroskedasticity than the single family box plot (in Exhibit B-D):

**Exhibit B-D: VARIATION IN VALUE WITH DISTANCE FROM LANDFILL:
CONDOMINIUM UNITS**



The pattern of distribution for condominiums is very different from single family homes. Condominiums are more clustered at specific distances from the landfill, with empty areas between clusters. The model was run for all distances for condominiums, with results shown in Exhibit B-E:

Exhibit B-E: REGRESSION ANALYSIS SUMMARY, CONDOMINIUMS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840 ^a	.706	.704	34997.8835

a. Predictors: (Constant), Distance from Landfill (ft.), floor material: Other, Exterior Wall: Fir/Pine, Rec rooms, Exterior Wall: Other, Exterior Wall: Redwood/Cedar, Total living area, floor material: Pine, Half baths, Stories1, floor material: Hardwood, Exterior Wall: Masonite, Full baths, Interior Construction: Double Wall, floor material: Resil Tile, Land area, Interior Construction: Single Wall, Interior Material: Plaster, Year built1, Interior Material: Wood, Exterior Wall: 8-in-HT, Exterior Wall: Plywood

The adjusted R² shows the model to be a good predictor of value, and slightly higher than the adjusted R² for single family homes. The ANOVA analysis shows the regression to be statistically significant: (In Exhibit B-F). Individual factor contributions are shown in Exhibit B-G.

Exhibit B-F: ANOVA ANALYSIS, CONDOMINIUMS

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.42E+12	16	4.010E+11	723.078	.000 ^a
	Residual	1.20E+12	2169	554542856.9		
	Total	7.62E+12	2185			

a. Predictors: (Constant), Distance from Landfill (less than 15,000 ft), Full baths, floor material: Other, Exterior Wall: Fir/Pine, floor material: Hardwood, floor material: Resil Tile, floor material: Pine, Exterior Wall: Other, Land area, Total living area, Half baths, Interior Construction: Double Wall, Exterior Wall: Plywood, Exterior Wall: Redwood/Cedar, YEAR_AGO, Interior Material: Plaster

b. Dependent Variable: Assessed Value

Exhibit B-G: CONTRIBUTION OF FACTORS, CONDOMINIUM VALUATION

	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	163,857.8	20,982.4		7.809	0
Interior Material: Plaster	-19,442.4	20,860.4	-0.1	-0.932	0.351
Interior Construction: Double Wall	9,406.6	3,647.3	0.0	2.579	0.01
Floor material: Hardwood	105,195.6	18,648.8	0.1	5.641	0
Floor material: Other	-4,233.1	28,406.6	0.0	-0.149	0.882
Floor material: Pine	-17,806.6	20,830.4	0.0	-0.855	0.393
Floor material: Resil Tile	72,914.2	12,078.1	0.1	6.037	0
Exterior Wall: Fir/Pine	1,981.9	13,849.6	0.0	0.143	0.886
Exterior Wall: Other	19,449.4	3,756.2	0.1	5.2	0
Exterior Wall: Plywood	-12,027.5	2,992.4	-0.1	-4.0	0
Exterior Wall: Redwood/Cedar	29,297.9	19,490.4	0.0	1.5	0.133
Years Built Before 2002	-4,806.5	182.3	-0.8	-26.4	0
Full baths	24,794.6	2,026.3	0.2	12.2	0
Half baths	13,863.2	1,738.8	0.1	8.0	0
Total living area	84.1	4.5	0.4	18.6	0
Land area	3.7	0.5	0.1	7.1	0
Distance from Landfill (less than 20,000 ft)	-7.3	0.1	-0.6	-57.0	0

Dependent Variable: Assessed Value

The right-hand column in Exhibit B-G shows age (Year built), living area, baths, floor and wall materials, and distance as statistically significant. The B coefficient for distance is negative: value decreases with distance from Waimanalo Gulch

Discussion

SMS calculated average values at different distances from Waimanalo Gulch, and found very different results for single family and condominium properties, as shown in Exhibit B-H. When living area is taken into account, by expressing average value in \$/square foot, the single-family data suggest a clear trend through two miles' distance. The condominium averages show a similarly clear trend, but in the opposite direction, through two miles' distance.

Exhibit B-H: AVERAGE VALUES BY DISTANCE

A. SINGLE FAMILY HOUSES

Distance	Average Home Value	Average \$/Sf
Less than .5 miles	\$205,840	\$108.33
1 mile	\$197,640	\$121.39
2 miles	\$199,165	\$145.05
3 miles	\$229,276	\$124.47

B. CONDOMINIUMS

Distance	Average Condo Value	Average \$/Sf
Less than 1 mile	\$247,856	\$248
1 mile to 2 miles	\$95,868	\$83.99
2 miles to 3 miles	\$26,371	\$39.60
3 miles to 20,000 ft.	\$93,850	\$102.40

The condominium values in Exhibit B-H show that the units being built and sold at Ko Olina serve a quite different market than other units in the area studied. Ko Olina developers have succeeded in marketing an oceanfront community despite the presence of the landfill uphill. The prices are not as high as in the best known resort areas on the Neighbor Islands, where average condo prices can be \$400/sq. ft. or more. However, many factors could contribute to that difference; SMS sees no empirical basis for ascribing it to the landfill.

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APPENDIX E

Archaeological Inventory Survey

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AN ARCHAEOLOGICAL INVENTORY SURVEY
FOR THE WAIMĀNALO GULCH
SANITARY LANDFILL PROJECT SITE,
HONOULIULI, 'EWA, O'AHU

by

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and
David Shideler, M.A.

Prepared for

R.M. TOWILL CORPORATION

Cultural Surveys Hawaii
August 1999

ABSTRACT

Cultural Surveys Hawai'i was requested by R. M. Towill Corporation to undertake an archaeological inventory survey for the approximately 200 acre Waimānalo Gulch Sanitary Landfill property (TMK 9-2-03:40) located in the *ahupua`a* of Honouliuli, `Ewa District, Island of O`ahu for a proposed expansion development project.

Lower portions of Waimānalo Gulch (up to the 430 foot elevation) were the subject of a previous archaeological reconnaissance and historical documentation study which indicated that nothing of archaeological or historical significance was likely to be extant (Bordner and Silva 1983: C-5)

The present survey was conducted on July 27, 1999. During the fieldwork, no sites were located within the proposed 122.75 acre expansion footprint area *per se*. Two sites lying within the Waimānalo Gulch Sanitary Landfill property, but outside of the proposed expansion project area, were identified. These two sites - a WWII and Civil Defense complex known as "Battery Arizona" (it included a turret of the Arizona Battleship) and a contemporary Hawaiian shrine incorporating "sacred stones" - are briefly described and evaluated. The report of an additional petroglyph site within the Waimānalo Gulch Sanitary Landfill property, but outside of the proposed expansion project area, is also noted.

No further archaeological research is indicated for the proposed 122.75 acre expansion footprint project area *per se*. A determination of "no adverse impact" should be sought from the State Historic Preservation Division. It is recommended that impact to the southeastern portion of the Waimānalo Gulch Sanitary Landfill property (outside of the proposed expansion area) - containing Battery Arizona, the contemporary Hawaiian shrine and the additional petroglyph site - be avoided.

ACKNOWLEDGMENTS

Recognition is given to Mr. Joseph P. Hernandez, Environmental Manager and Mr. Ray A. Rossetti, District Manager of Waste Management of Hawaii, Inc. for providing maps and sharing their knowledge about the project area and its history. Fieldwork was performed by Jesse Yorck and David Shideler. Background historical work was performed by Rodney Chiogioji and David Shideler.

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I. INTRODUCTION

At the request of R. M. Towill Corporation, Cultural Surveys Hawai'i (CSH) conducted an archaeological inventory survey of the approximately 200 acre Waimānalo Gulch Sanitary Landfill property, located in the *ahupua`a* of Honouliuli, `Ewa District, Island of O`ahu (Figures 1-5).

The scope of this project consisted of inventory, description and mapping of archaeological sites identified within the proposed Waimānalo Gulch Sanitary Landfill expansion area. The objective of this survey was to locate and evaluate the significance of and recommended treatment for the cultural resources in the project area. Fieldwork was conducted by a crew of two Cultural Surveys Hawai'i archaeologists over one day on July 27, 1999.

The Waimānalo Gulch Sanitary Landfill property (TMK 9-2-03:40) is located between the town of Makakilo and Kahe Point, on the southeast tip of the Wai`anae Range. It is bounded to the south by Farrington Highway, to the west by the ridge (Kahe Ridge) which separates Waimānalo Gulch from the Kahe Electric plant complex, to the north by a relatively flat area where tributary gulches to Waimānalo Gulch meet, and to the east by the ridge (Makaiwa Ridge) which separates Waimānalo Gulch from Makaiwa Gulch. Approximately 62 acres of this property is presently used as an existing landfill. Approximately 122.75 acres lying adjacent to the north and west sides of the existing landfill are proposed for landfill expansion. Fieldwork focused on the area of proposed expansion. However, significant sites lying in the south east portion of the Waimānalo Gulch Sanitary Landfill property (outside of the proposed expansion area) were also examined in order to give more accurate recommendations for the impact of potential development on the property.

Access to the property was gained from the main Waimānalo Sanitary Landfill access road off of Farrington Highway. A crew of two archaeologists performed a survey of the project area by pedestrian sweep spaced at intervals, sweeping along the edges of the proposed land fill expansion area.

Specific attention was directed towards examining overhang ledges between laminar lava flows which may have provided shelter. Exposures of broken dense basalt were examined for their potential as quarries and smooth basalt exposures were examined for the possible presence of petroglyphs.

In general, survey conditions were good in terms of visibility as the survey was conducted during the dry season following a period of relative drought. Ground cover, low grass and shrub especially along the ridges, was minimal. Extensive brush fires over much of the project area allowed for generally good ground visibility. The major impediments to visibility were *kiawe* trees, slope angles and boulder-strewn terrain in the gullies.

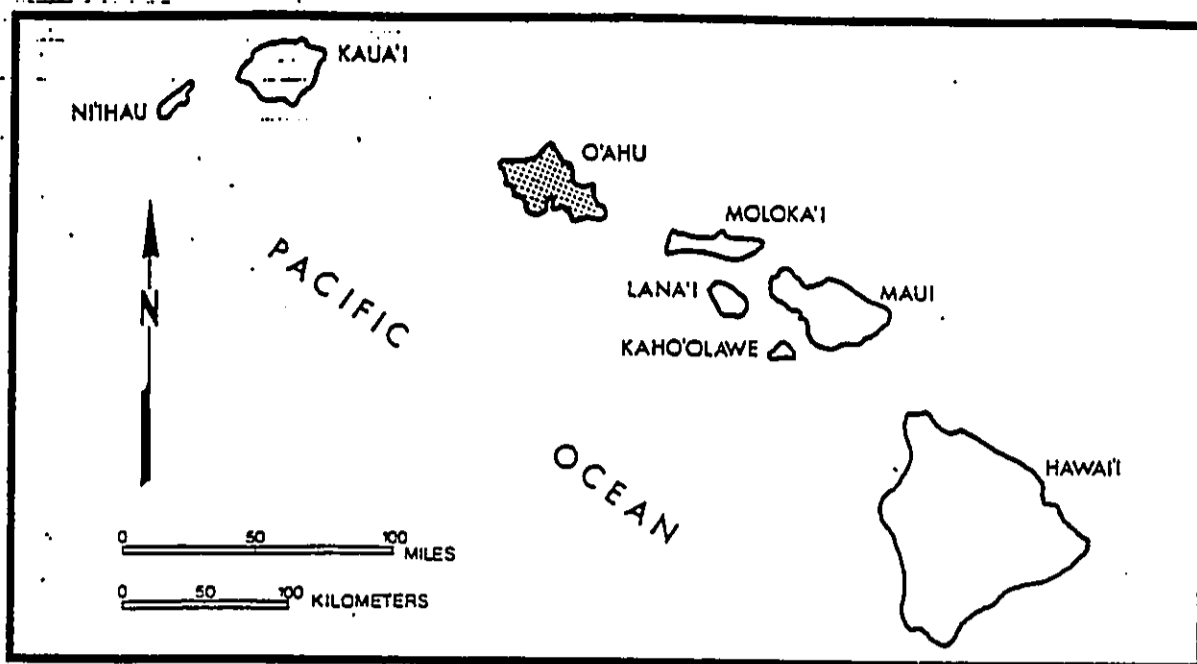


Figure 1 State of Hawai'i

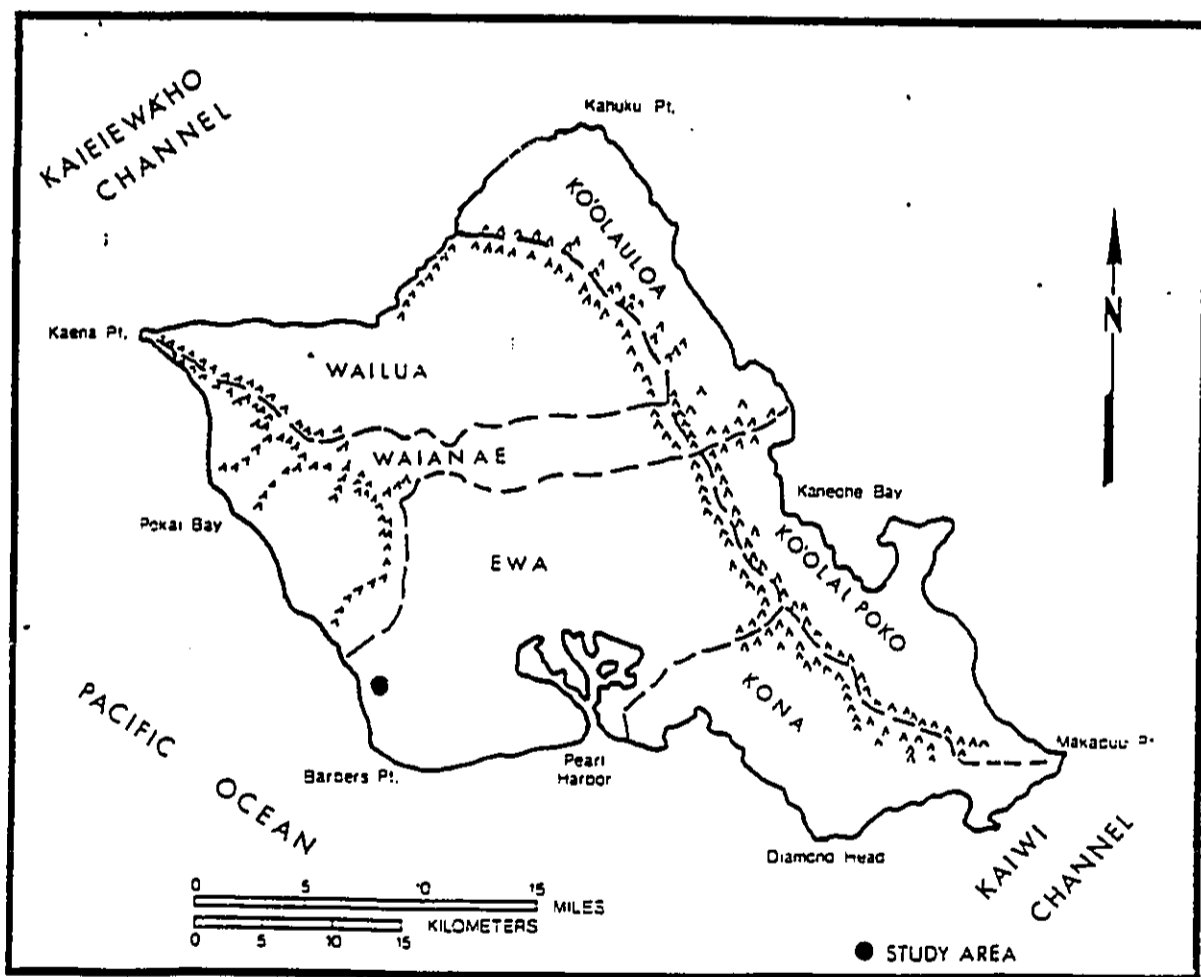


Figure 2 General Location Map, O'ahu Island

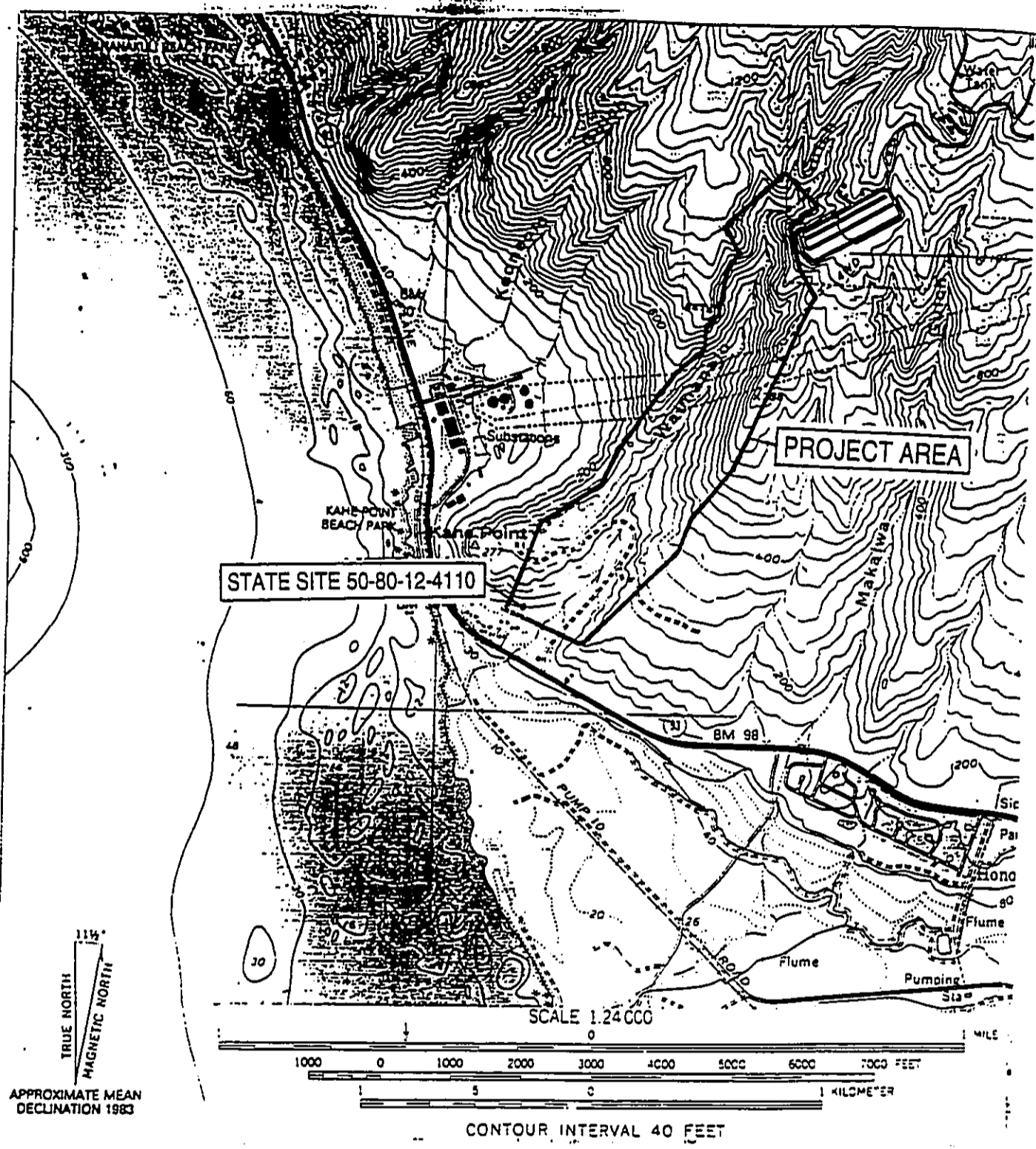


Figure 3 Portion of USGS 7.5 Minute Ewa, Hawai'i Map showing location of project area and only previously recorded archaeological site in project area

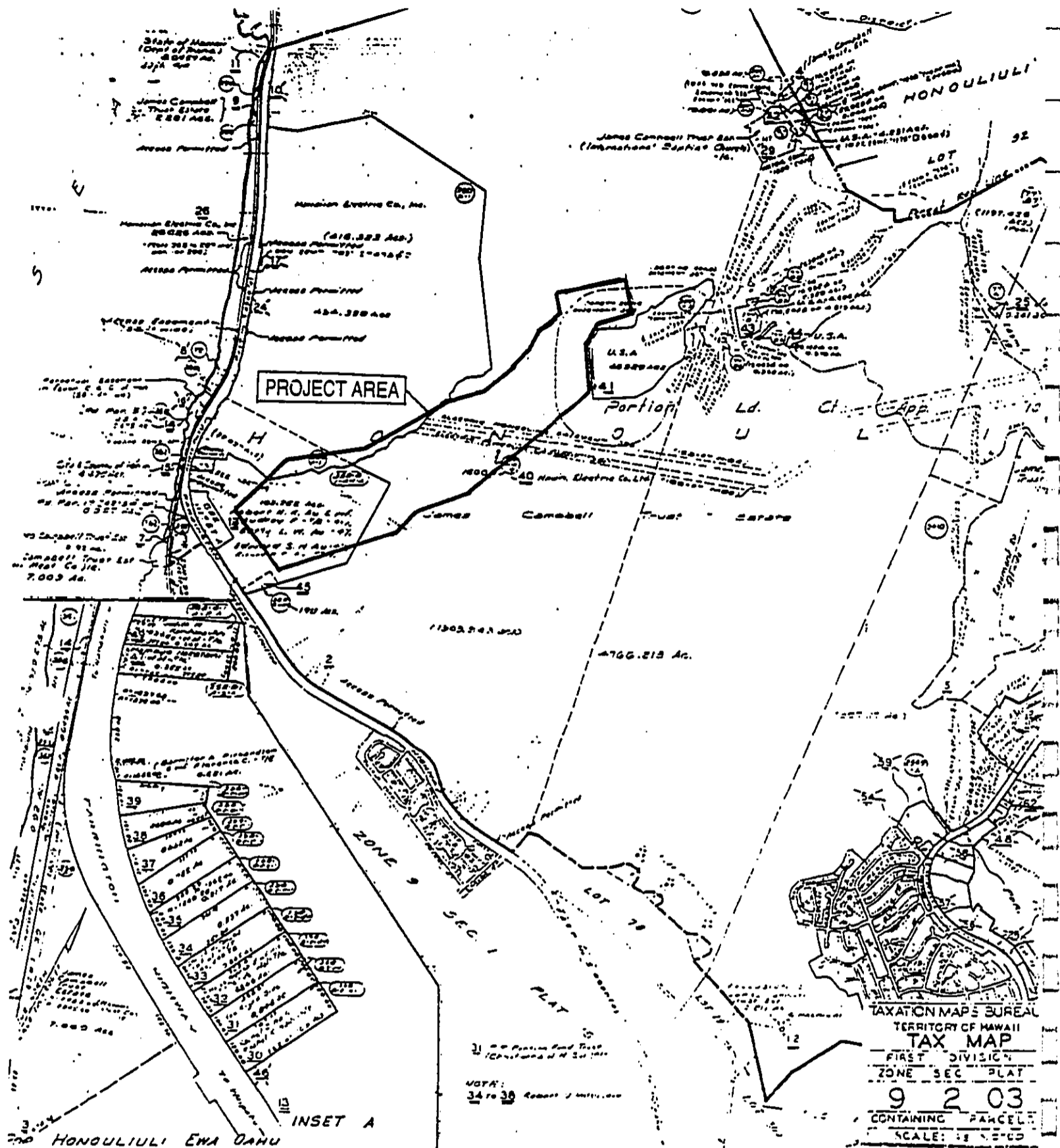


Figure 4 Portion of Tax Map Key (TMK) 9-2-03 Showing approximate Location of Project Area

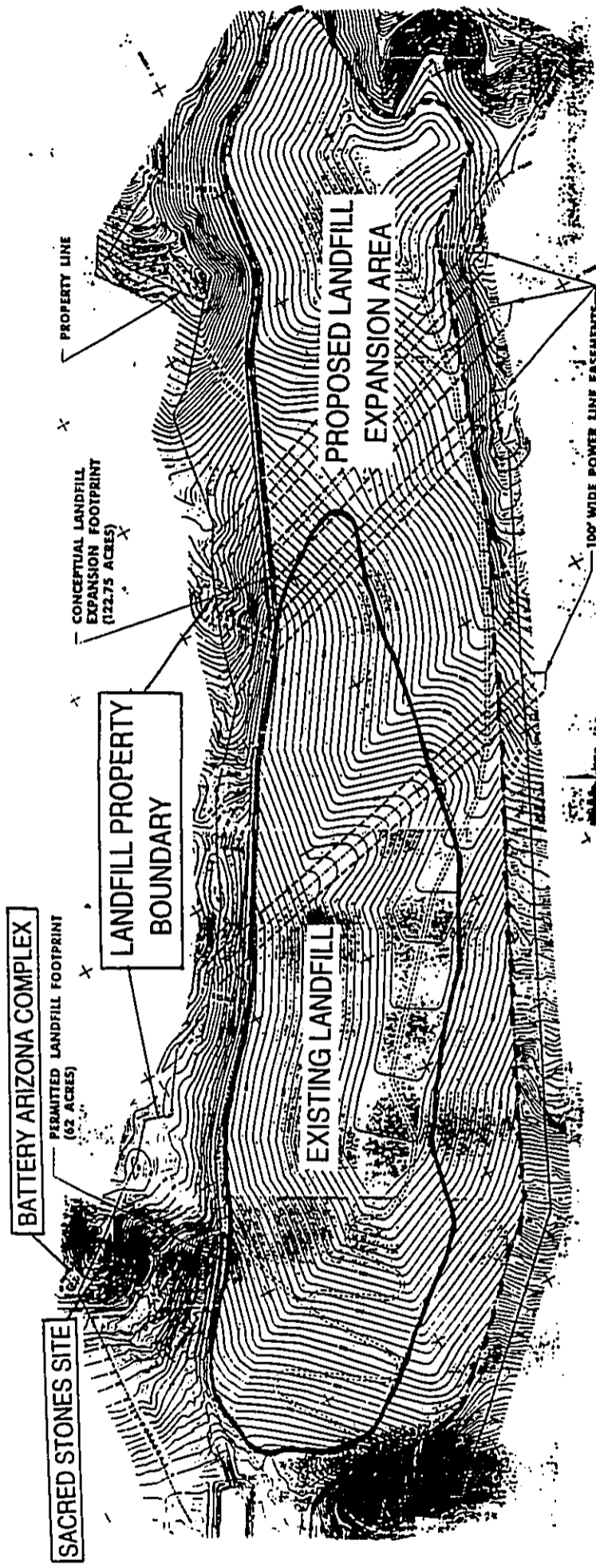


Figure 5 Waimānalo Gulch project area showing landfill property boundary, existing landfill, proposed landfill expansion area, and locations of Battery Arizona complex and sacred stones site

II. PROJECT AREA DESCRIPTION

The Waimānalo Gulch Sanitary Landfill property is situated on the southeastern slope of the Wai`anae Range, approximately 3 miles north of Ka Lae Loa (Barbers Point). The project area ranges in elevation from roughly 30 m. (100 ft.) a.m.s.l. near the landfill administration building to 280 m. (920 ft.) a.m.s.l. near the old Nike Hercules site.

Topography over the project area is dominated by Waimānalo Gulch. The stream channels are typically dry during the summer and fall seasons, as was observed at the time of the survey. It is understood that water runs in Waimānalo Gulch less than one day in a hundred and only after heavy rains. The ridges bounding Waimānalo Gulch are the most feasible routes for *mauka/makai* traversing. Some low outcrops are present but the land is generally composed of gently dipping, even lava flows with highly weathered crust.

The major soil types in the project area include the following classifications (Foote *et al.* 1972):

- Stony steep land (rsy) (north west ridges)
- Lualualei extremely stony clay (LPE) (lower gulch)
- Rock land (rRK) (majority of Waimānalo Gulch)
- Mahana silty clay loam-(McE2) (north end of gulch)

The vast majority of the project area (70-80%) is classified as Rock Land (rRK). The soil cover is generally thin with heavily weathered boulder, *cobble rubble*. Only in the upper elevations of the gulch floor do small level non-rocky natural, alluvial terraces occur in shallow drainages where soil cover (McE2) is evenly distributed.

The present vegetation in the project area is predominantly exotic species introduced since 1790 (Frierson, 1972). Common plants were *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), *uhaloa* (*Waltheria indica*) and various grasses. Just *mauka* of the project area, adjacent to a relatively flat area where tributary gulches converge, was a remnant copse of large *wiliwili* trees (*Erythrina sandwicensis*).

Frierson suggests that - prior to the introduction of exotic vegetation in 1790 - the slopes of the Wai`anae Range extending down to about 152.4 m. (500 ft.) a.m.s.l. supported a dry forest of native trees and shrubs between an upper *ōhi`a* wet forest and lower grassy savannah area (Frierson, 1972). Frierson (*Ibid.*:4) summarizes the following patterns suggested by J.F. Rock (1913) for the indigenous vegetation in the area prior to 1778:

- a) Lowland zone - open grassland on the leeward side
- b) Lower Forest - beginning about 1000 feet and richer in species than the rainforest; *kukui*, *ōhi`a`ai*, *koa*, *kalia*, sandalwood, *ōhi`a lehua*, *hau*, *ti*, *ape*, *pia*, banana, ginger, birdnest fern and *honohono*, as well as grasses and cyperaceous plants.
- c) Specifically leeward lower forest - *ōhe*, *wiliwili*, *maile*, *halapepe* and *alani*, with almost no undergrowth.

Historical accounts presented by Frierson (*Ibid.*:5-6) describe these lower forest species as extending to 500 feet, with the presence of sandalwood observed down to as low as 300 feet. The lower forest then is hypothesized to have covered at least the upper slopes of the north eastern portion of the project area. This was always a rain shadow slope and we may more accurately envisage a park land community rather than a thick forest in early Hawaiian times.

III. LAND USE

A. Pre-contact Period and Early History

Although no specific documentation of pre-contact or early historic land use is known for the specific project area in Waimānalo gulch, various Hawaiian legends and early historical accounts indicate that Honouliuli *Ahupua`a*, in which the gulch is located, was once widely inhabited by prehistoric populations, including the Hawaiian *ali`i*. This would be attributable for the most part to the plentiful marine resources available at the coast, along which several sites interpreted as permanent habitations and fishing shrines are located. Other attractive subsistence-related features of Honouliuli *Ahupua`a* include the irrigated lowland suitable for wet land taro cultivation (Hammatt and Shideler, 1990), as well as perhaps the lower forest area of the mountain slopes to procure forest goods.

The Hawaiian *ali`i* were also attracted to the region, in which existed many places referred to in myth. An extensive summary of various legends and historical accounts of Honouliuli can be found in Sterling and Summers (1978:31-44). One historical account of particular interest refers to an *ali`i* residing in Ko`olina, an area located south of the project area:

Ko`olina is in Waimānalo near the boundary of `Ewa and Wai`anae. This was a vacationing place for chief Kākuhihewa and the priest Napuaikamao was the caretaker of the place. Remember reader, this Ko`olina is not situated in the Waimānalo on the Ko`olau side of the island but the Waimānalo in `Ewa. It is a lovely and delightful place and the chief, Kākuhihewa loved this home of his (Sterling and Summers, 1978:41).

John Papa `I`i describes a network of Leeward O`ahu trails which in later historic times encircled and crossed the Wai`anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu`u Kapolei and Waimānalo Gulch to the Wai`anae coast and onward circumscribing the shoreline of O`ahu (`I`i, 1973:96-98). Following `I`i's description, a portion of this trail network would have passed below the southern boundary of the project area, roughly running along the presently existing Farrington Highway.

`I`i, who was born about 1800, also recounts an incident at Waimānalo that occurred when he was eight or nine years old. While the young `I`i was staying at Nānākuli he learned

of the burning of the houses in Waimanalo. The overseer in charge of the burning told [`I`i and his relatives] that it was so ordered by the royal court because the people there had given shelter to the chiefess, Kuwahine, who ran away from her husband Kalanimoku after associating wrongfully with someone. Kuwahine was the daughter of the Kaikioewa who reared Kamehameha III in his infancy. She had run away because she had been beaten for her offense and for other reasons, too, perhaps. She had remained hidden for about four or five days before she was found. Here we see the sadness that befell the people through the fault of the chiefs. The punishment fell on others, though they were not to blame. (*Ibid.*:29)

It's sad account reveals that the coastal Waimānalo portion of Honouliuli *Ahupua`a* continued to be inhabited during the first portion of the 19th century.

Other early historical accounts of the general region typically refer to the more populated areas of the `Ewa District, where missions and schools were established and subsistence resources were perceived to be greater. However, the presence of archaeological sites along the barren coral plains and coast of southwest Honouliuli *Ahupua`a*, as well as those identified along the slopes of the Wai`anae Range, indicate that prehistoric and early historic populations also adapted to these less inviting areas, despite the environmental hardships.

Subsequent to western contact in the area after ca. 1790, the landscape of the `Ewa plains and Wai`anae slopes was adversely affected by the removal of the sandalwood forest, and the introduction of domesticated animals and new vegetation species. Domesticated animals including goats, sheep and cattle were brought to the Hawaiian Islands by Vancouver in the early 1790s, and allowed to graze freely about the land for some time after. It is unclear when the domesticated animals were brought to O`ahu; however, L.A. Henke reports the existence of a longhorn ranch in Wai`anae by at least 1840 (in Frierson, 1972:10). During this same time, perhaps as early as 1790, exotic vegetation species were introduced to the area. These typically included vegetation best suited to a terrain disturbed by the dwindling sandalwood forest and erosional effects of animal grazing. The following dates of specific vegetation introduced to Hawai`i are given by R. Smith and outlined by Frierson (1972:10-11):

1) "early", c. 1790:

Prickly pear cactus, *Opuntia tuna*
Haole koa, *Leucaena glauca*
Guava, *Psidium guajava*

2) 1835-1840

Burmuda [sic] grass, *Cynodon dactylon*
Wire grass, *Eleusine indica*
Lantana, *Lantana camara*

The *hiawe* tree was also introduced during this period, either in 1828 or 1837 (*Ibid.*:11).

Intensive sandalwood harvesting, according to H. St. John (in Frierson, 1972:7) occurred in the islands between 1815-1830. As it is likely that sandalwood forests once occupied the lower, dry slopes of the Wai`anae Range, the present study area may have been impacted by the cutting and burning of these forests.

B. Mid to late 19th Century

During the Great *Māhele* of 1848, 99 individual land claims in the *ahupua`a* of Honouliuli were registered and immediately awarded by King Kamehameha III. The present study area appears to have been included in the largest award (Royal Patent 6071, LCA 11216, `Āpana 8) granted in Honouliuli *Ahupua`a* to Miriam Ke`ahi-Kuni Kekau`onohi on

January 1848 (Native Register). Kekau'onohi acquired a deed to all unclaimed land within the *ahupua'a*, including a total of 43,250 acres.

Kamaukau relates the following about Kekau'onohi as a child:

Kamehameha's granddaughter, Ke-ahi-Kuni Kekau'onohi...was also a tabu chiefess in whose presence the other chiefesses had to prostrate and uncover themselves, and Kamehameha would lie face upward while she sat on his chest. (in Hammatt and Shideler, 1990:19-20).

Kekau'onohi was one of Liholiho's (Kamehameha II's) wives, and after his death, she lived with her half-brother, Luanu'u Kahala'i'a, who was governor of Kaua'i (*Ibid.*:20). Subsequently, Kekau'onohi ran away with Queen Ka'ahumanu's stepson, Keli'i-ahonui, and then became the wife of Chief Levi Ha'alelea. Upon her death on June 2, 1851, all her property was passed on to her husband and his heirs. When Levi Ha'alelea died the property went to his surviving wife, who in turn leased it to James Dowsett and John Meek in 1871 for stock running and grazing.

In 1877 James Campbell purchased most of Honouliuli *Ahupua'a* for a total of \$95,000. He then drove off 32,347 head of cattle belonging to Dowsett, Meek and James Robinson and constructed a fence around the outer boundary of his property (Bordner and Silva, 1983:C-12). By 1881 the Campbell property of Honouliuli prospered as a cattle ranch with "abundant pasturage of various kinds" (Briggs in Haun and Kelly, 1984:45).

In 1889 Campbell leased his property to Benjamin Dillingham, who subsequently formed the O'ahu Railway and Land Company in 1890. To attract business to his new railroad system, Dillingham subleased all land below 200 feet to William Castle who in turn sublet the area to the Ewa Plantation Company for sugar cane cultivation (Frierson, 1972:15). Throughout this time and continuing into modern times, cattle ranching continued in the area, and Honouliuli Ranch - established by Dillingham was - the "fattening" area for the other ranches (*Ibid.*).

Ewa Plantation Co. grew quickly and continued in full operation up into modern times. As a means to generate soil deposition on the coral plain and increase arable land in the lowlands, the Ewa Plantation Co. installed ditches running from the lower slopes of the mountain range to the lowlands and then plowed the slopes vertically just before the rainy season to induce erosion (*Ibid.*:17).

C. Modern Land Use

Battery Arizona

At the southwest boundary of the project area are the subterranean remnants of Battery Arizona, an ambitious World War II military project.

Long before the Japanese bombing of Pearl Harbor in December 1941, the U.S. military had initiated the Oahu Coast Defense Command, a series of coastal artillery batteries designed to assist in the defense of Pearl Harbor and to prevent invasion of O'ahu. By the

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

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Long before the Japanese bombing of Pearl Harbor in December 1941, the U.S. military had initiated the Oahu Coast Defense Command, a series of coastal artillery batteries designed to assist in the defense of Pearl Harbor and to prevent invasion of O`ahu. By the

late 1930s, these batteries were located at installations that included Fort DeRussy, Fort Ruger, Fort Kamehameha, Fort Armstrong, Fort Weaver, and Fort Barrette.

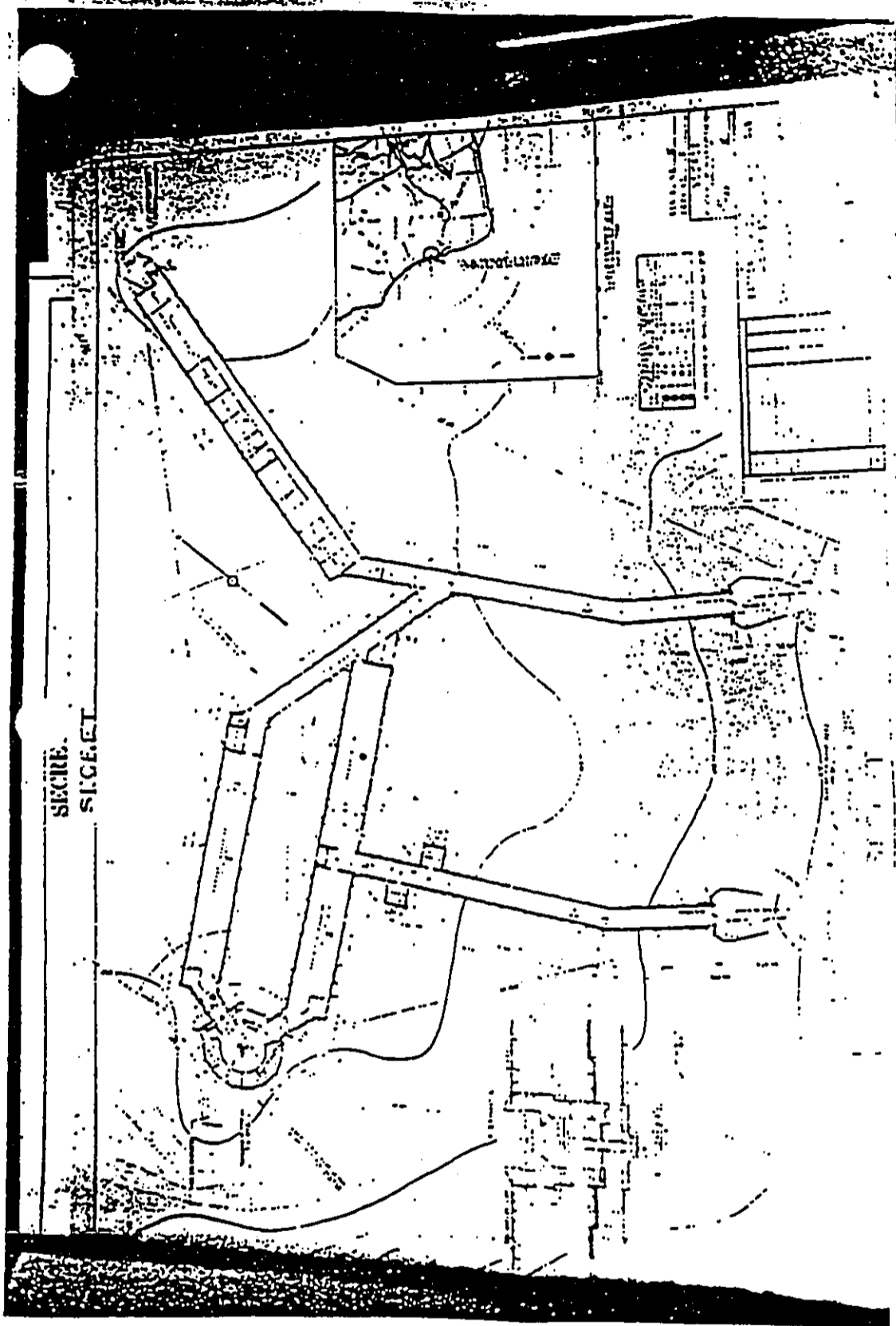
The attack of December 7, 1941 impelled the construction of further defensive armament for portions of the O'ahu coastline not protected by the existing batteries. Even the sunken ships at Pearl Harbor would be enlisted in O'ahu's defense. When, early in 1942, it was discovered that the two rear three-gun turrets of the U.S.S. *Arizona* were salvageable, an ambitious plan to mount them at two land installations on O'ahu was set into motion. The two sites chosen were the tip of Mōkapu Peninsula at Kāne'ōhe Bay, designated Battery Pennsylvania, and Kahe Point above the Wai'anae Coast, designated Battery Arizona. The plan also included installation of the four turrets from the sunken U.S.S. *Oklahoma* at Makapu'u Head, Paumalū, Ka'ena Point, and Diamond Head. However, this portion of the plan could not be executed as the *Oklahoma's* turrets were found to be beyond repair.

Construction of Batteries Pennsylvania and Arizona commenced in April 1943. A formidable subterranean complex was contrived to house the turrets at the two sites (Figure 6). According to a U.S. Army Corps of Engineers report prepared in 1946:

The design that was eventually produced consists of a central barbette well of concrete set in rock, having an overall depth of about 60 ft. and an inside diameter of about 24 ft., with three levels below the bottom of the turret connected by stairways. Two tunnels radiate from this well to house projectiles and powder magazines immediately adjacent to the well. Beyond and in line with the projectile magazine is a large power room for three 125 KW generators, all miscellaneous switchgear, air conditioning, and ventilating equipment. In a separate tunnel off the main tunnel in the vicinity of the powder room is a 10,000 gallon emergency watertank to maintain the battery for several days in case of siege. Beyond the power room in a separate leg of the tunnel are the operations rooms. Because during prolonged action it might be necessary for the entire battery personnel to remain in the battery and be self sustaining, these gasproofed and air conditioned operations rooms normally comprised of radio and switchboard, plotting, and radar rooms included latrines for officers and enlisted men, a galley, first aid room, offices, and storerooms.

The salvaged turrets were stored at a facility on Pearl City Peninsula. Refurbishing of the turrets proved to be a formidable task:

An immediate complication arose from the fact that removal of the turrets from the *Arizona* was begun prior to any thought of their reuse; hence, much of the cutting was done rapidly and crudely with no consideration for future reassembly. As a result, the reconstruction frequently was held up by the painstaking realignment and joining of turret segments. Other difficulties arose from the initial damage and subsequent immersion suffered by the armament components. (Kirchner and Lewis, 1967:432)



SECRET
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Figure 6 1943 plan of Battery Arizona complex

SECRET

Records in the archives of the U.S. Army Museum at Ft. DeRussy reveal the months' long search across the Mainland for replacement parts, especially motors, and for parts to adapt the turrets to installation on land. It was finally determined that, because they had been so long under water, every part of the turrets' operating systems had to be repaired or replaced.

Perhaps appropriately for the former battleship armaments, the turrets were transported to their respective battery sites by sea; according to the 1946 Corps of Engineers report:

The heavy section of the turrets comprising three 14-inch guns were moved by barge from Pearl harbor to beaches near the battery sites. Here they were cleaned, painted, and put into condition for installation in the barbette. Special equipment was designed at each site for raising the parts from the ground and lowering to their correct position in the barbette.

Construction of the two batteries continued through all of 1944 and into two-thirds of 1945. Problems--associated with wartime conditions and the unique engineering feat of adapting shipboard weaponry to land installation--dogged the two projects over the many months:

This work involving repair, replacement, or remanufacture of thousands of separate parts placed great demands upon the Army and Navy ordnance facilities and workers. Often, drawings were not available for damaged or missing items, and a particular stage of reconstruction had to be awaited before such parts could be reproduced...In one instance, well over a year was required to procure a single turret turning gear worm and pinion.

...The various problems were further complicated by the sheer mass of the armament and the size of the battery structures...Special heavy equipment...had to be erected at each installation for raising the turret members from the shore and for assembling the armament at the site. Some segments had to be moved on rollers along specially constructed roads, while the 71-ton gun tubes were lifted by parkbuckles from the beaches to the emplacements high above.

...Site peculiarities placed severe restrictions upon the battery layouts. The fire-control radars, for example, because of their sensitivity to concussion, could not be near the turrets; yet the ideal positions for the radars both technically and topographically were but a few yards away...

During late 1944, the battery construction reached a bottleneck stage when progress depended upon a few highly skilled technicians and the closely timed arrival of a few critical armament components. By Christmas, 1944, the number of personnel that could effectively work at the two installations was limited to about 35 specialists. At this time, Battery Pennsylvania's turret was roughly half assembled, while Battery Arizona was even further behind. (Kirchner and Lewis, 1967:432-433)

The slow pace of construction of the two batteries reflected a diminishing urgency for defense of O`ahu and its military installations. The war front was moving west across the Pacific as successive defeats impelled Japan's retreat. Battery Pennsylvania at Mōkapu Point was near completion in August 1945 when its guns were test fired around the same time of Japan's surrender. Battery Arizona had not been completed by the war's end; its guns, though installed, were never fired (Figure 7).

Neither of the two batteries was ever placed in operation during the post-war years. The batteries had been rendered obsolete "due to the development of air power, new assault techniques and nuclear weapons. The guns were scrapped in 1949..." (Bouthillier 1995: 12). However, Waimānalo would once again play a role in the O`ahu defense system when, sometime after 1959, the United States Army purchased or exchanged land with the Campbell Estate for the construction of a Nike-Hercules anti-aircraft missile base located at the head of Waimānalo Gulch. The tunnel complex of Battery Arizona within the Landfill property was also used for civil defense circa 1960.

The Waimānalo Gulch Landfill

In 1985, the city of Honolulu condemned 81.5 acres of agriculture-zoned land in Waimānalo for use as a landfill to dispose of ash from an H-POWER plant to be built at Campbell Industrial Park. Work on the landfill began in 1987. In mid-1988, while construction of the landfill site continued, a trial in Circuit Court was convened to determine the amount the city would have to pay the former owners of the land condemned for the landfill. The Robert Au family claimed the land was worth \$8 million while the city was offering to pay only \$1.06 million. On July 15, 1988 the jury decided the city must pay \$1.3 million (*Honolulu Advertiser*, 7/16/88:A-5). Subsequently, another trial was scheduled to "determine the fair price for the remaining, *mauka* half of the gulch, which is owned by the Campbell Estate" (*Ibid.*).

Also in 1988 workers constructing the Waimānalo landfill were reporting strange incidents at the site. According to a newspaper article by Bob Krauss:

"We've been having funny things happen," said one of the men on the site. "Unnatural things. In one case, a man was standing on a flat rock and the thing threw him over. All of a sudden, it just flipped over."

Another time a backhoe was knocking down kiawe trees. The trees have shallow roots systems so they usually just fall down. But one of the trees jumped up and did a somersault...

Then there was the payloader filling in a huge hole where a \$17,000 fiberglass fuel tank had been placed. The story is that the driver put his machine in reverse but it jumped forward and leaped into the hole, smashing the tank. (*Honolulu Advertiser*, 6/20/88:A-1,A-4)

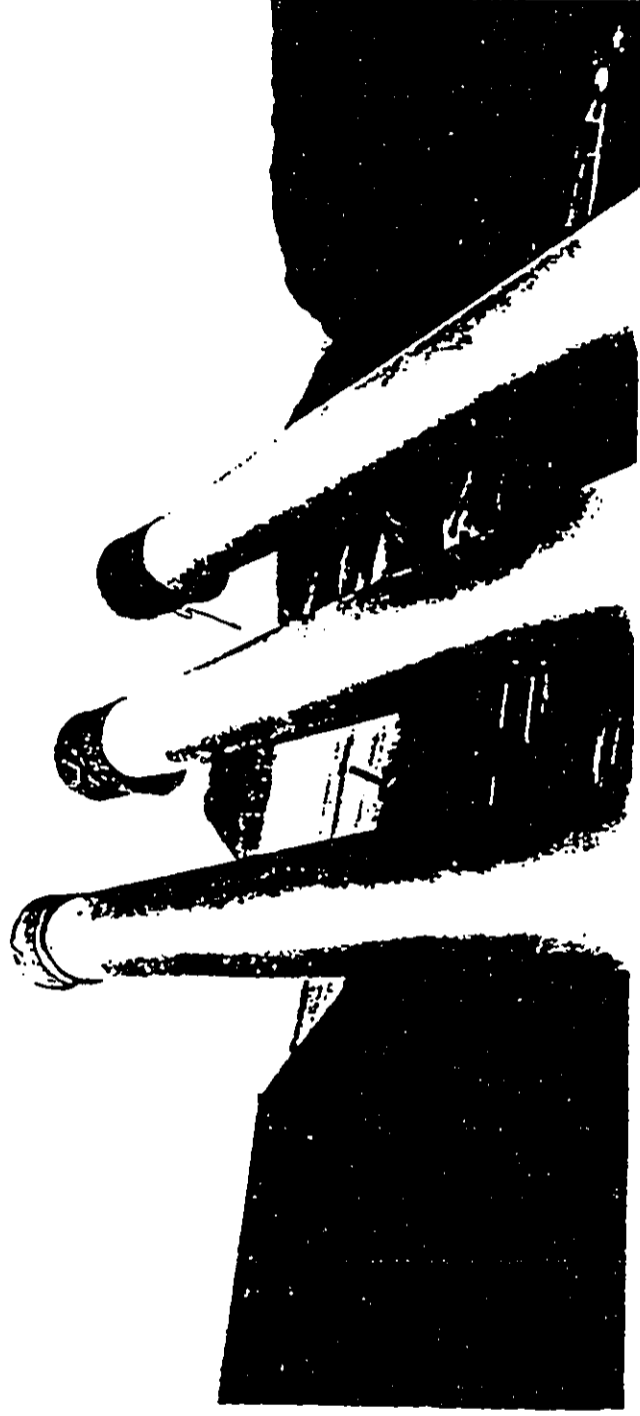


Figure 7 U.S.S. Arizona turret installed at Battery Arizona above Kahe Point (U.S. Army Museum of Hawaii)

Other incidents reported to Krauss were a truck that had flipped over, tools that had vanished, and a huge stone that had disappeared. The workers called in

a woman recommended for lifting curses and banishing evil spirits. She said the trouble was caused by a certain stone, the "chief of the valley," which was lying on its side.

The men quickly set the stone upright. But they got it upside down. Things went from bad to worse. The woman came out again and recommended they place the stone on the hill where it will not be covered by rubbish when the landfill opens. (*Ibid.*)

According to Krauss, in April 1988, the stone was moved to a "nest of boulders so that it faces east", at the "end of a Hawaiian Electric Co. Road to one of its relay stations on top of [a] hill." This site lies close to the Battery Arizona bunkers in the south west portion of the landfill property.

D. Honouliuli Settlement Patterns

The Physical Layout

The *ahupua`a* of Honouliuli is the largest traditional unit on the island of O`ahu. Honouliuli includes all the land from the western boundary of Pearl Harbor (West Loch) westward to the `Ewa\ Wai`anae District Boundary with the exception of the west side of the harbor entrance which is in the *ahupua`a* of Pu`uloa (the `Ewa Beach/Iroquois Point area). This comprises approximately 12 miles of open coastline from One`ula westward to Pili O Kahe. The *ahupua`a* extends *mauka* (almost pie-shaped) from West Loch nearly to Schofield Barracks and the western boundary is the Wai`anae Mountain crest running *makai* to the east ridge of Nānākuli Valley.

Not only is there a long coastline fronting the normally calm waters of leeward O`ahu but there is four miles of waterfront along the west side of West Loch. The land immediately *mauka* of the Pacific coast consists of a flat karstic raised limestone reef forming a level nearly featureless "desert" plain marked in prehistoric times (previous to illuviation caused by sugar cultivation) by a thin or non-existent soil mantle. The micro-topography is notable in containing countless sinkholes caused by chemical weathering (dissolution) of the limestone shelf. Proceeding *mauka* from this limestone plain, this shelf is overlain by alluvium deposited through a series of gulches draining the Wai`anae Mountains. The largest of these is Honouliuli Gulch towards the east side of the plain which drains into West Loch. To the west are fairly steep gradient gulches forming a more linear than dendritic drainage pattern. The major gulches are, from east to west - Awanui, Palailai, Makaīwa, Waimānalo and Lumaloa. These gulches are steep-sided in the uplands and generally of a high gradient until they emerge onto the flat `Ewa plain. The alluvium they have carried has spread out in delta fashion over the *mauka* portions of the plain, which comprises a dramatic depositional environment at the stream gradient change. These gulches are generally dry, but during seasonal Kona storms carry immense quantities of runoff onto the plain and into the ocean. As typical drainages in arid slopes they are either

raging uncontrollably, or are dry and as such do not form stable water sources for traditional agriculture in their upper reaches. The Honouliuli gulches, in contrast to those draining into Pearl Harbor to the east, do not have valleys suitable for extensive irrigated agriculture. However, this lack is more than compensated by the rich watered lowlands of the base of Honouliuli Gulch (the 'ili of Honouliuli).

Honouliuli *Ahupua'a*, as a traditional land unit had tremendous and varied resources available for exploitation by early Hawaiians. The "karstic desert" and marginal characterization of the limestone plain – which is the most readably visible terrain – does not do justice to the *ahupua'a* as a whole. The richness of this land unit is marked by the following available resources.

1. 12 miles of coastline with continuous shallow fringing reef which offered rich marine resources.
2. Four miles of frontage on the waters of West Loch which offered extensive fisheries (mullet, *awa*, shellfish, as well as frontage suitable for development of fishponds (for example, Laulaunui).
3. The lower portion of Honouliuli Valley in the 'Ewa plain offered rich level alluvial soils with plentiful water for irrigation from the stream as well as abundant springs. This irriguous land would have stretched well up the valley.
4. A broad limestone plain which because of innumerable limestone sinkholes offered a nesting home for a large population of avifauna. This resource may have been one of the early attractions to human settlement.
5. An extensive upland forest zone extending as much as 12 miles inland from the edge of the coastal plain. As Handy and Handy have pointed out, the forest was much more distant from the lowlands here than on the windward coast, but it was much more extensive (1972:469). Much of the upper reaches of the *ahupua'a* would have had species-diverse forest with *kukui*, *ohia*, sandalwood, *hau*, *ti*, banana, etc.

Settlement of Inland Areas

Documentation of inland settlement in Honouliuli *Ahupua'a* is limited. However, it is probable that the area around Pu'uku'ua, on the east side of the Wai'anae Ridge seven miles inland of the coast, was a Hawaiian place of some importance. In 1899, the Hawaiian Newspaper "*Ka Lo ea Kalaiaina*" relates a story of Pu'uku'ua as "a place where chiefs lived in ancient times" and a "battle field," "thickly populated." The article summarizes:

- 1) This place was entirely deserted and left uninhabited and it seems that this happened before the coming of righteousness to Hawai'i Nei. Not an inhabitant is left.
- 2) The descendants of the people of this place were so mixed that they were all of one class. Here the gods became tired and returned to *Kahiki*. (in Sterling and Summers, 1978:33)

McAllister recorded three sites in this area – 2 *heiau* (134, 137) – Pu'u Kuina and Pu'uku'ua (both destroyed) and most interesting, a series of enclosures in Kukuilua which he calls "*kuleana sites*" (McAllister, 1933). There is no direct archaeological evidence available to the authors' knowledge that Hawaiian settlement occurred here but it is considered as a place of high probability, based on the above indications. Geographically, the area is well-watered and would have had abundant locally available forest resources.

Summary

The following general considerations are made to place the Waimānalo Gulch area in the context of the Honouliuli *Ahupua'a* settlement pattern:

1. There are three areas of Hawaiian settlement in the *ahupua'a*; two are well-documented and one is problematic:
 - a. the extensive limestone plain with recurrent use habitations for fishermen and gatherers and sometime gardeners;
 - b. the rich cultivated lands of Honouliuli *'ili* for extensive wetland taro and clearly the *ahupua'a* population center;
 - c. the uplands around Pu'uku'ua for presently uncertain reasons but probably agriculture and forest resource utilization.
2. Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley *ahupua'a*, except they are arranged geomorphically in an atypical relationship. The *ahupua'a* is not organized around a single drainage network but shares the west portions of Waikele drainage in its upper reaches. A typical and highly advantageous characteristics for human subsistence is included in a vast coastline and fringing reef, an extensive limestone plain which would support only limited agriculture but would be excellent for bird catching in early times, and a huge expanse of sloping forest land. The richest forest land for foraging for wood, birds, feathers, etc. would have been the east slope of the Wai'anae Range. Bordner's survey at Waimānalo Gulch indicated no evidence of Hawaiian

occupation but the gulch has been impacted in modern times (Bordner, 1983).

3. The *makai* Slope was not a major thoroughfare. We can see some very limited evidence of part-time agriculture in and around gulches and 2 foci of sparse habitation. The first is limited to *makai* portions of gulches and lava flats. This habitation is considered a *mauka* component or continuing of the Ko'olina coastal settlement rather than an independent focus. The second focus, separated from the first by a barren zone, is generally above the 800 foot elevation. This *mauka* habitation which could have been supported by seasonal dryland planting and forest foraging may be the lower portion of a thinly scattered, but widespread zone of settlement which stretches eastward and northeast along the east Wai'anae Range slopes and may increase in intensity along the more watered lands forming the *mauka* western boundary of Honouliuli.
4. There is to date no archaeological evidence of high status residence in Honouliuli. Large residential structures are not present along the Pacific shoreline where they would be expected. The late prehistoric occurrence of chiefs' houses is not apparent, perhaps because the ocean shoreline, although rich in marine resources, is uninviting for sport and unsuitable for fishponds. The chiefly focus of 'Ewa District was Waipi'o. Whatever activities of this class occurred in Honouliuli would have been in or near the rich lands fronting West Loch (the 'ili of Honouliuli). Concerning status associations with Honouliuli it is interesting to note the connection of the Pu'uku'ua settlement with slaves (*kauwā*), the lowest class of Hawaiians (Sterling and Summers, 1978:33).
5. The focus of population and agriculture within the *ahupua'a* of Honouliuli was the 'ili of Honouliuli. There is good reason to assume, given the lack of intensive agricultural resources in other prehistoric times, all other habitation zones were economically and socially co-dependent.

What areas like Waimānalo Gulch potentially had to offer the Hawaiian population within Honouliuli *Ahupua'a* was:

1. habitation in good shelter caves and open air sites defining the *mauka* limit of the coastal settlement zone;
2. localized quantities of adz basalt;
3. limited agricultural potential in the gulches for tree crops and roots; and
4. upland zone settlement with limited agriculture and access to forest resources such as *wiliwili* trees.

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

The earliest attempt to record archaeological remains in Honolulu *Ahupua`a* was made by Thrum (1906:46). He reports the existence of a *heiau* located on Pu`u Kapolei, southeast of the present study area. According to legend Pu`u Kapolei was the location on which Kamapua`a, the pig-god, resided with his grandmother, Kamaunuaiahio (McAllister, 1933:108).

In 1930, J. Gilbert McAllister recorded the locations of many archaeological sites, with most being situated at Pearl Harbor or on the uppermost ridges of the Wai`anae Range. The `Ewa coral plain and Barbers Point area is listed under his site 146. In a general description of site 146 McAllister reports the presence of old stone walls - most being associated with the ranching period around the late 19th century - and suggests that the holes and pits in the coral were used as a shelter or for cultivation by Hawaiian populations (McAllister, 1933:109).

The coral plains of `Ewa have been the focus of more than 40 archaeological studies over the last two decades, largely as the result of required compliance with county, state and federal legislation. However, very little research has been conducted along the southern slopes of the Wai`anae Range, with the exception of the following few.

Previous archaeological research conducted in the vicinity of the present project area includes: a survey of the proposed Makaiwa Gulch Landfill site (Bordner, 1977); a survey of the lower portions of the proposed Waimānalo Gulch Landfill site (Bordner, 1977); intensive survey and test excavations of the West Beach Resort development (Barrera, 1985; Davis and Haun, 1987) and a preliminary survey of the proposed `Ewa Town Center/Secondary Urban Center development (Haun, 1986).

The West Beach Resort project area encompassed most of the terrain extending southwest from Farrington Highway to the ocean. In the *mauka*-most portion of the project area (to the southeast of the present Waimānalo Gulch project area) one site was identified as a habitation complex with associated petroglyphs (site 50-80-12-2893).

This site complex was originally reported by Neller subsequent to Barrera's reconnaissance survey of the West Beach Resort project area and given the site number 50-80-12-2893. In Barrera's survey report (1985) he redesignated the site as 50-80-12-1448. During the intensive survey and test excavations of the West Beach Resort project Davis and Haun once again designated the site with its original number: 50-80-12-2893.

Eight features were identified by Davis and Haun including rock shelters, platforms, midden deposits, and petroglyphs; all of these features were located along the base of a large outcrop ledge above the Farrington Highway. One feature originally identified as a midden deposit at the top of the outcrop ledge by Barrera was not relocated during this latter survey and was believed to have been destroyed due to bulldozing activity in the area (Davis and Haun, 1987:D-14).

Davis and Haun excavated five trenches in various portions of the site complex (*Ibid.*). The estimated age of the site complex ranges from the 15th century through to the early 19th century. Problematical dates from two trenches excavated below and adjacent to the cliff overhang at the center of the largest petroglyph concentration, placed a single cultural component at A.D. 1405-1665 based on charcoal radiocarbon and at A.D. 1700-1803 based on hydration-rind analysis (*Ibid.*:D-16).

No archaeological sites were identified during the Makaiwa Gulch Landfill survey. This project apparently covered most of Makaiwa Gulch from Farrington Highway to approximately the 1000 ft. contour (Bordner, 1970).

The preliminary reconnaissance survey conducted by Haun (1986) covered approximately 200 acres in Makaiwa, bordered to the south by Farrington Highway, to the north by an existing ditch and between the slopes of Pu'u Palailai and roughly east of an existing water tank (*Ibid.*:3). Only one site - an inactive irrigation ditch once associated with 'Ewa Plantation - was identified.

Within the present Waimānalo Gulch project area itself, no archaeological sites were identified during the Bordner (1983) survey of the gulch. However, three petroglyph units were found on the parcel in 1989. Joyce Bath (1989), O'ahu Archaeologist with the State Historic Preservation Division, inspected the site on April 28, 1989 and noted:

There are three units pecked into black lava rock on the west side of the valley. Two are stick figures. The third is more complex; and we do not know what it represents. The pecking is very shallow on all three units.

Mikilani Ho of the Hawaiian Petroglyph Society has been notified. I asked her to have the Society record the petroglyphs and then consult with us. (Bath, 1989)

The petroglyphs were given State site no.50-80-12-4110. The map included in the archaeologist's report shows the three petroglyphs at the 80-ft. elevation in the southwest corner of the present landfill project area (see Figure 3 above).

V. RESULTS OF SURVEY

On Tuesday, July 27, 1999, two archaeologists from Cultural Surveys Hawai'i conducted a field survey of the Waimānalo Gulch Sanitary Landfill site (Figures 8-12). This survey started with an informal discussion with the Waste Management staff (including Joseph P. Hernandez, Environmental Manager and Ray A. Rossetti, District Manager) about whether they knew of any archaeological or historical sites in the vicinity. It was volunteered that they knew of two. One site was a rather elaborate military bunker complex known as Battery Arizona and the other consisted of a relocated petroglyph and two stones regarded as sacred which collectively constitute a focus of worship or modern shrine. Mr. Rossetti was kind enough to show us the location of the two sites. While both of these sites (described previously in the Land Use section of this report) are regarded as significant and are herein recommended for preservation, it is important to emphasize that both lie well outside of the proposed landfill expansion footprint.

After the initial visit to locate the Battery Arizona military complex and contemporary shrine sites, one vehicle was driven into the back of the valley to the *mauka* end of the permitted land fill footprint. The two archaeologists spread out and performed pedestrian sweeps arcing around the north and west sides of the existing landfill in the area proposed for land fill expansion. Specific attention was directed towards examining overhang ledges between laminar lava flows which may have provided shelter. Exposures of broken dense basalt were examined for their potential as quarries and smooth basalt exposures were examined for the possible presence of petroglyphs.

In general, survey conditions were good in terms of visibility as the survey was conducted during the dry season following a period of relative drought. Ground cover, low grass and shrub especially along the ridges, was minimal. Extensive brush fires over much of the project area allowed for generally good ground visibility. The major impediments to visibility were *kiawe* trees, slope angles and boulder-strewn terrain in the gullies.

No archaeological sites, midden or artifacts of any kind were observed in the proposed landfill expansion area despite the inspection of several small overhang caves which offered potential shelter.

Upon completing the sweeps of the proposed landfill expansion area the Battery Arizona and "shrine" site were revisited for closer examination. While the Battery Arizona bunker complex lies almost entirely within the landfill parcel the former Arizona turret (see Figure 7 above) lies in the adjacent Hawaiian Electric Company Kahe property. The turret and guns were removed long ago. The extensive bunker complex may, at present be entered through the southwestern portal and also through the top bunker door. The complex was thoroughly explored and conforms to the original Battery Arizona plan (see Figure 6 above). The chalk boards still bear writing relating to the bunker complex's role as a civil defense headquarters during the Cold War.

The shrine complex, understood as established in 1988, includes three notable stones: a larger stone with the semblance of two horns is understood as the focus of the newspaper



Figure 8 General view of proposed landfill expansion area; view to south



Figure 9 General view of proposed landfill expansion area; view south-southwest



Figure 10 View of northeast portal of Battery Arizona; view to northwest

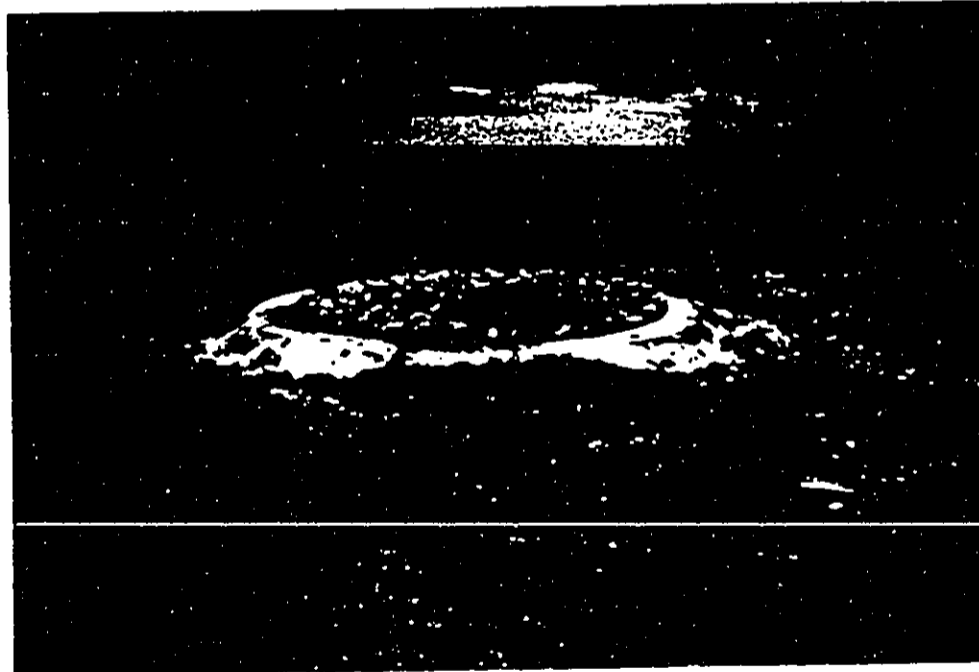


Figure 11 Battery Arizona: Arizona Battleship gun turret foundation (just outside property); view to southwest



Figure 12 "Shrine site" showing waterworn cobbles and shell offerings in foreground: view to southwest

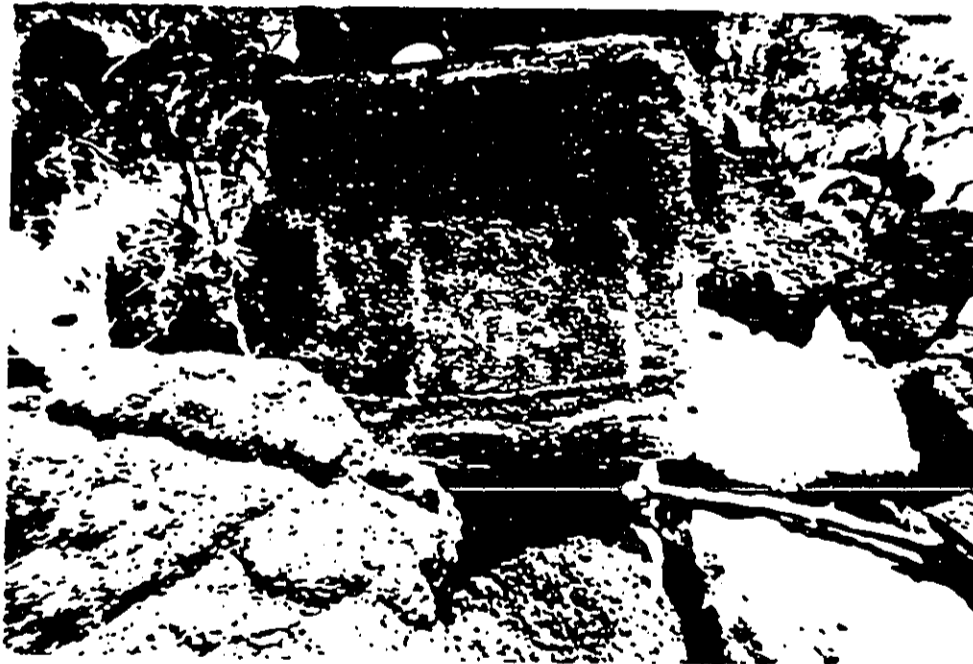


Figure 13 Close-up of petroglyph stone at "shrine site": view to southwest

article by Bob Krauss article discussed earlier (see pp 14-16 above). On the southeast side is a much smaller stone with the semblance of two saucer shaped eyes and a nose. On the northwest side is a relatively flat and square slab of relatively smooth vesicular pahoehoe which we were told bears a petroglyph. The figure or figures are so indistinct that no interpretation of the motif is offered here. We understand that at some angles of light the petroglyph is more readily observed. It is our understanding that all three stones were previously located in the central portion of the existing land fill site and were relocated in 1988. Thus it appears that this petroglyph is not the same as that described by Joyce Bath discussed previously (which was not relocated in this study). Several waterworn basalt cobbles were noted in the immediate vicinity of the notable stones as well as two large Hump-back Cowries (*Cypraea mauritiana*). It seems clear that these were construed as offerings and that this site constitutes a modern shrine incorporating a relocated stone bearing a possible pre-contact petroglyph.

VI. SUMMARY AND SIGNIFICANCE

No archaeological sites, midden or artifacts of any kind were observed in the proposed landfill expansion area despite the inspection of several small overhang caves which offered potential shelter. As far as archaeology is concerned, the proposed area is an excellent one for further land fill development.

It is suggested that the absence of sites is due to the proposed expansion area lying in an intermediate zone with a probable clustering of habitation sites above and below the project area. The gulch within this area probably never contained running water except under flash flood conditions. The dry conditions and general absence of resources within the proposed expansion area probably offered little attraction. For those traversing into the uplands, the ridges would probably have made for an easier traverse.

VII. RECOMMENDATIONS

On the basis of this field assessment we recommend that the State Historic Preservation Division be approached for a declaration of no adverse impact to the proposed land fill expansion area.

The Battery Arizona site, the modern shrine complex and the Bath petroglyph site are all regarded as quite significant but all lie well outside of the area proposed for land fill expansion. It is recommended that further archaeological and historical studies be carried out on the southeastern portion of the Kahe Ridge area of the Waimanālo Landfill property before any further development of this area is undertaken.

It would be hoped that the Battery Arizona site could be secured with chain and padlocks to protect the chalk board remnants of its Cold War history.

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APPENDIX F

*Archaeological Site Visit
Meeting Notes of April 12, 2001*

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April 12, 2001

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Subject: Waimānalo Gulch Sanitary Landfill ('Ewa) Meeting of April 10, 2001 with
Wai'anae Community Members to Address Concerns for Native Hawaiian
Burials and Other Issues Related to the Landfill.

On Tuesday April 10, 2001 a field trip was held at the Waimānalo Gulch Sanitary Landfill ('Ewa, O'ahu) to address Wai'anae community concerns regarding possible impacts on native Hawaiian burials and other issues. Parties present included Mr. William Aila and his wife Ms. Melva Aila and Mr. Eric Inos (prominent residents of Wai'anae involved in civic affairs), Dr. Sara Collins and Ms. Elaine ("Muffet") Jourdan (O'ahu Island archaeologist and Assistant O'ahu Archaeologist of the State Historic Preservation Division), Mr. Steve Cassulo and Joseph P. Hernandez (District Manager and Environmental manager for Waste Management Company), Mr. Herb Lee and Ms. Wilma K. Y. Namumart (Planning and Engineering Branch, Chief Refuse Division, C & C) and David W. Shideler, archaeologist from Cultural surveys Hawai'i.

The various parties met at the main offices of the Waimānalo Gulch Sanitary Landfill promptly at 8:00. Mr. Aila was provided with a copy of the three archaeological studies on Waimānalo Gulch and the proposed landfill expansion was discussed over a map showing the proposed expansion area. The parties then convoyed to the back of the landfill and walked up a jeep road to where we could see the inland limit of the proposed landfill expansion impact. The parties returned by way of the Battery Arizona site and sacred stones on the west end of the ridge dividing Waimānalo Gulch from Kahie Gulch.

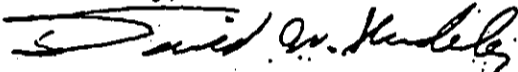
A number of questions were asked regarding archaeology, burials and other possible impacts of the landfill such as run-off. The community representatives surveyed the valley slopes with binoculars and hiked off-road for a while. A community representative expressed his opinion that Waimānalo Gulch would have been a good place for burials but no specific knowledge of burials in the Gulch was expressed. Concerns were expressed regarding whether any burials removed from the Ko Olina/ West Beach developments might have been interred in Waimānalo Gulch. Dr. Collins asserted that she was pretty sure that the re-interment site was not in Waimānalo Gulch but indicated that she would double check. A community representative indicated his intention to hold further discussions with Hawaiian elders regarding possible burials in Waimānalo Gulch. The field visit lasted until 10:40. Dr. Collins did check on the reburial question determining that the Ko Olina/ West Beach reburial site does indeed lie outside of Waimānalo Gulch.

Mr. Brian Takeda
April 12, 2001
Page 2

In summary the concerns expressed by the Wai'anae Community representatives regarding possible land fill expansion impacts were not an all inappropriate. These concerns were addressed with an approach of openness providing all available documentation of cultural resources in Waimānalo Gulch and a site visit in which the community representatives had an opportunity to go basically wherever they wanted to go and had the opportunity to ask questions of people who could be expected to provide answers.

Dr. Collins was provided an opportunity to review these minutes with a request to add or correct anything significant of which she was aware that transpired during the field inspection. She indicated her accord with this general summary (personal communication April 23, 2001).

Sincerely,



David W. Shideler
O'ahu Office manager
Cultural Surveys Hawai'i, Inc.

APPENDIX G
Cultural Impact Assessment
(Cultural Surveys Hawaii)

**A CULTURAL IMPACT ASSESSMENT
FOR PROPOSED 14.9-ACRE EXPANSION OF THE
WAIMĀNALO GULCH
SANITARY LANDFILL PROJECT SITE,
HONOULIULI, 'EWA, O'AHU
(TMK 9-2-03:072 &073)**

by

Hallett H. Hammatt, Ph.D.,
Kēhaulani Souza, B.A.,
and
David Shideler, M.A.

Prepared for

Waste Management of Hawaii, Inc.

and

The City & County of Honolulu
Department of Environmental Services/Refuse Division

ABSTRACT

At the request of Waste Management of Hawaii, Inc. and the City & County of Honolulu Department of Environmental Services/Refuse Division, Cultural Surveys Hawai'i Inc. (CSH) conducted this Cultural Impact Assessment for a proposed 14.9-acre expansion area adjacent to the northeast side of the existing Waimānalo Gulch Sanitary Landfill, located within Waimānalo Gulch, between the town of Makakilo and Kahe Point, on the southeast tip of the Wai`anae Range in the *ahupua`a* of Honouliuli, `Ewa District, Island of O`ahu. The study gathered information from historical documentation, archaeological investigations, and *kama`āina* interviews.

Attempts were made to contact fifty-nine Hawaiian organization, government agencies, community members, and cultural and lineal descendants with ties to Waimānalo Gulch in order to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential impacts within the project area. Of the fifty-nine parties, forty-six were contacted. Five formal or informal interviews were conducted.

The Waimānalo Gulch Sanitary Landfill was established in 1987. The importation of landfill material over the past fifteen years has most likely eliminated any historic properties and plant resources related to Hawaiian cultural practices and beliefs that may have been present within the bounds of the landfill property. Additionally, the presence of the landfill over the last fifteen years has already precluded any traditionally-established access to *mauka* areas through Waimānalo Gulch. There are no records of – and no individuals contacted or interviewed for this study could recall – any contemporary or continuing cultural practices occurring within the 14.9-acre proposed expansion area. Based on these considerations, it is clear that development of the 14.9-acre proposed expansion area – which exists entirely within the bounds of the present landfill property – will have minimal impact upon native Hawaiian cultural resources, beliefs, and practices.

However, many of the individuals contacted or interviewed for this study have expressed serious cultural concerns that extend beyond the confines of the landfill property. These concerns are based on a traditional view of the Hawaiian landscape as a continuum, in which Waimānalo Gulch is perceived in unbroken relationship to lands *mauka* and *makai*, and to the ocean beyond. This relationship is reflected in the traditions about the Waimānalo area mentioned by the contacts and interviewees, and in speculations on sites *mauka* and *makai* of Waimānalo Gulch given by one interviewee. In this view, any future activity within the landfill property will only further distort and diminish the traditional landscape. It is clear that these concerns deserve acknowledgment.

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I. INTRODUCTION

A. Project Background

At the request of Waste Management of Hawaii, Inc. and the City & County of Honolulu Department of Environmental Services/Refuse Division, Cultural Surveys Hawai'i Inc. (CSH) conducted this Cultural Impact Assessment for a proposed 14.9 acre expansion area on the northeast side of the existing Waimānalo Gulch Sanitary Landfill, located within Waimānalo Gulch between the town of Makakilo and Kahe Point, on the southeast tip of the Wai'anae Range in the *ahupua'a* of Honouliuli, 'Ewa District, Island of O'ahu (TMK 9-2-03:072 & 073) (Figures 1-6).

B. Mandate

The purpose of this Cultural Impact Assessment is to consider the effects the proposed expansion of the Waimānalo Gulch Sanitary Landfill may have on traditional cultural practices. The Hawai'i State Constitution, Article XII, Section 7 protects "all rights" of native Hawaiians that are "customarily and traditionally exercised for subsistence, cultural and religious purposes".

In 1997, the Office of Environmental Quality Control issued Guidelines for Assessing Cultural Impacts. The Guidelines discuss the types of cultural practices and beliefs that might be assessed.

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

Most recently, H. B. No. 2895 was passed by the 20th Legislature, and approved by Governor Cayetano as Act 50 on April 26, 2000. The bill acknowledges that

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

This bill issues a directive that ". . . environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights."

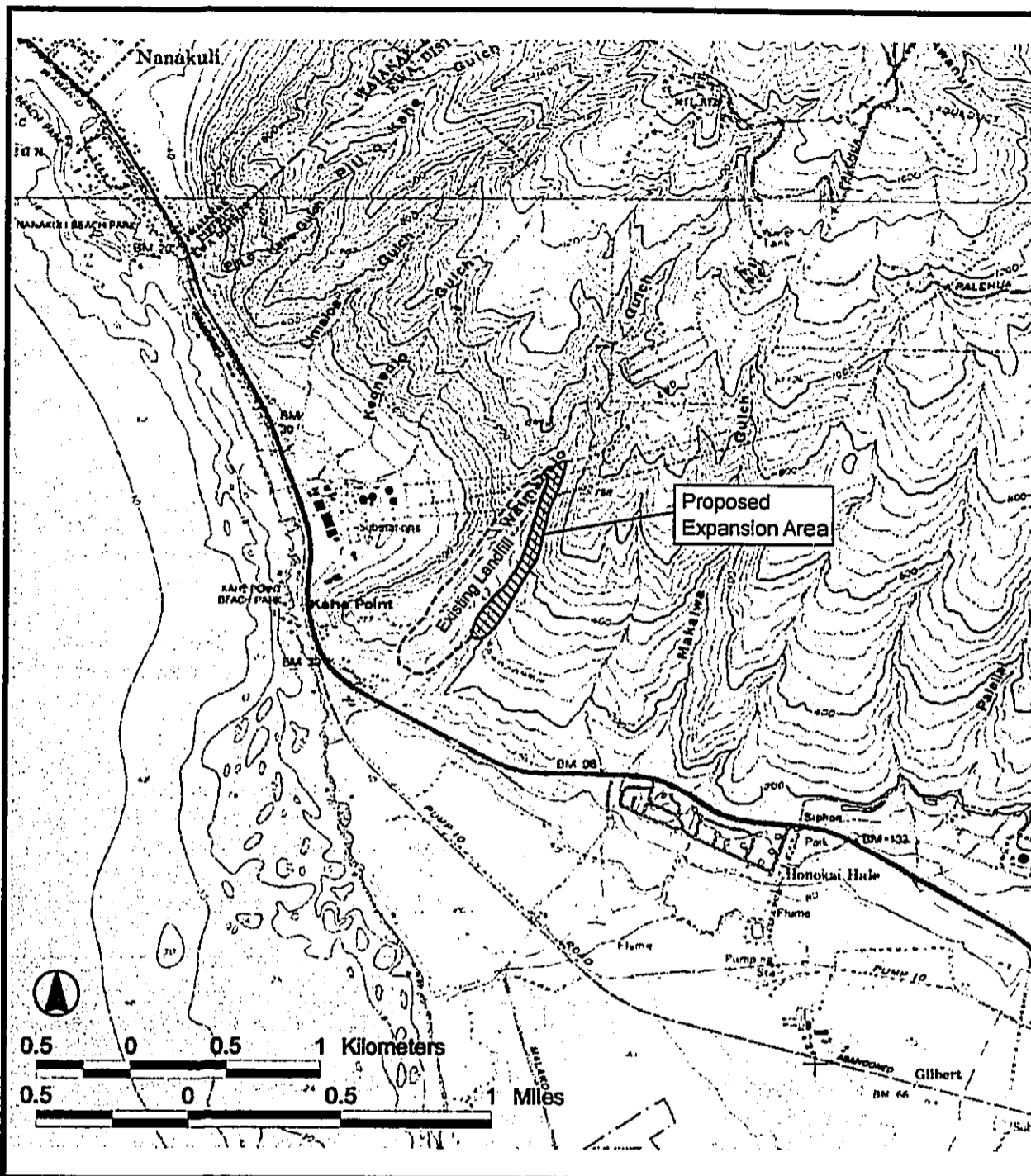


Figure 1 USGS Topographic Map, 'Ewa Quadrangle, showing the location of the Waimānalo Gulch Sanitary Landfill and the proposed expansion area

*Cultural Impact Assessment
 Waimānalo Gulch Sanitary Landfill Expansion Project
 Honouliuli Ahupua'a, 'Ewa District, Hawai'i*

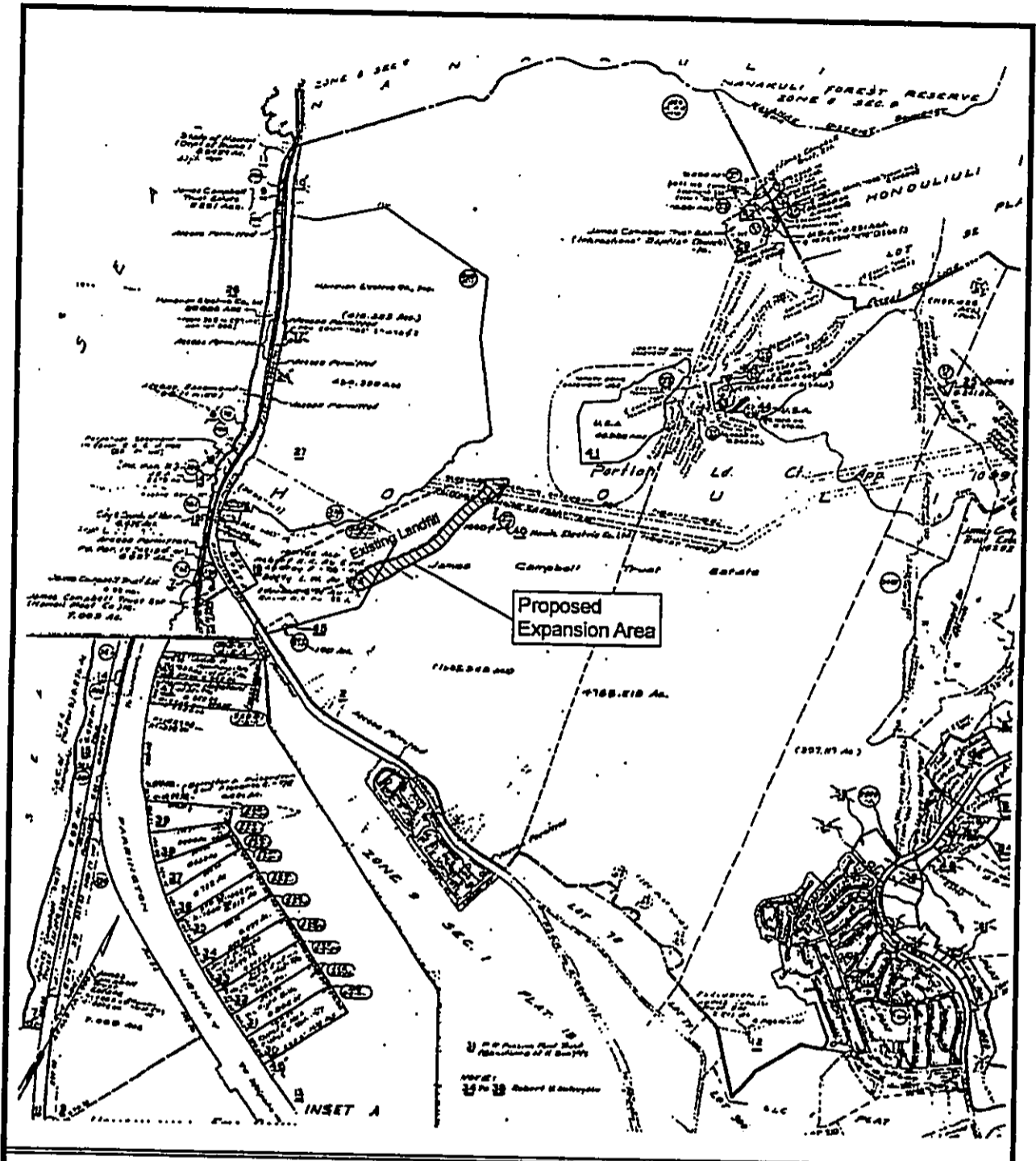


Figure 2 Portion of TMK 9-2-03 showing the location of the Waimānalo Gulch Sanitary Landfill and the proposed expansion area

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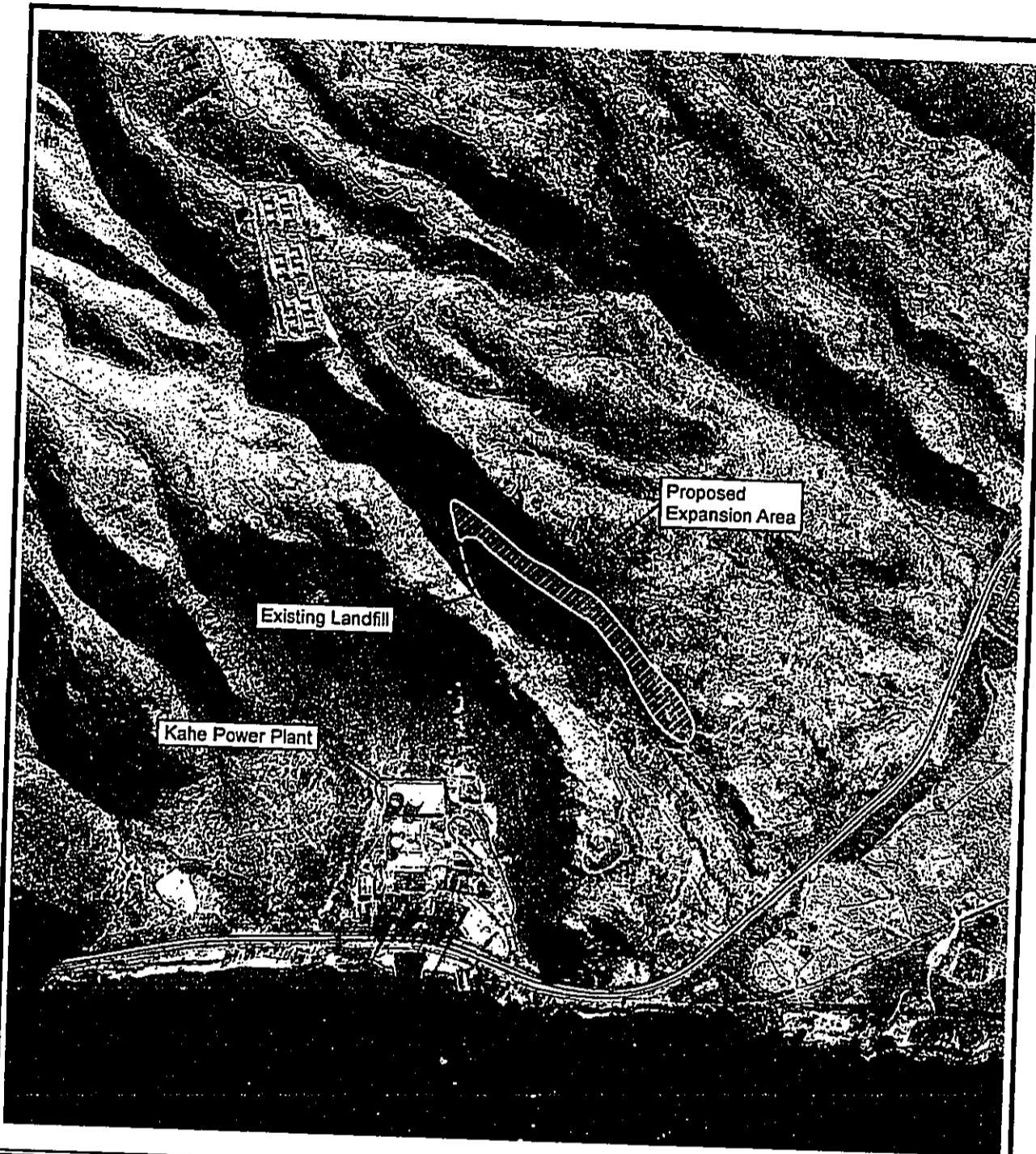


Figure 3 1982 Aerial Photograph showing the approximate location of the Waimānalo Gulch Sanitary Landfill and the proposed expansion area.

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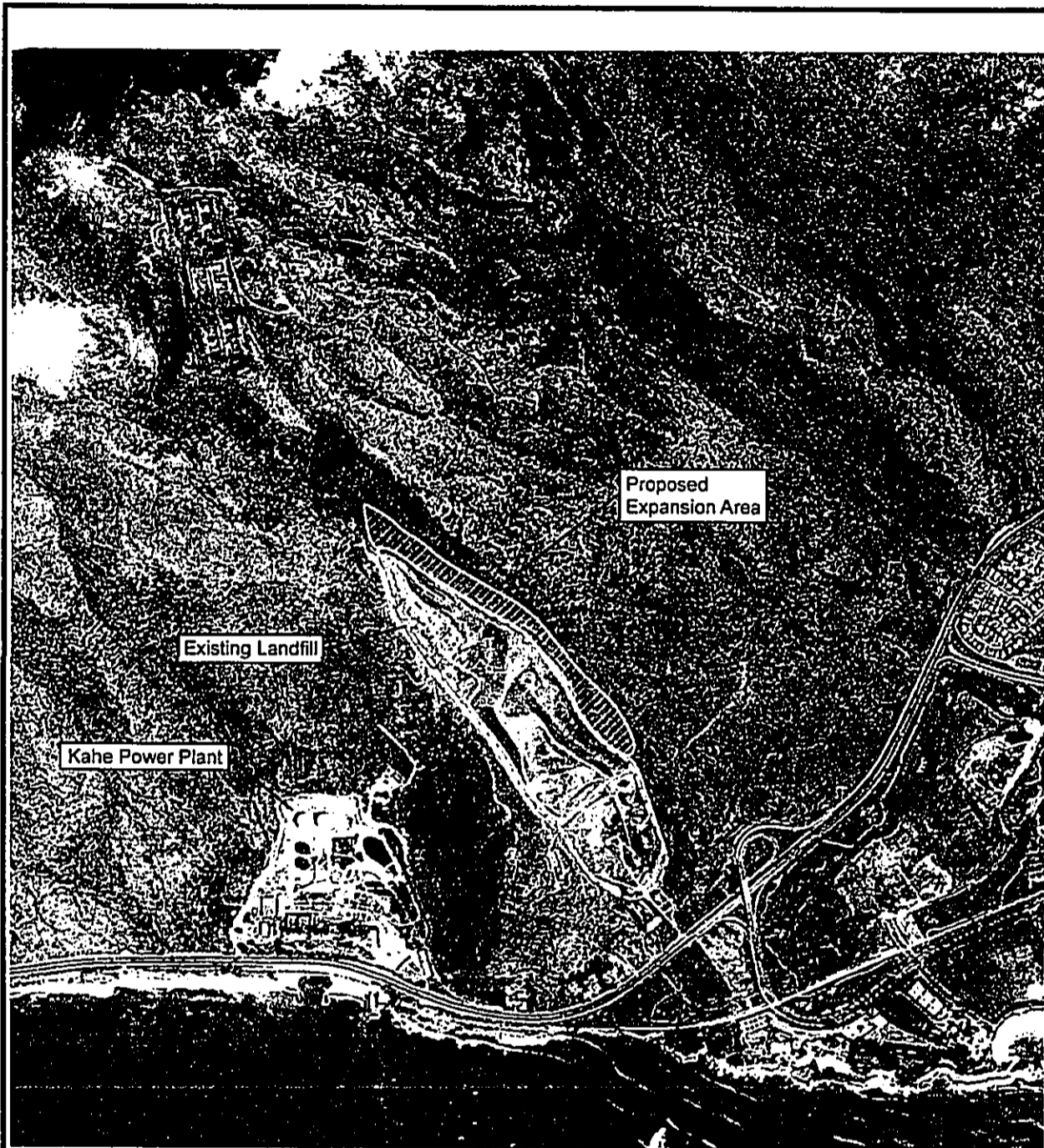


Figure 4 1997 Aerial Photograph showing the approximate location of the Waimānalo Gulch Sanitary Landfill and the proposed expansion area.

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Figure 5 General view of upper Waimānalo Gulch. Note Waimānalo Gulch Sanitary Landfill in background; view to south



Figure 6 General view of upper Waimānalo Gulch. Note Waimānalo Gulch Sanitary Landfill in background; view to southwest

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The process for evaluating cultural impacts is constantly evolving. There continue to be gray areas and unresolved issues pertaining to traditional access and gathering rights. Act 50 is an attempt to balance the scales between traditional lifestyles and development and economic growth.

This assessment is meant to be informational. The Scope of Work (SOW) was designed to meet the cultural impact concerns of the Office of Hawaiian Affairs (OHA), the Office of Environmental and Quality Control (OEQC) and any other state and county agencies involved in the review process for the proposed project.

C. Scope of Work

The following scope of work was proposed for the satisfying requirements related to Hawaiian customary and traditional rights and their applicability to the project area:

- 1) Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
- 2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
- 3) Identification of knowledgeable informants through community consultation. We would anticipate consulting with several organizations such as the State Historic Preservation Division, the Office of Hawaiian Affairs, the O`ahu Island Burial Council, the Hawaiian Civic Club of `Ewa, Nānāikapono Hawaiian Civic Club, Wai`anae Hawaiian Civic Club, the Nānākuli Hawaiian Homestead Association, the Pālehua Community Association, and many individuals. The results of community consultations would be compiled to show a good faith effort and the level of work undertaken.
- 4) Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. We anticipate several formal interviews and possibly more informal interviews plus coordination with relevant community groups.
- 5) Preparation of a report on items 1-4 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

D. Methods

Historical documents and maps were researched at the Hawai'i State Archives, Hawai'i State Survey Office, State Historic Preservation Division library and files, Bishop Museum Photo Collection and the Cultural Surveys Hawai'i's library.

Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found in the following section on "Community Consultations". Please refer to Table 1 for a complete list of individuals and organizations contacted.

E. Identification of Knowledgeable Interview Informants

Based on recommendations from organizations and the community, five *kupuna* and *kama`āina* were identified with whom interviews were conducted. The five interviewees were: Mr. Hiram Kamana, Mr. Shad Kane, Mr. Glen Kila, Mrs. Nettie Tiffany, and Mr. Shigeru Yamata.

F. The Interview Process

Once the participants were identified, they were contacted and appointments were set-up to conduct the interviews. Both interviews were conducted between November 20, and December 6, 2002, on O`ahu, where both informants currently reside. The interviews lasted approximately 1½ - 2 hours. The interviews were taped and transcribed. Both participants were allowed the opportunity to review the typed transcript and for corrections, editing and to approve the final transcript. Both informants signed an "Authorization for Release" form giving permission for the interview to be used as part of this study. Excerpts from the interviews are used throughout this report, wherever applicable. The full transcripts and of both interviews are appended to this report.

II. PROJECT AREA DESCRIPTION

A. Waimānalo Gulch Sanitary Landfill

The Waimānalo Gulch Sanitary Landfill is situated on the floor of Waimānalo Gulch on the southeastern slope of the Wai`anae Range, approximately 3 miles north of Ka Lae Loa (Barbers Point). The Landfill ranges in elevation from roughly 30 m. (100 ft.) a.m.s.l. near the landfill administration building to 170 m. (560 ft.) a.m.s.l.

Topography in the vicinity is dominated by Waimānalo Gulch. The stream channels are typically dry during the summer and fall seasons. It is understood that water runs in Waimānalo Gulch less than one day in a hundred and only after heavy rains. The ridges bounding Waimānalo Gulch are the most feasible routes for *mauka/makai* traversing. Some low outcrops are present but the land is generally composed of gently dipping, even lava flows with highly weathered crust.

The major soil types in Waimānalo Gulch include the following classifications (Foote *et al.* 1972):

- Stony steep land (rsy) (north west ridges)
- Lualualei extremely stony clay (LPE) (lower gulch)
- Rock land (rRK) (majority of Waimānalo Gulch)
- Mahana silty clay loam-(McE2) (north end of gulch)

The vast majority of Waimānalo Gulch (70-80%) is classified as Rock Land (rRK). The soil cover is generally thin with heavily weathered boulder, cobble rubble. Only in the upper elevations of the gulch floor do small level non-rocky natural, alluvial terraces occur in shallow drainages where soil cover (McE2) is evenly distributed.

The present vegetation in the vicinity is predominantly exotic species introduced since 1790 (Frierson, 1972). Common plants were *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), *`uhaloa* (*Waltheria indica*) and various grasses. Inland of the existing landfill, adjacent to a relatively flat area where tributary gulches converge, is a remnant copse of large *wiliwili* trees (*Erythrina sandwicensis*).

Frierson suggests that - prior to the introduction of exotic vegetation in 1790 - the slopes of the Wai`anae Range extending down to about 152.4 m. (500 ft.) a.m.s.l. supported a dry forest of native trees and shrubs between an upper *`ōhi`a* wet forest and lower grassy savannah area (Frierson, 1972). Frierson (*Ibid.*:4) summarizes the following patterns suggested by J.F. Rock (1913) for the indigenous vegetation in the area prior to 1778:

- a) Lowland zone - open grassland on the leeward side
- b) Lower Forest - beginning about 1000 feet and richer in species than the rainforest; *kukui*, *`ōhi`a`ai*, *koa*, *kalia*, sandalwood, *`ōhi`a lehua*,

hau, ti, ape, pia, banana, ginger, birdnest fern and *honohono*, as well as grasses and cyperaceous plants.

c) Specifically leeward lower forest - *`ohe, wiliwili, maile, halapepe* and *alani*, with almost no undergrowth.

Historical accounts presented by Frierson (*Ibid.*:5-6) describe these lower forest species as extending to 500 feet, with the presence of sandalwood observed down to as low as 300 feet. The lower forest then is hypothesized to have covered at least the upper slopes of the north eastern portion of the project area. This was always a rain shadow slope and we may more accurately envisage a park land community rather than a thick forest in early Hawaiian times.

B. Specific Proposed Expansion Area

The specific 14.9-acre proposed expansion area is an approximately 3,600 foot long by 200 foot wide area immediately adjacent to the northeast side of the existing landfill at elevations of approximately 400 to 650-foot elevation. This area is quite rocky and steep with little vegetation other than *koa haole* and exotic grasses.

III. CULTURAL SETTING

A. Introduction to the Cultural Landscape

Waimānalo Gulch is located in the western portion of Honouliuli *Ahupua`a* (traditional land division) in the *moku* or district of `Ewa. The *ahupua`a* of Honouliuli is the largest traditional *ahupua`a* land unit on the island of O`ahu. Honouliuli includes all the land from the western boundary of Pearl Harbor (West Loch or Kaihuopala`ai) westward around the southwest corner of O`ahu to the `Ewa\Wai`anae District Boundary with the exception of the west side of the harbor entrance which is in the *ahupua`a* of Pu`uloa (the `Ewa Beach/Iroquois Point area). Honouliuli *Ahupua`a* includes approximately nineteen kilometers (12 miles) of open coastline from One`ula westward to the boundary known as Pili o Kahe. The *ahupua`a* extends *mauka* (almost pie-shaped) from West Loch nearly to Schofield Barracks in Wahiawā; the western boundary is the Wai`anae Mountain crest running north as far as Pu`u Hapapa (or to the top of Ka`ala Mountain according to some).

Not only is there a long coastline fronting the normally calm waters of leeward O`ahu but there is four miles of waterfront along the west side of West Loch. The land immediately *mauka* of the Pacific coast consists of a flat karstic raised limestone reef forming a level nearly featureless "desert" plain marked in pre-contact times (previous to illuviation caused by sugar cultivation) by a thin or non-existent soil mantle. The micro-topography is notable in containing countless sinkholes caused by chemical weathering (dissolution) of the limestone shelf. Proceeding *mauka* from this limestone plain, this shelf is overlain by alluvium deposited through a series of gulches draining the Wai`anae Mountains. The largest of these is Honouliuli Gulch towards the east side of the plain which drains into West Loch. To the west are fairly steep gradient gulches forming a more linear than dendritic drainage pattern. The major gulches are, from east to west: Awanui, Pālailai, Makaīwa, Waimānalo and Lumalua. These gulches are steep-sided in the uplands and generally of a high gradient until they emerge onto the flat `Ewa plain. The alluvium they have carried has spread out in delta fashion over the *mauka* portions of the plain, which comprises a dramatic depositional environment at the stream gradient change. These gulches are generally dry, but during seasonal Kona storms carry immense quantities of runoff onto the plain and into the ocean. As typical drainages in arid slopes they are either raging uncontrollably, or are dry and as such do not form stable water sources for traditional agriculture in their upper reaches. The Honouliuli gulches, in contrast to those draining into Pearl Harbor to the east, do not have valleys suitable for extensive irrigated agriculture. However, this lack is more than compensated by the rich watered lowlands of the base of Honouliuli Gulch (the *ili* of Honouliuli).

Honouliuli *Ahupua`a*, as a traditional land unit had tremendous and varied resources available for exploitation by early Hawaiians. The "karstic desert" and marginal characterization of the limestone plain – which is the most readily visible terrain – does not do justice to the *ahupua`a* as a whole. The richness of this land unit is marked by the following available resources:

1. 12 miles of coastline with continuous shallow fringing reef which offered rich marine resources.
2. Four miles of frontage on the waters of West Loch which offered extensive fisheries (mullet, *awa*, shellfish) as well as frontage suitable for development of fishponds (for example, Laulaunui).
3. The lower portion of Honouliuli Valley in the `Ewa plain offered rich level alluvial soils with plentiful water for irrigation from the stream as well as abundant springs. This irriguous land would have stretched well up the valley.
4. A broad limestone plain which, because of innumerable limestone sinkholes, offered a nesting home for a large population of avifauna. This resource may have been one of the early attractions to human settlement.
5. An extensive upland forest zone extending as much as 12 miles inland from the edge of the coastal plain. As Handy and Handy (1972:469) have pointed out, the forest was much more distant from the lowlands here than on the windward coast, but it was much more extensive. Much of the upper reaches of the *ahupua`a* would have had species-diverse forest with *kukui*, *ōhia*, sandalwood, *hau*, *ti*, banana, etc.

The political and cultural center of the *ahupua`a* is understood to have been the relatively dense settlement and rich lands for irrigated taro cultivation at the *ili* (land section) of Honouliuli located where Honouliuli Stream debouches into the north portion of West Loch (eleven kilometers to the east of the present project area). The name of the *ahupua`a*, translated as "dark bay" (Pukui *et al.* 1974:51) may refer to the nature of the waters of West Loch at the mouth of Honouliuli Stream. Early accounts and maps indicate a large settlement at the *ili* of Honouliuli and it may well be that the political power of this village was so great that it was able to extend its jurisdiction well to the northwest into an area which might have been anticipated to fall under the dominion of the Wai`anae ruling chiefs.

B. Traditional and Legendary Accounts of Honouliuli

Honouliuli, O`ahu is associated with a number of legendary accounts. Many of these concern the actions of gods or demi-gods such as Kāne, Kanaloa, Maui, Kamapua`a, the reptile deity Maunauna, the shark deity Ka`ahupāhau, and the demigod hero Paliia. While there are several references to chiefly lineages and references to the ruling chiefs Hilo-a-Lakapu and Kūali`i, there is no clear reference to powerful chiefs living permanently in Honouliuli (Ko `Ōlina is reported to have been a vacationing place for Kākuhihewa).

Traditional and legendary accounts are presented below in a loose arrangement from more mythological accounts of gods and demi-gods to accounts of a more historical nature. There is no sharp distinction in this regard.

Kāne and Kanaloa and the Boundaries of `Ewa (Simeon Nawaa account)

It seems likely the boundaries of the western-most *ahupua`a* of `Ewa were often contested with Wai`anae people. The `Ewa people could cite divine sanction:

When Kāne and Kanaloa were surveying the islands they came to O`ahu and when they reached Red Hill saw below them the broad plains of what is now `Ewa. To mark boundaries of land they would throw a stone and where the stone fell would be the boundary line...They hurled the stone as far as the Wai`anae Range and it landed somewhere in the Waimānalo section...Eventually the stone was found at Pili o Kahe. This is a spot where two small hills of the Wai`anae Range come down parallel on the boundary between Honouliuli and Nānākuli (`Ewa and Wai`anae). The ancient Hawaiians said the hill on the `Ewa side was the male and the hill on the Wai`anae side was female... (Simeon Nawaa In Sterling and Summers 1978:1)

Kāne and Kanaloa and the Kauwā of Pu`u Ku`ua (*Ka Loea Kālai`āina*)

Divine sanction was also given to social stratification and the designation of a land for *kauwā* (outcastes, pariahs) in the vicinity of Pu`u Ku`ua:

The chiefs of old, who lived at that time, were of divine descent. The two gods [Kāne and Kanaloa] looked down on the hollow [vicinity of Pu`u Ku`ua] and saw how thickly populated it was. The mode of living here was so that chiefs and commoners mixed freely and they were so like the lowest of people (*Kauwā*). That is what these gods said and that was the time when the term *kauwā* was first used, and was used for many years afterwards.... This was how they were made to be *kauwā*. When the ruling chief wished to go to Waikīkī for sea bathing he asked the chief just below him in rank, "How are my planting places at Pu`u Ku`ua, [a place in the Wai`anae Range famous as a *kauwā* residence and place of mixed caste] have they not produced young suckers?" The chief next to him answered, "There are some suckers," and sent someone for them. When the men, women and children least expected it, the messenger came to get some of the children. The father stood up and took his sons to Waikīkī. Then, when the ruling chief went sea bathing, he sent an attendant to get the boys and take them to a shallow place where the ruling chief would come. Then the ruler placed a hand on each of the boys, holding them by the necks. The words he uttered were, "My height has not been reached! My height has not been reached!" He advanced

and held onto the boys until the sea was up to his chest. The boys floated on the water face down. The father on shore called out, "Lie still in the sea of your Lord," and so on.

The Sea of Waikīkī is said to have been used to kill men in and the other place is Kualoa.

A penei na`e i kauwā loa [sic. "loa`a"] ai. Aia a mana`o ke Ali`i Nui (Mō`i) e `au`au kai i Waikīkī. Eia ka nānu a ke Ali`i Nui i ke ali`i ma lalo iho ona, "Pehea āu mau wahi lepo kanu o Pu`u Ku`ua? `A`ole paha he mau wahi pōhuli?" Eia ka pane a ke ali`i ma lalo iho ona, "He Pōhuli nō. `O ke kauoha ia akula nō ia e ki`i. `Oiai ko kāne me ka wahine e nanea ana me nā keiki, a hiki `ana ke ki`i i mau keiki. `O ke kū`ela nō ia o ka makuakāne a lawe `ana i kāna mau keiki a hiki i Waikīkī. Aia ho`i a hiki i ka wā a ke Ali`i e hele ai i ka `au`au kai, a laila, hoouna `ia mai ke kahu e ki`i mai i ua keiki a lawe aku ia ma kahi pāpa`u o ke kai, ma kahi a ke Ali`i nui e hele kū`ana, a laila kau nā lima o ka Mō`i luna o kahi keiki a me kahi keiki, ma nā `ā`i o nā keiki a pa`a ai. `O ka hua `ōlelo ma ka waha o ke Ali`i nui e `ōlelo ai, "A`ole pau ku`u loa! `A`ole pau ku`u loa!" `Oiai `o ia e `au ana me ka pa`a nō o nā lima i nā keiki a hiki i ka umauma ke kai o ke ali`i. Ua lana a`ela nā keiki i luna o ka `ilikai, aia ke alo i lalo. Eia ho`i ka `ōlelo a ka makuakāne ma kula aku nei, "Moe mālie i ke kai o ko Haku," a pēlā aku. `O ke kai o Waikīkī ke kai i `ōlelo `ia he kai lumaluma`i kanaka o ka lua, aia i Kualoa (Ka Loea Kālai`āina, July 8, 1899)

Keahumoa, Residence of Maui's Grandfather (Legend of Maui's Flying Expedition)

In the Legend of Maui's Flying Expedition (Thrum 1923:252-259) Maui-kupua looks toward Pōhākea Pass and sees his wife, Kumulama, being carried away by chief Peapeamakawalu. After failing to recover her, Maui returns and tells his problems to his mother, Hina. Hina instructs her son to go to Keahumoa and visit his grandfather Kuolokele who lives there in a large hut. The hump-backed Kuolokele returns home with a load of potato leaves and Maui cures him by striking him in the back with a stone (which Kuolokele throws to Waipahu where it remains). Kuolokele has Maui gather *kī* leaves, *ie`ie* vines and bird feathers from which the old man fabricates a "bird-ship" (*moku-manu*) which Maui uses to defeat Peapeamakawalu and recover his wife. They return to Kuolokele's house where they feast and Maui eats Peapeamakawalu's eyeballs.

Kamapua`a at Honouliuli (Nakuina's Legend of Kaliuwa`a)

Kamapua`a the pig god is associated with Honouliuli:

Kamapua`a subsequently conquered most of the island of O`ahu, and, installing his grandmother [Kamaunuaniho] as queen, took her to

Pu`uokapolei, the lesser of the two hillocks forming the southeastern spur of the Wai`anae Mountain Range, and made her establish her court there. This was to compel the people who were to pay tribute to bring all the necessities of life from a distance, to show his absolute power over all. (Nakuina 1904:50-51)

Emma Nakuina goes on to note: "A very short time ago [prior to 1904] the foundations of Kamaunuanoho's house could still be seen at Pu`uokapolei." Another account (*Ka Loea Kālai`āina* January 13, 1900) speaks of Kekeleaiku, the older brother of Kamapua`a, who also lived on Pu`uokapolei.

Mo`o at Maunauna (Kuokoa)

Moses Manu in recounting the Legend of Keaomelemele makes a reference to a *mo`o* (fabulous lizard, dragon, serpent) named Maunauna who lived above Līhu`e (presumably at the landform of that name in extreme northern Honouliuli) who was a bad lizard (*Kuokoa* April 25, 1885).

Home of the Shark-Goddess Ka`ahupāhau (Legend of Ka`ehuikimanōoPu`uloa)

In the Legend of Ka`ehuikimanōoPu`uloa (Thrum 1923:293-306) the Big Island shark god, Ka`ehuiki travels to visit the famous shark deity Ka`ahupāhau "reaching Honouliuli, the royal residence." Ka`ahupāhau is said to have lived in a royal cave at Honouliuli (Thrum 1923:302).

The Pele Family at Honouliuli

Kapolei (beloved Kapo), specifically the 166-foot high cone of that name, is understood to have been named in reference to the volcano goddess Pele's sister Kapo (Pukui *et al.* 1974:89). Pōhākea Pass is understood as one of the resting places of Pele's sister Hi`iaka as she was returning from Kaua`i with Pele's lover Lohiau (Fornander 1919 Vol. V :188 note 6). A considerable number of *mele* (songs) and *pule* (prayers) are ascribed to Hi`iaka as she stood at the summit of Pōhākea (*Aluna au a Pōhākea, Kū au, nānā ia Puna...*) (Emerson 1915:162-168). From this vantage point Hi`iaka could see through her powers of vision that her beloved *lehua* groves and friend Hopoe at Puna, Hawai`i Island had been blasted by Pele. She could also see that in her canoe, off the coast of Wai`anae, Lohiau was seducing her traveling companion Wahine`ōma`o! A spring located at Kualaka`i near Barber's Point was named Hoaka-lei (lei reflection) because Hi`iaka picked *lehua* flowers here to make a lei and saw her reflection in the water.

The Frightened Populace of Honouliuli (He Ka`ao no Palila)

In the Legend of Palila (Fornander 1917 Vol. V 136-153), the *kupua* or demigod hero of Kaua`i lands at Ka`ena point with his fabulous war club (*lā`au pālau*), which

required eighty men to carry it, and crosses into Honouliuli through the Pōhākea Pass. He descends to the plain of Keahumoa:

At this place he stood and looked at the dust as it ascended to the sky caused by the people who had gathered there; he then pushed his war club toward Honouliuli. When the people heard something roar like an earthquake they were afraid and they all ran to Waikele ...

Kū kēia i laila nānā i ke kū ka ea o ka lepo i nā kānaka, e pahu aku ana kēia i ka lā au pālau aia nei i kai o Honouliuli, kū ka ea o ka lepo o ka honua, me he ōla`i la, maka`u nā kānaka holo a hiki i Waikele

Two Old Women who Turned to Stone (Ka Loea Kālai`āina)

The Hawaiian language newspaper *Ka Loea Kālai`āina*, (January 13, 1900) relates that near Pu`uokapolei, on the plain of Pukaua, on the *mauka* side of the road, there was a large rock. The legend is as follows:

There were two supernatural old women or rather peculiar women with strange powers and Pu`ukaua belonged to them. While they were down fishing at Kualaka`i [near Barber's Point] in the evening, they caught these things, `a`ama crabs, *pipipi* shellfish, and whatever they could get with their hands. As they were returning to the plain from the shore and thinking of getting home while it was yet dark, they failed for they met a one-eyed person [bad omen]. It became light as they came near to the plain, so that passing people were distinguishable. They were still below the road and became frightened lest they be seen by men. They began to run - running, leaping, falling, sprawling, rising up and running on, without a thought of the `a`ama crabs and seaweeds that dropped on the way, so long as they would reach the upper side of the road. They did not go far for by then it was broad daylight. One woman said to the other, "Let us hide lest people see us," and so they hid. Their bodies turned into stone and that is one of the famous things on this plain to this day, the stone body. This is the end of these strange women. When one visits the plain, it will do no harm to glance on the upper side of the road and see them standing on the plain.

Kahalaopuna at Pōhākea Pass (Many accounts)

One of the most popular legends of O`ahu is that of Kahalaopuna (or Kaha) a young woman of Mānoa who is slandered by others and then killed by her betrothed, Kauhi, a chief from Ko`olau. While the numerous accounts (Day 1906:1-11, Fornander 1919 Vol. V:188-193, Kalākaua 1888:511-522, Nakuina 1904:41-45, Patton 1932:41-49, Skinner 1971:220-223, Thrum 1907:118-132, Westervelt 1907a 127-137, Westervelt 1907b 84-93) vary in details they typically have Kahalaopuna slain and revived repeatedly with the aid of a protective owl. Kauhi forces her to hike west from Mānoa

through the uplands until they get to Pōhākea Pass through the southern Wai`anae Range in north Honouliuli. At Pōhākea Pass, Kauhi beats her with a stick until she is very dead (*"Ia hahau ana a Kauhi i ka lā'au, make loa o Kahalaopuna"*). Her spirit (*uhane*) flies up into a *lehua* tree and chants for someone to go notify her parents:

<i>E ha`i aku `oukou ua make o Kahalaopuna;</i>	Go tell them Kahalaopuna is dead
<i>Aia la i ka uka o Pōhākea,</i>	There in the uplands of Pōhākea
<i>i ke kumu lehua la o lalo iho</i>	Beneath a lehua tree

Upon hearing the news her parents fetch Kahalaopuna back to Mānoa and she is restored.

The Strife of Nāmakaokapāo`o and Puali`i (*Ka`ao no Nāmakaokapāo`o*)

In the Legend of Nāmakaokapāo`o (Fornander 1917 Vol. V 274-277), the brave boy, Nāmakaokapāo`o, and his mother, Pokai, appear to have been living near the coast but were quite destitute (*ilihune loa*). His mother met Puali`i when he came from Līhu`e to fish at Honouliuli and the family went to live on the plains of Keahumoa (*ke kula o Keahumoa*). Puali`i kept sweet potato patches (*māla uala*) and fished for *ulua*. Following a dispute over sweet potatoes, Nāmakaokapāo`o defeated his step-father, Puali`i and:

Nāmakaokapāo`o picked up Puali`i's head and threw it towards Waipouli, a cave situated on the beach at Honouliuli (a distance of about five miles)...

Lālau aku la o Nāmakaokapāo`o i ke po`o o Puali`i a kiola aku la i kai o Waipouli, he ana ma kahakai o Honouliuli, o kona loa, `elima mile ka loa

The Naming of Honouliuli (Legend of Lepeamoa)

In the Legend of Lepeamoa, the chicken-girl of Pālama, Honouliuli is the name of the husband of the chiefess Kapālama and grandfather of Lepeamoa (Thrum 1923:164-184). "Her grandfather gave his name, Honouliuli to a land district west of Honolulu..." (Thrum 1923:170). Westervelt (1917:209) gives an almost identical account.

The Story of Kaihuopala`ai Pond, Honouliuli (*Ka`ao no Maikohā*)

In the Legend of Maikohā (Fornander 1917 Vol. V 270-271), a sister of Maikohā (a deified hairy man who became the god of tapa makers) named Kaihuopala`ai, journeys to O`ahu:

Kaihuopala`ai saw a goodly man by the name of Kapapaapuhi who was living at Honouliuli, `Ewa; she fell in love with him and they were united, so Kaihuopala`ai has remained in `Ewa to this day. She was changed into that fishpond in which mullet are kept and fattened, and that fish pond is used for that purpose to this day [1919].

ʻIke aku la o Kaihuopala`ai i ka maikai o Kapapaapuhi, he kāne e noho ana ma Honouliuli ma `Ewa. Moe iho la lāua, a noho iho la o Kaihuopala`ai i laila a hiki i kēia lā. ʻOia kēlā loko kai e ho`opuni ia nei i ka `anae, nona nā i`a he nui loa, a hiki i kēia kākau ana.

The Traveling Mullet of Honouliuli (Fish Stories and Superstitions)

The story of (Ka)Ihuopala`ai is also associated with the tradition of the “`anae-holo” or traveling mullet (Thrum 1907:270-272):

The home of the `anae-holo is at Honouliuli, Pearl Harbor, at a place called Ihuopala`ai. They make periodical journeys around to the opposite side of the island, starting from Pu`uloa and going to windward, passing successively Kumumanu, Kalihi, Kou, Kālia, Waikīkī, Ka`alāwai, and so on, around to the Ko`olau side, ending at Lā`ie, and then returning by the same course to their starting point.(Thrum 1907:271)

In Thrum’s account, Ihupala`ai is a male who possesses a Kū`ula or fish god which supplied the large mullet known as “`Anae”. His sister lived in Lā`ie and there came a time when there were no fish to be had. She sent her husband to visit Ihupala`ai who was kind enough to send the fish following his brother-in-law on his trip back to Lā`ie.

This story is associated with the only proverb or poetical saying identified with Honouliuli:

Ka i`a hali a ka makani
The fish fetched by the wind
(Pukui 1983: # 1330)

Pukui explains “The `anaeholo, a fish that travels from Honouliuli, where it breeds, to Kaipāpa`u on the windward side of O`ahu. It then turns about and returns to its original home. It is driven closer to shore when the wind is strong.” Whether this saying was used in contexts other than in reference to mullet is unclear.

Honouliuli and the Head of Hilo-a-Lakapu (Legend of the Sacred Spear-point)

In the Legend of the Sacred Spear-point (Kalākaua 1888:209-225) is a reference to the Hawai`i Island chief Hilo-a-Lakapu. Following his unsuccessful raid against O`ahu “he was slain at Waimano, and his head was placed upon a pole near Honouliuli for the birds to feed upon”(Kalākaua 1888:224).

The Strife at Honouliuli from which Kūali`i unites Hawai`i nei (Mo`olelo o Kūali`i)

The celebrated chief, Kūali`i, is said to have lead an army of twelve thousand (*ʻekolu mano*) against the chiefs of Ko`olauloa with an army of twelve hundred (*ʻekolu lau*) upon the plains of Keahumoa (Fornander 1917 Vol. IV 364-401). Perhaps because the odds were so skewed the battle was called off and the *ali`i* of Ko`olau ceded (*ha`awi a`e*) the districts of Ko`olauloa, Ko`olaupoko, Waialua and Wai`anae to Kūali`i. When the *ali`i* of Kaua`i heard of this victory at Honouliuli they gave Kaua`i to Kūali`i as well and thus he became possessed of all the islands (*a lilo a`e la nā moku a pau ia Kūali`i mai Hawai`i a Ni`ihau*). The strife at Honouliuli was the occasion of the recitation of a song for Kūali`i by a certain Kapa`ahulani (*Ka Pule Ana a Kapa`ahulani*) which makes passing reference in word play to the blue poi which appeases the hunger of Honouliuli (*Uliuli ka poi e piha nei - o Honouliuli*).

The Vacationing Place of Kākūhihewa (Ke Au Hou)

One historical account of particular interest refers to an *ali`i* residing in Ko`ōlina, an area located south of the project area:

Ko`ōlina is in Waimānalo near the boundary of `Ewa and Wai`anae. This was a vacationing place for chief Kākūhihewa and the priest Napuaikamao was the caretaker of the place. Remember reader, this Ko`ōlina is not situated in the Waimānalo on the Ko`olau side of the island but the Waimānalo in `Ewa. It is a lovely and delightful place and the chief, Kākūhihewa loved this home of his. (*Ke Au Hou* July 13, 1910)

The Last Days of Kahahana and Honouliuli (The Land is the Sea's)

In the tradition of the prophecy of the kahuna Kaopulupulu, Moke Manu (Thrum 1907:203-214) relates that the deposed O`ahu chief Kahahana fled for his life:

Upon the arrival here at O`ahu of Kahekili, Kahahana fled, with his wife Kekuapoi, and friend Alapa`i, and hid in the shrubbery of the hills. They went to Āliamanu, Moanalua, to a place called Kinimakalehua; then moved along to Keanapua`a, and Kepo`okala, at the lochs of Pu`uloa, and from there to upper Waipi`o; thence to Wahiawā, Helemano, and on to Līhu`e; thence they came to Po`ohilo, at Honouliuli, where they first showed themselves to the people and submitted themselves to their care.

Through treachery, Kahahana was induced to leave Po`ohilo, Honouliuli and was killed on the plains of Hō`ae`ae (Thrum 1907:213-214).

Pu`u Kapolei and the Reckoning of the Seasons (Kamakau)

Samuel Kamakau (*Mo`olelo Hawai`i* Vol. I, Chap. 2, p. 23) relates:

...the people of O`ahu reckoned from the time when the sun set over Pu`uokapolei until it set in the hollow of Mahinaona and called this period *Kau* [summer], and when it moved south again from Pu`uokapolei and it grew cold and the time came when young sprouts started, the season was called from their germination (*o`ilo*) the season of *Ho`oilo* [winter, rainy, season].

Honouliuli in the Poetry of Halemano (*Ka`ao no Halemano*)

In the Legend of Halemano (Fornander 1917 Vol. V 252), the romantic O`ahu anti-hero chants a love song with a reference to Honouliuli:

Search is made to the top of Ka`ala, The lower end of Pōka`i is plainly seen. Love looks in from Honouliuli, The dew comes creeping, it is like the wind of Līhu`e...

Huli a`e la Ka`ala kau i luna, Waiho wale kai o Pōka`i, Nānā wale ke aloha i Honouliuli, Kokolo kēhau he makani no Līhu`e..

Winds of Honouliuli (M. Nakuina)

The winds of the region are named by Moses K. Nakuina as follows:

Moa`e-kū is of `Ewaloa
Kēhau is of Waiopua
Waikōloa is of Līhu`e
Kona is of Pu`uokapolei
(Mo`okini and Nākoa, trans. 1992:51)

C. Honouliuli in the Early Post-Contact Period

Although no specific documentation of pre-contact or early historic land use is known for the specific project area in Waimānalo gulch, various Hawaiian legends and early historical accounts indicate that Honouliuli *Ahupua`a*, in which the gulch is located, was once widely inhabited by prehistoric populations. This would be attributable, for the most part, to the plentiful marine resources available at the coast, along which several sites interpreted as permanent habitations and fishing shrines are located. Other attractive subsistence-related features of Honouliuli *Ahupua`a* include the irrigated lowland suitable for wet land taro cultivation (Hammatt and Shideler, 1990), as well as perhaps the lower forest area of the mountain slopes to procure forest goods.

George Vancouver was anchored off of Pearl Harbor in 1793 and noted:

The part of the island opposite to us was low, or rather only moderately elevated, forming a level country between the mountains that compose the east (Ko`olau) and west (Wai`anae) ends of the island. This tract of land was of some extent but did not seem to be populous, nor to possess any great degree of natural fertility; although we were told that at a little distance from the sea, the soil is rich, and all necessaries of life are abundantly produced. (In Handy 1940 Vol. I:82)

Other early historical accounts of the general region typically refer to the more populated areas of the `Ewa District, adjacent to Pearl Harbor, where missions and schools were established and subsistence resources were perceived to be greater. However, the presence of archaeological sites along the barren coral plains and coast of southwest Honouliuli *Ahupua`a*, as well as those identified along the slopes of the Wai`anae Range, indicate that prehistoric and early historic populations also adapted to these less inviting areas, despite the environmental hardships.

Subsequent to western contact in the area after ca. 1790, the landscape of the `Ewa plains and Wai`anae slopes was adversely affected by the removal of the sandalwood forest, and the introduction of domesticated animals and new vegetation species. Domesticated animals including goats, sheep and cattle were brought to the Hawaiian Islands by Vancouver in the early 1790s, and allowed to graze freely about the land for some time after. It is unclear when the domesticated animals were brought to O`ahu; however, L.A. Henke reports the existence of a longhorn ranch in Wai`anae by at least 1840 (in Frierson, 1972:10). During this same period, perhaps as early as 1790, exotic vegetation species were introduced to the area. These typically included vegetation best suited to a terrain disturbed by the dwindling sandalwood forest and erosional effects of animal grazing. The following dates of specific vegetation introduced to Hawai`i are given by R. Smith and outlined by Frierson (1972:10-11):

- 1) "early", c. 1790:
 - Prickly pear cactus, *Opuntia tuna*
 - Haole koa, *Leucaena glauca*
 - Guava, *Psidium guajava*

- 2) 1835-1840
 - Burmuda [sic] grass, *Cynodon dactylon*
 - Wire grass, *Eleusine indica*
 - Lantana, *Lantana camara*

The *kiawe* tree was also introduced during this period, either in 1828 or 1837 (*Ibid.*:11).

Intensive sandalwood harvesting, according to H. St. John (in Frierson, 1972:7) occurred in the islands between 1815 and 1830. As it is likely that sandalwood forests once occupied the lower, dry slopes of the Wai`anae Range, the present study area may have been impacted by the cutting and burning of these forests.

D. Mid to late 19th Century

Associated with the *Māhele* of 1848, 99 individual land claims in the *ahupua`a* of Honouliuli were registered and immediately awarded by King Kamehameha III. The present study area appears to have been included in the largest award (Royal Patent 6071, LCA 11216, *Āpana* 8) granted in Honouliuli *Ahupua`a* to Miriam Ke`ahi-Kuni Kekau`ōnohi on January 1848 (Native Register). Kekau`ōnohi acquired a deed to all unclaimed land within the *ahupua`a*, including a total of 43,250 acres.

Kamaukau relates the following about Kekau`ōnohi as a child:

Kamehameha's granddaughter, Ke-ahi-Kuni Kekau`ōnohi...was also a tabu chiefess in whose presence the other chiefesses had to prostrate and uncover themselves, and Kamehameha would lie face upward while she sat on his chest. (in Hammatt and Shideler, 1990:19-20)

Kekau`ōnohi was one of Liholiho's (Kamehameha II's) wives, and after his death, she lived with her half-brother, Luanu`u Kahala`i`a, who was governor of Kaua`i (*Ibid.*:20). Subsequently, Kekau`ōnohi ran away with Queen Ka`ahumanu's stepson, Keli`i-ahonui, and then became the wife of Chief Levi Ha`alelea. Upon her death on June 2, 1851, all her property was passed on to her husband and his heirs. When Levi Ha`alelea died the property went to his surviving wife, who in turn leased it to James Dowsett and John Meek in 1871 for stock running and grazing.

In 1877 James Campbell purchased most of Honouliuli *Ahupua`a* for a total of \$95,000. He then drove off 32,347 head of cattle belonging to Dowsett, Meek and James Robinson and constructed a fence around the outer boundary of his property (Bordner and Silva, 1983:C-12). By 1881 the Campbell property of Honouliuli prospered as a cattle ranch with "abundant pasturage of various kinds" (Briggs in Haun and Kelly, 1984:45).

In 1889 Campbell leased his property to Benjamin Dillingham, who subsequently formed the Oahu Railway and Land Company in 1890. To attract business to his new railroad system, Dillingham subleased all land below 200-foot elevation to William Castle who in turn sublet the area to the Ewa Plantation Company for sugar cane cultivation (Frierson, 1972:15). Throughout this time and continuing into modern times, cattle ranching continued in the area, and Honouliuli Ranch established by Dillingham was the "fattening" area for the other ranches (*Ibid.*).

Ewa Plantation Co. grew quickly and continued in full operation up into modern times. As a means to generate soil deposition on the coral plain and increase arable land in the lowlands, the Ewa Plantation Co. installed ditches running from the lower slopes of the mountain range to the lowlands and then plowed the slopes vertically just before the rainy season to induce erosion (*Ibid.*:17).

E. Modern Land Use

Battery Arizona

On the southwest ridge above Waimānalo Gulch are the subterranean remnants of Battery Arizona, an ambitious World War II military project. Long before the Japanese bombing of Pearl Harbor in December 1941, the U.S. military had initiated the Oahu Coast Defense Command, a series of coastal artillery batteries designed to assist in the defense of Pearl Harbor and to prevent invasion of O`ahu. By the late 1930s, these batteries were located at installations that included Fort DeRussy, Fort Ruger, Fort Kamehameha, Fort Armstrong, Fort Weaver, and Fort Barrette.

The attack of December 7, 1941 impelled the construction of further defensive armament for portions of the O`ahu coastline not protected by the existing batteries. Even the sunken ships at Pearl Harbor would be enlisted in O`ahu's defense. When, early in 1942, it was discovered that the two rear three-gun turrets of the U.S.S. *Arizona* were salvageable, an ambitious plan to mount them at two land installations on O`ahu was set into motion. The two sites chosen were the tip of Mōkapu Peninsula at Kāne`ohe Bay, designated Battery Pennsylvania, and Kahe Point above the Wai`anae Coast, designated Battery Arizona. The plan also included installation of the four turrets from the sunken U.S.S. *Oklahoma* at Makapu`u Head, Paumalū, Ka`ena Point, and Diamond Head. However, this portion of the plan could not be executed as the *Oklahoma's* turrets were found to be beyond repair.

Construction of Batteries Pennsylvania and Arizona commenced in April 1943. A formidable subterranean complex was contrived to house the turrets at the two sites. According to a U.S. Army Corps of Engineers report prepared in 1946:

The design that was eventually produced consists of a central barbette well of concrete set in rock, having an overall depth of about 60 ft. and an inside diameter of about 24 ft., with three levels below the bottom of the turret connected by stairways. Two tunnels radiate from this well to house projectiles and powder magazines immediately adjacent to the well. Beyond and in line with the projectile magazine is a large power room for three 125 KW generators, all miscellaneous switchgear, air conditioning, and ventilating equipment. In a separate tunnel off the main tunnel in the vicinity of the powder room is a 10,000 gallon emergency watertank to maintain the battery for several days in case of siege. Beyond the power room in a separate leg of the tunnel are the operations rooms. Because during prolonged action it might be necessary for the entire battery personnel to remain in the battery and be self sustaining, these gasproofed and air conditioned operations rooms normally comprised of radio and switchboard, plotting, and radar rooms included latrines for officers and enlisted men, a galley, first aid room, offices, and storerooms.

The salvaged turrets were stored at a facility on Pearl City Peninsula. Refurbishing of the turrets proved to be a formidable task:

An immediate complication arose from the fact that removal of the turrets from the *Arizona* was begun prior to any thought of their reuse; hence, much of the cutting was done rapidly and crudely with no consideration for future reassembly. As a result, the reconstruction frequently was held up by the painstaking realignment and joining of turret segments. Other difficulties arose from the initial damage and subsequent immersion suffered by the armament components. (Kirchner and Lewis, 1967:432)

Records in the archives of the U.S. Army Museum at Ft. DeRussy reveal the months' long search across the Mainland for replacement parts, especially motors, and for parts to adapt the turrets to installation on land. It was finally determined that, because they had been so long under water, every part of the turrets' operating systems had to be repaired or replaced.

Perhaps appropriately for the former battleship armaments, the turrets were transported to their respective battery sites by sea; according to the 1946 Corps of Engineers report:

The heavy section of the turrets comprising three 14-inch guns were moved by barge from Pearl harbor to beaches near the battery sites. Here they were cleaned, painted, and put into condition for installation in the barbette. Special equipment was designed at each site for raising the parts from the ground and lowering to their correct position in the barbette.

Construction of the two batteries continued through all of 1944 and into two-thirds of 1945. Problems--associated with wartime conditions and the unique engineering feat of adapting shipboard weaponry to land installation--dogged the two projects over the many months:

This work involving repair, replacement, or remanufacture of thousands of separate parts placed great demands upon the Army and Navy ordnance facilities and workers. Often, drawings were not available for damaged or missing items, and a particular stage of reconstruction had to be awaited before such parts could be reproduced...In one instance, well over a year was required to procure a single turret turning gear worm and pinion.

...The various problems were further complicated by the sheer mass of the armament and the size of the battery structures...Special heavy equipment...had to be erected at each installation for raising the turret members from the shore and for assembling the armament at the site.

Some segments had to be moved on rollers along specially constructed roads, while the 71-ton gun tubes were lifted by parkbuckles from the beaches to the emplacements high above.

...Site peculiarities placed severe restrictions upon the battery layouts. The fire-control radars, for example, because of their sensitivity to concussion, could not be near the turrets; yet the ideal positions for the radars both technically and topographically were but a few yards away...

During late 1944, the battery construction reached a bottleneck stage when progress depended upon a few highly skilled technicians and the closely timed arrival of a few critical armament components. By Christmas, 1944, the number of personnel that could effectively work at the two installations was limited to about 35 specialists. At this time, Battery Pennsylvania's turret was roughly half assembled, while Battery Arizona was even further behind. (Kirchner and Lewis, 1967:432-433)

The slow pace of construction of the two batteries reflected a diminishing urgency for defense of O`ahu and its military installations. The war front was moving west across the Pacific as successive defeats impelled Japan's retreat. Battery Pennsylvania at Mōkapu Point was near completion in August 1945 when its guns were test fired around the same time of Japan's surrender. Battery Arizona had not been completed by the war's end; its guns, though installed, were never fired.

Neither of the two batteries was ever placed in operation during the post-war years. The batteries had been rendered obsolete "due to the development of air power, new assault techniques and nuclear weapons. The guns were scrapped in 1949..." (Bouthillier 1995: 12).

However, Waimānalo would once again play a role in the O`ahu defense system when, sometime after 1959, the United States Army purchased or exchanged land with the Campbell Estate for the construction of a Nike-Hercules anti-aircraft missile base located at the head of Waimānalo Gulch. The tunnel complex of Battery Arizona within the Landfill property was also used for civil defense circa 1960.

The Waimānalo Gulch Sanitary Landfill

In 1985, the city of Honolulu condemned 81.5 acres of agriculture-zoned land in Waimānalo for use as a landfill to dispose of municipal solid waste and ash from the H-POWER plant to be built at Campbell Industrial Park. Work on the landfill began in 1987. In mid-1988, while construction of the landfill site continued, a trial in Circuit Court was convened to determine the amount the city would have to pay the former owners of the land condemned for the landfill. The Robert Au family claimed the land was worth \$8 million while the city was offering to pay only \$1.06 million. On July 15, 1988 the jury decided the city must pay \$1.3 million (*Honolulu Advertiser*, 7/16/88:A-5).

Subsequently, another trial was scheduled to "determine the fair price for the remaining, *mauka* half of the gulch, which is owned by the Campbell Estate" (*Ibid.*).

F. Summary

The following general considerations are made to place the Waimānalo Gulch area in the context of the Honouliuli *Ahupua`a* cultural landscape. While rich in diverse legends, traditional Hawaiian accounts of Honouliuli focus on a few specific areas. The *ili* of Honouliuli and the related locale of Po`ohilo on the West Loch of Pearl Harbor at the mouth of Honouliuli Gulch is a focus of traditions including those of (Ka)ihuopala`ai which touches on the fish pond and mullet resources. It is to this area that the deposed chief Kahahana flees and is seemingly protected by the populace (he must be tricked into leaving before he can be assassinated).

Another seeming focus of a settled population is Keahumoa (as reported in the accounts of Maui's grandfather and Nāmakaokapā`o), the location of which is not altogether clear. This is understood as a large, gently sloping "plain before reaching the Kipapa Gulch" (Fornander 1919 Vol. V 274 Note 3) which clearly must be in eastern Honouliuli if it is in Honouliuli at all.

The Pu`u Ku`ua area is cited as a residence of *kauwā* and seems to have been an important area in O`ahu's social stratification. The *Ka Loea Kālai`āina* Hawaiian newspaper account quoted at length above suggests this was regarded as something akin to a plantation of the aristocracy for potential human sacrifices.

The Ko`ōlina area - including Kualaka`i near Barber's Point and the Hoaka-lei spring - has positive associations with the accounts of Hi`iaka and Kākuhihewa.

The rest of Honouliuli comes across as a somewhat scary hinterland inhabited by malevolent *mo`o* and supernatural beings. Clearly the Pōhākea Pass area was important for an important trail and shortcut to Wai`anae and for the view to be had there. Both the Hi`iaka and Kahalaopuna accounts associate the pass with danger and sudden death.

We have found no previously documented traditions of Waimānalo (other than those associated with Hi`iaka and Kākuhihewa at Ko`ōlina and Kualaka`i touched on above). It appears that these western gulches such as Awanui, Pālailai, Makaīwa, Waimānalo and Lumaloa were of relatively little import in the context of the *ahupua`a* as a whole. However, Waimānalo may well have been significant for the people of western Honouliuli. The word *mānalo* means "potable, of water that may be drunk", Wai-mānalo means potable water, *mānalo iki kēia wai*, this water is drinkable, but perhaps a little brackish. In a dry land, this area may have been very special.

IV. ARCHAEOLOGICAL RESEARCH AND TRADITIONAL LAND USE

A. Overview of Archaeological Research and Findings in the Vicinity

The earliest attempt to record archaeological remains in Honouliuli *Ahupua`a* was made by Thrum (1906:46). He reports the existence of a *heiau* located on Pu`u Kapolei, southeast of the present study area. According to legend Pu`u Kapolei was the location on which Kamapua`a, the pig-god, resided with his grandmother, Kamaunuahihio (McAllister, 1933:108).

In 1930, J. Gilbert McAllister recorded the locations of many archaeological sites, with most being situated at Pearl Harbor or on the uppermost ridges of the Wai`anae Range. The `Ewa coral plain and Barbers Point area is listed under his site 146. In a general description of site 146 McAllister reports the presence of old stone walls - most being associated with the ranching period around the late 19th century - and suggests that the holes and pits in the coral were used as a shelter or for cultivation by Hawaiian populations (McAllister, 1933:109).

The coral plains of `Ewa have been the focus of more than 50 archaeological studies over the last two decades, largely as the result of required compliance with county, state and federal legislation. The Barber's Point area is one of the most studied places in Polynesia. However, relatively little research has been conducted along the southern slopes of the Wai`anae Range, with the exception of the following studies.

Previous archaeological research conducted in the vicinity of the present project area includes: notes on a house site (Soehren 1964), a survey of the proposed Makaīwa Gulch Landfill site (Bordner, 1977); a survey of the lower portions of the proposed Waimānalo Gulch Landfill site (Bordner and Silva, 1983); intensive survey and test excavations of the West Beach Resort development (Barrera, 1985; Davis and Haun, 1987), a preliminary survey of the proposed `Ewa Town Center/Secondary Urban Center development (Haun, 1986), a petroglyph study (Bath 1989), and an archaeological inventory survey of the proposed Waimānalo Gulch expansion area (Hammatt and Shideler 1999).

On March 14, 1964 Lloyd Soehren of the B. P. Bishop Museum filed the following notes:

Owner: Leeward Oahu Television Network Inc.
Address: 86-015 Farrington Highway, Wai`anae

Reported by Gene Piety (President) - mistook natural ledges & outcrops for artificial terraces - at base of hill, east side Waimānalo Gulch, 100 yards +/- *mauka* highway - two large boulders had been propped up with small stones
In area bulldozed for construction, much shell, some coral found, evidently once a house site.

Artifacts: Cone shell chisel or *niu* grater? Found & kept by Ms. Piety.

Soehren's location map would place this site area near the *makai* portion of the present landfill. The site appears to have been largely destroyed before Soehren got there in 1964.

The West Beach Resort project area encompassed most of the terrain extending southwest from Farrington Highway to the ocean. In the *mauka*-most portion of their project area (to the southeast of the present Waimānalo Gulch project area) one site was identified as a habitation complex with associated petroglyphs (site 50-80-12-2893). This site complex was originally reported by Neller subsequent to Barrera's reconnaissance survey of the West Beach Resort project area and given the site number 50-80-12-2893. In Barrera's survey report (1985) he re-designated the site as 50-80-12-1448. During the intensive survey and test excavations of the West Beach Resort project Davis and Haun once again designated the site with its original number: 50-80-12-2893.

Eight features were identified by Davis and Haun including rock shelters, platforms, midden deposits, and petroglyphs; all of these features were located along the base of a large outcrop ledge above the Farrington Highway. One feature originally identified as a midden deposit at the top of the outcrop ledge by Barrera was not relocated during this latter survey and was believed to have been destroyed due to bulldozing activity in the area (Davis and Haun, 1987:D-14).

Davis and Haun excavated five trenches in various portions of the site complex (*Ibid.*). The estimated age of the site complex ranges from the 15th century through to the early 19th century. Problematical dates from two trenches excavated below and adjacent to the cliff overhang at the center of the largest petroglyph concentration, placed a single cultural component at A.D. 1405-1665 based on charcoal radiocarbon and at A.D. 1700-1803 based on hydration-rind analysis (*Ibid.*:D-16).

No archaeological sites were identified during the Makaīwa Gulch Landfill survey. This project apparently covered most of Makaīwa Gulch from Farrington Highway to approximately the 1000 ft. contour (Bordner, 1970).

The preliminary reconnaissance survey conducted by Haun (1986) covered approximately 200 acres in Makaīwa, bordered to the south by Farrington Highway, to the north by an existing ditch and between the slopes of Pu`u Pālailai and roughly east of an existing water tank (*Ibid.*:3). Only one site - an inactive irrigation ditch once associated with `Ewa Plantation - was identified.

Within Waimānalo Gulch itself, no archaeological sites were identified during the Bordner (1983) survey of the gulch. However, three petroglyph units were found in 1989. Joyce Bath (1989), O`ahu Archaeologist with the State Historic Preservation Division, inspected the site on April 28, 1989 and noted:

There are three units pecked into black lava rock on the west side of the valley. Two are stick figures. The third is more complex; and we do not know what it represents. The pecking is very shallow on all three units.

Mikilani Ho of the Hawaiian Petroglyph Society has been notified. I asked her to have the Society record the petroglyphs and then consult with us. (Bath, 1989)

The petroglyphs were given State site no.50-80-12-4110. The map included in the archaeologist's report shows the three petroglyphs at the 80-ft. elevation in the southwest corner of the present landfill.

During an inventory survey (Hammatt and Shideler 1999), no sites were located within a proposed expansion area of the Waimānalo Gulch Landfill. Two sites lying within the Waimānalo Gulch Sanitary Landfill property, but outside of the proposed expansion project area, were identified. These two sites - a WWII and Civil Defense complex known as "Battery Arizona" (it included a turret of the Arizona Battleship) and a contemporary Hawaiian shrine incorporating "sacred stones" - are briefly described and evaluated. The report of an additional petroglyph site within the Waimānalo Gulch Sanitary Landfill property, but outside of the proposed expansion project area, is also noted.

B. Honouliuli Settlement Pattern and Traditional Land Use

On the basis of archaeological studies, informed by historic records, the following may be concluded.

1. There are three areas of Hawaiian settlement in the *ahupua`a*; two are well-documented and one is problematic:
 - a. the extensive limestone plain with recurrent use habitations for fishermen and gatherers and sometime gardeners;
 - b. the rich cultivated lands of Honouliuli *'ili* for extensive wetland taro and clearly the *ahupua`a* population center;
 - c. the uplands around Pu`uku`ua associated with *kauwā* residence but probably used for agriculture and forest resources.
2. Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley *ahupua`a*, except they are arranged geomorphically in an atypical relationship. The *ahupua`a* is not organized around a single drainage network but shares the west portions of Waikele drainage in its upper reaches. A typical and highly advantageous characteristics for human subsistence is included in a vast coastline and fringing reef, an extensive limestone plain which would support only limited agriculture but would be excellent for bird catching

in early times, and a huge expanse of sloping forest land. The richest forest land for foraging for wood, birds, feathers, etc. would have been the east slope of the Wai`anae Range. The surveys by Bordner (1983) and Hammatt and Shideler (1999) at Waimānalo Gulch indicated no evidence of Hawaiian occupation but the gulch has been impacted in modern times (Bordner, 1983).

3. The *makai* slope was not a major thoroughfare. We can see some very limited evidence of part-time agriculture in and around gulches and two foci of sparse habitation. The first is limited to *makai* portions of gulches and lava flats. This habitation is considered a *mauka* component or continuing of the Ko`Ōlina coastal settlement rather than an independent focus. The second focus, separated from the first by a barren zone, is generally above the 800 foot elevation. This *mauka* habitation which could have been supported by seasonal dryland planting and forest foraging may be the lower portion of a thinly scattered, but widespread zone of settlement which stretches eastward and northeast along the east Wai`anae Range slopes and may increase in intensity along the more watered lands forming the *mauka* western boundary of Honouliuli.
4. There is to date no archaeological evidence of high status residence in Honouliuli. Large residential structures are not present along the Pacific shoreline where they would be expected. The late prehistoric occurrence of chiefs' houses is not apparent, perhaps because the ocean shoreline, although rich in marine resources, is uninviting for sport and unsuitable for fishponds. The chiefly focus of `Ewa District was Waipi`o. Whatever activities of this class occurred in Honouliuli would have been in or near the rich lands fronting West Loch (the `ili of Honouliuli). Concerning status associations with Honouliuli it is interesting to note the connection of the Pu`uku`ua settlement with slaves (*kauwā*), the lowest class of Hawaiians (Sterling and Summers, 1978:33).
5. The focus of population and agriculture within the *ahupua`a* of Honouliuli was the `ili of Honouliuli. There is good reason to assume, given the lack of intensive agricultural resources in other prehistoric times, all other habitation zones were economically and socially co-dependent.

What areas like Waimānalo Gulch potentially had to offer the Hawaiian population within Honouliuli *Ahupua`a* was:

1. habitation in good shelter caves and open air sites defining the *mauka* limit of the coastal settlement zone;
2. localized quantities of adz basalt;

3. limited agricultural potential in the gulches for tree crops and roots; and
4. upland zone settlement with limited agriculture and access to forest resources such as *wiliwili* trees.

V. RESULTS OF THE COMMUNITY CONTACT PROCESS

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the Waimānalo Gulch. This effort was made by letter, e-mail, telephone or in-person contact. In the majority of cases, letters – along with a map of the project area – were mailed with the following text:

In collaboration with Waste Management of Hawai'i and the City & County of Honolulu Department of Environmental Services, Cultural Surveys Hawai'i is conducting a Cultural Impact Assessment for the expansion of approximately 14.9-acre of the Waimānalo Gulch Sanitary Landfill Parcel (TMK 9-2-03:072 & 073) in Honouliuli *Ahupua'a*, 'Ewa District, O'ahu. An overview of the historical and cultural literature background is provided for your convenience.

The purpose of this assessment is to identify any traditional cultural practices associated with the project area, past or present. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

1. General history and present and past land use of the study area.
2. Knowledge of cultural sites which may be impacted by the project – for example, historic sites, archaeological sites, and burials.
3. Knowledge of traditional gathering practices in the study area—both past and on-going.
- 4) Cultural associations with the study area through legends, traditional use or otherwise.
- 5) Referrals of *kūpuna* or anyone else who might be willing to share their general cultural knowledge of the study area.
- 6) Any other cultural concerns the community might have related to cultural practices in the Waimānalo area.

The individuals, organizations, and agencies attempted to be contacted and the results of any consultation are presented in the table below. The five individuals listed who were interviewed for this study were all recommended by others on the contact list as having some personal knowledge – whether through residence, professional association, or cultural association – with the Waimānalo Gulch.

Table 1

Key:

Y=Yes

N=No

A=Attempted (at least 3 attempts were made to contact individual, with no response)

S=Some knowledge of project area

D=Declined to comment

U=Unable to contact, i.e., no phone or forwarding address, phone number unknown

NAME	AFFILIATION	CONTACTED	KNOWLEDGE OF PROJECT AREA	COMMENTS
Aila, William	Wai`anae Harbor Master and Cultural Practitioner	Y	S	Made referral
Aiu, Dr. Pua	Office of Hawaiian Affairs	Y	?	No response
Apo, Peter	O`ahu Island Burial Council	Y	S	Made referral
Auwaie, Emily	Representative District 44	A	?	Left message with her secretary at least 3 times
Awana, Karen	Wai`anae Coast Neighborhood Board No. 24	Y	N	Made referral
Barber, Page	Wai`anae Hawaiian Civic Club	A	?	Left message
Bishop, Elroy	Knowledgeable about Battery Arizona	Y	S	Made referral
Cayan, Coochi	O`ahu Island Burial Council	Y	S	Made referral
Chun, Jonathan	(Former) Chair, Senate Hawaiian Affairs Committee	A	?	Left message

Collins, Sara	O'ahu Archaeologist, SHPD	Y	Y	No archaeological sites in project area
Cope, Aggie	Wai'anae Coast Archaeological Preservation Representative	Y	Y	Left at least 4 messages
Desoto, Frenchy	Wai'anae Coast Archaeological Preservation Representative	Y	S	Made referrals and is concerned about the clean up after the end of the landfill
Desoto, John	Honolulu City Council	Y	S	Made referrals
Diamond, Van Horn	O'ahu Island Burial Council	Y	S	Made referrals
Dudley, M. Kioni	Neighborhood Board No. 34	Y	S	Made referral
Enos, Eric	Cultural Learning Center at Ka'ala	Y	Y	The land has been damaged already, now the focus is on the environmental issue
Figuerola, Luigi	Resident of Kahe Pt Homes	Y	S	Made referral
Gallano, Linda	Hawaiian Studies Teacher,	U	?	No longer with Wai'anae High School
Greenwood, Alice	Kūpuna	Y	Y	Made referral
Guerrero, Malissa	'Ahahui Siwila Hawai'i o Kapolei Hawaiian Civic Club (President)	Y	S	Made referral

Hamakawa, Eric	(Former) Chair, House Committee on Judiciary and Hawaiian affairs	A	?	Left message
Hanabusa, Colleen	Senator (District 21)	A	?	Left at least 3 messages with her secretary
Henderson, Rannie	Local Resident	Y	S	Made referral
Hernandez, Joseph	Waste Management of Hawai'i, Inc.	Y	S	Made referral
Hitzeman, Nani	Historian-Wai'anae Hawaiian Civic Club	U	?	No number available
Ho'ohuli, Black	Cultural Practitioner	Y	Y	Made referral
Ka'eliwai George Jr.	Hawaiian Civic Club of Pu'uloa and 'Ewa	Y	Y	He was fortunate to use the area of Lanikūhōnua for fishing
Kahikina, Michael	Representative (District 43)	Y	Y	Have not got back to us, left at least 3 messages
Kamahele, Momi	Local resident	A	?	Left at least 3 messages
Kamana, Hiram	Hunter/Cultural practitioner	Y	Y	See Section VI
Kamana, Walter	Cultural practitioner	Y	Y	He frequently visits the <i>pohaku</i> in Waimānalo Gulch

Kanahele, Kahu Kamaki	President Nānākuli Hawaiian Homestead Community Association and Cultural practitioner	A	?	Left message
Kane, Shad	Makakilo/Kapolei/Honokai Hale Neighborhood Board	Y	S	Interviewed on 12-6-02
Kanno, Brain	Senator (District 20)	A	?	Left at least 3 message
Kapeliela, Kana'i	Burials Director, SHPD	Y	N	No specific knowledge of area
Keala, Jalna	'Ahahui Siwila Hawai'i o Kapolei Hawaiian Civic Club	Y	N	Made referral
Keamo, Maylene	Wai'anae Ahupua'a Council President	Y	Y	Made referral
Koa Mana Resources	Glen Kila	Y	Y	See Section VI
Lapilio, Kumu Nettie	Wai'anae Coast Coalition	Y	S	Concerned that the area has already been damaged by the landfill, and it took away the medicinal plants, and the gathering resources within the gulch, also made referral
Lindsey, Doreen	Nānāikapono Hawaiian Civic Club	A	?	Left at least 3 messages

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Lloyd, Keola	Campbell Estate	Y	S	Made referral
Markell, Ka'iana	SHPD/Burials Division	Y	S	No specific knowledge of area
Maunakea, Ruby	Nānāikapono Hawaiian Civic Club	Y	Y	She said she would get back to me, I have since then called and left messages
McEldowney, Holly	History and Culture Branch/SHPD	Y	Y	Made referral
Moses, Mark	Representative (District 42)	Y	N	Made referral
Namumnart, Wilma	Department of environmental Services, C & C of Honolulu	Y	S	Made referral
Nunes, Keone	Cultural Practitioner	Y	S	Made referral
Omori, Gary	Consultant for Ko'Ōlina Resort and worked with practitioners at time Waimānalo was proposed.	Y	S	Made referral
Parish, Thelma	Ahahui Sivila Hawai'i O Kapolei Hawaiian Civic Club	Y	N	No specific knowledge of area
Pelekai, Gwendolyn "Pikake"	O'ahu Island Burial Council-Wai'anae Regional Representative	A	?	Left at least 3 messages

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Perkins, Leialoha	Retired Hawaiian Studies Teacher at UH-West O'ahu	Y	S	Made referrals
Resentez, Cynthia	Wai'anae coast Neighborhood Board No. #24	Y	Y	Made referral
Ross, Jane	Local Resident	Y	S	Made referral
Silva, Albert	Wai'anae coast Neighborhood Board No. #24	A	?	Left at least 3 messages
Tiffany, Nettie	O'ahu Island Burial Council/ care-taker of Lanikūhōnua	Y	Y	See Section VI
Timson, Maeda	Neighborhood Board No. #34	Y	S	Made referral
Topolinski, Kumu Kaha'i	Hawaiian Studies Teacher at Mililani High School	Y	S	No specific knowledge of area
Yamamoto, George	Chair, Neighborhood Board No. #34	Y	N	Made referral
Yawata, Shigeru	'Ewa Plantation worker	Y	S	Lived in the Waimānalo camp which is below project area interviewed 11/20/02

VI. SUMMARIES AND EXCERPTS OF KAMA`ĀINA INTERVIEWS

Five *kama`aina* and *kūpuna* with knowledge of the Waimānalo Gulch area were interviewed for this assessment. Two of the interviewees – Shad Kane and Shigeru Yawata – participated in formal interview sessions that were taped and transcribed. Full transcripts of the two interviews are located at the end of this study. The other three interviewees – Nettie Tiffany, Hiram Kamana and Glen Kila– were interviewed in informal “talk story” sessions either in person or by telephone.

Presented below are summaries and excerpts of these interviews. The summaries and excerpts focus on the information in the interviews most pertinent to land uses and traditional cultural practices within Waimānalo Gulch. This information is also incorporated in Section VII CULTURAL PRACTICES WITHIN WAIMĀNALO GULCH below.

Shad Kane

Shad Kane (identified as SK in the interview excerpts below) was interviewed by Cultural Surveys Hawai`i (CSH) in Makakilo on December 6, 2002.

Interview Summary:

Shad Kane was born in Honolulu on February 23rd, 1945 to Hattie and Tazoni Kane. He was raised in the Pearl City Peninsula and currently resides in Makakilo. Now retired from the Honolulu Police Department, he is active as a community leader and volunteer. He is a member of a number of community groups including, The Nature Conservancy and the Ahahui Sivila Hawai`i O Kapolei Hawaiian Civic Club, and the Makakilo/Kapolei/ Honokai Hale Neighborhood Board. Mr. Kane is an avid hiker and an accomplished horseman, who often visits the mountain range above Waimānalo Gulch.

Mr. Kane’s focus of concern was the relationship of Waimānalo Gulch to the traditional Hawaiian view of the *mauka-makai* land relationship. Specific to the portion of Honouliuli *Ahupua`a* that includes Waimānalo Gulch Mr. Kane spoke of the relation between Kalaeloa at the shoreline and an undocumented *heiau* above Waimānalo Gulch at Palehua. Mr. Kane described in detail of the features of the *heiau* (see interview excerpts below) lead him and others to conclude that this is a navigation *heiau*. As such, the *heiau* relates to the history of the settlement of the Hawaiian Islands by voyagers from the South Pacific. He also mentioned that there are natural springs up in this area.

Mr. Kane spoke of a night marchers path to the ocean that follows along the south ridge of Waimānalo Gulch. Many area residents believe that the intersection of this path and Farrington Highway is the scene of unexplained road accidents over the years.

Interview Excerpts:

CSH: We're going to talk about Waimānalo Gulch. What in your opinion is significant about the gulch?

SK: The interesting thing about the O`ahu history is its close ties to Tahiti. Because of the many Tahitian associations with the island of O`ahu. Especially this area, the area we're talking about. After having said that, anytime there's a discussion in regards to the things we're going to talk about, in ancient Hawai`i a lot of things were explained in terms of relationships and that there's many different kinds of relationships. One, the most elementary relationship is the *mauka-makai* relationship. There's relationships between us living today, our relationship with our ancestors. Our relationship with the people, our children who are unborn. Today we don't think about these things but these things were important in ancient history. So, when things were done, when structures were built, or events were played out in ancient culture, it was done with an understanding of these many different relationships.

One of the most elementary relationships in ancient times was the *mauka-makai* relationship. And the reason why I bring this one up is because it plays a very important role in having an understanding of the area surrounding Waimānalo Gulch. It's not to say that it wasn't important elsewhere. It may have been. Or I would say it was important all over, that *mauka-makai* relationship. But what makes this area unique is the fact that we have evidence, we have structures that support that *mauka-makai* relationship. Most places most of these kinds of structures – stone walls, habitation structures, cultural resources – most places they've largely been disturbed or destroyed. But in this respect, this particular *mauka-makai* relationship, there's, I think, sufficient structures that still exist today that you and I can look, see, feel and touch, that supports that *mauka-makai* relationship. And I think if we had a map, if you were to draw a line from the approximate area that many today identify as Ko`Ōlina – If we were to draw a straight line from Ko`Ōlina to Mauna Kapu you'd find that that passes along the northern ridge of Waimānalo Gulch, goes straight up to the ridgeline at Pu`u Manawahua, and follows pretty much a straight line to Mauna Kapu.

There's several events in ancient history that makes this discussion important. One was, with an understanding of the significance of the *mauka-makai* relationship. Some of the information I'm going to share with you, you've probably heard before from other people that you've come to, other informants. And one of this is Waimānalo o Ko`Ōlina was considered one of Kākuhihewa's favorite vacation places. It's a place where he enjoyed coming to and spent a lot of time there. I think he also had a *kahuna* by the name of Napuaikamau who served as caretaker of Ko`Ōlina. Now, he liked this place so much that he placed a *kapu* on it. And that's documented. We know that he did this. He placed a *kapu* on this place. Today we have difficulty understanding this kind of cultural

information. And we've lost the ability to appreciate ancient Hawaiian thought. But the significance of what he did there is that during this period of time, when one places a *kapu* on a shoreline that *kapu* extends out into the ocean and that *kapu* extends up to the tallest mountain in that lineal relationship.

- Oh, it's very interesting, all of a sudden. And you see that if you have that kind of understanding and you go to this place. And you look at these stone structures. It shouts out to you what these are. So these four enclosures, in our opinion - It's not Shad Kane's but a bunch of other people who've sat down and talked about - It's very obvious it was a place of sharing information. What makes it very special and this ties it to Waimānalo Gulch - If you take a look at this map, take a look at this photograph, all these gulches here, you think of this place as a barren region. As a matter of fact, one of the reasons why they chose Waimānalo Gulch is because of water. Right? Today the most obvious thing when I look at this is that there was water here. In order to gouge this thing out, there had to be substantial amount of water. Okay, getting back to the *heiau*, there's many - You read *Sites of O'ahu* or you read a lot of the other stories with respect to this region, you find out there's a lot of stories with respect to water, a lot of stories with respect to springs.

And one of the people that came up was a lady by the name of Mikilani Ho. She's a Hawaiian archaeologist and she has a number of publications out. But she's considered an expert in petroglyphs. So she came up and took a look at it. But she was there to look at petroglyphs. Because our thinking was, this *heiau* is on a trail, *mauka-makai*, so we're looking for petroglyphs to support the trail idea. So she came up there and she came up with something totally different. And when she brought this up, everybody seemed to understand exactly what she said. And when she took a look at this irregular shape wall, she said it was used to contain water. It was not necessarily used to stop it, but it was used to slow it down. But she was saying that was the beginning of a spring. And when you walk through the grass below the spring, this wall, was a riverbed. It's a riverbed that went all the way down and dropped off on the side of the wall that drops down into the valley. Not to say that's the only spring. There may have been hundreds. But what she said is that this *heiau* was built on a series of springs. And we tried to understand - When we first started looking at the amount of effort - It took apparently a lot of effort to build this one structure. We can't imagine people putting in that amount of effort and not having water. So the feeling is that this particular place is built on several springs.

CSH: Can we talk about the trail that goes from here to the ridge?

SK: Okay, a lot of the information that I shared too are things that you can actually find from different resources. And this is one. In ancient times there were several trails that people would take to come from Honolulu to come to this side

of the island. I think there were three ways to get to Wai`anae. One was by way of Kolekole Pass. One was by way of Pōhākea. Another was by way of Pu`u Kapolei. Three trails. Obviously, another one along the shoreline which was the longest way to travel. Farrington Highway is very obviously a trail. Now, in the context of Waimānalo Gulch, what makes this extremely interesting is the fact that there's a series of petroglyphs that was preserved by the developer of Ko`Olina or West Beach Estates. When they first started developing – There were a number of archaeological surveys that were done early on. And one of the key persons was Aki Sinoto. I've read a lot of Aki's work. Very interesting cultural information that he found – that whole area over there. And several other people. The interesting thing is that the first archaeological survey that was done was 1930 by Gilbert MacAllister. Between 1930 up until the '70s nothing was done. So 1970 was the start of all this discussion in regards to building in this whole region. And because of the requirements for the EIS and doing a cultural assessment – All of a sudden, since the 1970s until now, and the development of the Campbell Industrial Park and Kapolei and the resort area, we had all these archaeological surveys that came up. So Aki Sinoto is one of them, amongst others. But one of the things they discovered is the fact, in addition to all the information in the lower plains, in addition to the sinkholes and the bird bones, they also found what I think they refer to as the alluvial level or the higher elevation up above the coral plains. And what they found, they found habitation structures, they found burials, and some petroglyphs. I think they actually found two. I think they found one that's actually inside Waimānalo Gulch, up on the higher ridge. I've never seen it. Another one they found that was preserved at the entrance to Ko`Olina. Now the interesting thing about petroglyphs is that most of them are built identifying trails. And you find them along ancient trails. And the significance of these particular petroglyphs here is that it actually defines the intersection of two trails – Farrington Highway and the *mauka-makai* trail. That *mauka-makai* trail is supported by everything else that I've shared with you in respect to the cultural sites up above. We need to understand the significance of that *mauka-makai* relationship because that was one of the relationships in ancient times.

Shigeru Yawata

Shigeru Yawata (identified as SY in the interview excerpts below) was interviewed by Cultural Surveys Hawai'i (CSH) in Mililani on November 20, 2002.

Interview Summary:

Shigeru Yawata was born at home in the `Ewa Plantation by a midwife on November 7, 1909 to Kumakichi and Shige Yawata both of whom had come from Japan to work on the plantation. Mr. Yawata grew up in the `Ewa Plantation in the Waimānalo Village which is south of project area. As he grew up he followed in his

fathers footsteps and worked for the `Ewa Plantation, living in Tenney Village until he retired. He currently resides in Mililani and is an active member of the Lions Club.

Mr. Yawata spoke of his memories of the area while he lived in the Waimānalo Village from 1927-1937 . Mr. Yawata said that he hunted goat and pig inside Waimānalo Gulch during this period. At that time he never saw other people going into the gulch for any traditional gathering or other cultural practices. He does not recall seeing any significant cultural sites in the gulch. He remembers the gulch as a very dry area. But he also recalls seeing *Kiawe* and *kukui* nut trees. Mr. Yawata also spoke of the *makai* land of Waimānalo Gulch at the beach near Lanikūhōnua where he would dig in the sand and sometimes uncover freshwater springs.

Interview Excerpts:

CSH: What year was it when you moved to Waimānalo Village with your parents?

SY: 1927. We came back in '37.

CSH: And then you guys lived in Waimānalo Village—

SY: Ten years.

CSH: Ten years. Let's talk about Waimānalo Village, now. Tell me about your life in Waimānalo Village.

SY: Well, I had no special job except that I was using a T-Ford to commute from `Ewa to Waimānalo Village. But then, there was some children around there so, after I work I used to bring them home.

CSH: What did you do in the `Ewa— What did you do for work?

SY: I was working Plantation already.

CSH: In the `Ewa part.

SY: Agriculture Office.

CSH: Agriculture Office.

SY: I even had couple kids from further down Waimānalo Village, we used to call it G-2, Gilbert 2 number two.

CSH: Is that where the OR&L workers lived?

SY: Huh?

CSH: Is the Gilbert where the Oahu Railway people used to live?

SY: Yeah.

CSH: Did you ever go for fun, go up to the Waimānalo Gulch?

SY: No, never did. Except for—I went with, goat hunting with the two supervisors living there.

CSH: Gotan?

SY: Goat hunting.

CSH: Oh, go hunting okay.

SY: I never saw one.

CSH: You never seen one pig?

SY: No one goes there.

CSH: No one goes there?

SY: Well that day, I didn't see any.

CSH: So you went with the two managers?

SY: I went with the two Caucasians. Not Caucasians, but— One was a German and one was a Portugese.

CSH: Oh yeah? And did you guys use gun?

SY: They had gun, yeah.

CSH: And what about dogs?

SY: I had no gun. I no like guns.

CSH: Can you tell me what you remember when you went hunting? Do you remember that day?

SY: No—just that it didn't have anything—not even water.

CSH: Huh?

SY: Not even drinking water.

CSH: Up in the mountain?

SY: Never have nothing. Just went that's all.

CSH: Did you see any streams?

SY: No, up there is a dry mountain.

CSH: What kind of trees do you remember up there?

SY: Oh. Nothing but—well, in the beginning its all mostly *Kiawe*, and then you start seeing some *Kukui* nut trees—

CSH: Was there a trail to go up there?

SY: Uhh, there was *koa* so—was not too bushy up there. You can tell the gulch along there because the *Kiawe* bushes, yeah. Trees. They used to chew the bark.

CSH: You saw plenty markings—on the trees?

SY: Yeah.

CSH: So, had pig but you guys just didn't see the pig?

SY: Yeah. We saw bark that they used to chew on.

CSH: The bark, yeah, yeah. And scratch?

SY: Maybe, no. We took the dog up there. We find out that the dog was making a sound because he smelled a carcass of a goat .

CSH: Goat? Oh, dead goat?

SY: Dead goat, yeah. So it smelled like the carcass, the skin, yeah. That was the only thing I remember. Then by that time, you get thirsty already, let's go home.

CSH: So you didn't run into any other bones?

SY: No. Nothing else.

CSH: Any spooky stuff up there happen?

SY: No.

CSH: Nothing.

SY: Yeah. We didn't even see goats.

CSH: No goats [laughing].

CSH: Do you know if anybody else used to go up there a lot and hunt, your friends, or—?

SY: But, they're all gone. They used to go hunting, pig hunting, goat hunting.

CSH: Up there?

SY: But, they're all gone already.

CSH: But people used to go?

SY: Yeah, they used to go. I used to hear—

CSH: Stories?

CSH: Yeah. And then can you talk about when you used to dig in the sand?

SY: Yeah. We used to make holes, and I think even until today the mountain side, the pond side, we used to dig over there and see the water coming down from the land. It could be irrigation water, I don't know.

CSH: Or natural spring—irrigation or natural spring.

SY: Maybe. But I sure would like to go over there once more and dig around with the hoe.

CSH: So you used to dig and then you used to hit fresh water.

SY: You could see the water coming down.

CSH: Did you guys ever drink the water?

SY: No.

SY: And when you think about going up into the mountain, it's not just a days work you know—its like Boy Scout. A friend of mine and I went hike up there— oh boy!

CSH: Boy Scouts? You guys went up to the gulch?

SY: Mountain.

CSH: Waimānalo Gulch?

SY: No, mountain, yeah.

CSH: And what did you guys do?

SY: Well, just report that to the scout master.

CSH: Wow. You don't remember any big stones on your hike?

SY: Oh, up there you find any kind stone—big stones.

CSH: Up there?

SY: Yeah, but more up.

CSH: More up?

SY: Yeah.

CSH: What else?

SY: I remember we had to wait until we saw that place—mango trees, avocado, *poha* and all those things. I think someone must have been living there, you know.

Nettie Tiffany

Nettie Tiffany was informally interviewed by Cultural Surveys Hawai'i at Lanikūhōnua on December 7, 2002.

Interview Summary:

Nettie Tiffany is employed by Campbell Estate and is the supervisor at Lanikūhōnua, which is a cultural institute. She is known amongst the community as a *kahu*. She also serves on the O'ahu Island Burial Council. A *kahu* is someone who takes care of the *ʻaina*, the land, of the past, the present, and the future. Her mother was Leilani Fernandez who grew up in Nānākuli and was very familiar with the Wai'anae and 'Ewa areas. Mrs. Fernandez also spent many years out at Lanikūhōnua when Mrs. Alice Kamokila Campbell was living. Mrs. Tiffany also shared her memories about the bird catchers in the Waimānalo Gulch and cultural site that is undocumented up above the Waimānalo Gulch.

Hiram Kamana

Hiram Kamana was informally interviewed on the telephone on December 5th and 10th, 2002.

Interview Summary:

Hiram Kamana is a local resident of Nānākuli born in the year of 1938. He was employed by the Hawaiian Meat Company, which gave him the opportunity to work the land up above the Waimānalo Gulch which extends towards Makakilo. He was and still is an avid hunter who would hunt up in the valleys of this area for goat and pig. He also spoke about the traditional gathering of medicinal plants and practices.

Glen Makauali'i Kila

Glen Kila was informally interviewed at Kamaile Elementary School in Wai`anae on December 26, 2002

Interview Summary:

Glen Kila is a long-time resident of the Wai`anae area and descendant of the Haulele `Ohana which is from Waimānalo `Ewa. He is involved in a Hawaiian group called Koa Mana a Hawaiian organization, and is also the vice principal of Kamaile Elementary School.

Mr. Kila spoke about Chief Kākūhihewa, noting that `ili of Waimānalo was the chief's favorite place to visit. The ocean *makai* of Waimānalo was famous for surfing. Also, local traditions tell of residents taking care of the *manō* (shark). He mentioned the importance of the springs up in Waimānalo Gulch and how his `Ohana drank the springs' water and used it for religious purposes.

His main concerns about the Waimānalo Gulch are: how leaching from the landfill may affect the ocean, fish- such as the `anae, *uhu*, the *manō*- and the *limu*; and the possibility of burials in the area. He noted that the re-interment of burials removed from Ko Ōlina are higher up in the valley.

VII. CULTURAL PRACTICES WITHIN WAIMĀNALO GULCH

This project seeks to assess traditional cultural practices within a very specific 14.9-acre linear area on the northeast margin of the existing Waimānalo Gulch Sanitary Landfill. No traditional cultural practices absolutely specific to this area were identified whatsoever. The assessment work undertaken did, however, identify traditions and practices for Waimānalo Gulch and vicinity as a whole. While people of other ethnicities may participate or have participated in these traditions and practices, they are understood to relate fundamentally to traditional Hawaiian beliefs and practices. No traditions and practices relating to any other ethnic group were documented in the course of our work and no traditions and practices relating specifically to any other ethnic group are believed to be practiced in Waimānalo Gulch. The identified Hawaiian traditions and practices relating to Waimānalo Gulch are summarized below.

A. Traditional Hawaiian Beliefs

A number of informants spoke of beliefs associated with Waimānalo Gulch. While these beliefs and traditions may be somewhat interrelated, they are discussed below in terms of conceptions of the presence of spirits (*uhane*), traditions of "Night Marchers" (*huaka'i pō*), a legend of a slain girl, a legend of two giants, accounts of strange incidents, and a tradition of owl ancestor gods (*aumakua*).

Association with Spirits (*Uhane*)

Several informants (5) familiar with the area mentioned that Waimānalo Gulch is associated with *uhane* (souls, spirits, ghosts). In *Nānā i Ke Kumu*, a source book on Hawaiian cultural practices, concepts and beliefs, the concept is introduced as follows:

Says Mary Kawena Pukui of certain of her ancestral beliefs, "Some things are *e'epa*. Unexplainable." Accept that, and it becomes easier to know about *uhane*. For in Hawai'i's religious mystic tenets, *uhane* was:

The animating force which, present in the body, distinguished the quick from the dead. And so *uhane* can be called "spirit."

The vital spark, that departed from the flesh, lived on through eternity, rewarded for virtue or punished for transgressions in life. Thus *uhane* is "spirit" in the immortal sense, and the "soul" of Christian concept.

Or, as immortal spirit or soul, the *uhane* might return to visit the living and so be termed a "ghost". (Pukui *et al.* Vol. I, 1972:193)

The presence of *uhane* at Honouliuli's Waimānalo Gulch was mentioned by Black Ho'ohuli, who is a cultural practitioner and Nānākuli Hawaiian Homestead

resource person; Gary Omori, who was the consultant for Ko`Ōlina Resort at the time the Waimānalo Gulch landfill was proposed; Maylene Keamo, who is the Wai`anae Ahupua`a Council President; and by Alice Greenwood a *kūpuna* in the Wai`anae area.

Often the perception seems to be more a matter of the informant feeling the presence of the *uhane* in the area rather than knowledge of transmitted lore. Mrs. Keamo also talked about the wandering spirits.

These conceptions of wandering (*auana*) spirits appear to have been particularly associated with desolate places in `Ewa District. Samuel Kamakau (*Mo`olelo Hawai`i*, Vol. II, Chap. 12, p 23) associates them with the plain of Kama`oma`o, the rough country of Kaupe`a and Leilono - all in `Ewa District. The conception often was that these wandering souls were friendless and wandered in desolate places like the plain of Kaupe`a catching night moths (*pulelehua*) and spiders (*nanana*) for food (*Ke Au Hou*, July 12, 1911; *Ka Po`e Kahiko* 1964:49).

Association with Night Marchers (*Huaka`i Pō* or *Oi`o*)

There are traditional Hawaiian beliefs regarding the presence of what are popularly known as "Night Marchers" (*huaka`i pō* or *oi`o*) in the vicinity. According to Hawaiian tradition, the Night Marchers are the souls of those who have passed on. An *ōlelo no`eau* (proverb) makes reference to this tradition: "*He pō Kāne kēia, he mā`au nei nā `e`epa o ka pō*. This is the night of Kāne, for supernatural beings are wandering about in the night" (Pukui 1983:98; O.N. #908). Typically, the belief is that following the lunar calendar, on certain nights (the nights of the gods - Kū, Akua, Lono, Kāne and Kāloa) a procession of ghosts can be seen and heard as they travel to familiar places they once frequented while here on this Earth. "They used to march and play games practically on the same ground as in life. Hence each island and each district had its own parade and playground along which the dead would march and at which they would assemble" (Beckwith 1970:200). Sometimes, the sound of drums and chanting, the sounds of laughter and talking are reported as heard, their *kukui* torches are reported as seen. It is commonly asserted that the *huaka`i pō* usually takes place after the sun sets and ends before dawn breaks. The path usually follows a particular route, sometimes connected to a *heiau*, a fishpond, or other specific cultural site. Most often, the path or route of the night marchers travels *ma uka* to *ma kai* after the sun sets and returns from *ma kai* to *ma uka* before dawn. Another cultural belief which is part of the night marcher tradition is that, when encountered, one should stay out of their path and one should never look directly at them as they pass by. To do so will bring harm and/or death to the onlooker. To save oneself, one might also call out to an ancestor or *aumakua* in the hopes that he/she will recognize you as *ohana* (a relative) and spare your life. For some, the tradition may also include prostration and removal of clothing as a sign of respect and a means to pacify the night marchers.

Mrs. Nettie Armitage-Lapilio related a tradition that at certain times of the year night marchers would come down from the uplands to the vicinity of Kamokila Campbell's place on the coast (Lanikūhōnua). The procession route indicated was on the south ridge of Waimānalo Gulch.

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Mrs. Nettie Tiffany expressed her childhood memories about what her aunty called the Bird Catchers. They would come down from the Waimānalo Gulch through a trail that was marked by a large *pohaku*, they would come down from the gulch to take a bath in the waters near Lanikūhōnua. This is where the fresh water meet the salt water.

Legend of the Slain Girl

These *uhane* may be explained by a few legends concerning the Waimānalo Gulch. Mr. Omori tells about one legend of two lovers: the girl is hunted down and killed in the Waimānalo Gulch. People say that the girl's spirit lingers in this gulch and an image of a white lady appears at times and strange things happen in the area; for example, unexplained car accidents happen on Farrington Highway.

This account has strong similarities to the famous legend of Kahalaopuna, the young woman of Mānoa who is murdered repeatedly (she revives repeatedly) by Kauhi, her jealous lover from Ko'olau. Enraged at accounts of her sleeping with various lovers, Kauhi leads Kahalaopuna through the uplands of south O'ahu traveling west from Mānoa Valley (with Kahala being slain repeatedly). While the many accounts differ in detail a common setting for the last of the beatings is Pōhākea Pass in Honouliuli. After being put to death, her *uhane* flies up into an *ohia lehua* tree and calls out to travelers passing along the road asking them to inform her parents of her death. An interesting aspect of the story is:

kū iho lā ka huakai e ho'olohe, i kēia leo, The travelers stood and listened, to this voice
he kanaka paha, he makani paha, Was it a person or perhaps the wind
he uwī lā'au paha. Or the rubbing together of trees.
(Fornander 1919: Vol. V 192-193)

The travelers are at first uncertain but when she cries a second time they know it is a spirit that has died (*Elua oli ana o Kahalaopuna, maopopo ia lākou, he uhane ua make*).

While it is certainly possible that Mr. Omori's account is unrelated, similarities include: a woman who is slain by her lover in the uplands of Honouliuli, that the slain woman's spirit lingers in the vicinity of her death, and that the spirit causes unexpected events to travelers. The nature of the legend of Kahalaopuna, with events happening in many different places, lends itself to becoming incorporated in other settings - particularly desolate areas in which the sound of the wind or creaking trees might sound like a human voice.

Legend of Two Giants

Another legend told by Mrs. Greenwood tells of two giants who live in the Waimānalo Gulch, it is said that when one opens his eyes' that means the giant will

take someone's life. There is concern that these legends may be connected with unexplained car accidents that have occurred on Farrington Highway in front of the gulch. Few details of this legend were provided.

No closely parallel traditions are known in the area although there are several accounts indicating giants in the vicinity. The Hawaiian gods Kāne and Kanaloa, who are sometimes understood to have the capacity of supernatural size, are associated with the area of Piliokahe where stones they hurled from red hill landed (Simeon Nawa`a, 1954 in Sterling and Summers 1978:1). Simeon Nawa`a gives another account of Piliokahe associating two hills with a male and a female - seemingly of fabulous size. The demi-god Maui is much associated with the southern Wai`anae area (particularly Lualualei) and is often thought of as a giant in his superhuman efforts to snare the sun, etc.

Accounts of Strange Incidents

Gary Omori and Jane Ross mentioned that during the construction of the Waimānalo Gulch Landfill there were strange incidents that happened. *Pōhaku* (boulders) that needed to be moved would not move and backhoe machines attempting to move certain boulders would mysteriously break down, and certain equipment would turn on and off all by itself. One of these *pōhaku* was given the name "Pueo Rock".

According to a newspaper article by Bob Krauss:

"We've been having funny things happen," said one of the men on the site. "Unnatural things. In one case, a man was standing on a flat rock and the thing threw him over. All of a sudden, it just flipped over."

Another time a backhoe was knocking down kiawe trees. The trees have shallow roots systems so they usually just fall down. But one of the trees jumped up and did a somersault...

Then there was the payloader filling in a huge hole where a \$17,000 fiberglass fuel tank had been placed. The story is that the driver put his machine in reverse but it jumped forward and leaped into the hole, smashing the tank. (*Honolulu Advertiser*, 6/20/88:A-1,A-4)

Other incidents reported to Krauss were a truck that had flipped over, tools that had vanished, and a huge stone that had disappeared. The workers called in

a woman recommended for lifting curses and banishing evil spirits. She said the trouble was caused by a certain stone, the "chief of the valley," which was lying on its side.

The men quickly set the stone upright. But they got it upside down. Things went from bad to worse. The woman came out again and recommended they place the stone on the hill where it will not be covered by rubbish when the landfill opens. (*Ibid.*)

According to Krauss, in April 1988, the stone was moved to a "nest of boulders so that it faces east", at the "end of a Hawaiian Electric Co. Road to one of its relay stations on top of [a] hill." This site lies close to the Battery Arizona bunkers in the south west portion of the landfill property.

Gary Omori gives the following account in Nana Veary's book "*Change We Must*":

The city inspector involved in turning Waimānalo Gulch into a dump called me to ask for Nana's help. At a site which had once been a heiau dedicated to an owl, strange incidents had been occurring. Workers suffered from unusual pains; new equipment kept breaking down without apparent cause; freak accidents happened so frequently that men began to refuse to work in the area.

Before dawn one morning, I took Nana to the site to make an offering of fruits. As we walked, suddenly she stopped in front of a rock and said, "Who's this?" She said, "This is the rock." She turned and told the people, "You should not be here. You have entered an area which is sacred."

She prayed and started to cry, apparently feeling the abuse the land had suffered. The engineers wanted to move the rock so they could continue the project, but Nana declared that the rock was not ready to be moved. The inspector started to walk back to his car when the engine started by itself. Shocked, he said, "How I going turn the engine off when I get my keys in my hand?" Nana blessed him and another worker with salt water, and we left.

Some time passed, and incidents continued. Two huge birds would fly over and dive down, seemingly attacking workers. Serious, even fatal, car accidents occurred on the road near the site.

Finally we went back to move the rock. The men could not lift it. Prior to this, four men could carry the rock, but now they had to set up planks and reverse a truck into the rock. Nana relocated the rock to the top of a hill overlooking the coast, blessed it, and made an offering. After this the strange events stopped.

Shad Kane, in the interview with Cultural Surveys Hawai'i, also discussed strange incidents in the area:

These are the places that these kinds of things happen. To make it more real for you, in the context of what we're talking about here, I just retired from the police department a couple of years ago. So I've read all the police reports. That was my job – reading all these kinds of police reports. More than anyplace else on the island of O`ahu, the police reports over here were the accidents. We had so many unexplained accidents right along this intersection, passing through Kaupea, where we can't explain why the guy decided to make a ninety degree turn – No alcohol, the guy's okay, not a wacko, an average citizen, he just decides to make a right turn and drive off and hit the telephone and kill himself. So many.

`Aumakua Pueo of Waimānalo

Mr. Omori and William Aila also mention the *Pueo* in the area and noted that this was the *`aumakua* of the *`ohana* in the area. In *Nānā i Ke Kumu* (Vol. I, 1972:35), a source book on Hawaiian cultural practices, concepts and beliefs, the concept of *`aumakua* (plural *`aumākua*) is introduced as: "ancestor gods; the god spirits of those who were in life forebears of those now living; spiritual ancestors." *`Aumākua* fall into the English category of totems and were typically animal or plant species. *`Aumākua* could be inherited bilaterally, from both one's father's and one's mothers kin groups (*`ohana*). Each individual had the opportunity to retain multiple *`aumākua* or to privilege one. Part of Hawaiian scholar Mary Kawena Pukui's childhood education was to memorize the names of fifty of her family *`aumākua* (*Nānā i Ke Kumu* Vol. I, 1972:356).

Andrew Berger begins his discussion of the native owl (*Pueo*, *Asio flammeus sandwichensis*) by noting:

Throughout the world and throughout the ages, owls have been regarded with fear and superstition, often as birds of ill omen, and by some as deities to be worshiped. The *Pueo* is no exception, and it was worshiped by native Hawaiians.

The Hawaii Audubon Society (1993:51) notes that *Pueo* are "most often seen hunting in grasslands." The Waimānalo Gulch area would appear to be typical habitat for *Pueo*. It would be surprising if *Pueo* were not *`aumākua* for Hawaiian families living near open grassland areas.

B. Burials

The Archaeological Inventory Survey report (Hammatt and Shideler 1999) and prior archaeological studies (Soehren 1964, Bordner and Silva 1983, Bath 1989)

identify no burials or burial concerns within the project area or all of Waimānalo Gulch. No burials are believed to exist within the project area. No informants indicated concerns on this point.

C. Trails

John Papa 'Ī'Ī describes a network of Leeward O'ahu trails which in later historic times encircled and crossed the Wai'anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu'u Kapolei and Waimānalo Gulch to the Wai'anae coast and onward circumscribing the shoreline of O'ahu ('Ī'Ī, 1973:96-98). Following 'Ī'Ī's description, a portion of this trail network would have passed below the southern boundary of the project area, roughly running along the presently existing Farrington Highway (Figure 7).

'Ī'Ī, who was born about 1800, also recounts an incident at Waimānalo that occurred when he was eight or nine years old. While the young 'Ī'Ī was staying at Nānākuli he learned of the burning of the houses in Waimānalo. The overseer in charge of the burning told ['Ī'Ī and his relatives] that it was so ordered by the royal court because the people there had given shelter to the chiefess, Kuwahine, who ran away from her husband Kalanimōkū after associating wrongfully with someone. Kuwahine was the daughter of the Kaikio'ewa who reared Kamehameha III in his infancy. She had run away because she had been beaten for her offense and for other reasons, too, perhaps. She had remained hidden for about four or five days before she was found. Here we see the sadness that befell the people through the fault of the chiefs. The punishment fell on others, though they were not to blame. (*Ibid.*:29)

'Ī'Ī's sad account reveals that the coastal Waimānalo portion of Honouliuli *Ahupua'a* continued to be inhabited during the first portion of the 19th century.

Shad Kane, in the interview with Cultural Surveys Hawai'i, discussed the trail that goes from the base of Waimānalo Gulch to the ridge:

Okay, a lot of the information that I shared too are things that you can actually find from different resources. And this is one. In ancient times there were several trails that people would take to come from Honolulu to come to this side of the island. I think there were three ways to get to Wai'anae. One was by way of Kolekole Pass. One was by way of Pōhākea. Another was by way of Pu'u Kapolei. Three trails. Obviously, another one along the shoreline which was the longest way to travel. Farrington Highway is very obviously a trail. Now, in the context of Waimānalo Gulch, what makes this extremely interesting is the fact that there's a series of petroglyphs that was preserved by the developer of Ko'olina or West Beach Estates.

Now the interesting thing about petroglyphs is that most of them are built identifying trails. And you find them along ancient trails. And the significance of these particular petroglyphs here is that it actually defines the intersection of two trails – Farrington Highway and the *mauka-makai* trail.

D. Native Hunting Practices

No tradition of hunting within the specific project area or the greater Waimānalo Gulch is indicated. Mr. Hiram Kamana related that he used to access *mauka* hunting areas for pigs and goats through Waimānalo Gulch. After the creation of the landfill he would access these hunting areas through Makakilo. At present, a locked gate blocks that access. He perceives access to the uplands for hunting to be difficult at this time.

E. Native Gathering Practices for Plant Resources

Mr. Hiram Kamana indicated that he used to gather “Kī Māmaki” (Māmaki, Māmake; *Pipturus sp.*) in the uplands as part of his pharmacopeia (*lā`au lapa`au*) for a cleansing tea. The bark, fruit and young leaves of the Māmaki were used medicinally (Wagner *et al.* 1990:1307). It is definitely understood that this was picked well *mauka* of the area of the landfill (no Māmaki is understood to grow in the immediate vicinity of the landfill). Mr. Kamana also spoke of gathering Ha`uōwī (also known as Ha`uoi, Oī and Ōwī, *Verbena litoralis*) and Pānini (Prickly Pear cactus, *Pāpipi*; *Opuntia ficus-indica* aka *Opuntia megacantha*). Parts of the Ha`uōwī plant would be soaked in alcohol and the liniment would be used for arthritis. *Verbena litoralis* has been used medicinally as a mash applied to cuts and bruises and also to sprained and fractured areas (Wagner *et al.* 1990:1325). This exotic species is widely naturalized in Hawai`i (first documented in 1837) occurring in dry to wet habitats on all the major islands. The red fruit of the Pānini was used for sore stomachs. This exotic species was probably introduced to Hawai`i prior to 1809 and is naturalized in dry, disturbed habitats on the major islands (Wagner *et al.* 1990:420).

Ms. Nettie Armitage-Lapilio spoke of gathering plants for both medicine and ornament in the uplands. She spoke of gathering Ēkoa (also known as Koa-haole and Lilikoa; *Leucaena leucocephala* aka *Leucaena glauca*) seeds and or seed pods for lei which the `ohana would wear while performing hula and also sell to make extra money. She indicated the seeds/ seed pods were gathered where the landfill is now. This exotic species (first collected on O`ahu in 1837) is very common, often forming the dominant element of the vegetation in low elevation, dry, disturbed habitats of all the major islands (Wagner *et al.* 1990:680).

Ms. Armitage-Lapilio mentioned gathering two species for *lā`au lapa`au*: `Uhaloa (*Waltheria americana*) and Kīnehe (Spanish Needle, *Bidens pilosa*). `Uhaloa

(aka `Ala`ala, Pū loa, Hala uhaloa, Hi`aloa, and Kanakaloha) is an apparently indigenous pan-tropical plant, occurring in dry, often disturbed sites on all the major islands and has been widely used medicinally by the Hawaiians as a painkiller especially for sore throat (Wagner *et al.* 1990:1280). Kīnehe (aka Kī, Kīpipili and Nehe) is a pan-tropical exotic weed widespread in disturbed areas (Wagner *et al.* 1990:279). Pukui and Elbert (1984:141) note for "Kīnehe" that: "The Spanish needle (*Bidens pilosa*) is a lowland weed; young fresh plants are still brewed for tea (*kī*)."

We are confident Māmaki has not grown near the landfill in recent times (it prefers wetter environments found at higher elevations). Ha`uōwī, Pānini, Ēkoa, Uhaloa, and Kīnehe are all quite ubiquitous in similar dry, lowland areas. It is interesting to note in passing that four of the six plant species used (Ha`uōwī, Pānini, Ēkoa, Kīnehe) are exotic species. We perceive no adverse impact on Hawaiian utilization of these species by the proposed landfill expansion action.

Concerns for sacred sites have focused on the "Pueo Stone" which was moved (circa 1988) to a location where it may be preserved. Nana Veary, a respected *kupuna*, relocated the rock. Gary Omori asserts that after the Pueo Stone was moved to safe ground "the strange events stopped."

The tradition of "Night Marchers" (*huaka`i pō*) particularly emphasizes their passage in *makai* regions close to human habitations near Lanikūhonua. Their posited inland route is somewhat vague but appears to be up the southern ridge of Waimānalo Gulch and not in the gulch *per se*.

Mr. Kamana spoke about an issue of access through the gulch to *mauka* hunting areas. It appears that the proposed landfill expansion would not change prevailing conditions of public access. In the past, we have addressed such concerns by: 1) recommending accommodation of public access through the project area on an *ad hoc* basis, 2) pointing out other possible routes of public access, or 3) pointing out that existing laws may preclude hunting in the indicated areas.

Informants have, as expected, provided new stories for Waimānalo Gulch for which we have found no previous written documentation. The association of Waimānalo Gulch with Spirits (*Uhane*), the "Legend of the Slain Girl", the "Legend of Two Giants", the accounts of strange incidents, or the association with Pueo *Aumākua* do not appear at this time to be particularly unique. They are rather perceived more as part of the collective beliefs of the region rather than tightly area specific. We perceive no adverse impact of the proposed action on these traditional Hawaiian beliefs and customs because most of the damage has already occurred due to the present Waimānalo Gulch Sanitary Landfill.

F. Significant Cultural Sites

No significant cultural sites within the project area were reported. We regard the "Pueo Stone", relocated to the northwest ridge of the gulch, as a cultural site but it has been protected through relocation to a safe area by a cultural practitioner.

VIII. SUMMARY AND CONCLUSIONS

The Waimānalo Gulch Sanitary Landfill was established in 1987. The importation of landfill material over the past fifteen years has most likely eliminated any historic properties and plant resources related to Hawaiian cultural practices and beliefs that may have been present within the bounds of the landfill property. Additionally, the presence of the landfill over the last fifteen years has already precluded any traditionally-established access to *mauka* areas through Waimānalo Gulch. There are no records of – and no individuals contacted or interviewed for this study could recall – any contemporary or continuing cultural practices occurring within the 14.9-acre proposed expansion area. Based on these considerations, it is clear that development of the 14.9-acre proposed expansion area – which exists entirely within the bounds of the present landfill property – will have minimal impact upon native Hawaiian cultural resources, beliefs, and practices.

However, many of the individuals contacted or interviewed for this study have expressed serious cultural concerns that extend beyond the confines of the landfill property. These concerns are based on a traditional view of the Hawaiian landscape as a continuum, in which Waimānalo Gulch is perceived in unbroken relationship to lands *mauka* and *makai*, and to the ocean beyond. This relationship is reflected in the traditions about the Waimānalo area mentioned by the contacts and interviewees, and in speculations on sites *mauka* and *makai* of Waimānalo Gulch given by one interviewee. In this view, any future activity within the landfill property will only further distort and diminish the traditional landscape. It is clear that these concerns deserve acknowledgment.

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APPENDIX A: SHAD KANE

Mr. Shad Kane (SK) was interviewed by Cultural Surveys Hawai'i (CSH) at his residence on December 6, 2002

CSH: Today is December 6th, 2002. Can you state your name and where you were born and what year.

SK: The name is Shad Kane and I was born on the island of O`ahu and my birth date is February 23rd, 1945. At that time my parents, Hattie Kane and Tazoni Crowningberg Kane, were living at Pearl City Peninsula. I think my mom gave birth to me at Kapi`olani Maternity Hospital in Honolulu.

CSH: We're going to talk about Waimānalo Gulch. What in your opinion is significant about the gulch?

SK: I think what you need to understand, anytime you have a discussion in regards to Hawaiian culture and trying to get an understanding of some of the things we talk about, their significance and the role that they play, one of the most elementary things you need to understand is that our history is a fragmented history. And it's unique in that sense. Our history is a fragmented one and in order to understand that, you need to understand that the ancient Hawaiian history was an oral one. It was a history that was passed on from generation to generation, from families to families. And so a lot of this information was memorized, almost held by certain individuals, whether it was someone important within that community or whether it's someone within a family structure whose responsibility was to preserve the genealogy of a family. But we need to remember that it was an oral history. When Cook first came there were a lot of people living here. And in a short amount of time, by 1920, I think there were only some 20,000 Hawaiians in the islands. The significance of that, the purpose of that, is that so many people died for different reasons. We know a lot of them simply died from smallpox. That's the situation in this area we're talking about – Waimānalo, Palehua, Kaupea, Ko`olina – this whole area. There were significant numbers of people who lived in this area that died for a number of reasons. The challenges they could not deal with, the western challenges. Plus a lot of them died as a result of invasions from outside islands – Kahekili, Kamehameha. So O`ahu's history is one that's almost totally annihilated.

The interesting thing about the O`ahu history is its close ties to Tahiti. Because of the many Tahitian associations with the island of O`ahu. Especially this area, the area we're talking about. After having said that, anytime there's a discussion in regards to the things we're going to talk about, in ancient Hawai'i a lot of things were explained in terms of relationships and that there's many different kinds of relationships. One, the most elementary relationship is the *mauka-makai* relationship. There's relationships between us living today, our

relationship with our ancestors. Our relationship with the people, our children who are unborn. Today we don't think about these things but these things were important in ancient history. So, when things were done, when structures were built, or events were played out in ancient culture, it was done with an understanding of these many different relationships.

One of the most elementary relationships in ancient times was the *mauka-makai* relationship. And the reason why I bring this one up is because it plays a very important role in having an understanding of the area surrounding Waimānalo Gulch. It's not to say that it wasn't important elsewhere. It may have been. Or I would say it was important all over, that *mauka-makai* relationship. But what makes this area unique is the fact that we have evidence, we have structures that support that *mauka-makai* relationship. Most places most of these kinds of structures – stone walls, habitation structures, cultural resources – most places they've largely been disturbed or destroyed. But in this respect, this particular *mauka-makai* relationship, there's, I think, sufficient structures that still exist today that you and I can look, see, feel and touch, that supports that *mauka-makai* relationship. And I think if we had a map, if you were to draw a line from the approximate area that may today identify as Ko'olina – If we were to draw a straight line from Ko'olina to Mauna Kapu you'd find that that passes along the northern ridge of Waimānalo Gulch, goes straight up to the ridgeline at Pu'u Manawahua, and follows pretty much a straight line to Mauna Kapu.

There's several events in ancient history that makes this discussion important. One was, with an understanding of the significance of the *mauka-makai* relationship. Some of the information I'm going to share with you, you've probably heard before from other people that you've come to, other informants. And one of this is Waimānalo o Ko'olina was considered one of Kākuhihewa's favorite vacation places. It's a place where he enjoyed coming to and spent a lot of time there. I think he also had a *kahuna* by the name of Napuaikamau who served as caretaker of Ko'olina. Now, he liked this place so much that he placed a *kapu* on it. And that's documented. We know that he did this. He placed a *kapu* on this place. Today we have difficulty understanding this kind of cultural information. And we've lost the ability to appreciate ancient Hawaiian thought. But the significance of what he did there is that during this period of time, when one places a *kapu* on a shoreline that *kapu* extends out into the ocean and that *kapu* extends up to the tallest mountain in that lineal relationship.

CSH: The whole *ahupua`a*.

SK: The whole *ahupua`a*, that lineal relationship. So the *kapu* is not one spot. We think of it in terms of this one beach but no, in ancient Hawai'i it was not just the beach. Because the ancient understood that all the things up above and everything out in the ocean, surrounding area, impacts this particular site. So when he placed the *kapu* on it that *kapu* preserves the landscape. So he did

this. Don't hold me to dates but I think Kākuhihewa lived around the 1600s, around that time. So this particular *kapu* is that old. Now the *kapu* extends up to the tallest mountain in that area. The tallest mountain in this lineal relationship is Mauna Kapu. Now there was another documented site that myself and Nature Conservancy and a bunch of other people tried looking for a particular site or small *heiau* that was built on the slopes of Mauna Kapu. It's in Sterling and Summers' *Sites of O'ahu*. I think it's MacAllister's – It's referred to as a *heiau* but it was a small one. I think it was four feet by six feet so it must have been something small, a small little platform. But perhaps they may have had a *koa* on it or a shrine. But the significance of this particular structure is not so much its size but the location that it was built, and when it was built, when it was laid out. This particular *heiau* which is one of the few – and the only one that I know of – I don't know about any other this particular small little platform was built of both basalt and also coral. Which is unusual. Now to most of us today, that will go right by us. But the significance of the coral is the fact that it ties Ko'olina to this place. So what it does, it provides supporting evidence for the idea of the *mauka-makai* relationship in ancient Hawaiian times. Now, this lineal relationship, there's a number of documented sites and there's a whole bunch of undocumented sites within this lineal relationship between Mauna Kapu and Ko'olina. There's one undocumented *heiau* that's maybe a hundred feet by hundred feet. And its walls are probably, if you take into consideration the amount of erosion and the amount of soil that's been deposited within the *heiau*, it's about four feet – the walls sticking up above the surface. So depending on where the cultural layer may be within this structure, we suspect within this whole one hundred by hundred feet, the cultural layer may vary from perhaps just a few inches below the surface to maybe a foot to two feet below. That being the case, the walls and inner walls would be perhaps, it's probably like around five or six feet. So it's a substantial structure that exists today.

The only documented information up here is Mauna Kapu. Now between Mauna Kapu and Pu'u Manawahua there's a whole bunch of undocumented sites. But before we get to that, let me just share the information on this particular structure. It's about a hundred feet by hundred feet. The walls perhaps four to five, maybe six feet. The interesting thing about this particular structure is that it has enclosures on four of the corners. And there's also shrines. That's very obvious, even to someone who doesn't know anything about Hawaiian cultural resources. There's a central stone in this particular structure. The stone is facing almost due north. So, some of the people that I've shown this site to, there's several opinions about it. And the thing about Hawaiian stuff is that I don't think anybody can really say with certainty today what we're looking at. So what we try to do is to share the information. And we try to get each other's opinion in regards to what we may be looking at. And we try to come to some kind of consensus amongst ourselves where we can agree on with respect to what we're looking at. With respect to this particular *heiau* I think most of us agree on it serving two purposes. One, it may have been a navigational *heiau*

because of the central stone. And there seems to be a lineal relationship, the way it's set up, in the rising and the setting sun. Now, in addition to that, that supports the fact that it may have been a navigational *heiau* is the fact that, when we think of all major islands, there's places on the south side that is referred to as a point of departure. For example, on the Big Island, South Point, Ka`u, the shoreline and the rocks. Kaho`olawe. Kealaikahiki Channel. It's all on the south side. So, likewise, this is basically the same kind of location with respect to the other islands, when you compare all the other islands. Now what makes it interesting is the fact, again, is the Tahitian connection with the island of O`ahu. Kūkaniloko is built here, the island of O`ahu. I think Marion Kelly refers to `Ewa as the celebrated land of our ancestors. And other people too make references to `Ewa as the land of the ancestors. And when they use that term ancestors, they refer to our Tahitian ancestors. There's a lot of Tahitian associations, Tahitian stories that's associated with this region. There's also structures associated with this region. I'm just trying to give you some understanding of the connection with this *heiau*, what it may be, and that it may have been a navigational *heiau*. In terms of pointing the way home. There's a number of structures in Kalaeloa, the former Naval Air Station Barber's Point, an area that we know had the ancient name Kanehili. But the interesting thing about all the structures in the former Naval Air Station is the fact that not only is it made entirely out of coral, but when you take a look at some of the structures – For example when you take a look at the habitation structures and you take a look at one particular *heiau*, you find differences in the construction. *Most Hawaiian stone masonry, dry stone masonry, the stones are laid flat and they tend to lock in the corners. Tahitian stone masonry, what they simply do is they take upright stones and they stand them up on the outside and they fill them up. And this particular heiau and some of the structures in Kalaeloa, what you find is an integration of Hawaiian stone masonry and Tahitian stone masonry. So it supports the Tahitian idea that they're associated with this region. There's a number of mo`olelo that ties us to Tahiti. One that really makes it clear is the story about – Kahai is one of the Tahitian chiefs who's credited for bringing the first ulu tree to the island of O`ahu. There's different stories, different places where he may have planted. But nevertheless the stories are real stories. And there's one particular story that refers to – It's a story about Nāmakaokapā`o, who's the son of Kahai. You also need to understand that Kahai is also the son of Mo`ikeha. And Mo`ikeha is the brother of Olopana, who was killed by Kamapua`a. So you got to feel of how everything fits together. So, in this particular story, apparently Nāmakaokapā`o and his father Kahai were somehow separated when he was young, as a boy. And he goes off and he lives his own life. And the story is that Kahai takes his `ahu`ula, his feather cape, and some other items and buries it beneath the ulu tree somewhere in this particular area. And the story is, if Nāmakaokapā`o wanted to know his father, he would need to seek out an ulu tree and look for the father's `ahu`ula. And if he finds it, then he would know who he is. Okay, Kahai's name is – Hawaiians in ancient times, their names were long. So Kahai is also referred to as Ka`ulu o Kahai, the ulu tree of Kahai. If you say that name*

quick enough it almost sounds like Kualaka`i. So Kualaka`i may be a corruption of the word Ka`ulu o Kahai. So Kahai is credited for going to Tahiti or to Samoa and getting that *ulu* tree and coming by way of Tahiti and planting it at a place called Kualaka`i in Barber's Point Naval Air Station, which we know of today as Nimitz Beach. Now the significance of this story is that Nāmakaokapāo`o needs to find out who he is. And the deeper meaning to this is not just Nāmakaokapāo`o to find out who he is, it's for all of us to find out who we are. The story is, he did not go to Tahiti to get the *ulu* tree. He went to Samoa to get the *ulu* tree. Now this story is not unique to just Hawai`i. It's a story you find all over the Pacific. The story may vary a little-bit. But the significance of the *ulu* is the fact that it's viewed as, it's symbolic of rebirth or renewal. That's the significance of this story. The significance of the story is that we may have come from Tahiti but if we go back farther, we came by way of Samoa. I think only recently are we beginning to realize that the migrations of the people into this region came by way of Samoa. There's actually two migrations I think. One from this region and one from further up north.

Getting back to the *heiau*, because of our oral tradition it's so important that our children – If we take ourselves back– three, four hundred years ago – it's so important that our children know where you came from. So we need to know – if you got to go home – where home is. So that's the significance of navigational *heiaus*. This particular *heiau*, like others in our islands, is pointing the way back home. Within this *heiau*, in addition to enclosures of the four corners and the central stone, on one side there's a lot of stones that we feel we're looking at just the top of them. If you look at this particular *heiau*, at least for me and my friends who are close to me and who look at this kind of cultural resources, we try to look through what has been disturbed and look for undisturbed sections of the *heiau*. So, if the cultural layer is about a foot down, and we got a stone that's buried within a major portion of this *heiau*, and it's buried in that cultural layer, the first thing that comes to mind is it was put there. If it's on the surface, our best guess is that it doesn't belong there. It just somehow ended up there. But there's a whole row of stones. And they kind of run *mauka-makai* and they run, as you're standing from the top stone and you're looking *makai* at these stepping stones in the *heiau*, you're looking southwest, that general direction. Not that it may be accurate but in a symbolic term it's important. Because, if in fact these stones were placed there, they were placed there for a reason. Because everything else in this *heiau* is cleared with the exception of the central stone. But, if in fact, the central stone and you got this series of stones on one side, in a row – If it's a navigational *heiau* there would be a map there. So we were searching for a map. And one particular stone, initially we thought had represented the island of O`ahu but it would be an excellent stone to represent all of the islands because of similarities with all the islands. Similarity – Not so much Kaua`i, because Kaua`i is an older island. It's been further eroded. However, when you take a look at O`ahu, Maui, the Big Island

Much of what I'm sharing with you I realize it's hard for you to get a picture of what I'm saying. There's one particular stone that's maybe two and a half feet by two and a half feet. And it's shaped like the island of O`ahu in a sense that what you have, you have two high points in the stone and you got a saddle in the middle. One high point, in our opinion, represents the Ko`olaus. The other high point represents Wai`anae. The saddle represents the central plains of O`ahu. You use the same thinking, the other islands. Maui – West Maui mountains and Haleakala. The central plains representing the center of the island. Same stone can represent the Big Island, representing Mauna Kea, Mauna Loa, Hualalai and the saddle. In a sense it could also be representative of Moloka`i, but perhaps maybe not as clear. Likewise, Kaua`i because Kaua`i has been much more eroded. But our opinion is we're looking at the best representation of the islands, of all the islands. And this if this is a navigational *heiau* a map would be important. Now, when we look at this particular stone, and we're standing on the island of O`ahu and we're looking south, behind us is several stones embedded in the cultural layer. As we're looking at the other stones in the cultural layer, the first thing comes to mind – And every one is interesting, when you look at it. One has a big hole in the center and, in our opinion, it perhaps represents an atoll somewhere south of us. And then there's other stones, in our opinion, represent way finders or voyagers that they used, places to pick up on their travels. In addition to using the stars, these were stops that they would use to find their way around. So, in our opinion, because of all of this – the stones, the central stone, and everything else – we feel this may be a navigational *heiau*. One of the other things that we think that this *heiau* was used for – as a place of sharing information, because of the enclosures, four enclosures on the outside corners. On these enclosures we have four walls, elevated platform with upright stones that's a part of the elevated platform.

CSH: Did you say the walls were four feet high?

SK: The main structure – about a hundred feet by hundred feet – it's almost a perfect square. That particular wall, in some areas right now it's about four feet. But our thinking is that a couple hundred years of erosion – Our thinking is that some of that the walls are buried. So our best guess is that maybe this structure is about four feet from the inside. But the corners is what makes it extremely interesting because in the corners we have enclosures that's built onto the outside corner. And it's a very obvious enclosure. It's not a habitation structure. There's an elevated portion on it. We suspect if were to clean it out we'd probably find smaller stones on the top. There's very obvious shrines and *koas* that's associated with elevated platforms. But one of the other things we feel it may have been used for was a place for passing on information. Whatever that may be. That may simply be somebody sharing navigational information. Or it may be somebody sharing medicinal information. Or it may be somebody sharing religious or genealogical information. Whatever that might be. But it's very obvious that it's a place for sharing important information. Elevated

platform, the *koas*. In our opinion the *koas* obviously serve as a podium. The *koas*, in our opinion, because it's oral history, it's very important that when you speak, you're heard. So you want, the people you're talking to, you want their attention. If you're going to say something, they need to hear what you're saying and they're going to have to remember it because you're not going to say it again. These structures were built in a manner to get one's attention. So, in other words, when that person, whoever he is, who's standing on this elevated platform and speaking, is not speaking alone. He has others with him. He has a *koa*. He has his ancestors and everyone else. People know that in ancient time. We don't understand this kind of thinking today. We're getting lost but our *kūpunas* knew this. So they understand how important it is to remember, how important it is to speak that's what the *Niho Palaoa* is. It gives one the authority to speak. Something so simple yet we don't understand how important it is to speak and be heard. These simple things was so important to our *kūpunas*. So when they built these kinds of places, unless you have that kind of understanding you don't know what you're looking at. If you look at it in scientific terms, it's just a bunch of stones sitting there. And if you can understand the thinking three hundred years ago, all of a sudden the bunch of stones become – Oh, it's very interesting, all of a sudden. And you see that if you have that kind of understanding and you go to this place. And you look at these stone structures. It shouts out to you what these are. So these four enclosures, in our opinion – It's not Shad Kane's but a bunch of other people who've sat down and talked about – It's very obvious it was a place of sharing information. What makes it very special and this ties it to Waimānalo Gulch – If you take a look at this map, take a look at this photograph, all these gulches here, you think of this place as a barren region. As a matter of fact, one of the reasons why they chose Waimānalo Gulch is because of water. Right? Today the most obvious thing when I look at this is that there was water here. In order to gouge this thing out, there had to be substantial amount of water. Okay, getting back to the *heiau*, there's many – You read *Sites of O'ahu* or you read a lot of the other stories with respect to this region, you find out there's a lot of stories with respect to water, a lot of stories with respect to springs. This *heiau* – Two of the *makai* – This structure is kind of – It's not perfect flat. One portion, the *mauka* portion, there's an entrance on the *mauka* portion and there's an entrance on the *makai* portion. The two enclosures on the *makai* portion, they have *ti* leaves growing in them, full-grown *ti* leaves. So we know they've been there for a long time. Another thing about *ti* leaves, the significance of *ti* leaves, is the fact that we know it's difficult to propagate from seeds. So somebody had to stick them in the ground. And we know it wasn't a cowboy. And we know it wasn't anybody recent who did that. So we suspect it had to be one of the *kūpuna* that planted it. Now, on one of them, the one on the Wai'anae side, there's the full-grown *ti* leaf and there's a whole series of boulders on the *makai* side of this enclosure. Now, most people, most of our *kūpunas* in ancient times, when they built structures, from our experience in looking at them, they were basically geometrically shaped. We find them like square, rectangle, or triangle sometimes. They were basically geometrically shaped. In some cases you might

find something that's round. But not very often. Normally square, rectangular kind of stuff. But not very often you're going to find an irregularly shaped one. Amongst those boulders, where this old-grown ti leaf is, there's an irregular-shaped wall. And we've had several people come up and take a look and try to figure out what the heck is this irregular-shaped wall. Because we know they don't generally build something like this. And one of the people that came up was a lady by the name of Mikilani Ho. She's a Hawaiian archaeologist and she has a number of publications out. But she's considered an expert in petroglyphs. So she came up and took a look at it. But she was there to look at petroglyphs. Because our thinking was, this *heiau* is on a trail, *mauka-makai*, so we're looking for petroglyphs to support the trail idea. So she came up there and she came up with something totally different. And when she brought this up, everybody seemed to understand exactly what she said. And when she took a look at this irregular shape wall, she said it was used to contain water. It was not necessarily used to stop it, but it was used to slow it down. But she was saying that was the beginning of a spring. And when you walk through the grass below the spring, this wall, was a riverbed. It's a riverbed that went all the way down and dropped off on the side of the wall that drops down into the valley. Not to say that's the only spring. There may have been hundreds. But what she said is that this *heiau* was built on a series of springs. And we tried to understand – When we first started looking at the amount of effort – It took apparently a lot of effort to build this one structure. We can't imagine people putting in that amount of effort and not having water. So the feeling is that this particular place is built on several springs. On the opposite side, the other enclosure on the Honolulu side, similar situation. Series of boulders, no wall, old-grown ti. But when we started walking through the grass there's a dry riverbed that goes all the way down. Stones all over. On the sides it's dirt but as you come into the lower area depression it's all stones – river-worn stones. So, the feeling is that this particular area was built on water, built on several springs which supports the fact that at one time there might have been a substantial amount of water that actually created Waimānalo Gulch. I've shared a whole lot of information on only one structure. I don't know how much time you have but that's only one. There's some other *heiaus* up there. Now you might be wondering how come it's not documented. We don't know. We don't know why it's been hidden. But what we do know is that it has been hidden for a long time and it's only been recently that it's been found. And it's buried under California grass and weeds for the longest time. There's a whole story on how we found this but that's another whole story, how it was found. Now the big question mark is what happened? Why is this a place that was totally disappeared. And what makes this whole place up above the landfill important is the fact that nowhere else can you find a place in all the islands where you find so much cultural structures that supports that *mauka-makai* relationship. Below this *heiau* there's other enclosures. Marion Kelly referred to one as a *heiau* – two of them she referred to as a *heiau*. They're small. One I would say is about thirty by thirty feet. It's a terraced structure – a lower portion, upper portion. The lower portion is all paved with stones. The upper portion is paved

with small stones, `ili`ili stones. And the lower portion, there's an upright stone that's actually laying on its side but we suspect it may have been standing up at one time. There's another *heiau* further down the valley, directly in line with Waimānalo Gulch that's set up – This particular structure – We got the opinion of *humu hula* John Kaimikaua because John Kaimikaua – He's not too familiar with the O`ahu tradition but he's very familiar with the Moloka`i tradition. So when he speaks, he speaks in terms of what he knows of Moloka`i. But our thinking is that there may have been similarities here. Now, Moloka`i, they have several *hula heiaus* that are still in place up there. And, in any case, the *hula heiau* is built on a slope. It's built on a hill. So there is one *heiau* that's up above Waimānalo Gulch that's built on a slope. And I would say it's about fifty feet long and then it goes into the hillside, because it's a slope. So it has a high wall. In one portion the wall, I would say, is maybe about twelve, fifteen feet, on the slope side. Then the paved portion actually disappears into the hill. We suspect that because of the amount of erosion, we suspect that the paved area may be a little bit bigger. The actual exposed portion of this paved area is maybe about twelve feet. Maybe a little bit more than that. But we suspect it may go further in. The actual length of this particular structure is about forty, fifty feet long. And what makes it interesting is it looks like they gave up building it because we can see a portion of it that they did not finish. So we're actually looking at the inside, not the finished wall. Which makes it interesting because I can't think of anyplace else where you actually have a *heiau* that stopped being built while it was under construction. They decided to stop. Why they stopped, we don't know. But John Kaimikaua's opinion is that this is a *hula heiau* we're looking at. And Marion Kelly said the same thing. Marion Kelly looked at it. She supported that it's a *hula heiau*. Simply because it's on a slope. And both Marion and *humu* said that in ancient times what they used to do, is that so that everybody has an unobstructed view, they go on a hill. And you watch across the hill to watch the performance, whatever the performance might be. So it's that kind of place. That's one. And there's a whole bunch of other structures in this particular area. And anyway, is that enough? This is just supporting information with respect to that *mauka-makai* relationship. And these are structures that are there today, to be seen. I'm sure that in time more people will be able to have a chance to take a look at it.

CSH: Can we talk about the trail that goes from here to the ridge?

SK: Okay, a lot of the information that I shared too are things that you can actually find from different resources. And this is one. In ancient times there were several trails that people would take to come from Honolulu to come to this side of the island. I think there were three ways to get to Wai`anae. One was by way of Kolekole Pass. One was by way of Pohakea. Another was by way of Pu`u Kapolei. Three trails. Obviously, another one along the shoreline which was the longest way to travel. Farrington Highway is very obviously a trail. Now, in the context of Waimānalo Gulch, what makes this extremely interesting is the fact that there's a series of petroglyphs that was preserved by the developer of

Ko'olina or West Beach Estates. When they first started developing -- There were a number of archaeological surveys that were done early on. And one of the key persons was Aki Sinoto. I've read a lot of Aki's work. Very interesting cultural information that he found -- that whole area over there. And several other people. The interesting thing is that the first archaeological survey that was done was 1930 by Gilbert MacAllister. Between 1930 up until the '70s nothing was done. So 1970 was the start of all this discussion in regards to building in this whole region. And because of the requirements for the EIS and doing a cultural assessment -- All of a sudden, since the 1970s until now, and the development of the Campbell Industrial Park and Kapolei and the resort area, we had all these archaeological surveys that came up. So Aki Sinoto is one of them, amongst others. But one of the things they discovered is the fact, in addition to all the information in the lower plains, in addition to the sinkholes and the bird bones, they also found what I think they refer to as the alluvial level or the higher elevation up above the coral plains. And what they found, they found habitation structures, they found burials, and some petroglyphs. I think they actually found two. I think they found one that's actually inside Waimānalo Gulch, up on the higher ridge. I've never seen it. Another one they found that was preserved at the entrance to Ko'olina. Now the interesting thing about petroglyphs is that most of them are built identifying trails. And you find them along ancient trails. And the significance of these particular petroglyphs here is that it actually defines the intersection of two trails -- Farrington Highway and the *mauka-makai* trail. That *mauka-makai* trail is supported by everything else that I've shared with you in respect to the cultural sites up above. We need to understand the significance of that *mauka-makai* relationship because that was one of the relationships in ancient times. In ancient times, it was matter of life-or-death resources. It was food. So it was establishing that relationship between the people up above and the people at the ocean. So these were your closest friends. These were the people -- So you don't have to go dive for fish. You just go down and you take what you got to share. You get fish from people down below. So these were your neighbors. So obviously there would be *mauka-makai* trails all over the islands. The significance of this one is the fact that you have structures that supports that idea, that's still intact today. And the petroglyphs along Farrington Highway is one of those supporting pieces of information.

CSH: We need to document access. So when you guys go up there, which way do you guys go?

SK: In terms of gathering resources today?

CSH: Or to go up to these places up here, up to the *heiau* that are undocumented?

SK: We go through Palehua. That's why I say I've hiked most of it. The only area I haven't hiked was actually the stretch from Farrington Highway up to the Timberline intersection -- of the Palehua and Timberline.

Sometimes when you've seen a lot of different structures, and you have something to compare it to, a lot of time all you need is two or three stones to get an idea of what might have been there, that might still be intact. So a lot of times we just look at the surrounding area. If we find two or three stones that seems to be aligned and then we look downslope and we start seeing stones scattered all over the place down below – And if it looks like a place that may have stopped some erosion or it may have been a place where soil might have come down and then hit an obstruction that caused soil to deposit, then there may be cultural information buried there. But then when you look at a slope, you look at an area, you can tell whether the soil passed over it and went further down. Or may have stopped up against an obstruction. But you can only get a feeling for this by actually walking up and looking around.

CSH: Did night marchers come up in any of the stories?

SK: No. I know a lot of stories associated with that. Especially this area right here. And the significance of this area in terms of night marchers – You want me to share a little bit about that? One of the things we've done and we're still trying to do, we're trying to get support for restoring the ancient Hawaiian names. And I think that's happening all over the place right now. We've been able to restore one name so far. We've been able to change the name of Barber's Point to Kalaeloa. We did that. We changed that. But there's other names we want to change, to restore. There's a lot of them in this area. The significance of ancient names is the fact that – There's a lot of stories, *mo'olelo*, there's a lot of resources, legends, all these stories refer to different places by name. When you read these stories you don't know what they're talking about unless you know where the places are. So the thing is that we do have a history but it's hidden in ancient names. So in order to get people to understand that every area of this island, of all the islands, there are stories and histories of that place. But it's hidden. So one of the names of this region is Kaupea. And there's actually two ways of defining Kaupea. In order to understand the significance of Kaupea is kind of understanding how ancient Hawaiians thought in terms of life, death and sleep. Our *kūpunas*, the ancient Hawaiians, believed that life, death and sleep overlap. The thing is, trying to explain this in western terms is hard because there's no real word to explain it. The words may be confusing so try to see through the words. In ancient Hawaiian there's two energies in all of us. One was defined in terms of the dream spirit. So when you go to sleep, when you dream, our *kūpunas* felt that that dream was something real. In other words, you had actually visited – Your dream spirit would leave your body and travel. And you had an opportunity to visit different people. You may have an opportunity to visit a departed loved one, a grandmother. So if you were a pregnant lady and you woke up in the morning and you had a dream about your grandmother or your great-grandmother and she shared a name with you, you took that seriously. You actually visited her. She's telling you this is what you should name your child. And, likewise, if you were a *kahuna la'au lapa'au* and you dreamt about someone sharing thought with you in regards to using a

particular plant to serve a particular purpose, you took that seriously. That was real to you. Somebody's giving you good information. Now, in order for you to wake up from your sleep, that dream spirit got to come back. Because the other energy within you is the energy that supports all your life functions – your breathing, your heart, your circulation. Without that dream spirit coming back – That simply defines death. You die. So that's why in ancient times when the first sailors came over here, they would come across a family, they would be chanting over the body. What they're doing, they're trying to get the spirit to come back. We refer to it as spirit but it could also be – We could also look at it in terms of one's spirituality. In a Christian sense – I hate comparing Christian with Hawaiian thought but sometimes in order to help some of us today to understand, sometimes we need to do this. But we all as Christians today know that we all got souls. Is this what they're talking about? Now, what they also believe is – Say your dream spirit would not come back and you're basically dead, the ancient Hawaiians felt that if you were respectful of your *`aumakua*, you were respectful of your parents, you were basically a good Hawaiian, you had the benefit of your *`aumakua* to carry you somewhere. Take you to a place that is referred to as Laina Kauhane. Every island has it. On this island, the one that I know of for sure is the *leina* stone of Ka`ena Point *leinaaka`uhane*. The interesting thing about that stone is that it follows the ridge line of the Wai`anae Mountains. If you look at the map and you follow the ridge, the peaks all the way, and you come down Ka`ena Point, right down the slope, you land right on the *leina* stone. Now if you follow that same ridge line back up the mountain range and you come all the way across these mountains over here, you come straight down, you come right down to Kaupea. Pu`u o Kapolei sits right at the bottom of this hill. Kekuapo`i, when she wrote a *kanikau* with her husband Kahahana, one of the things she said in this very lengthy *kanikau*, she said that her husband's spirit entered that milo by way of Pu`u o Kapolei. Us trying to understand what she said, and having talked to a number of different people, she was saying that perhaps Pu`u o Kapolei is a conduit to another world, right in the middle of Kaupea. Okay, so on one end you got the *leina* stone and on the other end you got Pu`u o Kapolei that may have served as a conduit also, surrounded by Kaupea. Now, if you're respectful of your *`aumakua*, you will have the benefit of them taking you to a *leinaaka`uhane* and helping you leap into the next realm, a better place. If however, you were not respectful of your *`aumakua*, you were not a good person, you were a sinful person, you would not have that advantage. So our *kūpuna* felt that in that case you would be banned to barren and deserted places such as an *Aokuewa*. *Aokuewa* is a place of wandering spirits. *Aokuewa* is Kaupea. So, if you did not have the advantage of getting to the next realm, you would be doomed to live at Kaupea right back here. In a Christian sense, you got heaven, hell – You got one more place. The third place is purgatory. Okay, in Christian thought, purgatory is somewhere else. We don't know where but somewhere else. Our *kūpuna* said purgatory is here. Kaupea. Is Kaupea purgatory? So a lot of the stories that's associated with night marchers, most of them are associated with *Aokuewa*. These are the places that these kinds of things happen. To make it more real for

you, in the context of what we're talking about here, I just retired from the police department a couple of years ago. So I've read all the police reports. That was my job – reading all these kinds of police reports. More than anyplace else on the island of O`ahu, the police reports over here were the accidents. We had so many unexplained accidents right along this intersection, passing through Kaupea, where we can't explain why the guy decided to make a ninety degree turn – No alcohol, the guy's okay, not a wacko, an average citizen, he just decides to make a right turn and drive off and hit the telephone pole and kill himself. So many. In addition to that, some of the recent information is that when they first started building the Kapolei Middle School, they spent I don't know how much money – Because the Kapolei Middle School is a high-tech school, it's all air conditioned, and every classroom has computers. So they spent a lot of money on a security alarm system in certain rooms because of the amount of computers, the amount of stuff in there. They got audio, they got video monitors in the rooms. Not just sensors. Not just motion detectors. Not just that. But they also got audio that triggers, and they got video monitors that kick on in certain rooms. When they first opened up they had an incident – one o'clock, two o'clock in the morning – where it's monitored by somebody at the main office in Sand Island. This particular lady was watching this monitor. All of a sudden this red light comes on and she checks and it's an indication that someone is breaking into a room at Kapolei Middle School. She puts on some equipment and then video comes on. And then audio comes on. And she hears kids having a good time in the room. Lot of noise of kids yelling and screaming. And when she puts the video on she sees figures moving around. It's dark in the room but she can see little figures moving around. So she calls the principal. She calls 911. She calls everybody, the custodian. The principal lives in Kailua, drives all the way out there. The custodian gets there. They go in the room. They open the door. Nothing in that room. Everybody's upset. Check with the lady. The lady says "I got the video." They go into town. She switches everything on. Guess what? Nothing. That's typical of these kinds of places. Now, when they first shut down Barber's Point Naval Air Station they had to hire private security guards. And they had a hard time keeping them. Because the security guards – When the Navy moved out, they had a lot of abandoned buildings. The security guards were chasing children around in these abandoned buildings. And then the kids would disappear in the locked room. They go in the room, open them up, nothing. I mean, these guys were so scared, upset about it, that they actually called the police department. Most people, when that happens to you, you just – and don't call the cops. But these guys took it so seriously, that they were certain the kids were there that they called the police department up. Similar stories happened at the water park. The new building they just built, Kapolei Hale, they must have blessed it two or three times already. There are stories about that place – about drawers being left open and stuff like that. But, anyway, these stories that I've shared with you are recent stories that go way back. But they're typical of *Aokuewa's* around the island. That's what Kaupea is.

The next thing about Kaupea. The name Kaupea, if you take it literally, refers to the Southern Cross. One of the constellations that the Polynesian voyagers used in their travels, both north and south, is the Southern Cross. The Southern Cross is a very important constellation. It didn't necessarily tell them what to look for but it told them if they're going in the same general direction. So, in other words, the higher latitude you go, the Southern Cross is lower on the horizon. The farther south you go, the Southern Cross is higher up above you. So it basically tells you whether you're moving in the right direction. If you're going south, then you should see the Southern Cross. It should get higher up in the heavens. So, the ancient Hawaiians, when they did things they lined everything up. Not only did they line up *heiaus*, the *mauka-makai* relationship, the rising sun, the setting sun, structures – They're all connected. And what they also did, the *ahupua`a* lines, the *ili* lines, also had a significance. We suspect – and not just me but I think I talked to Marion Kelly and a bunch of other people – These are things that we lost. Agriculture came in and they started bulldozing they destroyed all the boundary markers and things like that. So we have no idea where Kaupea may have been. But because of the name, because of the name Kaupea, we suspect that it may have been a marker pointing to the Southern Cross. So these are the places that surround Waimānalo Gulch. So I'm talking about this because it's important to us. It's important to us as Hawaiians. And it's important for us to have a sense of direction in our lives. And it's important to us in terms of connecting with our *kupunas* and being able to share this information with our children. It's not about us. It's not about you and me. It's about everybody after us.

CSH: Thank you.

APPENDIX B: SHIGERU YAWATA

Mr. Shigeru Yawata (SY) was interviewed by Cultural Surveys Hawai'i at his Mililani residence on November 20, 2002.

CSH: Can you state your full name?

SY: Shigeru Yawata.

CSH: And the year you were born.

SY: Actually, I was born November 7, 1909.

CSH: So you are ninety-three, yeah?

SY: I am ninety-three, yeah! I just made my birthday last week.

CSH: Oh yeah! Happy Birthday!

SY: Just before I went to Vegas.

CSH: Oh yeah! And you were born where? Where were you born?

SY: `Ewa. `Ewa Plantation!

CSH: `Ewa Plantation. In the hospital?

SY: No, at home by a midwife.

CSH: Oh.

SY: And in those days, my parents were so poor that all they had in mind was to save a little money to go back to Japan again. So, they didn't bother to register me in the City and County or State registration, yeah. And then, the Japanese temple was near by our house, so the priest happened to see her and heard about me being born. He said, if and when your son grows, the future good—He told her, by all means you better register. If and when your son grow up and want to apply for a job in the Civil Service, if your son is not registered he will never get a job. So, that kind of shook her up, and I was registered about nine months later.

CSH: What was your mom's name?

SY: Shige.

CSH: Shige. How do you spell that?

SY: S*H*I*G*E.

CSH: And your father's name?

SY: Kumakichi.

CSH: Kuma-Kichi-

SY: Kuma-Kichi-!

CSH: And they both came from Japan?

SY: They both came from Japan.

CSH: To work in the plantation?

SY: Yeah. Even when I was small, maybe about six or seven, I used to hear about the older people, yeah, that came earlier. They say, somebody had to go back to Japan. So, I used to know just about what time the ship would pass by. I would go and see it go down by Barbers Point. I used to climb on my front yard *Kiawe* tree and I could see the boat go by.

CSH: That boat was carrying more people from Japan.

SY: People going back to Japan.

CSH: Oh, they were going back, yeah. And your house was in what village?

SY: They called it-

CHS: Tenney?

SY: No, in the Japanese word its 'newer homes'. But, I don't know what the Plantation used to call it.

CSH: But did you live in Tenney Village?

SY: That was way after. Tenney Village is more the original Plantation houses, yeah. And this other one where I was born is a newer one. They made those houses later on.

CSH: And how many brothers and sisters did you have?

SY: I had three brothers, no, two brothers and three sisters.

CSH: Did your brothers end up working for the plantation as well?

SY: Except one. One, one brother went into his own business. He ran a grocery store in Honolulu. My other brother worked as a—he went to high school, graduated and got a job with Castle and Cooke. I went through all kinds of work.

CSH: And what grade did you go up to?

SY: Eighth grade.

CSH: Eighth grade. And that school was where?

SY: `Ewa School.

CSH: `Ewa School. In the plantation, yeah?

SY: Used to be on the Mango Tree Road. And then they moved to its present location.

CSH: And then after that, did you work for the plantation right after that?

SY: Huh?

CSH: You worked for the plantation after that?

SY: When I graduated? From eighth grade? Yeah, I worked. I was working for the plantation part-time. So, I continued working.

CSH: And then you got married?

SY: Oh, that was way after. I got married in 1935.

CSH: To who?

SY: Her name was Agnes Sato.

CSH: Sato? And then you guys lived in Tenney Village.

SY: By that time, the new village was made and when I was living Waimānalo Village, we were married so, we had a house in Waimānalo. And then my father retired from the Plantation. So, we had to move back to `Ewa. And at that time, they were building this new Tenney Village houses. So, I had a house with my wife and my folks stayed right behind us.

CSH: What year was it when you moved to Waimānalo Village with your parents?

SY: 1927. We came back in '37.

CSH: And then you guys lived in Waimānalo Village—

SY: Ten years.

CSH: Ten years. Let's talk about Waimānalo Village, now. Tell me about your life in Waimānalo Village.

SY: Well, I had no special job except that I was using a T-Ford to commute from `Ewa to Waimānalo Village. But then, there was some children around there so, after I work I used to bring them home.

CSH: What did you do in the `Ewa— What did you do for work?

SY: I was working Plantation already.

CSH: In the `Ewa part.

SY: Agriculture Office.

CSH: Agriculture Office.

SY: I even had couple kids from further down Waimānalo Village, we used to call it G-2, Gilbert 2 number two.

CSH: Is that where the OR&L workers lived?

SY: Huh?

CSH: Is the Gilbert where the Oahu Railway people used to live?

SY: Yeah.

CSH: Did you ever go for fun, go up to the Waimānalo Gulch?

SY: No, never did. Except for—I went with, goat hunting with the two supervisors living there.

CSH: Gotan?

SY: Goat hunting.

CSH: Oh, go hunting okay.

SY: I never saw one.

CSH: You never seen one pig?

SY: No one goes there.

CSH: No one goes there?

SY: Well that day, I didn't see any.

CSH: So you went with the two managers?

SY: I went with the two Caucasians. Not Caucasians, but— One was a German and one was a Portugese.

CSH: Oh yeah? And did you guys use gun?

SY: They had gun, yeah.

CSH: And what about dogs?

SY: I had no gun. I no like guns.

CSH: Can you tell me what you remember when you went hunting? Do you remember that day?

SY: No—just that it didn't have anything—not even water.

CSH: Huh?

SY: Not even drinking water.

CSH: Up in the mountain?

SY: Never have nothing. Just went that's all.

CSH: Did you see any streams?

SY: No, up there is a dry mountain.

CSH: What kind of trees do you remember up there?

SY: Oh. Nothing but—well, in the beginning its all mostly *Kiawe*, and then you start seeing some *Kukui* nut trees—.

CSH: And what about the Sandalwood?

SY: No, no such thing as Sandalwood. Sandalwood you had to go up to wet country to Ko'olau Mountain but not Waimānalo mountain, it's too dry over there. You see the *Kukui* tree doesn't grow in 'Ewa, I don't know why. But, during the rainy season, we used to see a lot of *Kukui* nut—

CSH: Shells?

SY: —floating down the water. But they don't grow 'Ewa. Even until today, you cannot find a growing *Kukui* nut tree in 'Ewa. You got to go up in the mountains.

CSH: Was there a trail to go up there?

SY: Uhh, there was *koa* so—was not too bushy up there. You can tell the gulch along there because the *Kiawe* bushes, yeah. Trees. They used to chew the bark.

CSH: You saw plenty markings—on the trees?

SY: Yeah.

CSH: So, had pig but you guys just didn't see the pig?

SY: Yeah. We saw bark that they used to chew on.

CSH: The bark, yeah, yeah. And scratch?

SY: Maybe, no. We took the dog up there. We find out that the dog was making a sound because he smelled a carcass of a goat.

CSH: Goat? Oh, dead goat?

SY: Dead goat, yeah. So it smelled like the carcass, the skin, yeah. That was the only thing I remember. Then by that time, you get thirsty already, let's go home.

CSH: So you didn't run into any other bones?

SY: No. Nothing else.

CSH: Any spooky stuff up there happen?

SY: No.

CSH: Nothing.

SY: Yeah. We didn't even see goats.

CSH: No goats [laughing].

CSH: Do you know if anybody else used to go up there a lot and hunt, your friends, or—?

SY: But, they're all gone. They used to go hunting, pig hunting, goat hunting.

CSH: Up there?

SY: But, they're all gone already.

CSH: But people used to go?

SY: Yeah, they used to go. I used to hear—

CSH: Stories?

SY: I know, my mother used to buy good—what do you call—big, pig. This person, a wild pig hunter he shot a boar, I think. And then my mother not experienced with the boar. She bought it, the big boar, and then we could not even eat it.

CSH: She bought the big boar?

SY: Yeah. We have pictures of the boar.

CSH: Meat, yeah!!

SY: Stinks like a pig pen. So we had to throw everything away.

CSH: Oh no, you guys didn't cook it. Ohh!.

SY: Then, when I was there, I used to hike down the road down there, by the household and the other one, there's another one, hike down.

CSH: What did you see on the way?

SY: *Kiawe*.

CSH: *Kiawe* trees.

SY: *Kiawe* trees.

CSH: Any big rocks?

SY: No, no big rocks sticking out. No. Mostly, here and there, you find a hole. And my friend, he used to go from `Ewa to that house and sometimes he would catch the rain coming home, see. One day, I told him to climb down to one of the holes. He told me he found skeletons in there.

CSH: Skeletons?

SY: Skeletons.

CSH: A human yeah? Human?

SY: Human.

CSH: In the--?

SY: In the wall.

CSH: In the *puka*.

SY: Yeah. There was one area there was a huge lake, you know. In there, the small shrimp used to go, so one of the men from `Ewa got an idea maybe he would try make a living on catching those shrimp.

CSH: Are you talking about the pond?

SY: Yeah.

CSH: By the house?

SY: Well, there was no houses back then.

CSH: Oh.

SY: They stayed there for a couple of years. They didn't make a go of it. Hard work, yeah.

CSH: Catching the shrimp?

SY: Yeah. I saw the shrimp. The shrimps are too small anyway.

CSH: That pond, was it near--? What was it near?

SY: Near, I would say, near to the other lighthouse, yeah. Maybe not that close to say near, but somewhere near to that. I understand it's still there, though.

CSH: Oh yeah.

SY: Because my friend, he used to be with the Maritime over there, until he retired a few years ago, and I asked him if he knows that there is a pond over there, and he said, yeah—it's still there.

CSH: But the lighthouse is gone yeah?

SY: Is it gone? I didn't know.

CSH: And then on Sundays, that was your only free day?

SY: Sundays? I used to drive down to `Ewa, with my friends and we used to go to the movies—

CSH: What about when you guys used to go to DPD Beach?

SY: That's weekends mostly, yeah. So, we used to catch the railroad train, we make—

CSH: That's kind of close to Waimānalo Village right?

SY: Pretty far you know! I would say at least about five to ten miles.

CSH: And when you used to go to the beach, I remember you talking about the house over there, that the man used to run the house with the pond.

SY: Oh, that's way afterwards.

CSH: Okay.

SY: Mrs. Campbell. She took all the pond away so couldn't go anymore.

CSH: She wouldn't let you guys—

SY: No, no! Nobody can. She fenced the whole area.

CSH: So DPD Beach was behind that Campbell house?

SY: No. The Campbell's—Mrs. Campbell's house was built right facing the pond, right on the sand. So, when she built the house over there, she kept the whole pond to herself. But there is one incident I heard—I never see, but I heard—once in a while, some of the younger people used to get together and they would go do the beach. Maybe it was just before December. And they would sit down on the sand. She would play with the sand and then there was something that came out, so she went pick up. She pick up a coin. You know what it was?

CSH: Gold?

SY: It was a five dollar gold piece.

CSH: Wow!

SY: I heard about it because the people in those days, we used to—no place for change clothes, yeah. So, we used to go behind the *Kiawe* tree and hang the clothes there.

CSH: So did you, before Mrs. Campbell built the house—you guys used to fish in the pond?

SY: We used to go swimming in there, yeah.

CSH: Swimming, yeah! And then, what kind of fish did you guys catch?

SY: Oh fish. Ah, oh, well, just the rock fish. *Manini, Hinalea...*

CSH: *Holehole...*

SY: *Holehole*—there were just a few there.

CSH: Yeah. And then can you talk about when you used to dig in the sand?

SY: Yeah. We used to make holes, and I think even until today the mountain side, the pond side, we used to dig over there and see the water coming down from the land. It could be irrigation water, I don't know.

CSH: Or natural spring—irrigation or natural spring.

SY: Maybe. But I sure would like to go over there once more and dig around with the hoe.

CSH: So you used to dig and then you used to hit fresh water.

SY: You could see the water coming down.

CSH: Did you guys ever drink the water?

SY: No.

CSH: And then, can you talk about when you made your canoe? Your boat.

SY: Oh, yeah. I had a brother who liked to go fishing. So, he bought a outboard motor from Sears so he did that and I made a small canoe.

CSH: And you got the wood from where?

SY: We bought it from the plantation.

CSH: And then where did they get their wood from?

SY: Oh, from the—wholesale from Honolulu.

CSH: Oh, they didn't go and—

SY: No, they no have to go—because sometimes, they have their own supply of Redwood and that kine eh. In fact, when I found out that the canoe I made was too small, I made another newer one using Masonite. It's a hardwood, yeah. And this board one. So, I made a canoe just bigger, much bigger. About maybe sixteen or twenty feet. I made a bigger outrigger, yeah. So it's got to be redwood. I also remember I used four-by-three and made the boat just the right outrigger yeah.

CSH: The right what?

SY: The outrigger.

CSH: Outrigger.

SY: Yeah, so the outrigger was redwood from plantation home, I don't know where it came out from. It was an old redwood. Oh, it was about this size [showing size of wood]. I put two pieces together, and I had to shave it to get its shape. It was a pretty good size boat. Then the war came and I couldn't go to the beach and pick up more lumber. It wasn't for—sometimes on the beach.

CSH: Did you ever hear about the military making anything on top of the gulch?

SY: No.

CSH: No. Never hear?

SY: No. Never.

CSH: They have bunkers up there and pill box.

SY: Somewhere there were—after World War was over, we were with the Civil Defense and then there would be exercises. We would go up to the—you know where the present housing over there?

CSH: In Wai`anae?

SY: Just over there uh in `Ewa part.

CSH: Oh, in `Ewa.

SY: Yeah. That was the first one they built. There is another one.

CSH: Kapolei?

SY: Kopolei is same as—

CSH: Makakilo—below Makakilo.

SY: Just further down. That was the first one they built.

CSH: Oh, okay. West Loch?

SY: No, no, no, no—you coming back this side now.

CSH: The houses before you go into `Ewa?

SY: Oh yeah, no no—this is past eh, you going toward Wai`anae before you reach Nānākuli.

CSH: Oh, Honokai Hale.

SY: Honokai Hale. Okay, just about there. The Civil Defense, we were giving keys to get up there. There is a tunnel up there. You would be surprised how big the tunnels are in there. And then we had an exercise. At certain times, we came from the Headquarters and—and according to the police report we were bombed out.

CSH: You were what?

SY: Bombed out.

CSH: Bombed out. Oh, you guys were playing games?

SY: Yeah, that place was blasted with a bomb.

CSH: That place was what?

SY: Blasted.

CSH: Blasted. Oh.

SY: So, we had to do nothing.

CSH: So you guys didn't do any of those exercises up in the Waimānalo Gulch?

SY: No, no, never did. You cannot go in there in those conditions.

CSH: Too dry?

SY: Dry--and rough. No roads--

CSH: Plenty rocks?

SY: Plenty rocks! A lot of loose rocks you know. Even wild animals--the goats sometimes would come down. We don't get to see them. I heard that sometimes the pigs used to come down.

CSH: From the gulch?

SY: Yeah.

CSH: What about the other valleys? Did you guys go up into the other valleys?

SY: No. It's not easy to walk up there you know! That place is huge.

CSH: Yeah.

SY: On the lower side, it's all *Kiawe* but once you further up, the plants get different. *Kukui* nuts and some *poha* bushes.

CSH: *Poha*? Berries?

SY: Yeah. *Lilikoi*.

CSH: *Lilikoi*.

SY: Some things I remember. As a youngster yeah, we used to eat uh! We loved to pick--what they call it--they call it *poha* in those days. So, we kind of went around, we used to go begging around.

CSH: Ask him for some?

SY: Ask him for some *poha*. It was like--about this big, yeah [showing size with hands]. You know, always called it *poha* with the dots on them. And they were sweet.

CSH: Yeah. You guys just ate it like that or did you guys make--

SY: No, you just—you can just eat, sweet you know. So, I remember the man gave us company share. And he said, that's all because I guess that was all they had in the mountain. And we as youngsters we used to just go on begging. That is the only thing that I know of, that there were some maybe old time Hawaiians living up in the mountains. I think they didn't want anyone to steal, I think.

CSH: To what?

SY: Steal.

CSH: Oh.

SY: It's not for you to go any place and pick it.

CSH: The Plantation workers would go and steal from the Hawaiian living up there?

SY: No. We didn't even know they were living up there.

CSH: Oh.

SY: And when you think about going up into the mountain, its not just a days work you know—its like Boy Scout. A friend of mine and I went hike up there— oh boy!

CSH: Boy Scouts? You guys went up to the gulch?

SY: Mountain.

CSH: Waimānalo Gulch?

SY: No, mountain, yeah.

CSH: And what did you guys do?

SY: Well, just report that to the scout master.

CSH: Wow. You don't remember any big stones on your hike?

SY: Oh, up there you find any kind stone—big stones.

CSH: Up there?

SY: Yeah, but more up.

CSH: More up?

SY: Yeah.

CSH: What else?

SY: I remember we had to wait until we saw that place—mango trees, avocado, *poha* and all those things. I think someone must have been living there, you know.

CSH: To plant the—

SY: Yeah. But there were no homes.

CSH: What about rock shelters?

SY: No, no more.

CSH: No more.

SY: Oh, another thing—you know where the lighthouse area, get sugar cane, yeah—when the plantation decided not to do something. They wanted to tear down some of the stone walls over there. The Hawaiians start making big noise about that. They say, 'eh that's a *heiau* so don't touch that.' But these guys—one guy went pass away already, but—he said, '*heiau* is nothing'. He said 'we built that thing when I was a kid working the ditch'. Every winter, the big rain come down from the mountain, and more of the water would come down. The plantation wanted to shut that off to get the mud to start over the new land. So that's what they did.

CSH: That was by the lighthouse?

SY: On the way to the lighthouse.

CSH: On the way? Do you remember a fishing village around there?

SY: No, no such thing as a fishing village. Way down Barber point on this side, there maybe one or two Hawaiians. No, no such thing as a village. I used to paddle with the old folks when they say they going fishing. They used to have a horse, because sometime they get a big catch, yeah. My friend's brother was born over there. We used to go maybe see the fish run about and they hide their net someplace—I don't know where—and about four of them go in the water to lay the net.

CSH: At where?

SY: They used to call it Kānaka Beach, because only the Hawaiians lived there, nobody else.

CSH: And where is that?

SY: By the Lighthouse, but on the Honolulu side.

CSH: Oh, okay.

SY: There is one Hawaiian who used to fish there. He used to help when they lay the net. The fish used to go wild,— it's mostly what they call 'Awa. It's a big fish about that big, yeah.

CSH: 'Awa?

SY: 'Awa. Had plenty bones. I remember when I went—the first day I come the man gave me one—oh about oh so long, yeah. But, I don't know I didn't like it because of all the bones. But they caught plenty.

CSH: In the net?

SY: Yeah. They had to use the horse to bring the load home, yeah.

CSH: These guys were all Japanese?

SY: All Japanese. All old men.

CSH: And then the one Hawaiian helped them?

SY: This one old Hawaiian. So, after they get out all the fish- We give it to him and he would be so happy.

CSH: Do you remember the Hawaiian man's name?

SY: No. I wish I did! Some of the other one's that used to come around this area what happened was I used to know them because after graduating the school, she worked in the cafeteria as a cafeteria worker and the sugar company used to come after school and hang around where she was working. I don't know she used to call it Sam—Sam—Sam—or something. Ikapu, Ikapu, yeah!

CSH: What? Ikapu? That was his name? Yeah.

SY: They used to call him Ikapu. But I don't think he lived too long.

CSH: You know at Pump 10—

SY: Pump 10 is just beyond Waimānalo Village. Only a few houses there used to have a few houses over there for the Pump office.

CSH: Did they have a Japanese school over there?

SY: No, Japanese school is in `Ewa.

CSH: Oh.

SY: They don't have small schools here and there in small places.

CSH: Yeah. So where did the Plantation get their drinking water from?

SY: We used to make our own Plantation distilled water. You see, because they had the steam, they used to pump that water into a tank. As you go by there, the water is always coming down—blowing out the steam and that steam, distilled water, come so hot up there, you see. And this one, over there, the whole Plantation people used to go over there and get their drinking water and bring it home, you see.

CSH: Where was that tank?

SY: The tank is up there—

CSH: Up in the mountain?

SY: No, no, no—way up on top in the middle. Where they make distilled water. And then the steam, yeah, it's just water. And then they would move the water to the tank up there. And then we would go up there and take. I used to take about two gallons I think, in a small wagon. It was good drinking water.

CSH: Yeah.

SY: Just like regular water.

CSH: Oh. And then you guys used to plant sugarcane all over here, yeah? All on the *makai* side of Farrington?

SY: Is this DPD? Yeah, just about there used to be the end of the cane already. That up here, no, never did.

CSH: That's what I was wondering they never did plant sugarcane up here, yeah?

SY: Never did, yeah!

CSH: But they had the train track over here.

SY: No, no more train.

CSH: `Cause get the train track over here--

SY: Yeah, over here--that's OR & L.

CSH: OR &L, yeah.

SY: Not the Plantation, yeah. I thought the Plantation train run up here but it doesn't?

CSH: Wait, what?

SY: The train. The--remember the place--

CSH: It's still there.

SY: Still there, yeah? That's the one that run up and down once in a while--

CSH: Yeah, every Sundays.

SY: Every Sunday? Oh--

CSH: You should go ride!

SY: Nah, I had enough of trains. I wonder if that thing is safe, though.

CSH: Safe?

SY: Yeah.

CSH: It should be.

SY: After all it don't last forever you know. Quite a bit of pressure in there.

CSH: Yeah.

SY: Is this your own interest?

CSH: It is, but I am also doing this for work.

SY: Work, eh? You know this thing is something that has been like this when you read to that and you see something interesting keep on looking over there and note it down. I'll see what I can remember.

CSH: Okay. Well, thank you for--

SY: Anyway, though--whatever I know, I will let you know.

CSH: Okay.

—End Interview—

APPENDIX H

Alternatives Analysis for Disposal of Municipal Refuse
(Pacific Waste Consulting Group)
(UNDER SEPARATE COVER)

APPENDIX I
Public Meeting Notes

Waimanalo Gulch Sanitary Landfill Expansion Project
Public Informational Presentation
Kapolei Hale, Kapolei

September 27, 2001

A public informational presentation was held between 7:00 p.m. and 9:00 p.m. on September 26, 2001, at Kapolei Hale. The meeting agenda is attached for reference. Herb Lee, Community Consultant, served as moderator. A summary of major presentation points and questions included the following:

- A. Solid Waste Overview (Frank Doyle, Deputy Director, Department of Environmental Services) - The City and County of Honolulu generates approximately 1.2 million tons of refuse per year. MSW that goes to H-POWER helps to generate approximately 47 mW of electricity. The primary goal of the Dept. of Environmental Services (ENV) is to reduce the volume of refuse requiring landfilling. This is being done by: (1) increase recycling; (2) find better uses for recyclable materials, e.g., sewage sludge will be processed into compost as soon as 2004, and (3) expand H-POWER, but at a cost of approximately \$150 million.
- B. Waimanalo Gulch Sanitary Landfill Operations (Steve Cassulo, District Manager) - Waste Management of Hawaii, Inc. (WMH), is part of the national firm, Waste Mgmt., Inc. WMH and its parent company operates landfills and waste processing and reclamation facilities across the nation. Waimanalo Gulch is required by the company to exceed regulatory requirements as a part of company policy. WMH stated that it has been listening to the community and understands that there is always room for improvement. Odor, litter, and visual improvements will continue to be worked on regardless of the remaining life of the facility.
- C. Alternative Technologies, Sludge Diversion (Jim Hecht, Synagro) - Synagro is a firm negotiating a proposal with ENV for recycling of Sand Island Wastewater Treatment Plant sewage sludge into fertilizer pellets. The system proposed will process approximately 30,000 tons of sludge per year into approximately 6,000 tons of fertilizer. The product is organic and slow release. If negotiations are successful the system will be installed by 2004. It was noted by ENV that the Honouliuli Wastewater Treatment Plant is already processing sludge into compost.
- D. Alternative Technologies, Other Technologies (Mark White, Pacific Waste Consulting Group) - Pacific Waste Consulting Group and ENV investigated three mainland facilities using plasma arc technology. The purpose of the investigation and report is to provide further information on potential for use in the City and County of Honolulu. None of the firms investigated provide facilities dedicated to the processing of municipal solid waste and ash. Two firms call for development of demonstration projects and one proposal calls for a full scale project. Development of the full scale project would be financed by a lending institution, with liability for non-performance to be borne by City and County of Honolulu taxpayers. Because there is no working system that processes municipal solid waste and ash,

and which could validate the technology, a demonstration project progressing to a larger scale facility is recommended.

It was added that ENV has been working with the U.S. Department of Energy to actively pursue alternative to the landfilling of ash.

E. Senator Colleen Hanabusa - Senator Hanabusa was provided with an opportunity to report on the outcome of a meeting of several individuals with Mayor Harris. The Mayor has granted another extension to accepting comments to the Draft Supplemental EIS. The prior extension date was to September 21. The new extension will be to November 20, 2001. Senator Hanabusa stated that a major question continues to be, "Why us?", hasn't the community done enough. A problem with the EIS is that even with the alternatives analysis, the preferred landfill sites continue to be in Leeward Oahu. Other points raised included:

- Ko Olina represents an investment of between \$1 and \$1.2 billion. In spite of what WMH represents, even with their technology they will not succeed in making the landfill "disappear".
- The expansion is not a done deal. The Mayor said that the contract could be terminated whenever the City decided to do so.
- Why hasn't more recycling been done?
- Even if ENV has instituted a penalty on refuse trucks without covered loads the main question is "Why us?" This community won't sit by any longer. We have no problem with WMH and its credentials, but why does it need to be here.
- The expansion will affect the community and the economy here.
- The pass/no-pass zone was put in place after the landfill was sited.
- The EIS as it exists is not acceptable. It must address all alternatives.

F. Questions and Comments (Names provided if available):

1. (J. Portmore) The Kapaa Quarry site was not included in the alternatives analysis. We hear it is now being evaluated. The Kailua community was never advised about this. We would not allow it to be sited here now. The politicians are using this to divide the community. The only real answer is to move to use of alternative technologies.
2. I have been watching this since 1988. It doesn't make sense to have a landfill and Ko Olina next to each other. At the same time a promise was made to close the landfill when the space ran out. I'm in shock that now it's being expanded.
3. (Bob Au - sic) This project and the Hawaiian Electric Kahe Power Plant are affecting my properties. It doesn't make sense to have both of these facilities here. Why here?

Response (Frank Doyle) - ENV reviewed over 40 sites on Oahu. The criteria included EPA and State of Hawaii, Dept. of Health rules. Oahu has historically had landfills in many parts of the island, including Honolulu. We can't do it this way now with sites throughout the island. Part of the reason is economic. If plasma arc could go to 400 to 500 tons per day, then it might be a feasible technology. Right now it's not feasibly available. Waimanalo Gulch has features that make it the most viable.

4. Why not use Sand Island?

Response (Frank Doyle) - The site is congested with maritime and public works uses.

5. (Arthur Smith) - I live in the area and have problems with promises that haven't been kept. There is constant dust and garbage on my screen door. Plastic litter lines the road. Someone has to be responsible for it. Why do I have to come here every 6 months and complain to you?

Response (Frank Doyle) - ENV issues penalties to trucking firms that violate our requirements to keep their loads covered. The penalty is a 1 week ban from entering the landfill. Because of the problem you raise it will be looked at.

6. What about the plasma arc vendors that have offered to take our garbage for free?

Response (Frank Doyle) - ENV will be starting a demonstration project within the next 20 days.

7. (Jeff Stone) - Waimanalo Gulch is a dump. We were assured in documents that it would terminate in 2002. It's because of those documents that we made the decision to do Ko Olina. We will lose 45,000 jobs if the Waimanalo Gulch landfill moves forward. 10,000 permanent jobs will be lost. This can't be the only place for a landfill. \$500 million dollars will be lost.

8. (Sam Liu) - We operate an existing plasma arc facility at Campbell Industrial Park. The current facility can process up to 1-ton per day of medical waste. From 1-ton we can move up to a 4-ton per day unit for municipal waste. If this works well we will go to the next stage with 10 to 50 ton per day units.

9. Before Waimanalo Gulch became a landfill the site was beautiful. Now, the trucks traveling down the road are dangerous. Culturally, do you know about this area? We won't let you do this.

10. (Brian Hao) - We're a plasma arc operator and we're willing to guarantee a project. We have the ability to do this at no cost to taxpayers. Our facility will process 800 tons per day.

Response (Frank Doyle) - If the operator is willing to build the facility there will still be an obligation on the City. 800 tons constitutes a huge facility. The largest constructed to date is only about 4 tons. Because of this it makes more sense to move up from a 1 to 4 tons per day facility. (Mark White) - The issue of the cost of the facility needs to be understood. A performance bond would be used for the project. When ENV requested the names of lending institutions willing to finance this type of project, we were never provided with names. We believe this is because any company willing to invest in something must believe that the technology is feasible. No company would therefore invest in something unless there is reasonable assurance of a return on the investment. If the risk is put up by the City, then the taxpayer assume the liability, and the cost of the project if something goes wrong.

11. We live next door to the landfill. All these years we have had problems with ash and dust. Our monthly electricity bill is over \$600 because we need air conditioning. We are penalized for living here. We want to fight to move the landfill. Put it somewhere else, we've done our part.
12. (Larry Leaf) - We do waste reduction. We can bring in a demonstration project with a 100 ton per day machine. We can do it in 90 to 120 days.
13. (Representative Mark Moses) - You've heard from the community. Why are all these land uses like Campbell Industrial Park, Kahe Power Plant, and the landfill, all sited here? About the trash trucks, if you can't control them now how can we trust you in the operation of Waimanalo Gulch?

Response (Frank Doyle) - I agree, the driving situation requires more vigilance. We will review the actions we have in place and move to correct problems with unsafe drivers.

14. Why can't we move the garbage trucks off the freeway during rush hour? It's only a few hours a day when the roads are congested. Why can't we do something about it?
15. My brother owns a 5 acre parcel next to Waimanalo Gulch. He had it since the 1960s. People there know what the area was like before the landfill. Now it's a problem. Three of my tenants have to deal with it every day. They have asthma. We can't have any more of this in our community. The dust has been a black, greasy, heavy dust that has been causing illness. The dust and stench is overwhelming. We want you to do something about the site now. Do we have to wait another 10 - 15 years before the site is restored?

Response (Steve Cassulo) - Mitigation to hydroseed the site has been started. We will be applying it to areas that can be revegetated. However, there are some locations that are in active use. These areas can only be covered when the work is completed.

16. We can't see all the mitigation that is proposed being completed anytime soon. It's all long term stuff that assumes we'll be stuck with the landfill for another 15 years. We want to know what other opportunities we have for a public hearing.

Response (Frank Doyle) - The current proposal in the EIS process involves the expansion of Waimanalo Gulch. That is the City's preferred site.

17. (Martha Makaiwi) - All the trucks coming into the landfill should be covered.

Response (Frank Doyle) - Yes.

18. (D. Westcott) - If this isn't a done deal, when what's the next best alternative site?

Response (Frank Doyle) - Makaiwa Hills.

19. Are you still requiring that the site be used for 15 years? What about the chance that you would expand for only 2 years, while demonstration of alternative technologies proceed? I'm still not getting clear answers.

Response (Frank Doyle) - We're still requiring a 15 year extension. We're also looking at alternative technologies. In short, we're willing to look at both alternative technologies and sites. Right now we don't have a proven alternative technology that will eliminate the landfill. In the meantime, and with the assistance of DOH we will do a demonstration project using plasma arc. If that works we will proceed to the next larger size of facility.

20. (Maeda Timson) - Will you document that this meeting took place in the EIS? If so, will you also indicate the number of persons objecting this project?

Response (Frank Doyle) - Yes. We will note that 68 persons by a show of hands indicated their objection to the proposed expansion.

21. (Charles Fox) - I have two questions: (1) if hydroseeding is so easy why isn't more of it being done?; and (2) I suggest you use a roving patrol to monitor the refuse truck drivers.

22. (Mike Freitas) - I have a problem with this process. There's no accountability. A number of residents met with then Mayor Frank Fasi. The deal was that if you moved the landfill from Makaiwa Gulch to Waimanalo Gulch, we would not oppose it. And, in 15 years when Waimanalo Gulch reaches capacity it would be closed. Now, you're extending Waimanalo Gulch and you're planning to go to Makaiwa Gulch. If Mayor Fasi can't represent this, then we're wasting our time.

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(Responses, as provided by each vendor) - Brian Hao stated they are ready to proceed with a 800 ton per day facility; Sam Liu stated they would proceed on a 1-4 ton per day demonstration basis moving up to 10 to 50 ton per day units.

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25. I complained about the refuse trucks since Mayor Fasi. I wrote letters. If you really want to do something - we need someone to take charge and shut the facility down.

26. (Jeff Stone) - It's all about money. We don't know where all the money generated by the landfill goes. It's one of the most profitable businesses. 15 years of tip fees at an average rate of \$84 dollars is \$450 million. It's about the money and it's at the cost of the community.

Response (Frank Doyle) - The revenues generated are not \$450 million. It's about \$6 million a year. The money goes into the City's solid waste fund and the revenues are used to pay for the refuse services that we provide. The revenue stated is not that high.

27. (Representative Emily Auwae) - What are you going to do to clean up the site? I'm ashamed to tell people about where we live. It's disgraceful. What will you do for us? You clean up the freeway, but not out into the mountains where the trash goes.

28. I don't like this project. It has resulted in a dirty and dusty place here.

Waimanalo Gulch
Community Oversight Committee
Draft - Minutes of September 10, 2002

Attendance: Cynthia Rezentes, Pamela Witty-Oakland, Ken Williams, Shad Kane, Steve Cassulo, Joseph Hernandez, Herb Lee, Wilma Namumnart, Gary Siu, Brian Takeda, Lori Lum

Herb called for those present to introduce themselves. Mr. Shad Kane, representing Kapolei Neighborhood Board Chair George Yamamoto, was introduced as a new member.

Notes of August 20, 2002 meeting were accepted with no corrections.

The status of the landfill height extension permit was provided by Gary Siu. The permit acceptance is still under review. DOH is in the process of responding to public comments and will be finalizing the permit for action sometime this week. Only minor adjustments calling for specific actions regarding dust and environmental concerns will be incorporated.

Brian discussed the status of the EIS. Cynthia asked whether the EIS would be a Draft or a Final document. Brian responded he has been directed to prepare a Final EIS. Subconsultant studies including the Socioeconomic Impact Assessment and Cultural Impact Assessment will be issued notices to proceed by Monday, September 16th. Wilma indicated the plasma arc report requested by City Council will be initiated shortly.

Joe and Steve provided an update on current operations at the landfill. Steve noted that although waste continues to exhaust space, sufficient capacity will be available if DOH moves within the next two weeks to grant the permit increase in vertical height.

Lori provided a report on litter enforcement. She spoke to HPD Sargent Bart Canada and provided the following information:

- Anyone that is commissioned to cite litter offenders must witness the offense and be prepared to go to court to prosecute the offender.
- It was suggested that an option is to take photo or video footage of the offense. The offender can be prosecuted at a later date.
- A hybrid program could be started to use a commercial drivers inspection group. This would require participation of the State and City. The community could also come up with it's own pilot program.

Shad Kane suggested that a stretch of freeway could be selected to conduct patrols. One officer would observe and a second officer would issue citations. Pam noted the route could be between Managers Drive and the Makakilo/Honokai Hale area. Shad noted the patrols do not need to be done every day. After further discussion the group will 1) draft a letter to George Yamamoto to seek the assistance of HPD in conducting a patrol; and, 2) Herb will discuss the matter directly with G. Yamamoto. A cc copy of the letter will be forwarded to Police Chief Donohue.

Joe Hernandez (with assistance from Suzanne Jones) announced the participation of 5 to 6 waste haulers in an Adopt the Highway program. On September 28th participants will pick up litter along the H-1 during the morning hours.

Herb next noted the response prepared by ENV to a letter request by Cynthia Rezendes concerning operational days at H-POWER. Cynthia noted the letter did not respond to her question. She noted a common perception of City Council and the general public is that H-POWER is not a good or useful technology and that it frequently breaks down. Wilma noted the facility is operating beyond maximum capacity and is in need of expansion to better process the MSW currently sent to it. At times, MSW exceeds the capacity of the plant to process and must be diverted to the landfill. Cynthia noted that the group could prepare a report or summary that could be used to impress upon the Council that the facility is useful and efficient, that it is already operating beyond capacity, and that it needs to be expanded.

Ken Williams noted concerns expressed by Brookfield Homes regarding continued problems involving odor and litter from the landfill, and that it is affecting sales. Brookfield is concerned that if the problems persist for the next five years they and the residents will only continue to suffer. Ken also noted concerns expressed by Amy Tanaka, landowner of parcels adjacent to the landfill. She is worried about heavy rainfall causing a landslide, and problems from odor, dust, and plastic bags. Joe and Gary noted they have not received any new phone calls from Ms. Tanaka regarding the matter. Herb suggested a meeting with David Murphy to discuss the problem and to suggest actions that can be taken. Steve and Joe noted that landscaping will shortly be implemented at the site.

Herb closed the meeting and indicated that the group will await the findings from RW Beck concerning the City Council's plasma arc study. The results of the study will be shared with the group at that time. Next meeting will probably be sometime in November pending RW Beck's estimate of when the study will be completed.

**Waimanalo Gulch
Community Oversight Committee
Draft - Minutes of August 20, 2002**

Attendance: Cynthia Rezentes, Pam Witty-Oakland, Maeda Timson, Herb Lee, Brian Takeda, Lori Lum, Ken Williams, Wilma Namumnart.

Minutes of June 25 were reviewed with no corrections.

Ken Williams asked why the video on landfills were shown, and Wilma responded that she felt it gave a good account about how other countries/cities are dealing with the difficult subject of exporting waste or finding intra-state solutions. As an island community all options need to be looked at.

Since our last meeting Ken reported that there were no odor complaints. However, Ko Olina still sends workers twice a day to pickup trash on the highway. He said that Waste Management also sends one person out everyday, but it has not been enough. There still seems to be a problem with trash coming from the landfill and from trucks entering the landfill site.

Cynthia reported that she talked with a worker at the HECO site and the "cursory report was that there seemed to be more "maintenance from dust" recently. She did not know if this was attributed to the landfill or just occurring naturally. Brian mentioned that there were no negative comments from HECO in response to the draft EIS. Cynthia recommended that there be additional interface with HECO regarding the increase in the elevation contours at the landfill site.

Ken reported that Amy Tanaka (nearby resident) and David Murphy from Brookfield Homes testified at the August 7 DOH public hearing regarding dust. Also that KITV did a report regarding Brookfield concerns. (available at KITV archives online)

Pam distributed some information to the group re the ROH chapter 29 section 29-4.2 regarding enforcement authority. The language indicates that enforcement is applicable to both private and commercial vehicles. Lori Lum will follow-up with HPD, ENV and WM to explore the possibility of deputizing volunteer community enforcement officers similar to the disabled parking volunteer corps.

Maeda asked why the City representative was not present at the DOH public hearing on August 7th. No one present could respond to that question. Maeda said that she didn't want to put the request in writing but did want an answer.

Brian reported on the current status of the EIS. Comments and requests received from attorneys representing Ko Olina and other public comments has led the City and consultant to seek further analysis in the area of a social impact, cultural assessment and a directed study on plasma arc technology. It is anticipated that the Final EIS with the

additional studies will be published in late December 2002. There is a required 60-day public review period once published. Upon approval of the EIS, a State Special Use permit will be sought and is needed prior to construction and expansion of the landfill.

Cynthia stated that there needs to be serious consideration given to opening up the community review process again prior to adopting a Final EIS. Suggested that maybe revised EIS could still remain in Draft form.

Ken stated that Hawaii of all states (island) has the most compelling reason to seek solutions to waste disposal.

Regarding Plasma Arc, Wilma reported that the Kauai County Council voted down the technology about 5 years ago. More recently, the Big Island (?) decided not to pursue as an alternative.

There was no new information re the status of the pending DOH permit to increase the height of the landfill to 430 feet.

Cynthia recapped requests from the committee for the next meeting as follows:

1. Enforcement - Lori Lum
2. EIS status on studies (ie social, cultural, plasma arc)
3. Decision on Final vs Draft EIS and timeframe
4. Status of RW Beck being hired (prospective plasma arc consultant)
5. Status of DOH permit (430 ht limit)
6. Overall communication
7. Minutes of meeting to be emailed in advance of next meeting
8. City response to Cynthia's written questions re H-Power

Committee approved next meeting date for Tuesday, September 10 at 9am, Kapolei Hale.

Minutes of Community Oversight Committee
June 25, 2002
Meeting 1

Member Attendance: Wilma Namumnart, Gary Siu, Joe Hernandez, Cynthia Rezentos, Ken Williams, absent George Yamamoto
Guests: Lori Lum, Pamela Witty Oakland, Maeda Timson and Herb Lee (facilitator)

Herb opened the meeting by reviewing the purpose of the Community Oversight Committee (COC) as listed on the agenda. He stated that attaining the goal set by the Mayor of no landfill within five years (from April 2003 to April 2008) would require mutual support by all participants and the community.

Cynthia raised a concern about a "back-up plan" if the City is not able to meet this goal for whatever reason. It was suggested that the City begin to consider an alternate landfill site on the island that would perhaps be smaller in size than another 15-year facility like Waimanalo Gulch. If another landfill site is not feasible, then some other back-up plan should be considered now. Cynthia also raised a point of clarification that no landfill in five years meant all landfills or only a municipal solid waste landfill. Wilma will seek clarification. It was generally thought that it meant only a municipal solid waste facility like Waimanalo Gulch.

Ken asked for some type of guarantee from the City that Waimanalo Gulch will be closed by 2008 or sooner not matter what happens to H-Power or the use of alternate technologies.

Generally speaking, all present had no problem with the five-year plan as an "ultimate goal" but Ken, Cynthia, Maeda expressed sincere concern about a back-up plan. All three also expressed concerns that another landfill not be located in their home communities. An updated list of potential landfill sites was requested for the next meeting date.

Gary Siu expressed reservations about the ambitiousness of the five-year plan and the likelihood that many of the technologies being talked about are unproven to meet the solid waste demands of the island. Proper timing and allowances for the technology to prove themselves must be carefully evaluated before the State will make a commitment to allow it. He expressed concern that approving a technology that is not ready may have dire consequences to Hawaii taxpayers.

Wilma expressed concern that no community on the island would welcome the siting of a landfill. Siting landfills have to meet strict government guidelines and the prime sites studied to date were on the leeward side. However, at this point, the City is not considering any other landfill site on the island once Waimanalo Gulch is closed in 2008.

Joe Hernandez updated the committee on ongoing operations at the landfill site. He indicated that 1 or 2 people go out on the highway and down to the shoreline every morning to pick up trash. Litter fences will be increased in the active area and waste is covered daily. Joe also talked about the use of odor misters that are on timers and are used certain times of the day to reduce the incidence of possible odorous conditions from the site. From a visual standpoint, Waste Management is using a berm system and waste is dumped and filled behind the berm and most often out of site.

Maeda expressed concern about debris flying out of trucks on the highway. Both Joe and Wilma indicated that the laws to cover loads only apply to trucks that have a full load. City policy is that no truck is allowed in facility if full load not covered. Currently they (the truck) are banned from the facility for up to a week. All trucks are required to clean out their trucks prior to leaving the site and Waste Management has set up a special area for them to do this. Homeowners hauling rubbish to the landfill are not required by law to cover their loads. Pam will check with the Police Department and traffic code regarding specific requirements and enforcement of existing laws.

Joe also added that there would be further mulching by the end of June as part of a comprehensive plan to landscape the inactive, visible areas of the site. (above the fence line)

Lastly, Gary expressed concern about minimizing the down time at the H-Power facility. The construction of a new third boiler will help the plant run more efficiently. Would like to have more information on how the overall new system will work.

Regarding the status of the Department of Health permit to increase the use of space at Waimanalo Gulch in the short run, it is being processed as "permit renewal" which has been submitted in a timely way and includes a modification to go higher to 430 feet. A public notice will be published on July 1 and a tentative public hearing will be set for August 1, 7-9 p.m. at Kapolei High School cafeteria.

Wilma announced that a landfill video was available for viewing highlighting how other municipalities and countries have been dealing with the worldwide problem of waste management in the 21st century.

Meeting adjourned at approximately 11:30 am.

Next meeting date was set for 9 am, Wednesday, July 31 at Kapolei Hale.

Waimanalo Gulch Sanitary Landfill Expansion Project
Public Informational Presentation
Kapolei Hale, Kapolei

September 27, 2001

A public informational presentation was held between 7:00 p.m. and 9:00 p.m. on September 26, 2001, at Kapolei Hale. The meeting agenda is attached for reference. Herb Lee, Community Consultant, served as moderator. A summary of major presentation points and questions included the following:

- A. Solid Waste Overview (Frank Doyle, Deputy Director, Department of Environmental Services) - The City and County of Honolulu generates approximately 1.2 million tons of refuse per year. MSW that goes to H-POWER helps to generate approximately 47 mW of electricity. The primary goal of the Dept. of Environmental Services (ENV) is to reduce the volume of refuse requiring landfilling. This is being done by: (1) increase recycling; (2) find better uses for recyclable materials, e.g., sewage sludge will be processed into compost as soon as 2004, and (3) expand H-POWER, but at a cost of approximately \$150 million.
- B. Waimanalo Gulch Sanitary Landfill Operations (Steve Cassulo, District Manager) - Waste Management of Hawaii, Inc. (WMH), is part of the national firm, Waste Mgmt., Inc. WMH and its parent company operates landfills and waste processing and reclamation facilities across the nation. Waimanalo Gulch is required by the company to exceed regulatory requirements as a part of company policy. WMH stated that it has been listening to the community and understands that there is always room for improvement. Odor, litter, and visual improvements will continue to be worked on regardless of the remaining life of the facility.
- C. Alternative Technologies, Sludge Diversion (Jim Hecht, Synagro) - Synagro is a firm negotiating a proposal with ENV for recycling of Sand Island Wastewater Treatment Plant sewage sludge into fertilizer pellets. The system proposed will process approximately 30,000 tons of sludge per year into approximately 6,000 tons of fertilizer. The product is organic and slow release. If negotiations are successful the system will be installed by 2004. It was noted by ENV that the Honouliuli Wastewater Treatment Plant is already processing sludge into compost.
- D. Alternative Technologies, Other Technologies (Mark White, Pacific Waste Consulting Group) - Pacific Waste Consulting Group and ENV investigated three mainland facilities using plasma arc technology. The purpose of the investigation and report is to provide further information on potential for use in the City and County of Honolulu. None of the firms investigated provide facilities dedicated to the processing of municipal solid waste and ash. Two firms call for development of demonstration projects and one proposal calls for a full scale project. Development of the full scale project would be financed by a lending institution, with liability for non-performance to be borne by City and County of Honolulu taxpayers. Because there is no working system that processes municipal solid waste and ash,

and which could validate the technology, a demonstration project progressing to a larger scale facility is recommended.

It was added that ENV has been working with the U.S. Department of Energy to actively pursue alternative to the landfilling of ash.

E. Senator Colleen Hanabusa - Senator Hanabusa was provided with an opportunity to report on the outcome of a meeting of several individuals with Mayor Harris. The Mayor has granted another extension to accepting comments to the Draft Supplemental EIS. The prior extension date was to September 21. The new extension will be to November 20, 2001. Senator Hanabusa stated that a major question continues to be, "Why us?", hasn't the community done enough. A problem with the EIS is that even with the alternatives analysis, the preferred landfill sites continue to be in Leeward Oahu. Other points raised included:

- Ko Olina represents an investment of between \$1 and \$1.2 billion. In spite of what WMH represents, even with their technology they will not succeed in making the landfill "disappear".
- The expansion is not a done deal. The Mayor said that the contract could be terminated whenever the City decided to do so.
- Why hasn't more recycling been done?
- Even if ENV has instituted a penalty on refuse trucks without covered loads the main question is "Why us?" This community won't sit by any longer. We have no problem with WMH and its credentials, but why does it need to be here.
- The expansion will affect the community and the economy here.
- The pass/no-pass zone was put in place after the landfill was sited.
- The EIS as it exists is not acceptable. It must address all alternatives.

F. Questions and Comments (Names provided if available):

1. (J. Portmore) The Kapaa Quarry site was not included in the alternatives analysis. We hear it is now being evaluated. The Kailua community was never advised about this. We would not allow it to be sited here now. The politicians are using this to divide the community. The only real answer is to move to use of alternative technologies.
2. I have been watching this since 1988. It doesn't make sense to have a landfill and Ko Olina next to each other. At the same time a promise was made to close the landfill when the space ran out. I'm in shock that now it's being expanded.
3. (Bob Au - sic) This project and the Hawaiian Electric Kahe Power Plant are affecting my properties. It doesn't make sense to have both of these facilities here. Why here?

Response (Frank Doyle) - ENV reviewed over 40 sites on Oahu. The criteria included EPA and State of Hawaii, Dept. of Health rules. Oahu has historically had landfills in many parts of the island, including Honolulu. We can't do it this way now with sites throughout the island. Part of the reason is economic. If plasma arc could go to 400 to 500 tons per day, then it might be a feasible technology. Right now it's not feasibly available. Waimanalo Gulch has features that make it the most viable.

4. Why not use Sand Island?

Response (Frank Doyle) - The site is congested with maritime and public works uses.

5. (Arthur Smith) - I live in the area and have problems with promises that haven't been kept. There is constant dust and garbage on my screen door. Plastic litter lines the road. Someone has to be responsible for it. Why do I have to come here every 6 months and complain to you?

Response (Frank Doyle) - ENV issues penalties to trucking firms that violate our requirements to keep their loads covered. The penalty is a 1 week ban from entering the landfill. Because of the problem you raise it will be looked at.

6. What about the plasma arc vendors that have offered to take our garbage for free?

Response (Frank Doyle) - ENV will be starting a demonstration project within the next 20 days.

7. (Jeff Stone) - Waimanalo Gulch is a dump. We were assured in documents that it would terminate in 2002. It's because of those documents that we made the decision to do Ko Olina. We will lose 45,000 jobs if the Waimanalo Gulch landfill moves forward. 10,000 permanent jobs will be lost. This can't be the only place for a landfill. \$500 million dollars will be lost.

8. (Sam Liu) - We operate an existing plasma arc facility at Campbell Industrial Park. The current facility can process up to 1-ton per day of medical waste. From 1-ton we can move up to a 4-ton per day unit for municipal waste. If this works well we will go to the next stage with 10 to 50 ton per day units.

9. Before Waimanalo Gulch became a landfill the site was beautiful. Now, the trucks traveling down the road are dangerous. Culturally, do you know about this area? We won't let you do this.

10. (Brian Hao) - We're a plasma arc operator and we're willing to guarantee a project. We have the ability to do this at no cost to taxpayers. Our facility will process 800 tons per day.

Response (Frank Doyle) - If the operator is willing to build the facility there will still be an obligation on the City. 800 tons constitutes a huge facility. The largest constructed to date is only about 4 tons. Because of this it makes more sense to move up from a 1 to 4 tons per day facility. (Mark White) - The issue of the cost of the facility needs to be understood. A performance bond would be used for the project. When ENV requested the names of lending institutions willing to finance this type of project, we were never provided with names. We believe this is because any company willing to invest in something must believe that the technology is feasible. No company would therefore invest in something unless there is reasonable assurance of a return on the investment. If the risk is put up by the City, then the taxpayer assume the liability, and the cost of the project if something goes wrong.

11. We live next door to the landfill. All these years we have had problems with ash and dust. Our monthly electricity bill is over \$600 because we need air conditioning. We are penalized for living here. We want to fight to move the landfill. Put it somewhere else, we've done our part.
12. (Larry Leaf) - We do waste reduction. We can bring in a demonstration project with a 100 ton per day machine. We can do it in 90 to 120 days.
13. (Representative Mark Moses) - You've heard from the community. Why are all these land uses like Campbell Industrial Park, Kahe Power Plant, and the landfill, all sited here? About the trash trucks, if you can't control them now how can we trust you in the operation of Waimanalo Gulch?

Response (Frank Doyle) - I agree, the driving situation requires more vigilance. We will review the actions we have in place and move to correct problems with unsafe drivers.

14. Why can't we move the garbage trucks off the freeway during rush hour? It's only a few hours a day when the roads are congested. Why can't we do something about it?
15. My brother owns a 5 acre parcel next to Waimanalo Gulch. He had it since the 1960s. People there know what the area was like before the landfill. Now it's a problem. Three of my tenants have to deal with it every day. They have asthma. We can't have any more of this in our community. The dust has been a black, greasy, heavy dust that has been causing illness. The dust and stench is overwhelming. We want you to do something about the site now. Do we have to wait another 10 - 15 years before the site is restored?

Response (Steve Cassulo) - Mitigation to hydroseed the site has been started. We will be applying it to areas that can be revegetated. However, there are some locations that are in active use. These areas can only be covered when the work is completed.

16. We can't see all the mitigation that is proposed being completed anytime soon. It's all long term stuff that assumes we'll be stuck with the landfill for another 15 years. We want to know what other opportunities we have for a public hearing.

Response (Frank Doyle) - The current proposal in the EIS process involves the expansion of Waimanalo Gulch. That is the City's preferred site.

17. (Martha Makaiwi) - All the trucks coming into the landfill should be covered.

Response (Frank Doyle) - Yes.

18. (D. Westcott) - If this isn't a done deal, when what's the next best alternative site?

Response (Frank Doyle) - Makaiwa Hills.

19. Are you still requiring that the site be used for 15 years? What about the chance that you would expand for only 2 years, while demonstration of alternative technologies proceed? I'm still not getting clear answers.

Response (Frank Doyle) - We're still requiring a 15 year extension. We're also looking at alternative technologies. In short, we're willing to look at both alternative technologies and sites. Right now we don't have a proven alternative technology that will eliminate the landfill. In the meantime, and with the assistance of DOH we will do a demonstration project using plasma arc. If that works we will proceed to the next larger size of facility.

20. (Maeda Timson) - Will you document that this meeting took place in the EIS? If so, will you also indicate the number of persons objecting this project?

Response (Frank Doyle) - Yes. We will note that 68 persons by a show of hands indicated their objection to the proposed expansion.

21. (Charles Fox) - I have two questions: (1) if hydroseeding is so easy why isn't more of it being done?; and (2) I suggest you use a roving patrol to monitor the refuse truck drivers.

22. (Mike Freitas) - I have a problem with this process. There's no accountability. A number of residents met with then Mayor Frank Fasi. The deal was that if you moved the landfill from Makaiwa Gulch to Waimanalo Gulch, we would not oppose it. And, in 15 years when Waimanalo Gulch reaches capacity it would be closed. Now, you're extending Waimanalo Gulch and you're planning to go to Makaiwa Gulch. If Mayor Fasi can't represent this, then we're wasting our time.

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WAIMANALO GULCH SANITARY LANDFILL EXPANSION
PUBLIC INFORMATION PRESENTATION
AGENDA

7:00 p.m. – 9:00 p.m.
September 26, 2001

1. Opening Remarks – Herb Lee
2. Solid Waste Integrated Management Plan – Frank Doyle
3. Landfill Operations – Waste Management of Hawaii, Inc.
4. Alternative Technology for Sludge – Jim Hecht
5. *Alternative Technology Evaluation – Mark White*
6. Tentative Landfill Project Schedule – Attached
7. Closing Remarks – Frank Doyle
8. Questions – Herb Lee

July 16, 01

Aloha!
Welcome to the City's Open House.

Subject: The Revised Draft Environmental Impact Statement regarding the proposed expansion of Waimanalo Gulch Sanitary Landfill, Leeward Coast, O'ahu
Public review and comment period: June 8 to August 7, 2001

What is an Open House?

The primary purpose of an Open House is to afford the general public an opportunity to get information specific to their needs and concerns. Not everyone will have the same questions or concerns. This format enables a participant to direct questions to a specific resource person responsible for either studying or compiling the information contained in the draft study.

During the designated time, participants can come whenever they wish, stay as long as necessary, and address topics that interest them in any order they choose.

It is hoped that the information received will help participants make informed comments by the public comment deadline for this report, which is:

Tuesday, August 7, 2001, at 4:30 p.m.

Where do I send my comments or concerns?

You can submit comments by:

1. Filling out the public comment sheet provided at the Open House
2. Mailing public comment sheet to address provided (self-mailer)

If I have additional questions later, whom do I contact?

You may call Wilma Namumnart, City Refuse Division, at 527-5378 or Herb Lee, Jr., Community Liaison, at 262-3261. Information regarding the draft report is also available 24 hours a day at the City's website: www.opala.org. Hard copies of the report are also available at your local libraries.

Mahalo for your interest and participation!

Open House

Resource/Information Tables as follows:

A. Alternative Landfill Sites

Resource Personnel:
Wilma Namumnart & James Louis
City & County of Honolulu, Department of Environmental Services,
Refuse Division

B. Alternative Technologies

Resource Personnel:
Mark White, Pacific Waste Consulting Group
Greg Hiyakumoto, R.M. Towill Corporation

C. Recycling/H-POWER

Resource Personnel:
Suzanne Jones, City's Recycling Coordinator
Colin Jones, Energy Recovery Administrator, H-POWER

D. Waimanalo Gulch Landfill Operations

Resource Personnel:
Steve Cassulo & Joe Hernandez
Waste Management of Hawaii, Inc.

E. Scheduling & Permitting Process

Resource Personnel:
Brian Takeda, R. M. Towill Corporation
Gary Siu, State Department of Health, Office of Solid Waste



Health of the Land

Residents / Resorts

WAIMANALO GULCH LANDFILL
PRESS STATEMENT FROM HEALTH OF THE LAND

Health of the Land is a community based organization created to defend, protect and support the health and prosperity of lands along the Leeward Coast. We are opposed to the City's latest Environmental Impact Statement ("EIS") which proposes to "expand" the Waimanalo Gulch Landfill. In truth, the EIS proposes the addition of a completely *new* Landfill that almost doubles the size of the present one. The operation of the existing Landfill already raises health and environmental concerns which will only be increased by a *new* one. The economic viability of the Leeward Coast - and, in particular Ko Olina and Oahu's new city, Kapolei - could be significantly harmed by this *new* Landfill.

The growth of the Leeward Coast will impact the future of Oahu and all of Hawaii as it is the next area to provide an economic boom and social impact on the islands. Therefore, this issue is too big to be presented only at the neighborhood board level. A presentation, dedicated to the subject, needs to be made by City decision makers - after full and thorough disclosure.

We have asked the City to remove the current EIS from consideration and to work in a new spirit of community partnership with Health of the Land whereby Health of the Land would support a short term extension of the Landfill - not to exceed two years -- if the Mayor and the City's Department of Environmental Services will agree to close the Landfill within this period and to also make a firm immediate commitment to our community to find an alternative site.

It is essential that we resolve this problem without further delay.

Health of the Land • 92-783 Laaloa Place • Kapolei, Hawaii 96707
Phone: (808) 682-5577

SIGN IN SHEET

OPEN HOUSE FOR WAIMANALO GULCH LANDFILL EXPANSION
 MONDAY, JULY 16, 2001 AT KAPOLEI HALE

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Maeda Jimson	W11B #34			the land
Anthony L. Perkins	W11B #34			the land
Janice Lerner	Sen. Brian Koino	586-0830	6-6679	senkoino@capitol.hawaii.gov
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SIGN IN SHEET
 OPEN HOUSE FOR WAIMANALO GULCH LANDFILL EXPANSION
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NAME	ADDRESS	PHONE NUMBER	FAX NUMBER	E-MAIL ADDRESS
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COMMUNITY DISCUSSION WITH SELECTED PERSONS
Waimanalo Gulch Sanitary Landfill Expansion
Kapolei Hale

June 6, 2001

ATTENDANCE:

See attached list for attendees

MEETING NOTES:

A discussion with selected members of the community was held at Kapolei Hale on June 6, 2001, to discuss issues related to the proposed expansion of Waimanalo Gulch Sanitary Landfill. Summary points of discussion included the following:

- Frank Doyle provided an overview on the need for future expansion of the landfill and operational issues that are now being addressed. The three major operational issues involve mitigation of odors, mitigation of visual impacts, and mitigation of windblown and refuse truck litter along Farrington Highway and at Ko Olina.

Expansion of the site is required due to no viable alternative technology or site that can replace use of the current landfill. Mitigation of odors are being addressed through:

- ▶ Proposed improvements at Sand Island Wastewater Treatment Plant that will provide additional treatment of sewage sludge;
- ▶ Installation of a gas recovery system; and,
- ▶ Changes in operational procedures at the landfill.

Mitigation of visual impacts is being addressed by:

- ▶ The planned use of intermediate vegetative cover on sections of the landfill that will not be used for at least two to three years;
- ▶ Changing the color of the drainageway from a light to a darker color to blend in with the surrounding area; and,
- ▶ Daily use of personnel along Farrington Highway to pick up stray litter.

Mitigation of litter along Farrington Highway and Ko Olina is being addressed by use of new equipment, new operational procedures that require inspection of trucks entering and leaving the landfill, etc.

- Cynthia Rezentes stated that while some progress was being made with less visual impacts about a month ago, the current situation involving use of the new work area has gotten worse. White trash at the boundary is clearly visible and it does not appear to be covered every day. This is a frustration since complaints do not seem to affect the long term situation.

- The attorney for Jeff Stone indicated that Ko Olina is not willing to accept the co-location of the landfill with Ko Olina. Over \$1 billion in new construction is planned and the prospect of no new alternative landfill site is not acceptable. The group wants longer than the 45-day review period.
- Maeda Timson stated that the City cannot represent that they have been investigating alternatives for a long period of time since the time of the last EIS in 1999 to now is only about 2 years. How can these alternative have been investigated in this short period of time?
- Wes Ward indicated the problems with odor and visual impacts are worse now than earlier in the year when Paradise Cove was visited by Waste Management and the City. Plastic bags can be seen about 1,000' above ground and aircraft can be seen avoiding the bags.
- Jane Ross stated that Ko Olina shouldn't be killed because of the major investment it represents to the area. The landfill is not in a viable location. Another site has to be considered based on economic benefits. Ms. Ross stated further concerns involving contamination of the underlying aquifer.
- Jeff Stone stated that if that's what the Mayor wants then we'll have to shut down. We want to have a timeline identifying what it's going to take to find a new site. If we can find a private site for the same cost as Waimanalo Gulch, will you consider it? Frank Doyle stated the City will be willing to consider it. Frank also stated that a bid to select a new landfill was sent out to bid about five years ago. At that time there was no response to the City's bid request.
- Ken Williams stated he was frustrated because a project timeline was never provided to him. Frank Doyle stated a copy of a project time schedule would be faxed or e-mailed to him by Friday. It was also noted, however, that because of the City's decision to reissue a Revised Draft Supplemental Environmental Impact Statement, that all prior schedules have changed. Therefore, there are no fixed schedules for the filing of either environmental permits or the Final EIS.
- Jeff Stone next indicated that another site should be found. During the interim the existing site should be used for a shorter period of time. The community might be willing to support the limited use of the current landfill site, while another location is found. Under the current situation, there is little support for the current plan for expansion.

The City and Waste Management of Hawaii restated at the close of the meeting their on-going willingness to continue to work with the community. All parties agreed that although there are difficult issues to be resolved, that it is necessary to continue to discuss issues and problems.

6/6/01 Sign in

Robert F. Harris

TODD ARO

Ken Harris

Jeff Stone

TERRY O'TOOLE

Jane A. Ross

Maeda Timson

Cynthia K.L. Rezentes

Ken Williams

Wendy Ward

Warren Hall

Michael Wright

Henry LACAN JR

Brad Snyder

Steve Cassio

Wilma Namumant

Frank Doyle

JOE HERNANDEZ

Brian Takeda

DAVID F. MURPHY

Koolina Fairways

KO OLINA COMPANY

Steen O'Toole Marcus & Frazier

KO OLINA "KOCA"

Steen O'Toole et al

Honokai Home Assoc / N.B. 34

Neighborhood Board (Kapolei)

Waianae Coast Neighborhood Board

Ko Olina Community Association

Paradise Land

EA Engineering

EA Engineering

Director of Eng. JW Marriott Hawaii
Com

WMT

C&C of Honolulu, Refuse Division

" " " "

WASTE MANAGEMENT OF HAWAII

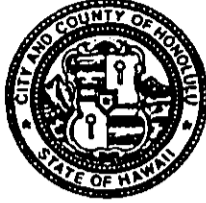
RMTZ

BROOKFIELD HOMES

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 | Fax: (808) 527-6675

JEREMY HARRIS
MAYOR



TIMOTHY E. STEINBERGER, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:

OAHU LANDFILL COMMUNITY DISCUSSION GROUP
Ihilani Resort

February 21, 2001

MEETING NOTES:

A community discussion group meeting was held at Ihilani Resort on February 20, 2001, at 7:00 pm, to discuss issues related to the proposed expansion of Waimanalo Gulch Sanitary Landfill. Summary points of discussion included the following:

- Question - What is the meeting agenda?

Response - The meeting agenda is to explain why the City Dept. of Environmental Services (ENV) is recommending Waimanalo Gulch Sanitary Landfill for an expansion site and to provide an overview of the planning process involved.

- Question - Why was there a change to the Waimanalo North site when only two weeks ago it was listed as a potential site?

Response - Engineers at ENV were notified that the Dept. of Land and Natural Resources was considering designating the site for a forest reserve. However, only after it was confirmed through DLNR, Division of Forestry and Wildlife, that the site was in the process of active transfer to forest reserve could this information be used to remove the site as a potential alternative.

- Question - The City states there are no other alternative sites than the four, now three, sites that are listed - Waimanalo Gulch, Makaiwa, and Maili. We understand there's a site issue, and a cost issue, but which is it?

Response - There are a number of criteria the City must follow in recommending a landfill site/alternative technology. They are: 1) need to follow federal and state regulations governing siting and operation; 2) need to provide an environmentally friendly method for waste disposal that does not result in potential for adverse negative impacts; and, 3) a method or site that is cost effective for taxpayers.

- Question - Are there any other sites that are missing from the analysis?

Response - The City looked at all possible alternatives in light of all regulatory, environmental, and development constraints. Based on on-going development throughout Oahu, there are now fewer options available to all of us.

- Question - If another consultant finds a site based on an independent analysis, can't the City ENV move into it? We want an independent appraisal not the team before us. If there's a study and it finds another site for \$30 million will you consider it.
- Comment - Ko Olina called the Waste Management of Hawaii hotline for a recent odor complaint. Over an hour passed before a response was provided. When the call was returned Ko Olina was told that odor neutralizers were being used. At Ko Olina, however, there was no effect and the odor could still be smelled throughout the day. The point is that you can give all the phone numbers you want, but it will not be effective.
- Question - It would be good if the meeting minutes are provided to the members attending the meetings. Can we receive copies?

Response - The City will work with the community to make the notes available. The notes for tonight's meeting and the prior meeting will be completed within about 10 days and members from the community will receive mailed copies.

- Comment - On October 1st the community first learned about this project and tried to get a copy of the permit application (solid waste permit). At that time it was represented that only municipal solid waste and ash were sent to the landfill. Now we find out there's shit going into the landfill. The community wants to take the lead and Ko Olina will do something about it. We also asked for a letter of good faith and commitment to identify actions that would be taken. We also asked in February what would be done to deal with the odor, litter, and landscaping problem. The most important part of all this is what happens if the community decides the site is not acceptable to us? What will the community get back if there's an extended or even interim period in which we will have to endure the landfill?

Response -

- Odor generation is being addressed by adoption of new odor treatment systems being deployed by Waste Management of Hawaii at the landfill site. There are neutralizers on portable spray systems;
- Monitoring of refuse trucks has increased and are now being inspected prior to leaving the landfill site;
- Honolulu Police Department has been asked that they increase their involvement to cite refuse trucks that litter the highway;
- Litter along the highways will be addressed by use of new equipment, such as MadVac, which is designed to improve speed and efficiency of collection both on- and off-site of the landfill; and,
- Landscaping plans have been prepared by Waste Management and are being provided at tonight's meeting.

- Question - What is the timeframe for the landfill if it is expanded?

Response - The timeframe for filling up the landfill expansion is largely based on the economy. In a good economy the City notices that there is more waste generated and in a slowdown there is less waste. The projection for the landfill has been established at 15-years at the present inflow.

- Question - The community needs to know about water leaching from the landfill and affecting groundwater. Could it affect the groundwater? Is there a local or federal regulation that governs how close a landfill can be built next to a community?
- Question - It isn't clear on what's a federal regulation and what's a local regulation from the handouts. What about the other regulations involving capacity of the landfill site?

Response - The regulations under 40 CFR Part 258 are federal. The capacity requirement is a requirement of the City ENV to make the site cost effective.

- Question - In 15 years the City has narrowed down the alternative sites to only two alternatives, what about the next choice after Waimanalo Gulch has been filled?

Response - It is difficult to predict the future. It is possible that new technologies which are not now feasible at a large scale, such as plasma arc incineration, could in the future become viable and cost effective. Today, however, there are no in-place or proven plasma arc systems which are both cost effective and feasible that can meet the capacity requirements of a city the size of Honolulu. Other technologies and recycling are expected help reduce need for landfills, but they will not remove it entirely. The sites that have been identified by the City are valid at this point in time. This may change in the future.

- Comment - There must be some other planning criteria. In 15 years what's next? ENV should have done something more. We're now at crisis management. So how come we're here? In 15 years we'll be back in the same situation.
- Comment - It is bothersome that 3 of the 4 alternative sites are on Leeward Oahu. Where are the other sites such as in Hawaii Kai?
- Comment - The community wants an independent study. Money is needed to undertake this.
- Comment - 15 years ago this is where the City was, trying to find a landfill site. Has anyone spoken to Campbell Estate concerning Makaiwa? The City should reconsider looking only at Waianae.

- Question - When the current landfill site is filled in 2-3 years and the expansion area begins, how long will it take for the landscaping plan to be implemented on the closed portion of the site?

Response - Landscaping on the closed portion of the site will begin in 2 to 3 years after closure.

- Question - Can we get this in writing? At the final meeting with the community we want this in writing.

Response - Yes.

- Question - The cost for a new landfill was stated at \$30 million. Isn't the City already charging for dumping at the existing landfill? Where is this money and all the money collected in the past going? We need an explanation.
- Question - Why is it that whenever HPOWER is shut down, that it is during windy periods?
- Question - The fill materials stated by the presenting group have changed since publication of the original EIS. Dead animals were not included. Why? Can you clarify this. Has the types of materials changed? What is it?

Response - The types of materials accepted at Waimanalo Gulch have not changed.

- Question - Has the EIS considered land use compatibility as part of the analysis in recommending Waimanalo Gulch for expansion?, e.g., have you looked at the new development including homes, hotels, and businesses?
- Comment - The capacity requirement for 15 years is an artificial, tight criteria. Of all the sites investigated there are only some 7 sites that come close, and only 2 out of 7 sites have the capacity required. This cutoff point is too high and should be reconsidered.
- Comment - One of the alternatives should include expanding the landfill for a shorter period of time in which another landfill site could be found.
- Comment - Two comments were made: 1) the City is concerned about the economic development cost. If so, the cost of garbage pick-up should be considered the cost of doing business. The City should charge for garbage pick-up; and, 2) plasma arc technology should be more aggressively looked at. Asia-Pacific (a business using this technology in Campbell Industrial Park) has a system that could be expanded up to a 25 tons a day facility.

- **Comment -** The City should give the community an allowance to select their own consultant to investigate an alternative landfill site. This should be done because: 1) the community should know whether the alternative landfill sites were fairly studied; 2) if the landfill site has to be expanded the community will be stuck. How much longer will the community have to deal with the landfill and its problems; 3) if the landfill is extended for another 2 - 3 years, then there should be some consideration for the community. Something should be given back to the community in return for the trouble. Nothing has ever been given back; 4) there's major new investment going on in the community. What does it say to our neighbors and guests to have a landfill in our back yard.
- **Comment -** There needs to be emergency funding for this whole project. Landfills such as Waimanalo Gulch are not allowed in Japan so why can't that serve as an example for here. Why not give us an answer. Study it and provide a response. This questions was not asked earlier because of the tight time frame. The bottom line, however, is that nothing is going to happen. We can't even get answers.
- **Question -** Can money be obtained to look further at both how the landfill site was selected, and whether plasma arc is in fact a viable technology? H-POWER expansion should also proceed.

Response - H-POWER expansion is being considered by the City. This would help reduce the amount of directed to Waimanalo Gulch.

- **Question -** Why not ship refuse off-island? The Barbers Point Deep Draft Harbor is being expanded, why not incorporate this for further study? Also, has the City considered using
- H-POWER ash for other uses?

Response - Transshipment of refuse off-island is much more expensive than current use of landfills. Also, there will be a major problem with finding a place willing to accept our garbage.

- **Comment -** The community doesn't want landfills. We want a black and white schedule including costs for development of a landfill site, and other data. We want to know: 1) how many tons a day go into Waimanalo Gulch landfill?; 2) what's the cost for waste disposal? The community wants to see the numbers.

Response - The questions we are taking from the community are being recorded and will be incorporated into the forthcoming Draft EIS. The Draft EIS will have answers to many of the questions being asked. The planned date of publication will be in early April 2001.

- **Comment -** One day Waimanalo Gulch will be closed, but what about the future. Why not lock these sites in now. You're not buying support for this because there is no foresight.
- **Question -** Have archaeological studies been completed for the other alternative sites? There may be archaeological/cultural sites present that would dictate the need for further study.

Response - An archaeological study has been completed for Waimanalo Gulch as part of the current expansion proposal. Archaeological studies have not been commissioned for all of the other alternative sites. If the commentor knows of any other archaeological sites, please notify the City.

- **Comment -** A distinction should be made that the odor/litter issues are an operating problem. The second issue of the landfill expansion should be considered as a separate issue.
- **Comment -** The proposed expansion should be reviewed for consistency with the Ewa and Waianae Sustainable Communities Plan.
- **Comment -** To be fair to the whole island, small waste facilities should be considered so that each area or quad can handle its own waste needs.
- **Comment -** If Waimanalo Gulch is the only site selected, other communities should then pay for the use of it. This is something that is a responsibility we owe to the community. That is why we need an independent study/consultant. The City knows exactly what's collected from garbage fees. We want the City to look at an impact fee.
- **Comment -** The community will work with Councilman John DeSoto's office. The City can stop the project by refusing funding, but there is a concern that if the expansion plans proceed, that the project impacts are addressed the same as other developers. The City circumvented the Development Plan so we need to make sure that its clear for the record.
- **Wrap up comments -**
 - Comments and questions generated from tonight's meeting will be available for community review in ten days.
 - The community also requested that a timetable be provided for all authorizations required for the project. The City noted that the project timetable would involve a Draft EIS by early April, with a Final EIS projected by July. Permit filings would occur thereafter. All dates were noted as tentative.
 - Public members were offered the opportunity to attend a site visit. Inquiries are requested to be directed to Joseph Hernandez, Waste Management of Hawaii.
 - Future meetings of the community will be conducted on an as requested basis.
 - All persons who have signed in will receive notification when the Draft EIS will be available for public comment.

APPENDIX J

*Comments and Responses to the
SEIS Preparation Notice and Draft SEIS
(UNDER SEPARATE COVER)*