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REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

WAIMANALO GULCH SANITARY LANDFILL EXPANSION

Waimanalo Gulch, Oahu, Hawaii
TMK: 9-2-03: 072 and 073

May 2001

Prepared for:

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City and County of Honolulu
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Waimanalo Gulch, Oahu, Hawaii

May 2001

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)

23 MAY 2001
Date of Approval

Timothy Steinberger, Acting 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.

TABLE OF CONTENTS

PAGE

PROJECT SUMMARY vi

CHAPTER 1 - EXECUTIVE SUMMARY AND OVERVIEW 1-1
1.1 PROJECT OVERVIEW 1-5
1.2 PURPOSE OF THE REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 1-5
1.3 PURPOSE AND NEED FOR THE PROJECT 1-5
1.3.1 OVERVIEW 1-7
1.3.2 WASTE STREAM ASSESSMENT 1-8
1.3.3 METHODS OF WASTE STREAM REDUCTION 1-11
1.3.4 RELIANCE ON LANDFILLS 1-12
1.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES 1-12
1.4.1 ENVIRONMENTAL IMPACTS AND MITIGATION 1-12
1.4.1.1 Flood Zones 1-12
1.4.1.2 Soils 1-13
1.4.1.3 Surface Water 1-13
1.4.1.4 Groundwater 1-14
1.4.1.5 Air Quality 1-17
1.4.1.6 Litter 1-19
1.4.1.7 Noise 1-20
1.4.1.8 Flora 1-21
1.4.1.9 Fauna 1-21
1.4.2 PUBLIC SERVICES AND RELATED IMPACTS AND MITIGATION 1-21
1.4.2.1 Traffic and Roadways 1-22
1.4.2.2 Wastewater 1-22
1.4.2.3 Recreational Resources 1-23
1.4.2.4 Potable Water 1-23
1.4.2.5 Power and Communication 1-24
1.4.2.6 Police, Fire, and Emergency Services 1-24
1.4.2.7 Schools 1-25
1.4.3 POTENTIAL FOR SOCIOECONOMIC AND RELATED IMPACTS AND MITIGATION 1-25
1.4.3.1 Socioeconomic Characteristics 1-26
1.4.3.2 Land Use and Ownership 1-27
1.4.3.3 Historic and Archaeological Resources 1-28
1.4.3.4 Scenic Resources 1-28
1.5 RELATIONSHIP TO LAND USE PLANS AND POLICES 1-29
1.5.1 HAWAII STATE PLAN 1-29
1.5.2 STATE LAND USE LAW 1-32
1.5.3 CITY AND COUNTY OF HONOLULU 1-32
1.5.4 SPECIAL MANAGEMENT AREA AND COASTAL ZONE MANAGEMENT 1-32

PAGE

1.6 ALTERNATIVES CONSIDERED 1-34
1.6.1 ALTERNATIVE 1: NO ACTION 1-35
1.6.2 ALTERNATIVE 2: DELAYED ACTION 1-36
1.6.3 ALTERNATIVE 3: ALTERNATIVE TECHNOLOGIES AND LOCATIONS .. 1-37
1.6.3.1 Alternative Technologies 1-38
1.6.3.2 Alternative Locations for Sanitary Landfills 1-44
1.6.4 ALTERNATIVE 4: PROPOSED EXPANSION OF THE EXISTING LANDFILL 1-50
1.7 UNRESOLVED ISSUES 1-50
1.7.1 FINAL LANDFILL PHASING AND ENGINEERING PLANS 1-50
1.7.2 VOLUME OF AGGREGATE TO BE RELEASED FROM SITE 1-51
1.7.3 DATE OF BUILDOUT OF PROPOSED LANDFILL EXPANSION AREA 1-51
1.8 NECESSARY PERMITS AND APPROVALS 1-53
1.8.1 STATE OF HAWAII 1-53
1.8.2 CITY AND COUNTY OF HONOLULU 1-53

CHAPTER 2 - PROJECT DESCRIPTION 2-1
2.1 PROJECT LOCATION AND SITE CHARACTERISTICS 2-1
2.2 FACILITY CHARACTERISTICS 2-6
2.3 CONSTRUCTION ACTIVITIES 2-8
2.3.1 GENERAL 2-8
2.3.2 STORMWATER POLLUTION PREVENTION 2-8
2.3.3 EXCAVATION AND GRADING 2-9
2.3.4 LEACHATE MANAGEMENT 2-10
2.3.5 LANDFILL LINER SYSTEM 2-11
2.3.6 FIRE CONTROL 2-12
2.3.7 HECO UTILITY EASEMENT 2-12
2.3.8 SITE RESTORATION 2-13
2.3.9 CLOSURE OF EXISTING LANDFILL AREA 2-13
2.3.10 FINAL COVER, GRADING AND CLOSURE ACTIVITIES FOR EXPANSION AREA 2-14
2.4 PROJECT SCHEDULE AND COST 2-15

CHAPTER 3 - ENVIRONMENTAL SETTING 3-1
3.1 TOPOGRAPHY, CLIMATE, AND RAINFALL 3-1
3.1.1 TOPOGRAPHY 3-1
3.1.2. CLIMATE AND RAINFALL 3-1
3.2 NATURAL HAZARDS 3-2
3.2.1 FLOOD ZONES 3-2
3.2.2 IMPACTS AND MITIGATION 3-2
3.3 GEOLOGY 3-4
3.3.1 SOILS 3-4
3.3.2 IMPACTS AND MITIGATION 3-6
3.4 SURFACE WATER AND HYDROLOGY 3-8
3.4.1 SURFACE WATER AND HYDROLOGY 3-8
3.4.2 IMPACTS AND MITIGATION 3-9
3.5 GROUNDWATER 3-11
3.5.1 GROUNDWATER 3-11
3.5.2 IMPACTS AND MITIGATION 3-12

PAGE

3.6 AIR QUALITY 3-16
3.6.1 GENERAL AIR QUALITY 3-16
3.6.2 AIR QUALITY ASSOCIATED WITH CONSTRUCTION ACTIVITIES 3-18
3.6.3 GENERATION OF SANITARY LANDFILL ASSOCIATED GASSES 3-18
3.6.4 IMPACTS AND MITIGATION 3-22
3.7 LITTER 3-28
3.7.1 SOURCES OF LITTER 3-28
3.7.2 IMPACTS AND MITIGATION 3-29
3.8 NOISE 3-31
3.8.1 NOISE 3-31
3.8.2 IMPACTS AND MITIGATION 3-32
3.9 FLORA RESOURCES 3-32
3.9.1 FLORA 3-32
3.9.2 IMPACTS AND MITIGATION 3-34
3.10 FAUNA 3-34
3.10.1 FAUNA 3-34
3.10.2 IMPACTS AND MITIGATION 3-35

CHAPTER 4 - PUBLIC SERVICES AND RELATED IMPACTS 4-1
4.1 TRAFFIC AND ROADWAYS 4-1
4.1.1 TRAFFIC AND ACCESS 4-1
4.1.2 IMPACTS AND MITIGATION 4-2
4.2 WASTEWATER 4-4
4.2.1 WASTEWATER 4-4
4.2.2 IMPACTS AND MITIGATION 4-4
4.3 RECREATIONAL RESOURCES 4-5
4.3.1 RECREATIONAL RESOURCES 4-5
4.3.2 IMPACTS AND MITIGATION 4-5
4.4 POTABLE WATER 4-5
4.4.1 POTABLE WATER 4-5
4.4.2 IMPACTS AND MITIGATION 4-6
4.5 POWER AND COMMUNICATION 4-6
4.5.1 POWER AND COMMUNICATION 4-6
4.5.2 IMPACTS AND MITIGATION 4-7
4.6 EMERGENCY FACILITIES 4-8
4.6.1 POLICE SERVICES 4-8
4.6.2 FIRE SERVICES 4-8
4.6.3 EMERGENCY SERVICES 4-8
4.6.4 IMPACTS AND MITIGATION 4-8
4.7 SCHOOLS 4-9
4.7.1 SCHOOLS 4-9
4.7.2 IMPACTS AND MITIGATION 4-9

CHAPTER 5 - SOCIO-ECONOMIC ENVIRONMENT AND RELATED IMPACTS 5-1
5.1 SOCIO-ECONOMIC CHARACTERISTICS 5-1
5.1.1 DEMOGRAPHICS 5-1
5.1.2 ECONOMIC CHARACTERISTICS 5-3
5.1.3 IMPACTS AND MITIGATION 5-7
5.2 LAND USE AND OWNERSHIP 5-9
5.2.1 REGIONAL LAND USE AND PROPERTIES 5-9
5.2.2 PROPERTIES WITHIN PROXIMITY TO THE PROPOSED PROJECT 5-14
5.2.3 IMPACTS AND MITIGATION 5-15

PAGE

5.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES 5-17
5.3.1 INTRODUCTION 5-17
5.3.2 HISTORICAL CONDITIONS AT PROJECT SITE 5-18
5.3.3 RESULTS OF SURVEY - PROJECT SITE 5-19
5.3.4 RESULTS OF SURVEY - POTENTIAL SITES OUTSIDE OF PROJECT AREA 5-19
5.3.5 ADDITIONAL SITE VISIT BY SELECTED COMMUNITY MEMBERS 5-23
5.3.6 IMPACTS AND MITIGATION 5-25
5.4 SCENIC RESOURCES 5-25
5.4.1 SCENIC RESOURCES 5-25
5.4.2 IMPACTS AND MITIGATION 5-27

CHAPTER 6 - 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 6-1
6.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 6-1
6.2 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY 6-2

CHAPTER 7 - UNRESOLVED ISSUES 7-1
7.1 UNRESOLVED ISSUES 7-1
7.2 FINAL LANDFILL PHASING AND ENGINEERING PLANS 7-1
7.3 VOLUME OF AGGREGATE TO BE RELEASED FROM SITE 7-1
7.4 DATE OF BUILDOUT OF PROPOSED LANDFILL EXPANSION AREA 7-3

CHAPTER 8 - SIGNIFICANCE CRITERIA 8-1

CHAPTER 9 - ORGANIZATIONS AND AGENCIES CONSULTED IN THE PREPARATION OF THE DRAFT AND REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 9-1
9.1 FEDERAL AGENCIES 9-1
9.2 STATE AGENCIES 9-1
9.3 CITY AND COUNTY OF HONOLULU 9-2
9.4 PRIVATE AND COMMUNITY ORGANIZATIONS AND ELECTED OFFICIALS ... 9-2
9.5 OTHERS 9-3

CHAPTER 10 - COMMENTS AND RESPONSES TO THE DRAFT SUPPLEMENTAL EIS 10-1
CHAPTER 11 - COMMENTS AND RESPONSES TO THE SEIS PREPARATION NOTICE 11-1
CHAPTER 12 - LIST OF PREPARERS 12-1
CHAPTER 13 - REFERENCES 13-1

APPENDICES

Appendix A Botanical Survey, Char & Associates, Botanical Consultants
Appendix B Survey of the Avifaunal and Feral Mammals, Phillip L. Bruner, Environmental Consultant Faunal (Bird & Mammal) Surveys
Appendix C Traffic Assessment and Recommendations, Julian Ng, Inc., Julian Ng, P.E., President

Appendix D Archaeological Inventory Survey, Cultural Surveys Hawaii
Appendix E Archaeological Site Visit, Meeting Notes of April 12, 2001
Appendix F Waimanalo Gulch Landfill Expansion, Final Visual Presentation, Waste Management of Hawaii, Inc.
Appendix G Alternatives Analysis for Disposal of Municipal Refuse, Department of Environmental Services, City and County of Honolulu, and R.M. Towill Corporation
Appendix H Public Meeting Notes of February 2, 2001 and February 21, 2001

LIST OF FIGURES

Figure 1-1 Location Map
Figure 1-2 Site Map
Figure 1-3 Properties in Proximity to Proposed Project
Figure 1-4 Waste Composition
Figure 1-5 State Land Use District
Figure 1-6 ALISH Map
Figure 1-7 Zoning Map
Figure 2-1 Location Map
Figure 2-2 Site Map
Figure 2-3 Properties within Proximity to Proposed Project
Figure 2-4 Selected TMKs Along Farrington Highway
Figure 3-1 Flood Map
Figure 3-2 Soils Map
Figure 3-3 ALISH Map
Figure 3-4 BWS Groundwater Protection Zones
Figure 3-5 UIC Line
Figure 3-6 Gas Composition
Figure 5-1 Comparative Rate of Population Growth of City & County of Honolulu
Figure 5-2 Regional Land Uses in Ewa
Figure 5-3 View from Ihilani Resort
Figure 5-4 View along Farrington Highway

LIST OF TABLES

Table 1-1 Inventory of Potential Alternative Landfill Sites Island of Oahu
Table 5-1 Population of Oahu, Actual and Projected: 1980 to 2020
Table 5-2 Ethnic Population of Census Tract 86.03, 1996
Table 5-3 Comparison of Median Annual Household Income for Ewa Area and Oahu: 1980 to 2020
Table 5-4 Kapolei Area Residential Units, Existing and Proposed, April 2001
Table 5-5 Selected TMKs Along Farrington Highway

PROJECT SUMMARY

Project	Waimanalo Gulch Sanitary Landfill Expansion
Proposing Agency	City and County of Honolulu Department of Environmental Services 650 South King Street Timothy E. Steinberger, Deputy Director
Accepting Authority	City and County of Honolulu Department of Planning and Permitting 650 South King Street Randall K. Fujiki, Director
TMK	9-2-03: 072 and 073
Location	Waimanalo Gulch, Island of Oahu
Project Area	60.5 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	60.5-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	Special Use Permit Amendment Conditional Use Permit - major (if required)

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)

CHAPTER 1
EXECUTIVE SUMMARY AND OVERVIEW

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 to Waste Management of Hawaii, Inc. (WMH), by ENV.

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 60.5 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. This Revised Draft Supplemental Environmental Impact Statement document updates the 1984 Revised EIS and describes the proposed 60.5 acre expansion of the existing Waimanalo Gulch Sanitary Landfill.

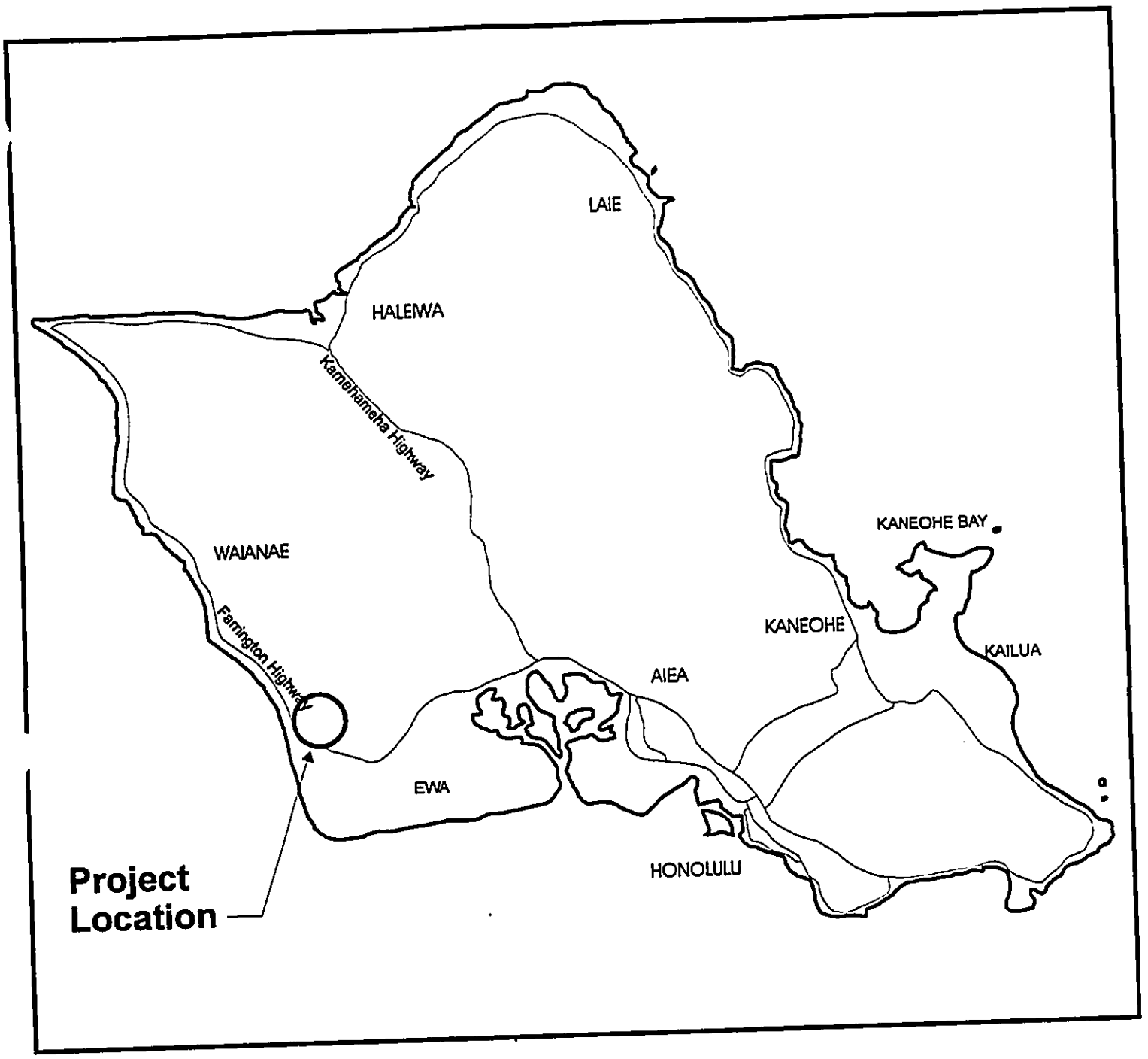
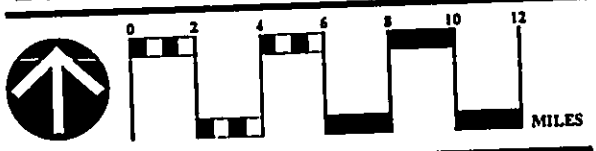


FIGURE 1-1
Location



Waimanalo Gulch
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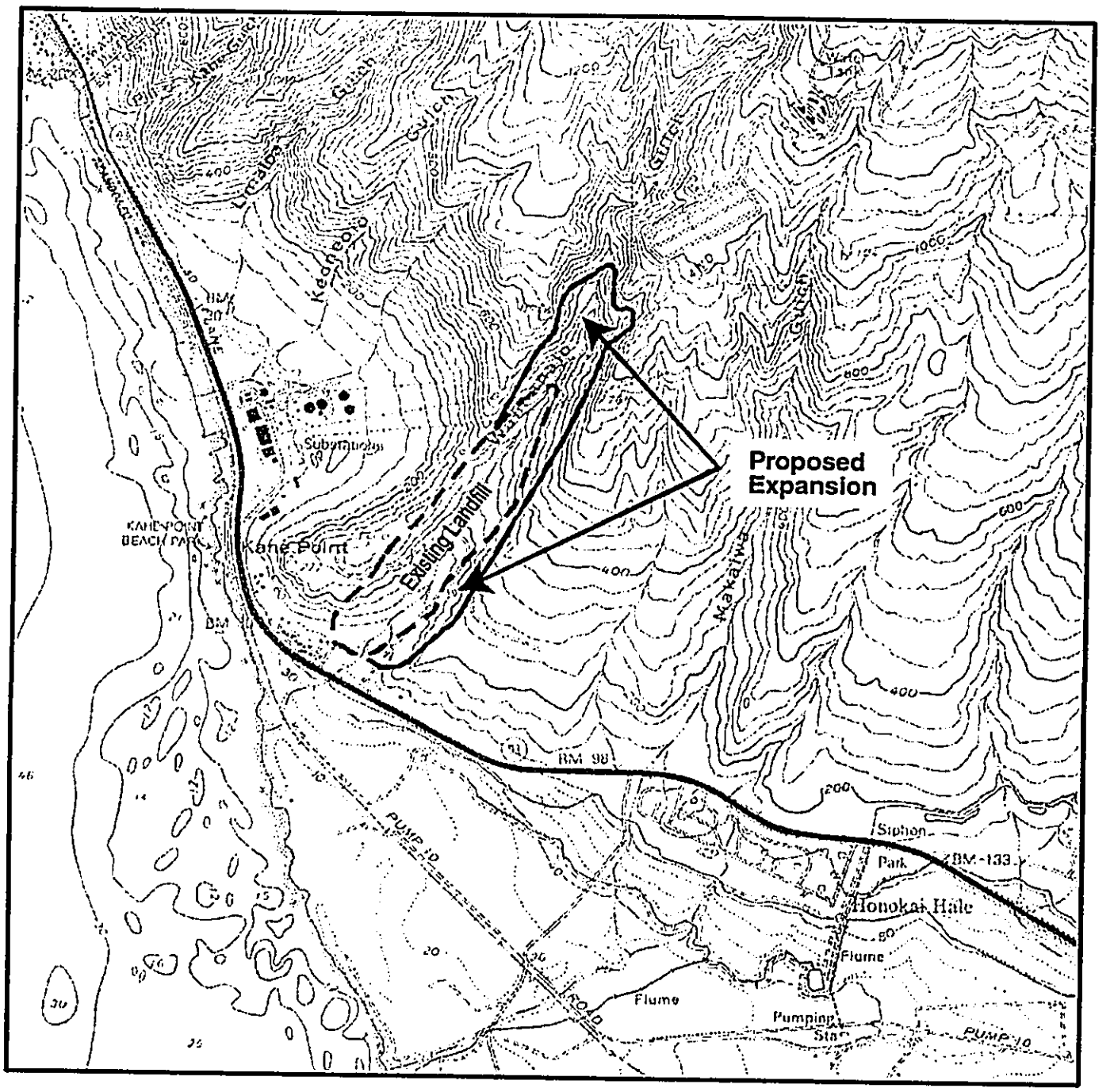


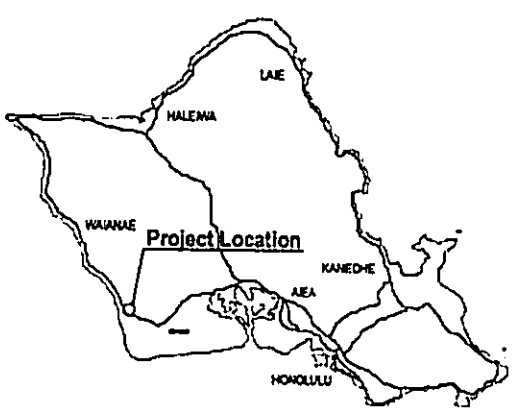
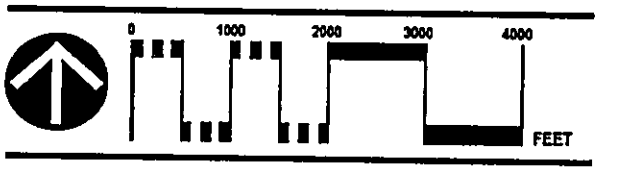


FIGURE 1-2
Site Map



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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*Source: C&C Honolulu, ENV 2001

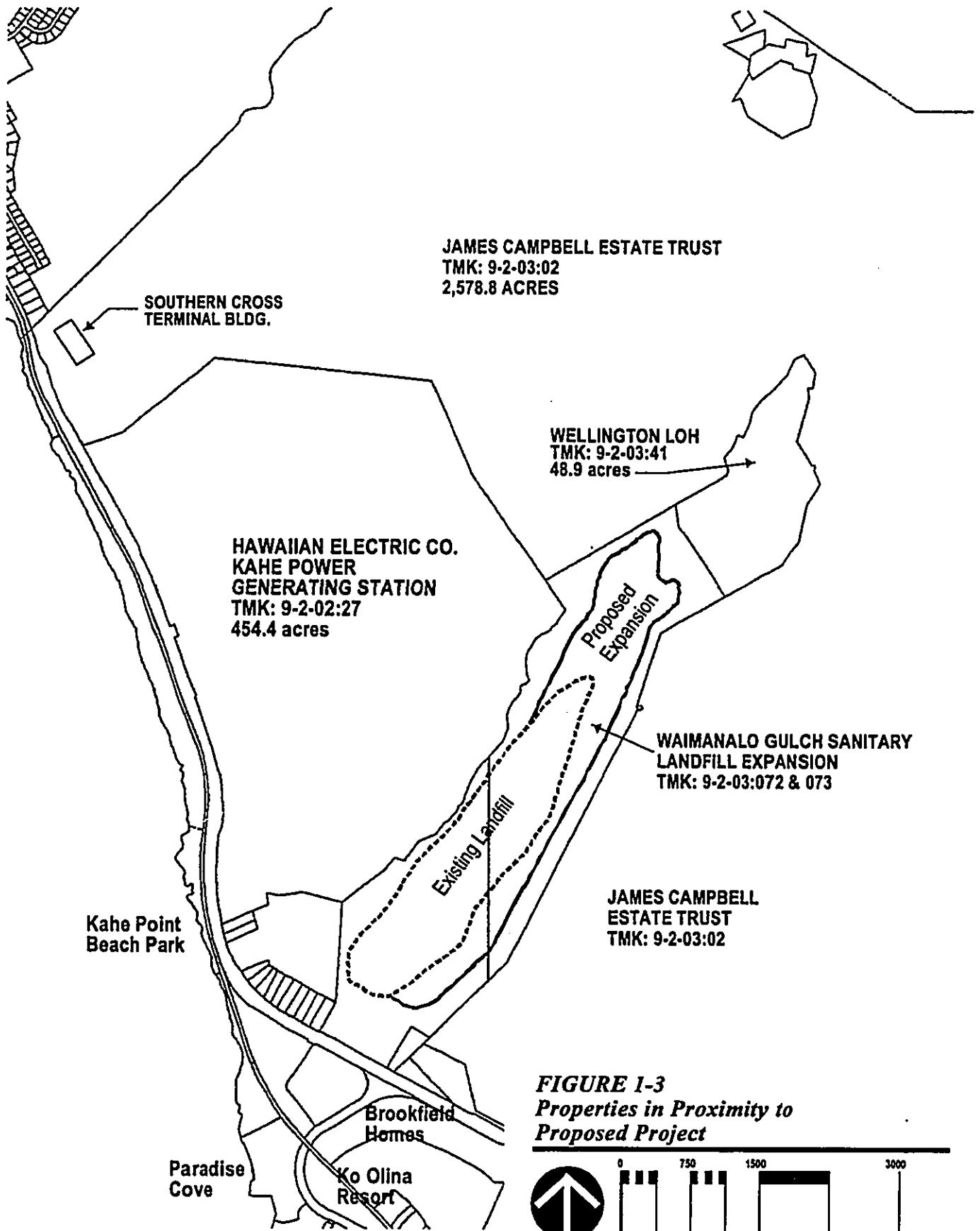
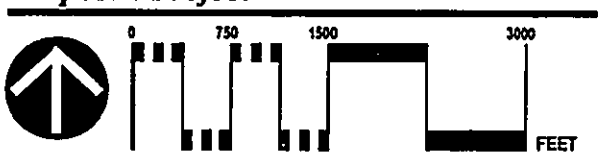


FIGURE 1-3
Properties in Proximity to Proposed Project



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R.M. TOWILL CORPORATION

1.2 PURPOSE OF THE REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

This Revised Draft Supplemental Environmental Impact Statement 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, 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.

This document therefore, addresses the potential for environmental impacts associated with expansion of the existing landfill footprint from 86.5 acres to 147 acres (which is an additional 60.5 acres) within the ±200-acre landfill property site. The purpose of this Revised Draft SEIS is to inform interested parties of the proposed project and to seek public input on subject areas which should be addressed and/or mitigated.

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 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

and ash-related refuse to the year 2017 (contract year expiration of 2002 due to capacity limitations, plus 15-year extension).

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 at 80 percent of capacity, with anticipated exhaustion of space as early as 2002. ENV and WMH propose to expand the existing landfill area by approximately 60.5 acres in order to provide space to the year 2017.

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. Incineration produces an ash byproduct requiring disposal. Recycling and resource recovery still result in the production of some non-recyclable and non-processible material. These materials must similarly be disposed of at an acceptable 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 on continued need for landfill space in the absence of a viable alternative for disposal of municipal solid waste and ash.

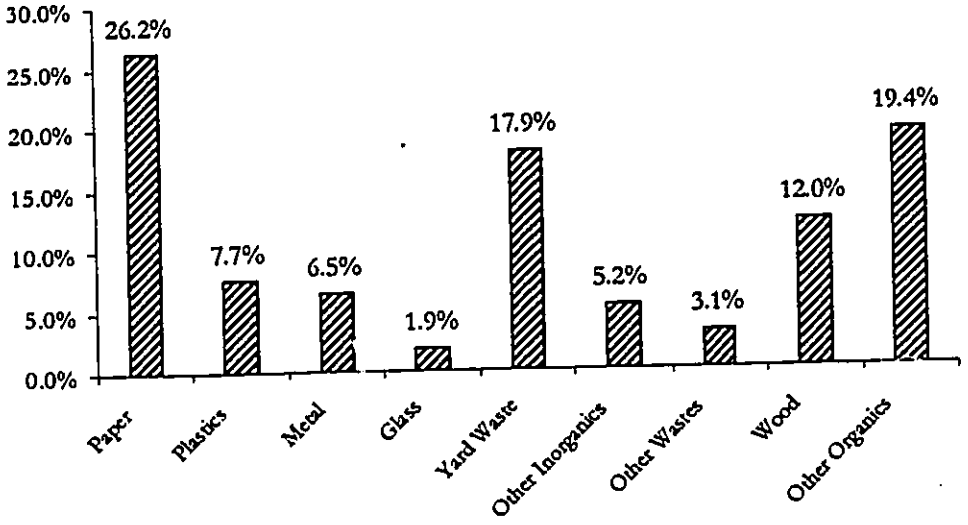
1.3.2 WASTE STREAM ASSESSMENT

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 commercial facilities. The commercial waste 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.

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 to reduce the total waste disposed at the Waimanalo Gulch Sanitary Landfill include reuse, recycling 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;
- Green waste processing at 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 involves intervention prior to the materials entering the waste stream. Although it is difficult to quantify the benefits of source reduction in the waste stream, there are many physical and financial ways to reduce waste materials.

Physical methods for source reduction include product reuse, increasing product useful life, and decreasing consumption of disposable materials. Currently, the City does not provide any type of structured source reduction programs; however, many businesses and households actively utilize various methods of source reduction. One supermarket chain provides a five-

cent reuse credit for returning used grocery bags. Several hotels have reduced the amount of waste generated by refurbishing damaged linens into smaller linens (e.g., making pillow cases from damaged sheets), requesting suppliers to minimize packaging, and returning pallets for reuse.

Financial methods for source reduction include fee assessments, economic incentives, and regulatory programs. One method of fee assessment would be to charge residents directly for the cost of waste collection and disposal. A monthly bill for waste service would enable the City to fund the cost of the program without having to rely on the tax base and having to compete with other programs for funding. A direct charge for waste collection may be difficult to implement without public education and acceptance. A major problem that may occur with the adoption of this alternative is illegal and improper disposal of waste to avoid or reduce imposed fees.

Currently the City's source reduction programs do not charge fees for collection and disposal of residential waste; however, the City is evaluating possible programs for residential fee assessments. The City does participate in the source reduction program managed or administered by the State that requires an advance disposal fee for glass. A fee of 1.5 cents is collected for each glass container entering the state.

Source reduction is a cost-effective means to reduce waste generation, but it can be very difficult to evaluate effectiveness. Since these programs remove the material from the waste stream prior to delivery and weighing at the landfill, exact amounts of material diverted are difficult to obtain. The success of these types of programs also relies on changing the attitudes and actions of individuals. Therefore these programs can be difficult to implement because they require a well-directed, ongoing public information effort. Certain types of source reduction programs can be evaluated more easily than others (e.g., backyard composting) and the results from these programs can be used to illustrate the overall effectiveness of source reduction.

Another method to divert material from the waste stream is the recycling of materials. Recycling includes the process of collecting, sorting, cleansing and treating, and remanufacturing materials that would otherwise become solid waste. Recycling collection and processing programs include residential curbside 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.

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 facility, a waste-to-energy plant, that processes over 620,000 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.

The facility is divided into sections for solid waste processing and power generation. The processing section receives solid waste from collection and transfer vehicles and consists of two 100-ton-per-hour processing lines producing RDF by shredding and separation. The power generation section uses the RDF to produce steam from two boilers, which in turn drives a single turbine-generator to generate electricity that is the facility's sole energy product. H-POWER receives solid waste five-and-one-half days per week and operates twenty-four hours per day, seven days per week.

1.3.4 RELIANCE ON LANDFILLS

Although various alternatives exist for the reduction of waste, there are no alternatives which can completely eliminate the generation of waste eventually 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. At the same time, any new initiatives to support waste recycling and reduction will need to be both economically and environmentally feasible. This indicates that 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 of this strategy is H-POWER, which has already helped to increase the efficient use of Oahu's landfill space.

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 ENVIRONMENTAL IMPACTS AND MITIGATION

1.4.1.1 FLOOD ZONES

The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) identifies the proposed project site as lying within "Zone D" - an area in which flood hazards are undetermined. Although flood control measures are not required, the project provides a drainage control system within the limits of the ±200 acre landfill property.

Impacts and Mitigation

The proposed project is not anticipated to result in adverse impacts from stormflows or flooding due to arid conditions and high elevations. Overall site drainage is designed to address stormflows from both off-site and on-site.

1.4.1.2 SOILS

There are primarily two soil associations found at the project site: Lualualei-Fill land-Ewa Association, and Rocky land-Stony steep land association (U.S. Department of Agriculture, 1972). The majority of soil types found at the project site consists of Rock Land (rRK) with small amounts of Stony Steep Land (rSY). The project site is not classified by the Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

Impacts and Mitigation

Although Rock Land (rRK) associated soils are unsuitable for most buildings, they are favorable for construction and operation of a sanitary landfill at Waimanalo Gulch. Arid weather conditions at the project site reduces the incidence of soil saturation which would lead to soil and foundation movement. Potential for negative adverse impacts are not anticipated or expected.

1.4.1.3 SURFACE WATER

There are no continuous streams or rivers within the project site. An existing drainageway is located within the existing landfill property. The drainageway is proposed to be extended to provide for drainage of storm flows from the planned expansion area.

Impacts and Mitigation

Leachate, a by-product of excess water within a sanitary landfill, is not anticipated to result in potential for negative adverse impacts. Potential for leachate migration 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.

1.4.1.4 GROUNDWATER

Groundwater found below and surrounding the Waimanalo Gulch Sanitary Landfill is brackish and is not designated as a groundwater recharge area by the City and County of Honolulu Board of Water Supply. The project area and adjacent existing sanitary landfill facility is outside the Board of Water Supply groundwater recharge zone in the area designated as "Pass Zone." (Prior to 1987, groundwater recharge areas for the Island of Oahu were identified by BWS. Since 1987, the State Department of Health (DOH) has administered the No Pass Program).

The proposed expansion project will also be consistent with the DOH, Underground Injection Control (UIC) program which was established in 1984.

Impacts and Mitigation

Potential for negative adverse environmental impacts are not anticipated. Protection of groundwater resources will be maintained through use of the existing groundwater management system which includes: groundwater monitoring; detection and assessment monitoring compliance; and, a corrective action program.

The existing groundwater monitoring program used for early detection of contaminants in non-potable groundwater resources will continue. Specified operational practices to protect against leachate infiltration will also be used. As required, further measures will be implemented to ensure against potential for negative adverse impacts.

1.4.1.5 AIR QUALITY

General Air Quality

Air quality in the project area is good due to prevailing Hawaiian tradewinds. Between October and April, Hawaii usually comes under the influence of southerly winds associated with Kona storms or of southerly winds that precede cold fronts (Atlas of Hawaii, 1983). The natural tradewinds help to dissipate some of the traces of odor associated with the existing landfill. However, the winds also increase the incidence of airborne litter and dust from active landfill cells.

There are two known conditions during which there is potential for increased landfill associated odors to affect properties to the south. The first condition involves periods of southeasterly winds, known as Kona Winds. The second condition tends to occur during relatively cool morning and early evening hours when there are gentle southerly breezes.

The increased generation of odor is known to have been associated with the following periods: (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.

Air Quality Associated with Construction Activities

Airborne dust will be the primary air pollutant produced during the construction and operational phase of the landfill expansion. Operation of the expansion area will also result in daily traffic from refuse vehicles which will be a source of air pollution from combustion engines. However, daily vehicular traffic will be a continuation of existing conditions.

Generation of Sanitary Landfill Associated Gasses

The proposed expansion of the landfill is expected to generate the same types of gases associated with operation of the current sanitary landfill site. The major gas components are carbon dioxide (CO_2), methane (CH_4), lesser amounts of nitrogen (N_2), and occasional traces of hydrogen sulfide (H_2S).

Impacts and Mitigation

General Air Quality

Management of odors will be addressed by the following:

1) General On-Site Odor Management: The following practices will be implemented at the landfill site for the existing and expansion areas:

- Use of new odor neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc. This will include active deployment of odor neutralizers prior to and during periods when it is expected that liquid treated sewage sludge and diverted municipal waste from H-POWER will be received.
- Adjustments in the location of spray misters.
- Placement of landfill cover over refuse as soon as practicable. Checking and covering of surface cracks as they occur will also be carried out.
- A new gas recovery and monitoring system is under development which will further reduce the potential for generation of odors.

2) Odor Management During H-POWER and Wastewater Treatment Plant Downtimes: Operational procedures and equipment will include:

- Scheduling H-POWER maintenance during periods when generation of MSW are at seasonal lows.
- The proposed Sand Island Wastewater Treatment Plant (SIWWTP) modifications may incorporate use of a new fluidized bed incinerator. The incinerator will process sewage sludge into ash and residues with both lower moisture content and corresponding odor. Installation will be contingent on the planned timing of development of the In-Vessel Bioconversion Program (see following).
- The In-Vessel Bioconversion Program is scheduled for operation within the next several years. The proposed project is planned to provide for treatment and conversion of sewage sludge and green waste into compost. Either this facility or the fluidized bed incinerator will be constructed for further treatment of sewage sludge.

3) Queuing of Refuse Vehicles: The queuing of refuse vehicles onto Farrington Highway prior to start of the business day has been addressed by permitting vehicles onto the landfill site before the start of business hours.

Construction Air Quality

Dust will be controlled by use of standard water tanker trucks, or extended sprinkler systems from the existing sanitary landfill area. Air pollutants from construction equipment will be generated, but the amounts are expected to be similar to existing levels. The proposed expansion will adhere to dust control practices according to Air Pollution Control Regulations Title 11 (Chapter 60) of the State Department of Health.

Landfill Associated Gasses

Management of sanitary landfill gas will involve expanding the approved practices employed within the existing site. The control of sanitary landfill gas, if required based on gas/vapor monitoring, includes one or a combination of the following:

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

A landfill gas recovery and monitoring system is under development by Waste Management of Hawaii, Inc. The system will be designed to capture methane, non-methane, and anaerobic decomposition gasses 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 a municipal sanitary landfill.

Carbon dioxide and CH_4 will continue to be generated by the proposed landfill expansion. Although there have been no significant impacts at the existing landfill site resulting from concentrations of gas, the proposed gas recovery system will be employed to further manage the site.

Further control of explosive gas (CH_4) is provided in all landfill structures within the site. The proposed gas recovery and monitoring system will provide a new management tool to maintain and improve management of the site and the surrounding area.

1.4.1.6 LITTER

The primary method of litter control involves placement of refuse into landfill cells using bulldozers followed by covering of the waste with fill material. During high winds the control of lightweight plastic and paper bags are more difficult to confine within the landfill.

Litter fences in combination with work crews are used to control litter which may drift off-site.

Current procedures call for immediate mobilization of landfill work crews to assist in the collection of litter whenever it is observed that high winds cause litter to drift past fencing to adjoining properties, such as Ko Olina Resort. Work crews dispatched for clean up are available 24 hours a day, 7 days a week, on weekdays, weekends, and holidays.

Off site generation of litter is generally the result of improperly secured refuse loads from vehicles transiting the landfill. Operators of refuse vehicles have been notified that all loads entering the landfill must 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.

Impacts and Mitigation

Windblown Litter

Mitigation measures and practices to further control windblown litter includes, but is not limited to, the following:

- Existing permanent fencing located along the perimeter of the landfill and at selected cell sites will be supplemented with additional portable fencing.
- Workcrews will be provided with new equipment (i.e., MadVac™, a vacuum device) to speed in the pick up of litter both on and off-site. Regular cleanup and maintenance of fencing will increase efficiency and reduce visual impacts associated with litter deposited onto the surface.
- The use of workcrews will be evaluated. As required, the size of workcrews will be adjusted to ensure there is sufficient manpower available.

- Additional measures include the potential for removal of paper and lightweight plastics going to the landfill. This measure, however, will require further analysis by ENV to determine feasibility.

Litter Along Highways

Litter along highways is primarily the result of improperly secured loads from refuse trucks making deliveries to the landfill. The following measures are currently being implemented to increase awareness and responsiveness to the impact of highway littering:

- ENV has consulted with refuse trucking firms to advise them of the objectionable nuisance that littering along the highways is creating for the public, and in particular residents and community members which regularly travel along portions of Farrington Highway and adjoining areas adjacent to the landfill.
- Honolulu Police Department (HPD) has been contacted to enforce laws governing littering from vehicles. HPD is being asked to issue citations to violators.
- Commercial and City refuse vehicles leaving the landfill are inspected to ensure they have thoroughly cleaned out their vehicle beds prior to departure.
- Further prohibitions against refuse vehicles are under consideration and may include: refusal to accept deliveries from vehicles with improperly secured loads, and use of fines for non-compliance.

1.4.1.7 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. This use of the same equipment is expected to result in no net increase in the overall level of noise that is generated.

Impacts and Mitigation

Existing measures to reduce noise will continue to be used and include:

- Construction vehicles (bulldozers) and internal combustion powered machinery will be properly muffled with noise attenuation equipment in good operating condition.
- 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 potential disturbance to surrounding neighbors.
- Landscaping will be used for visual cover and soil stabilization. It is expected that use of vegetation will help to facilitate the dampening of noise from the site.

ENV/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.

1.4.1.8 FLORA

A biological field reconnaissance was conducted for the proposed expansion area. The majority of the plant species inventoried are introduced exotics or alien species. No plant species were found that are threatened and endangered, or a species of concern (U.S. Fish and Wildlife Service 1999).

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.

1.4.1.9 FAUNA

A fauna field survey was conducted for the proposed expansion within the existing site. The results of the survey indicated 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; (3) no endangered mammals were observed; and, (4) the expansion of the sanitary landfill will likely alter the species composition and relative abundance of introduced birds.

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.

1.4.2 PUBLIC SERVICES AND RELATED IMPACTS AND MITIGATION

1.4.2.1 TRAFFIC AND ROADWAYS

A traffic analysis was conducted for the proposed project. According to the analysis the two-lane access road, which was constructed during development of the original landfill, will be sufficient to accommodate the proposed expansion. The intersection of Farrington Highway and the landfill access road operates at an acceptable level of service.

Impacts and Mitigation

Traffic volumes associated with the proposed expansion of the landfill are not expected to be significantly different from existing volumes. This is due to the nature of the project involving the transition of use from one portion within the landfill property to another.

Future traffic volumes on the highway are expected to increase with population growth on the Waianae coast. According to the Traffic Analysis for the proposed landfill expansion, the

installation of traffic signals at the intersection of the landfill access road and Farrington Highway is a possible mitigation measure to decrease future delays. However, minor street volumes at the intersection would likely not meet the minimum volumes needed to satisfy any of the volume criteria for traffic signals.

1.4.2.2 WASTEWATER

The existing landfill facility is served by underground sewer lines connecting to municipal sewer service lines located along Farrington Highway.

Impacts and Mitigation

The proposed project is not anticipated to result in potential for negative adverse impacts to the continued provision of wastewater treatment. No additions or major new upgrades to either municipal wastewater service lines or the Honouliuli Wastewater Treatment Plant will be required.

1.4.2.3 RECREATIONAL RESOURCES

The proposed expansion project will involve use of an undeveloped portion of the existing 200 acre landfill site. 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.

Impacts and Mitigation

Potential for negative adverse impacts to recreational resources are not anticipated. The proposed expansion of the Waimanalo Gulch Sanitary Landfill will be restricted to use of the existing 200 acre landfill property. The proposed expansion will not include recreational activities to ensure continued safety of operations within the site.

1.4.2.4 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

Potential for negative adverse impacts to use of potable water supplies are not anticipated or expected. 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.

1.4.2.5 POWER AND COMMUNICATION

Electrical power is provided by Hawaiian Electric Company (HECO) via overhead service lines. Telephone and telecommunications services are provided by Verizon Hawaii (formerly GTE Hawaiian Tel) via use of overhead service lines along Farrington Highway.

Impacts and Mitigation

The proposed project will be coordinated with HECO to prevent disruption of service. The proposed expansion will maintain existing 100-foot-wide easements for each of the overhead transmission lines and maintain the current 34-foot minimum vertical line clearance. Protection of high voltage lines from windblown refuse will be provided by installation of litter fences along the working face of the landfill. At the end of each working day, landfill refuse will also be compacted and covered with soil to reduce problems associated with windblown litter.

1.4.2.6 POLICE, FIRE, AND EMERGENCY SERVICES

The project site is served by the Waianae and Kapolei Police Stations. The Nanakuli Fire Station is approximately 3 miles from the project site. Additional fire support services are available from the Kapolei, Makakilo, and Waianae Fire Stations. Nearby hospitals and clinics include the Saint Francis West Hospital, Kaiser Maili Clinic, and the Waianae Coast Comprehensive Health Center.

Impacts and Mitigation

The proposed project is not anticipated to influence changes in emergency facilities within the Waianae community or within the local neighborhood surrounding the site. The proposed facility will not be an impetus to increased emergency services or result in adverse impacts that would disproportionately impact emergency service for the surrounding community.

Onsite fire protection is provided and personnel have been instructed in fire fighting procedures. The Fire Department will be called on to assist whenever there is an emergency. Fire apparatus access will be maintained for the duration of the proposed expansion project.

1.4.2.7 SCHOOLS

The proposed project area is located within the Leeward Oahu School District.

Impacts and Mitigation

The proposed project will not in itself affect nor result in potential for negative adverse impacts to school facilities.

1.4.3 POTENTIAL FOR SOCIOECONOMIC AND RELATED IMPACTS AND MITIGATION

1.4.3.1 SOCIOECONOMIC CHARACTERISTICS

The area for the site is in the Ewa District, on the western side of the Island of Oahu. The overall Ewa region is experiencing new growth and development which has been due in part to: 1) the designation of Kapolei as the secondary urban center; 2) major new investment into Ko Olina; and, 3) existing businesses which are achieving maturity in the region.

General Population

The population of the Ewa Development Plan (DP) area in 1997 was 67,300. This compares to an islandwide population of 869,900. Future population projections indicate that growth will continue to occur for both the Ewa DP area and islandwide. The 2020 population projection for the Ewa DP area is 126,800 persons, compared with an islandwide population of approximately 1.05 million persons. By 2020, most of the growth on Oahu will remain focused within Ewa, which will become the third largest population center on Oahu. The Primary Urban Center is expected to remain the largest population center followed by Central Oahu, and Ewa.

Economic Characteristics

The Ewa median household income has increased over the past 20 years from $19,458 in 1980 to $49,856 in 2000. An explanation for this increase may in part involve the growth in housing supply as well as new development which has provided new employment opportunities for the region.

Impacts and Mitigation

The proposed project involves the continued use of an existing public facility. 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 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.

Mitigative measures are proposed to ensure there are no negative adverse impacts to the socioeconomic condition of area residents. Nuisances normally attributable to the operation of a sanitary landfill are expected to be managed by use of mitigation measures and new conditions which are described in this document.

1.4.3.2 LAND USE AND OWNERSHIP

The Ewa Region contains a diverse mix of developments including residential, resort, recreational, business, commercial, and industrial uses.

Impacts and Mitigation

Impacts associated with expansion of the Waimanalo Gulch Sanitary Landfill to nearby properties include potential for release of odors, windblown litter, and traffic impacts. A number of mitigative measures described in this document will be implemented to address the potential for impacts to the community. These measures, however, are expected to require a high level of cooperation and coordination.

Constructive coordination activities 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 can be provided by the Mayor's Representative, or by a designated representative of ENV or Waste Management of Hawaii, Inc.

2. Ongoing efforts to establish a working relationship with the adjoining Ko Olina Resort should continue. A formal monthly meeting involving presentation of information as provided to the neighborhood boards will be disseminated.

Both venues allow for the regular dissemination and sharing of information. Adjustments and related modifications to landfill operations in the interest of the community can be discussed, considered, and implemented, as required.

1.4.3.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES

An archaeological inventory survey of the project site was conducted on July 27, 1999. 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.

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 (DLNR letter dated January 12, 2000).

In the event new unidentified cultural remains are 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.

1.4.3.4 SCENIC RESOURCES

The region surrounding the landfill contains a diverse mixture of land uses. Various portions of the existing sanitary landfill site are visible to the public from Farrington Highway, the Nanakuli Subdivision, Ko Olina Golf Course, and Marriott Ihilani Resort. 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.

Impacts and Mitigation

Development of the expansion area will utilize the following mitigative measures to minimize potential for negative adverse impacts to views of the project site:

- Grading to establish landfill cells will be completed in accordance with a phasing plan and the City and County of Honolulu Grading Ordinance. This will reduce potential for negative adverse impacts due to erosion.
- A Landscaping Plan will utilize buffer strips comprised of landscaping and vegetation.

1.5 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, as discussed below.

1.5.1 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.

1.5.2 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.

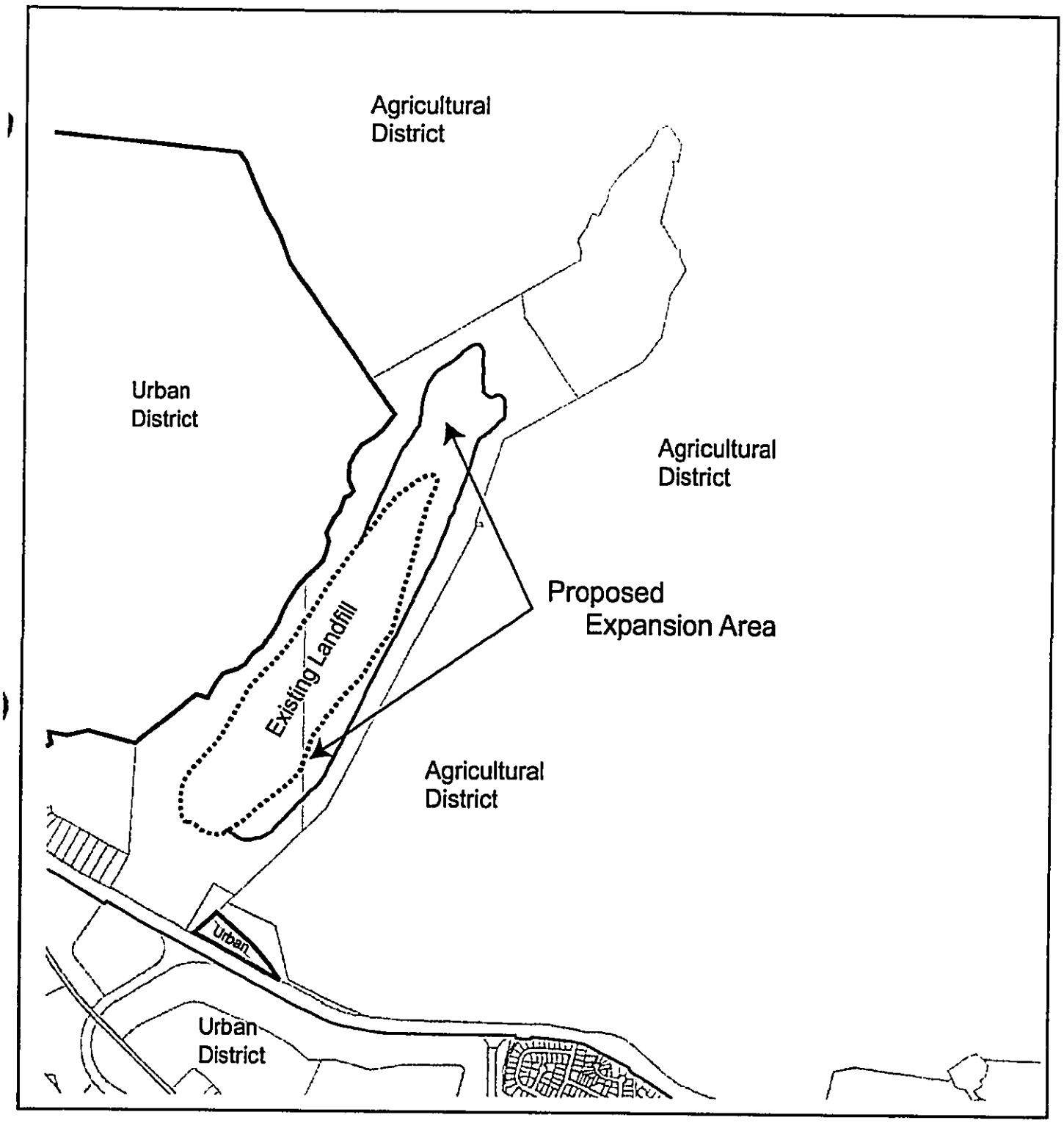


FIGURE 1-5
State Land Use District

No Scale

Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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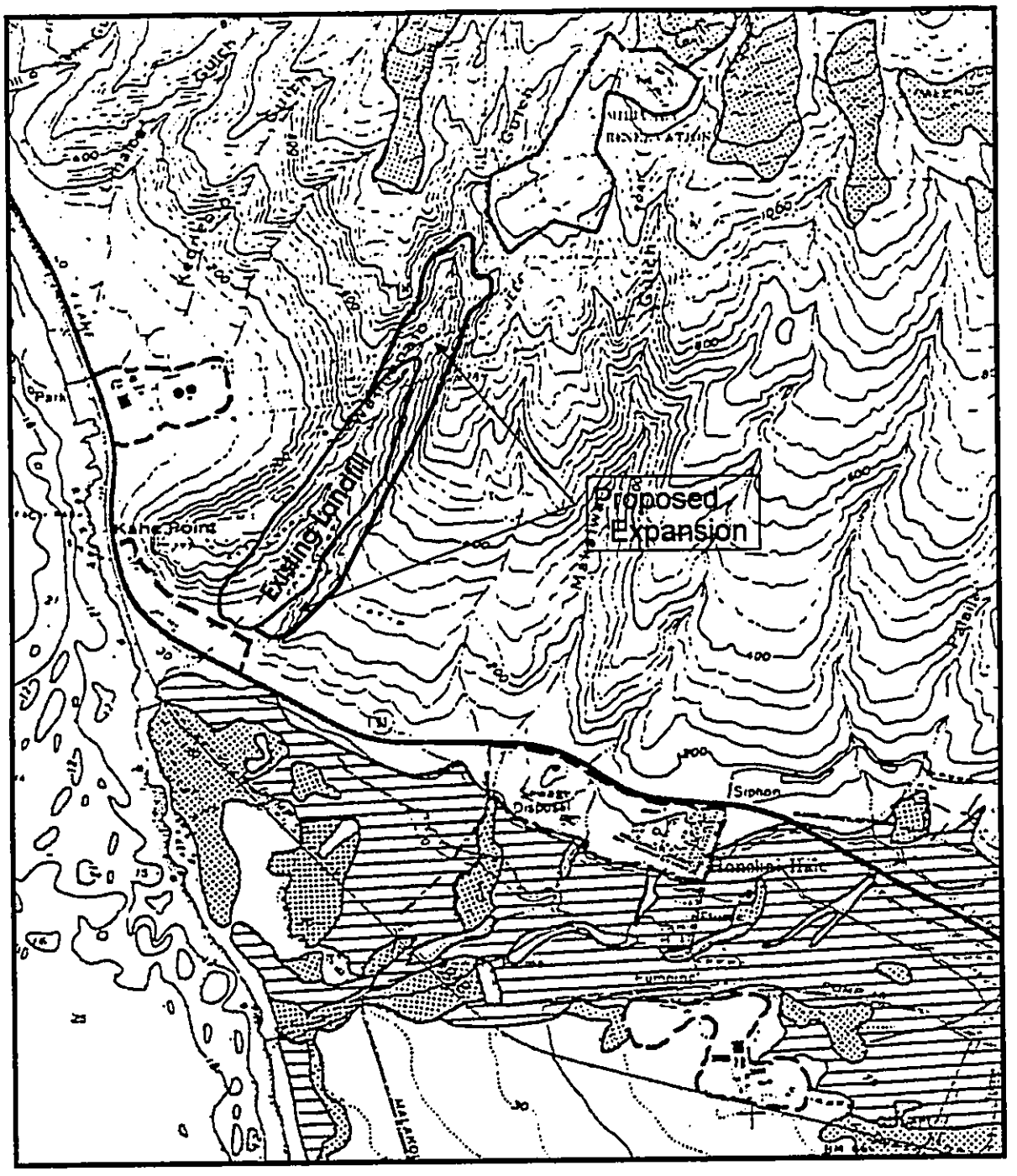
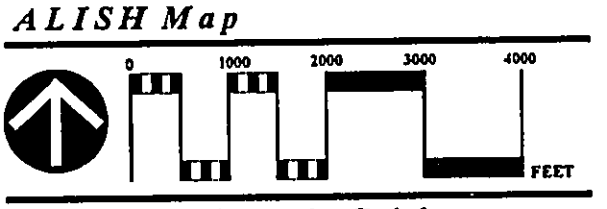


LEGEND

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

FIGURE 1-6
ALISH Map



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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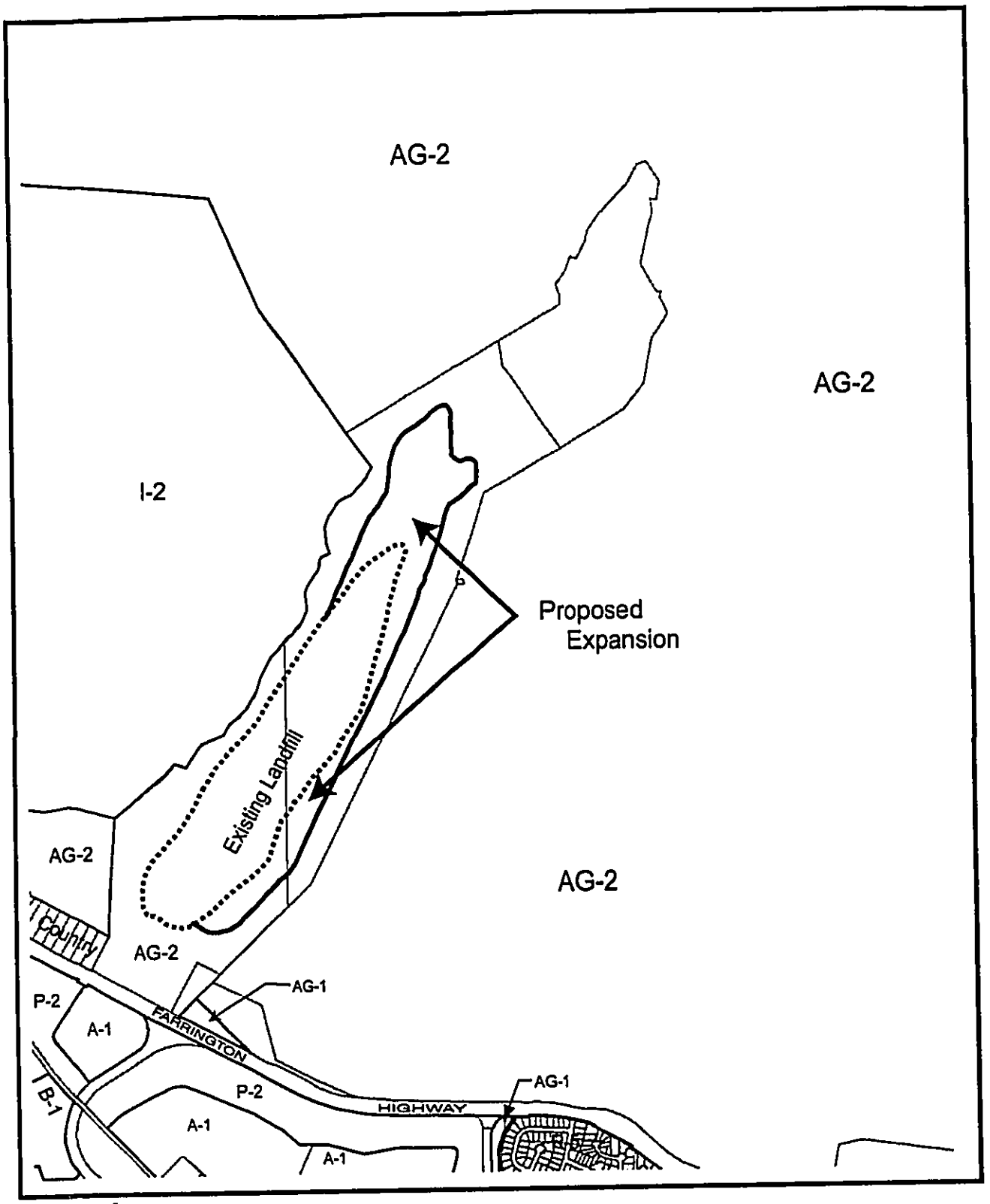
1.5.3 CITY AND COUNTY OF HONOLULU

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). In the AG-2 district, a public landfill is a permitted use subject to a Conditional Use Permit-major and standards in Article 5 of the Land Use Ordinance. An application will be submitted and processed by WMH through the Department of Planning and Permitting prior to construction.

1.5.4 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.



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

No Scale

Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R.M. TOWILL CORPORATION

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.

1.6 ALTERNATIVES CONSIDERED

A range of options were considered to serve as alternatives to the proposed action. These alternatives ranged from no action to consideration for use of alternative locations for the development and use of a municipal sanitary landfill in the City and County of Honolulu.

1.6.1 ALTERNATIVE 1: NO ACTION

State and Federal legislation require that a "No Action" alternative be considered to serve as a baseline against which potential actions can be measured. The No Action Alternative would involve allowing the existing Waimanalo Gulch Sanitary Landfill to continue to operate until such time that the existing permitted 86.5 acre capacity of the site is exhausted. The landfill would thereafter close with no further availability of a designated location for the disposal of municipal solid waste and H-POWER associated ash and residue.

The No Action Alternative will involve the closure of the landfill in approximately two years, with no further expansion. The closure of the landfill, with no other viable municipal refuse disposal site available, can be expected to eventually result in major health, safety, and welfare concerns for residents and visitors to the City and County of Honolulu.

The No Action Alternative can also be expected to result in the following:

- Potential loss of H-POWER supplied electrical generating capacity. H-POWER processes approximately 800 tons of municipal solid waste per day. Ash and residue resulting from combustion of refuse is currently disposed of at Waimanalo Gulch Sanitary Landfill. The loss of this disposal facility would mean that an alternative disposal site would need to be found. If no alternative is available, operations would need to cease since there is no long term storage capacity for ash and residue at the H-POWER site.

  H-POWER generated electricity provides approximately 10 percent of the energy demands on Oahu. Loss of this contribution would need to be met through increased power generation at Hawaiian Electric Company facilities, and/or at private power producing plants.

- Loss of a suitable location for the disposal of treated sewage sludge. Waste water treatment facilities throughout Oahu generate both a solid and a liquid waste stream. Treated liquid waste streams are disposed of through ocean outfalls. The solid waste stream in the form of treated sewage sludge from municipal and some private facilities are currently disposed of at Waimanalo Gulch Sanitary Landfill.

- Loss of a suitable location for the disposal of natural disaster related refuse and debris. Natural disasters are capable of generating large volumes of debris and refuse. This was the situation on the island of Kauai, following the occurrence of Hurricane Iniki. It is expected that the No Action Alternative would significantly impair any efforts to clean up and reconstruct natural disaster damaged areas.

The City has successfully implemented various programs to recycle, reuse, or reduce the volume of refuse requiring landfilling. However, there are no viable and proven methods or technologies which will completely eliminate all waste products. These waste products include H-POWER ash and residue, and other waste stream materials which cannot be further recycled or reused. It is expected that until such time that promising new methods and/or technologies can be demonstrated to completely remove all refuse and refuse related by products, that need for a municipal sanitary landfill will continue to be required.

The No Action Alternative is therefore rejected due to: 1) unacceptable environmental and health impacts that would occur should the proposed project not be permitted to be developed; and 2) no viable and proven alternative technologies which can completely eliminate refuse or refuse by products.

1.6.2 ALTERNATIVE 2: DELAYED ACTION

Under the delayed-action alternative, the existing Waimanalo Gulch Sanitary Landfill would reach maximum capacity and require closure within approximately two years. The Delayed

Action Alternative is similar to the No Action Alternative, in that it would result in the loss of a location for the disposal of municipal refuse and H-POWER associated ash and residue. Once the existing Waimanalo Gulch Sanitary Landfill reaches maximum capacity, waste collection would become restricted, and the existing refuse disposal infrastructure including private collection firms, some recycling operators, and City refuse facilities, would eventually become overburdened. It is expected that most, if not all, of these facilities would eventually cease operations. This is because there would be no designated location for the disposal of either municipal refuse or waste by products, such as H-POWER ash and residue.

The potential for environmental impacts during the length of delay, until such time that a new landfill site or expanded present site can be utilized, would similarly result in major health, safety, and welfare concerns within the City and County of Honolulu.

Because of potential for major adverse negative environmental impacts and no viable alternatives for the complete elimination of refuse and waste by products, the Delayed Action Alternative is rejected.

1.6.3 ALTERNATIVE 3: ALTERNATIVE TECHNOLOGIES AND LOCATIONS

A study to examine the potential for selection of a viable alternative to expansion of the Waimanalo Gulch Sanitary Landfill was completed by the City in March 2001 (**Appendix G - Alternatives Analysis for Disposal of Municipal Refuse**). The study identifies research and analysis undertaken by the City to determine feasibility for: 1) selection of an alternative technology to the disposal of municipal refuse; and, 2) selection of an alternative location for a municipal sanitary landfill in the City and County of Honolulu.

The following provides a summary of major findings:

1.6.3.1 ALTERNATIVE TECHNOLOGIES

Seven (7) technologies were identified for analysis based on application of the following criteria:

- Ability of the system to reduce the volume of waste.
- Ability of the system to recover resources for recycling and reuse.
- Ability of the system to minimize impact on the disposal media. A desirable system would maximize long-term disposal site stability and reduce:
  1) dispersion of material at the disposal site areas; 2) toxicity of waste and minimize leakage into groundwater; 3) subsidence; and, 4) generation of gas.
- Ease of adoption within the existing City refuse management system. Alternatives requiring an immediate drastic change could be cost prohibitive or impractical.
- The ability of the system to be operated by the City or contract workers within acceptable safety standards.
- The level of maturity of the system and degree to which the system can be immediately applied.
- The degree to which the system is able to ensure public health and safety.
- The degree of complexity of the system and its ease of operation and maintenance.
- The ability of the system to handle the expected waste stream.
- Environmental friendliness.
- Technical risk.
- Regulatory/permitting risks.
- Economic risks.
- The degree of uncertainty associated with acquiring and implementing a given technology. If a system is still in the research and development stage, the probability of commercializing such a system within a given time-frame would be lower than a system that is commercially available through a vendor.

The seven (7) alternative technologies included:

1. Alternative Technology 1 - Plasma Oxidation/ Vitrification Followed by Conversion of Heat to Electricity in a Boiler: Alternative 1 uses thermal oxidation of waste materials in plasma and joule heated process chambers. The combined electrical heating destroys all of the organic compounds contained in the refuse and vitrifies the inert material into a glass or rock-like matrix. A steam boiler is included for energy recovery.

2. Alternative Technology 2 - Plasma Gasification/Vitrification: Alternative 2 uses thermal gasification/vitrification of refuse materials in plasma and joule heated process chambers. A series of high-temperature plasma torches are used to decompose all organic components and melt inorganic residues into a rock-like glass material.

   Alternative 2 can be implemented by using many different energy recovery methods. Two different methods, designated as Alternatives 2A and 2B are described below:

   Alternative Technology 2A - Syngas Conversion to Electricity in a Turbine Generator. This Alternative uses syngas to fuel a turbine power generator.

   Alternative Technology 2B - Syngas Conversion to Methanol. This alternative uses syngas to produce methanol. Methanol is easily produced from syngas in a high-pressure catalyzed reactor.

3. Alternative Technology 3 - Rotary Kiln Gasification/Slagging Followed by Methanol Recovery: Alternative 3 uses a conventional process chamber for converting refuse to methanol. Rotary-kiln gasifiers are designed much like cement

kilns, consisting of a long, slowly revolving reaction chamber where heat decomposes organics in refuse into syngas. Like plasma gasifiers, the syngas could be converted to electricity, methanol, or other products.

4. Alternative Technology 4 - Low-temperature Pyrolysis Followed by Oil Recovery: Low-temperature pyrolysis, also called destructive distillation, operates at lower temperatures than gasification and produces a heavy oil product and a "char" residue that may be burned to heat the reaction chamber. The apparatus is an anaerobic heated reaction chamber, usually a batch reactor, and a condenser to recover the oil. Gas phase byproducts are usually fired in the reactor-heating unit.

5. Alternative Technology 5 - Conversion of Wood and Plastic Waste to Eco-lumber: Alternative 5 is a method of grinding waste wood into fibers, blending the fibers with powdered or melted plastic and extruding the mixture as a monolithic composite material. It was included primarily as a low-cost way to process treated wood. There are commercially available composites of wood fiber and plastic, but so far, none of the identified products uses recycled plastic or post-consumer waste wood (except clean sawdust from milling operations).

6. Alternative Technology 6 - Metals Recycling: The metals recovery and recycling alternative uses magnetic fields and eddy currents to remove metals from shredded waste that passes by on a belt conveyor or similar device. Typically, magnets recover ferrous metals, and eddy-current devices remove non-ferrous metals.

7. Alternative Technology 7 - Gypsum Recycling: Recovering gypsum from wallboard is simple and represents approximately 7% of the volume of the refuse stream being sent to the Waimanalo Gulch Sanitary Landfill. Some of the gypsum waste identified as being disposed at Waimanalo Gulch is mixed with other

materials and some is painted or wall papered. If mixed with other materials, it may not be useable.

Of the seven (7) identified alternatives, three technologies were considered viable for further evaluation. None of the three technologies evaluated were considered adequate as a complete replacement of a municipal sanitary landfill on Oahu.

The three technologies and related findings are summarized as follows:

1. Alternative Technology 2A - Syngas Conversion to Electricity in a Turbine Generator (Plasma Generating Station).

   Operational Feasibility and Economic Viability Issues - This technology should be considered an emerging waste reduction method which is still in the process of demonstrating technical, environmental, and economic viability at a scale required for the City and County of Honolulu.

   By-Product Generation - Although vitrified glass slag is a by-product that has potential for use in construction materials, use of the glass slag product will have to be inspected and approved by the State Department of Health, and possibly the Environmental Protection Agency (EPA), to ensure public safety of the material. If the slag is not viable as a construction material, it will have to be landfilled as either MSW or construction/ demolition waste.

   Integration into Existing Oahu Refuse Stream - Additional land will be required for this facility and will involve major environmental regulatory review (permits). Adoption of this system will also require that existing refuse disposal streams are redirected. Because the level of effort required to integrate this technology is

expected to be high, there must be reasonable assurance that the technology is both operationally feasible and technically viable.

Operational Scale - This technology has the potential for operating at a sufficiently large scale which could address a major portion of Oahu's waste stream. The potential for metals recovery is another positive aspect of the system.

Although not now considered viable by ENV for a refuse system as large as Oahu's, it is possible that in the future: 1) large scale operational data may be available which demonstrate the ability of the system to treat a majority of Oahu generated MSW; 2) operational feasibility may also demonstrate that the cost of plasma gassification/vitrification could be borne at taxpayer expense; and, 3) by-products associated with use of this technology appear environmentally safe and could potentially be used for construction and related activities.

Non recyclable wastes will still need to be disposed of at a landfill.

2. Alternative Technology 6 - Metals Recycling

Operational Feasibility and Economic Viability Issues - Metals recycling is an existing technology with widespread application already in use on Oahu. It is recommended that for the approximately 10 - 15% of metals that are expected to be recovered that a feasibility study be completed to demonstrate economic viability.

By-Product Generation - Non-recoverable metals produced from this process are anticipated to be relatively low in volume.

Integration into Existing Oahu Refuse Stream - Metals recovery is already practiced at City refuse facilities. This alternative, therefore, will require development of a

processing/recovery facility at the existing Waimanalo Gulch Sanitary Landfill. Further study in conjunction with the potential for use of the plasma generating station metals recycling component is also necessary to identify both feasibility and likely timeframe for development.

Operational Scale - Although metals recycling is an established method, it will only provide for a 10 - 15% reduction in the Waimanalo Gulch refuse stream. This will not by itself address the need for a landfill, but would contribute to reducing the volume of refuse requiring landfilling.

3. Alternative Technology 7 - Gypsum Recycling

Operational Feasibility and Economic Viability Issues - The process of recovering gypsum is an existing industrial technology. There is some experience with applying this technology to refuse recovery in the U.S. Mainland, although it is still in the emergent phase.

By-Product Generation - The processing of materials to recover gypsum will produce some waste by-products that cannot be further recovered or recycled. The overall volume of waste by-products is anticipated to be low.

Integration into Existing Oahu Refuse Stream - Some modifications to the waste refuse stream will be required. This will primarily involve addition of recycling containers at City refuse facilities. A separate site for the facility will also be required. A separate feasibility study would also need to be completed.

Operational Scale - Gypsum recycling is considered an emerging growth technology and will only provide for a 7% reduction in the Waimanalo Gulch

refuse stream. This technology will not by itself address the need for a landfill, but would contribute to reducing the volume of refuse requiring landfilling.

None of the identified technologies are considered adequate for the replacement of a municipal sanitary landfill on Oahu. The Plasma Generating Station concept, while promising, does not yet demonstrate operational capacity for the refuse volume that would be generated by the City and County of Honolulu. There are also environmental concerns regarding waste by products. This alternative technology is therefore rejected.

Gypsum and metals recycling could contribute to reduction of a small portion of Oahu's refuse stream requiring disposal, but would not by themselves eliminate the need for a municipal sanitary landfill. These alternatives may be developed in the future, but are rejected as a replacement to a municipal sanitary landfill.

1.6.3.2 ALTERNATIVE LOCATIONS FOR SANITARY LANDFILLS

Three (3) primary criteria were used to evaluate potential locations for a municipal solid waste landfill:

1. 40 CODE OF FEDERAL REGULATIONS (CFR), PART 258
   Volume 40 of CFR, Part 258, governs the development, operation and closure of landfills. This Federal regulation is administered by the Environmental Protection Agency (EPA), and State of Hawaii, Department of Health (DOH).

2. LANDFILL CAPACITY REQUIREMENT
   This second criteria involves determination of the capacity for the proposed landfill. The storage capacity requirement is based on the estimated volume of MSW (requiring disposal in a landfill) which would be generated in the City and County of Honolulu for a period of approximately 15 years.

3. TECHNICAL AND RESOURCE CRITERIA

The third and final criteria involves consideration of the following factors:

a. Ability to protect natural resources including groundwater, surface water, and air quality;
b. Compatibility with area land uses including current uses, adjacent uses, proposed development, and future general plans;
c. Potential for destruction of natural habitat including displacement of species and loss of biotic diversity;
d. Potential for destruction of cultural resources;
e. Technical viability including engineering feasibility, cover availability, need for further engineering, site access, and availability of utilities;
f. Economic issues including development costs, analysis of haul distances, and material import costs;
g. Anticipated site life; and,
h. Land acquisition issues.

Alternative locations evaluated by ENV are identified in **Table 1-1**. According to the table there are approximately 42 sites which were preliminarily identified. Some of the sites were removed from consideration for practical reasons:

- Ewa No. 1 & 2 was removed due to residential development within the landfill boundary.
- Heeia Kai was removed due to residential development within the landfill boundary.
- Kalaheo was previously used for a municipal landfill. This site is not viable for development.
- Kapaa No. 2 & 3 was previously used for a municipal landfill. This site is not viable for development.

Table 1-1
INVENTORY OF POTENTIAL ALTERNATIVE LANDFILL SITES
ISLAND OF OAHU

No.	Site Name	TMK	Total Acreage	Mill. Tons Capacity*	Years Lifespan**
1	Auloa	4-2-14:por 1	55.00	2.79	4.7
2	Barbers Point	9-1-16:18, por 1	15.00	0.74	1.2
3	Bellows	4-1-15	173.00	7.51	12.5
4	Diamond Head Crater	3-1-42:por 6	115.00	4.30	7.2
5	Ewa No. 1	9-1-17	-	-	-
6	Ewa No. 2	9-1-10	-	-	-
7	Halawa A	9-9-10:8,9,por 10 & 26	40.00	1.50	2.5
8	Halawa B	9-9-10:27, por 10	60.00	2.20	3.7
9	Heeia Kai	4-6	-	-	-
10	Heeia Uka	4-6-14:01	163.00	2.40	4.0
11	Honouliuli	9-1-17:por 4	22.00	1.65	2.8
12	Kaaawa	5-1	150.00	5.60	9.3
13	Kaena	6-9-1:por 3, 33 & 34	40.00	1.50	2.5
14	Kahaluu	4-7	70.00	2.60	4.3
15	Kahe	9-2-3:por 27	200.00	7.40	12.3
16	Kalaheo	4-2-15:por 1 & 6	-	-	-
17	Kaloi	9-2-02:por 1; 9-2-3:por 2; 9-2-4:por 5	400.00	24.30	40.5
18	Kapaa No. 1	4-4-14:por 2	60.00	3.03	5.1
19	Kapaa No. 2 & 3	4-2-15:por 1, 3, 4, 7	-	-	-
20	Kaukonahua	7-1	34.00	1.30	2.2
21	Keekee	6-9-1:por 3 & 4, 6-9-3: por 2	40.00	1.20	2.0
22	Koko Crater	3-9-12: por 1	140.00	5.50	9.2
23	Kunia A	9-4-4: por 4	150.00	5.60	9.3
24	Kunia B	9-4-3: por 19	190.00	7.00	11.7
25	Maili	8-7-10:3	200.00	9.20	15.3
26	Makaiwa	9-2-3	338.00	15.00	25.0
27	Makua	8-1-1, 8-2-1	600.00	7.40	12.3
28	Mililani	9-5	34.00	2.20	3.7
29	Nanakuli	8-7-9:1 &3 and 8-7-21:26	611.00	13.40	22.3
30	Ohikilolo	8-3-1:13	706.00	15.60	26.0
31	Olomana	4-2	-	-	-
32	Poamoho	7-1	5.00	0.70	1.2
33	Punaluu	5-3	200.00	7.40	12.3
34	Sand Island	1-5-41	150.00	5.60	9.3
35	Waiahole	4-8	60.00	2.30	3.8
36	Waianae Expansion	8-5-3 and 6	140.00	6.80	11.3
37	Waihee	4-7	61.00	2.30	3.8
38	Waikane	4-8	200.00	7.40	12.3
39	Waimanalo Gulch Expansion	9-2-3: 72 & 73	60.50	9.00	15.0
40	Waimanalo North	4-1-08:13	-	-	-
41	Waimanalo South	4-1	355.00	13.99	23.3
42	Waipio	9-3-2	160.00	2.50	4.2

*Capacity is based on analysis of site characteristics, slope, and area available for development by ENV.
**Lifespan is based on capacity divided by disposal rate of 600,000 cubic yards MSW per year.

- Olomana is removed due to residential development within the landfill boundary.

Of the sites remaining, an analysis was undertaken using the criteria identified in Section 1.6.3.2. The results of the analysis provided three site recommendations which are summarized as follows:

SITE RECOMMENDATION NO. 1 - WAIMANALO GULCH EXPANSION

Waimanalo Gulch Expansion is the preferred alternative based on evaluation of development criteria. Positive site characteristics include the following:

- The proposed expansion site is located within an existing sanitary landfill site.
- The site has already been subject to extensive environmental and archaeological review. Flora, fauna, and archaeological reviews have indicated no adverse potential for negative environmental impacts.
- Technical and economic development costs are relatively low based on existing, usable soils that can be reclaimed for cover material. Proximity of the site to access roads and HPOWER is good.
- Land acquisition considerations are positive in that the land is already under ownership of the City and County of Honolulu.

Negative site characteristics include:

- While the expansion site is within the existing landfill, the region is facing increasing urbanization pressures. Residents in the surrounding communities of Ko Olina, Honokai Hale, Makakilo, Kapolei, Waianae, and Ewa have expressed opposition to any further expansion of the existing landfill site. Development of the site will require a high level of effort and coordination with the area

community to address stated concerns involving odor, windblown and refuse truck associated litter, and other potential problems.

The future use of this site will therefore require an active program of on going discussion and dialog with the community to ensure that timely and effective responses to concerns and problems are addressed.

SITE RECOMMENDATION NO. 2 - MAKAIWA

Makaiwa is the second recommended site. Positive site characteristics include:

- The site is technically viable based on soil materials available for use as cover. Anticipated engineering difficulty is expected to be low based on site conditions and level of development required for access roads and utilities.

Negative site characteristics include:

- Existing concern by the community over the perceived exclusive use of the region for landfills. The relative proximity of the site to the existing Waimanalo Gulch Sanitary Landfill would be considered by some community members as unacceptable.
- Land acquisition costs are anticipated to be high due to designation of the site by the Estate of James Campbell for future residential development.
- Design, engineering and construction costs are also expected to be somewhat higher due to site conditions requiring infrastructure improvements. New access and internal roadways, buildings, and utilities would need to be developed.
- Further environmental evaluation of flora, fauna, and archaeological resources will be required. In addition, should subsequent environmental investigation involve new discoveries of federal or state listed threatened and endangered species, or

significant archaeological and cultural resources, the site could become discounted from further consideration.

SITE RECOMMENDATION NO. 3 - MAILI

Maili is the third recommended site. Positive site characteristics include:

- The site is technically viable for development based on soils available for use as cover. Anticipated engineering difficulty is expected to be moderate based on site conditions and level of development required for access roads and utilities.

Negative site characteristics include:

- The site is privately owned and may not be for sale. The site would therefore require condemnation.
- Location of the site is further distant from HPOWER and refuse transfer stations which would involve higher refuse transportation costs.
- Access to the site is limited due to the location of Farrington Highway within the Maili - Waianae corridor.
- Further environmental evaluation of flora, fauna, and archaeological resources will be required for areas within the site that are not now under active use for limestone quarrying.

Based on the analysis performed for selection of an alternative landfill location, Waimanalo Gulch Sanitary Landfill Expansion, is the preferred alternative.

1.6.4 ALTERNATIVE 4: PROPOSED EXPANSION OF THE EXISTING LANDFILL

Under this alternative, the existing Waimanalo Gulch Sanitary Landfill footprint will be expanded by approximately 60.5 acres. The 60.5 acres of additional landfill area will provide approximately 15 years of additional operating life for the Waimanalo Gulch Sanitary Landfill site. As stated in the City and County of Honolulu, Department of Public Works, Solid Waste Integrated Management Plan Update Final Report (1995), siting of a major landfill on the Leeward side is necessary since most of Oahu's future non-divertable waste (primarily ash from the H-POWER facility) will be generated on this side of the island. Additionally, the Leeward side has a more arid climate, and is therefore more suitable for the selection of a site for landfilling purposes. Due to difficulty in siting an entirely new facility and need for additional space for disposal of solid waste, the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill is the preferred alternative.

1.7 UNRESOLVED ISSUES

1.7.1 FINAL LANDFILL PHASING AND ENGINEERING PLANS

The final landfill phasing and engineering plans are being developed by Waste Management of Hawaii, Inc. Although these plans are not yet complete, the overall site requirement has been estimated at approximately 60.5 acres.

Final landfill boundary areas will be examined to provide for sufficient slope and grades. Once the final boundary has been determined a 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.

1.7.2 VOLUME OF AGGREGATE TO BE RELEASED FROM SITE

Excavation and grading will result in the generation of recovered soil, cobbles, and boulders. Soils from onsite grading will be stockpiled and later used for landfill cover. Cobbles 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 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:

Cubic Yards	Explanation
±400,000 - 1.2 M	Anticipated volume of soils excavated from the site
±300,000	Soils reused onsite for landscaping and other purposes
±900,000	Remaining volume of soils with aggregate recovery rate of approximately 50% (total aggregate recovery of ±450,000 cubic yards).
±30,000	Estimated average annual generation of aggregate

An estimated aggregate recovery rate of 50 percent would provide approximately 450,000 cubic yards of aggregate. The average annual release of volume of material over an expected landfill lifespan of 15 years would amount to approximately 30,000 cubic yards per year.

1.7.3 DATE OF BUILDOUT OF PROPOSED LANDFILL EXPANSION AREA

The planned lifespan of the proposed landfill expansion is 15 years to the year 2017. Although this is based on current demand for landfill space and anticipated future population growth on Oahu, various factors could affect the planned 2017 buildout date.

Future City efforts to improve waste reduction and recycling programs could produce additional savings of space necessary to be landfilled. The magnitude of landfill savings associated with improved waste reduction and recycling, however, will depend on the willingness of most residents to embrace recycling, as well as to purchase goods and products incorporating less wasteful packaging. There are now few available products which incorporate use of recycled or biodegradable packaging. Additional incentives, including tax credits, could be implemented to increase compliance. However, waste reduction and recycling programs are not without cost and will have to be carefully considered by the public and State and City and County of Honolulu decision makers prior to implementation.

Conversely, there could be an increase in waste generation due to a number of factors. Two examples involve: (1) Future economic recovery, and associated development in Hawaii. Although increased economic activity would provide for increased public and private sector employment and spending, there would be an accompanying need for disposal of goods and materials that are replaced; 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 need to be upgraded. At the same time, emerging new technologies which are not now considered viable, may produce future technological breakthroughs which can be feasibly applied in the City and County of Honolulu.

1.8 NECESSARY PERMITS AND APPROVALS

1.8.1 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

1.8.2 CITY AND COUNTY OF HONOLULU

State Special Use Permit Amendment
Conditional Use Permit - Major (if required)

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 60.5-acre expansion area is planned in a vacant area within the southern and eastern boundaries of the existing 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

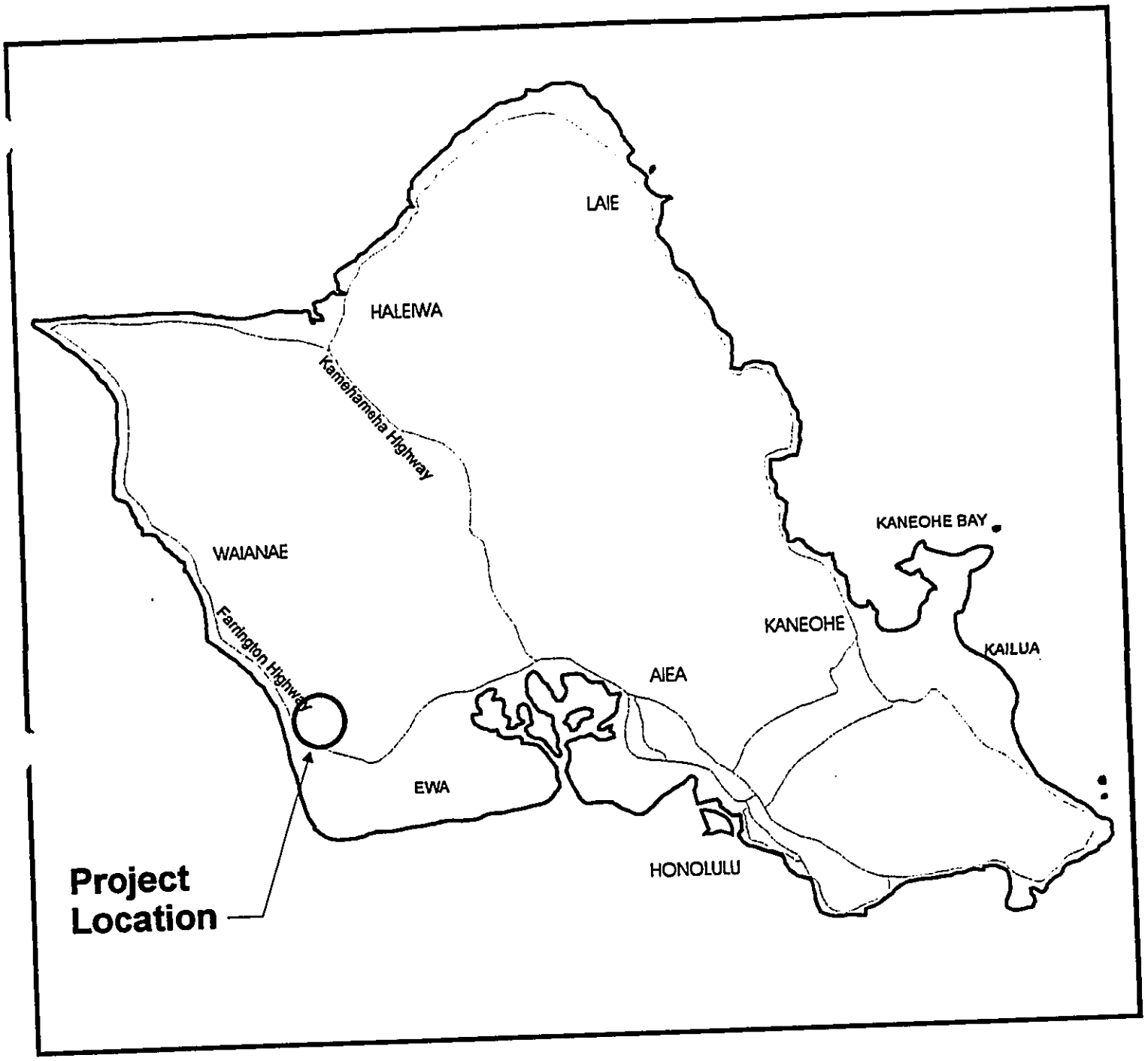
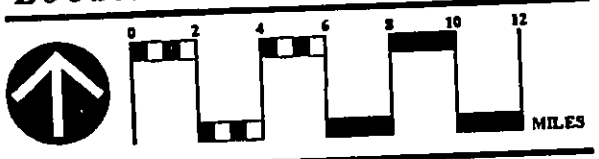
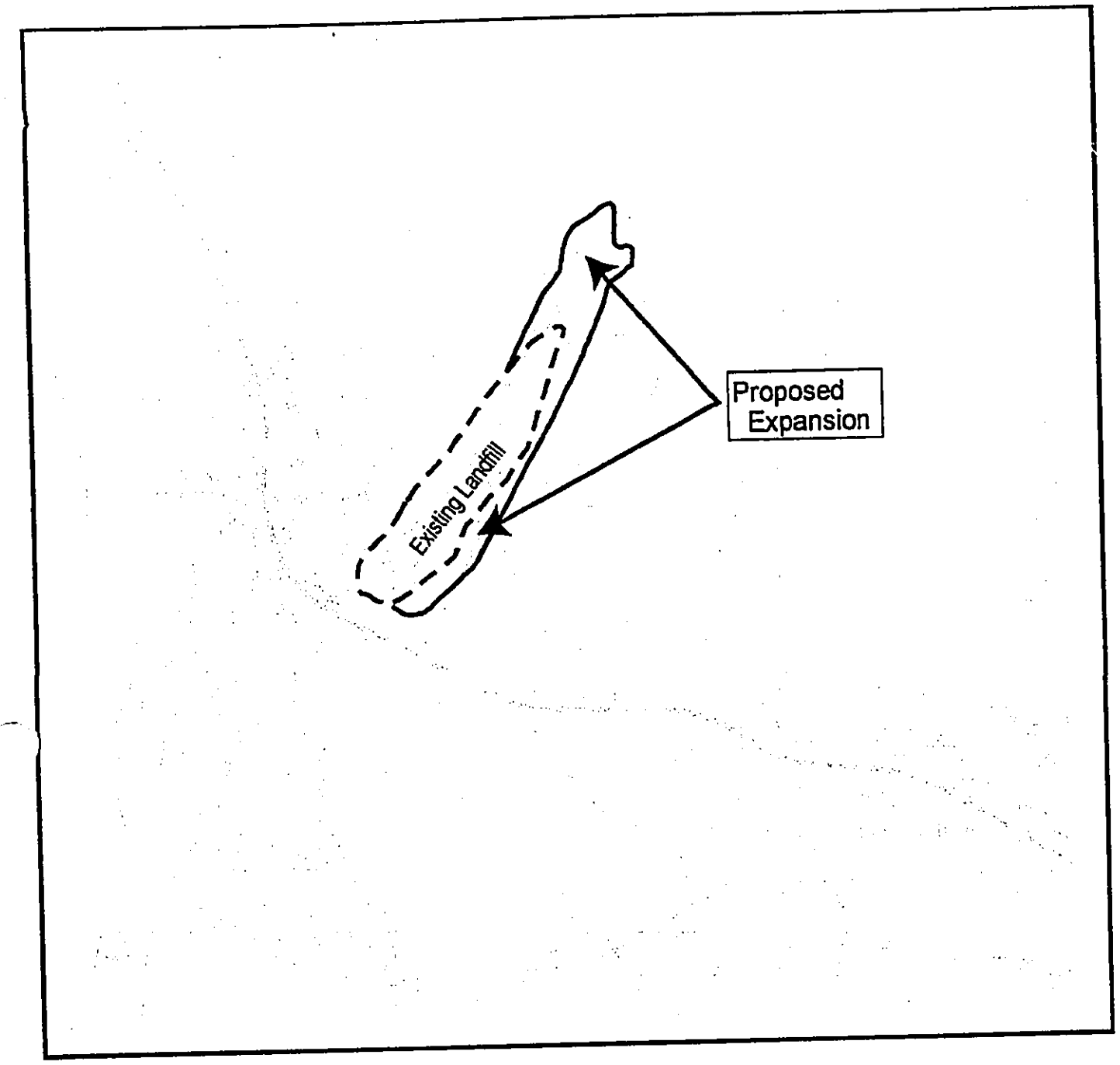


FIGURE 2-1
Location



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R.M. TOWILL CORPORATION



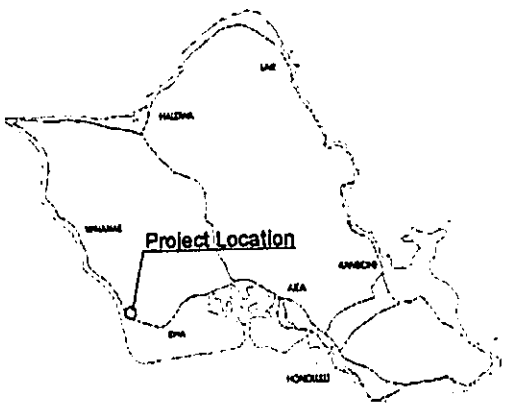
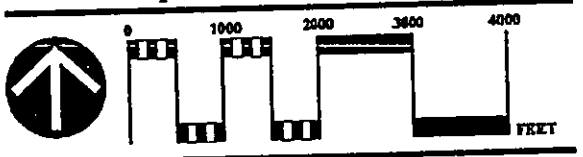


FIGURE 2-2
Site Map



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R. M. TOWILL CORPORATION

* Source: C & C Honolulu, ENV 2001

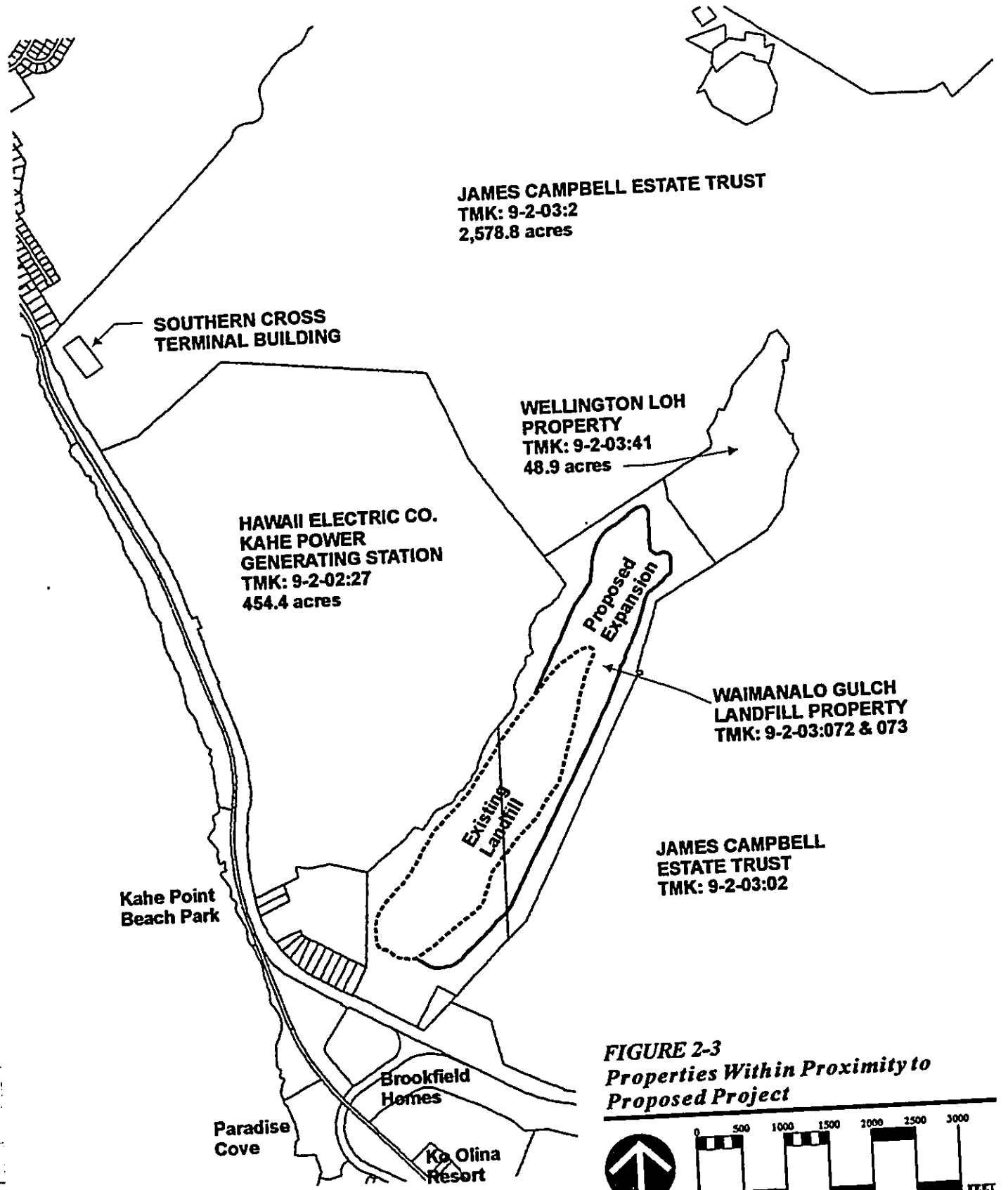
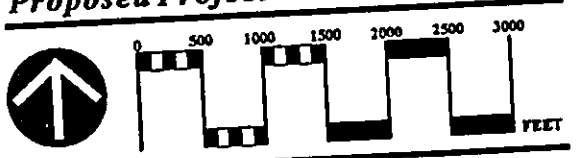


FIGURE 2-3
Properties Within Proximity to Proposed Project



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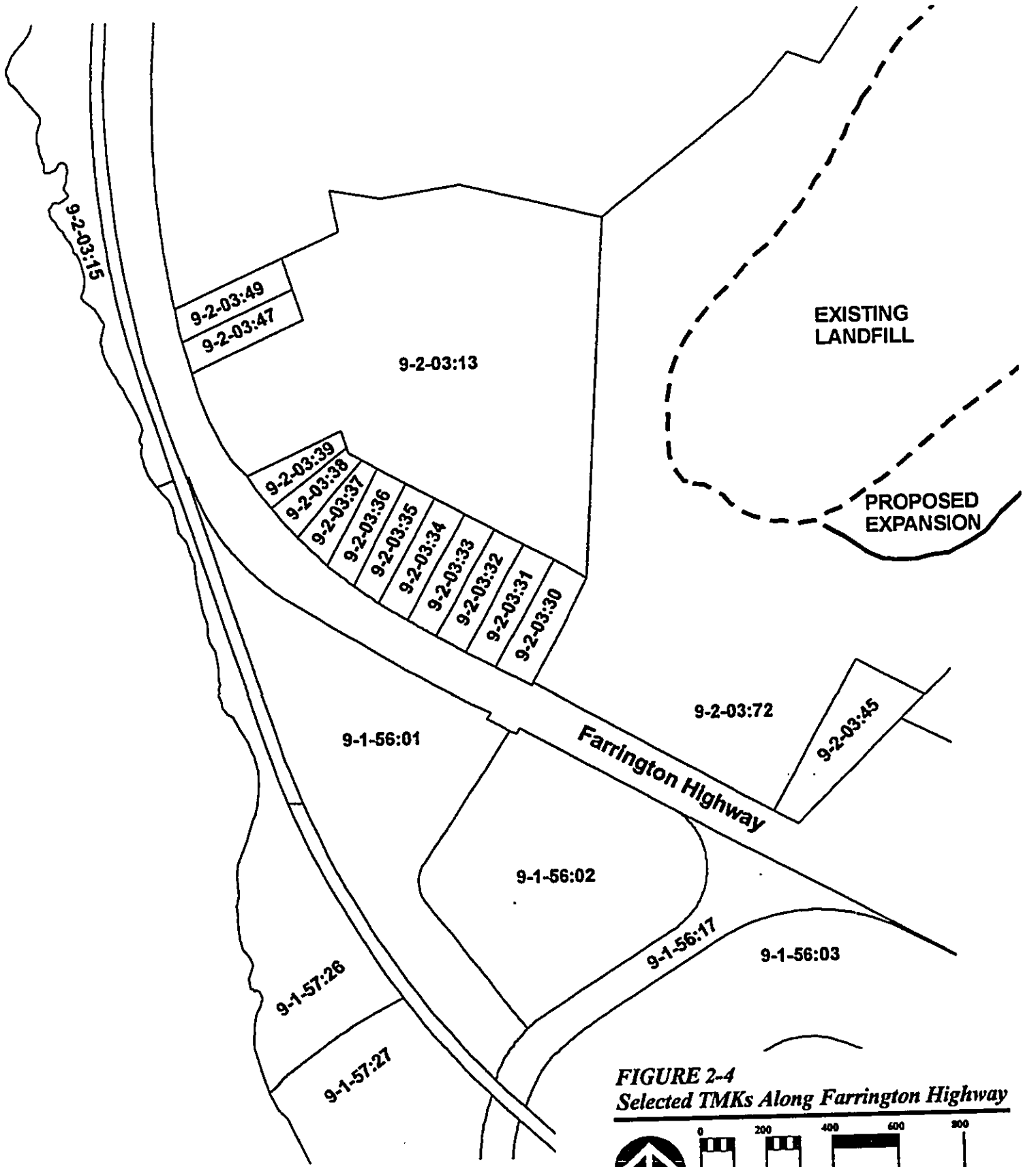
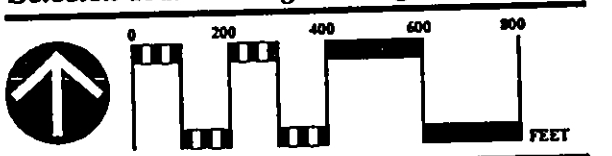


FIGURE 2-4
Selected TMKs Along Farrington Highway



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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 includes: Brookfield Homes (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 both MSW as well as 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.

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 land to the north and west, 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 existing 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. 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 0.4 to 1.2 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 ±700 feet at the ridge of the top deck. The top deck will be graded at a minimum 5 percent slope. Final grades for the slope will be designed at a 2:1 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 monofill 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 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, similar to wells installed for the existing landfill area, will be installed for the expansion area. Locations for the monitoring wells: 1) will be beneath the landfill space to determine background water quality; and, 2) at a relevant point downgradient of the site to determine compliance with applicable Federal and State regulations. The location of the monitoring wells, 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).

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.

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 event of fires. It is anticipated that the 34 foot vertical clearance will be exceeded with a planned for vertical separation of approximately 50 feet from the power lines to the surface of the completed landfill.

2.3.8 SITE RESTORATION

Upon completion of construction activities, the contractor 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 400 feet at the ridge of the top deck. 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 monofill 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 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 extremely limited and ongoing. The preparation of the final cell in the proposed expansion is planned to be completed in the year 2017. The preliminary construction and operation cost estimate for the project will be approximately $5 million per year over the 15 year period of construction. 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. Potential impacts are described and evaluated, and mitigation measures to minimize and/or reduce potential for negative adverse environmental impacts are identified.

3.1 TOPOGRAPHY, CLIMATE, AND RAINFALL

3.1.1 TOPOGRAPHY

The proposed expansion is located within the existing Waimanalo Gulch Sanitary Landfill property, in Waimanalo Gulch. Waimanalo Gulch is a long, narrow, stony gulch approximately 1,500 feet wide and 7,500 feet long. The lower end slopes at 8% and the upper end slopes at approximately 18%. The eastern boundary of the sanitary landfill site is steeply sloped and will limit the amount of area available for sanitary landfill activity. The proposed project will extend the area used for landfill activities by approximately 60.5 acres.

3.1.2 CLIMATE AND RAINFALL

According to the 1996 State of Hawaii Data Book, the Waianae weather station, at an elevation of 10 feet above mean sea level (msl), receives an average annual precipitation of 20 inches with extreme temperature records of 45° Fahrenheit (F) and 96°F. Rainfall increases substantially with elevation and reaches an average of 75 inches at the top of Mt. Kaala, 4,003 feet above msl. The proposed project site is located at an elevation range of 500 feet to 850 feet above msl and is considered extremely arid. According to an on-site rain gauge, the average rainfall at the existing sanitary landfill site is approximately 15 inches per year. It is expected that precipitation within the sanitary landfill expansion area would similarly range from approximately 15 to 20 inches annually. This is based on prior sanitary landfill rainfall

data and working grades which will be below the ridge lines on either side of Waimanalo Gulch.

3.2 NATURAL HAZARDS

3.2.1 FLOOD ZONES

The proposed project area will be situated at an elevation of approximately 150 - 700 feet above mean sea level (msl), within the Waimanalo Gulch. The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) identifies the proposed project site as lying within "Zone D" - an area in which flood hazards are undetermined (**Figure 3-1, Flood Map**).

Although flood control measures are not required, the project provides a drainage control system within the limits of the ±200 acre landfill property. The system is designed to a 25 year recurring storm event with a one hour rainfall intensity with a critical duration equal to the time of concentration. The site's silt basin and major hydraulic structures are designed for rainfall runoff from an over 622 acre drainage area with peak discharges from a 100 year probable storm recurrence interval. The proposed project will not increase storm runoff from the site.

3.2.2 IMPACTS AND MITIGATION

The proposed project is not anticipated to result in adverse impacts from stormflows or flooding due to arid conditions and high elevations. Overall site drainage is designed to address stormflows from both off-site and on-site. This is reflected in the design of storm controls from a drainage area of 622 acres. The design to accommodate peak discharges from a 100 year storm event are within State and City and County of Honolulu regulations governing storm flows.

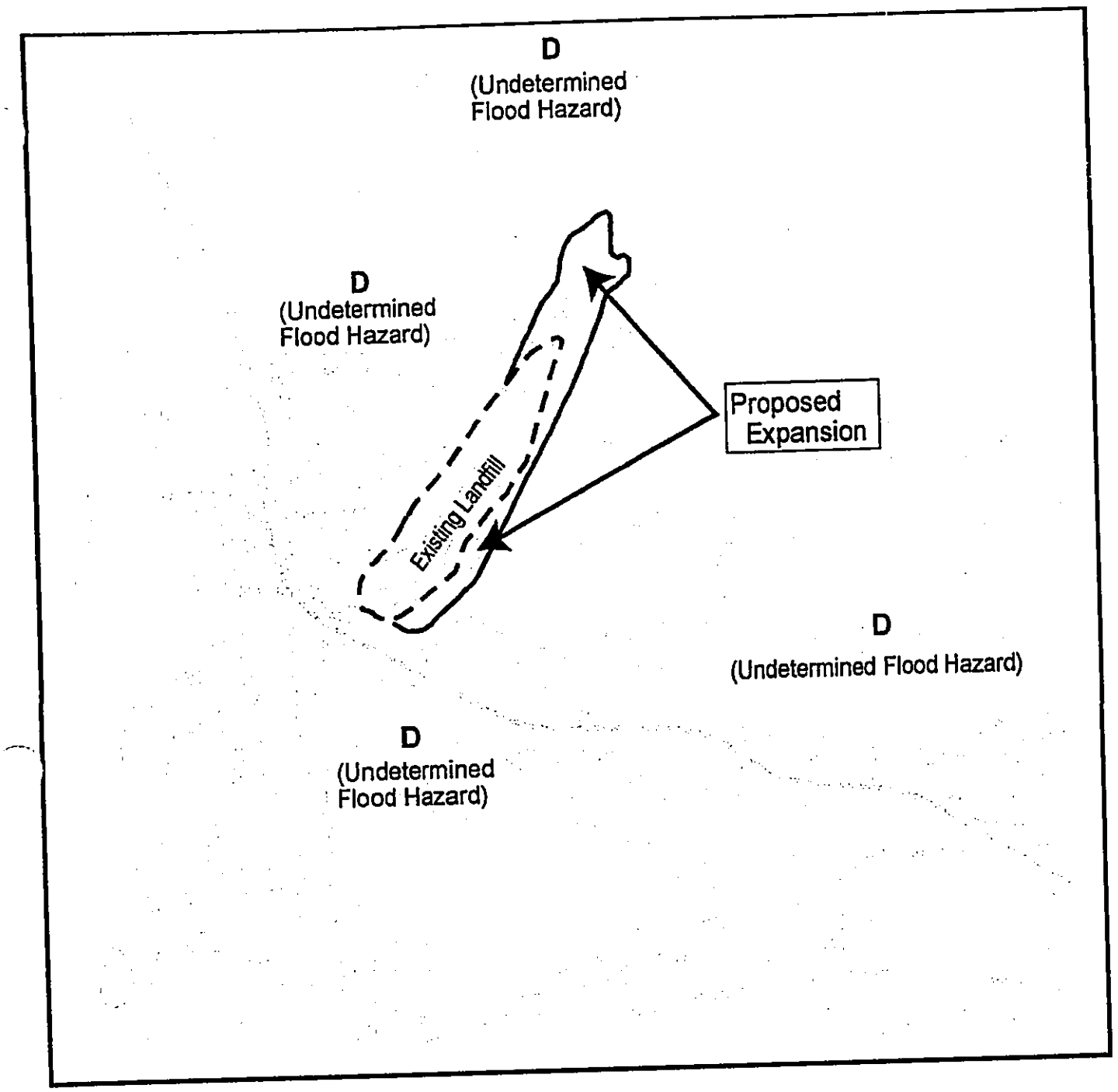
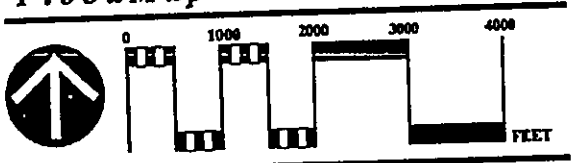


FIGURE 3-1
FloodMap



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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* Source: FEMA/FIRM

3.3 GEOLOGY

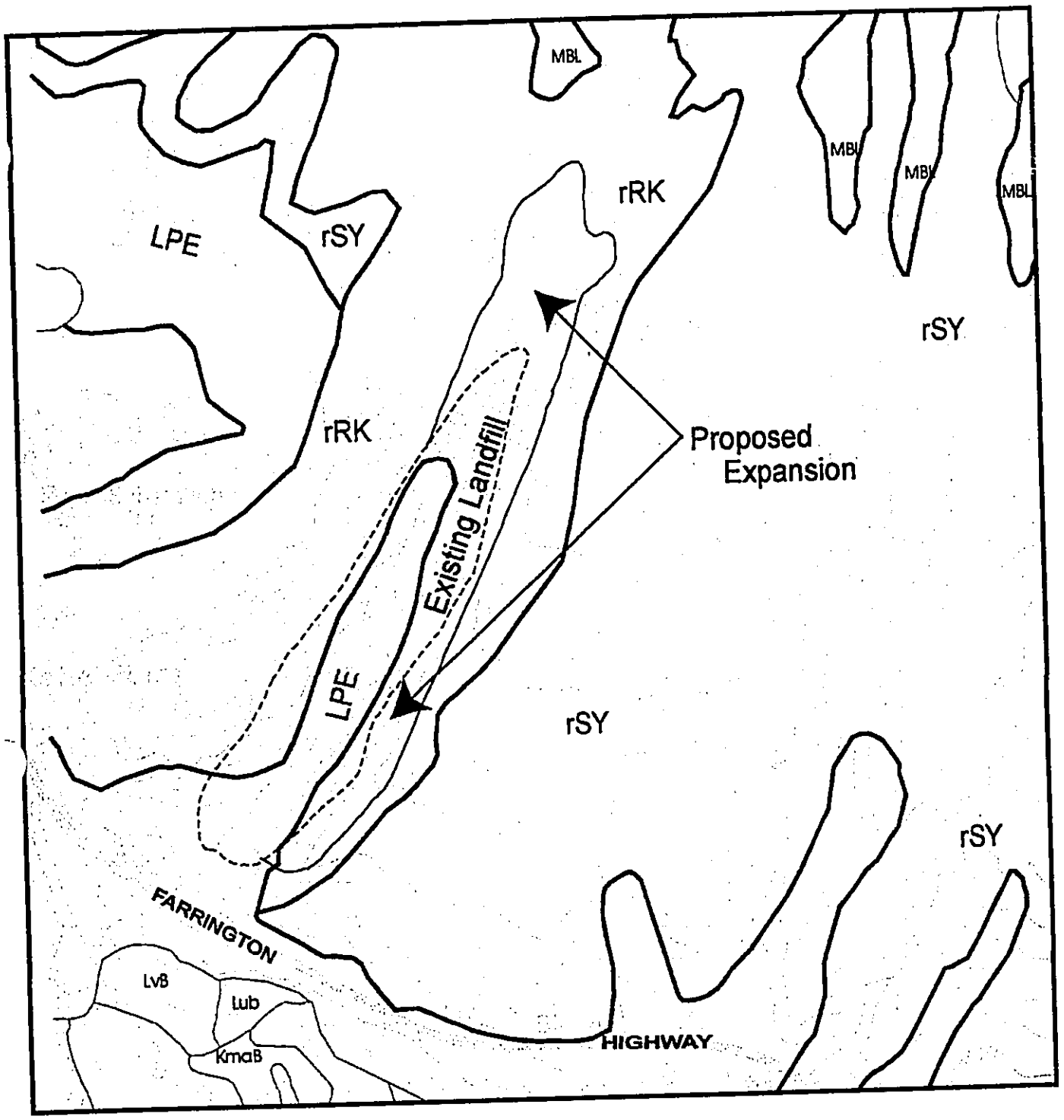
3.3.1 SOILS

There are primarily two soil associations found at the project site: Lualualei-Fill land-Ewa Association, and Rocky land-Stony steep land association (U.S. Department of Agriculture, 1972). Characteristics associated with these associations include:

> Lualualei-Fill land-Ewa Association: 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 ±1,500 feet mauka of Farrington Highway, within the landfill property; and,
>
> Rocky land-Stony steep land association: 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.

The majority of soil types found at the project site consists of Rock Land (rRK) with small amounts of Stony Steep Land (rSY). **(Figure 3-2, Soils Map).**

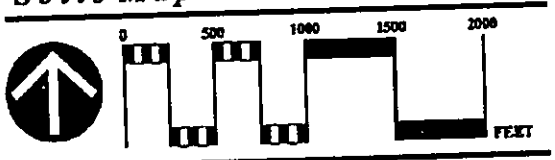
Rock Land (rRK), is a type of soil where exposed rock covers 25% to 90% of the surface. Rock outcrops and very shallow soils are the main characteristics. The rock outcrops are comprised primarily of basalt and andosite. This land type is nearly level to very steep. Soil materials associated with the rock outcrops are very sticky and very plastic, and have a high shrink-swell potential when moisture laden.



Legend

CR - Coral Outcrop
KmaB - Keaau Stoney 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 3-2
Soils Map



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R. M. TOWILL CORPORATION

* Source: Soil Conservation Service, 1972

Natural vegetation at the lower elevations consist of kiawe, klu, piligrass, Japanese tea, and koa haole. Lantana, guava, Natal redtop and molassesgrass are dominant at the higher elevations.

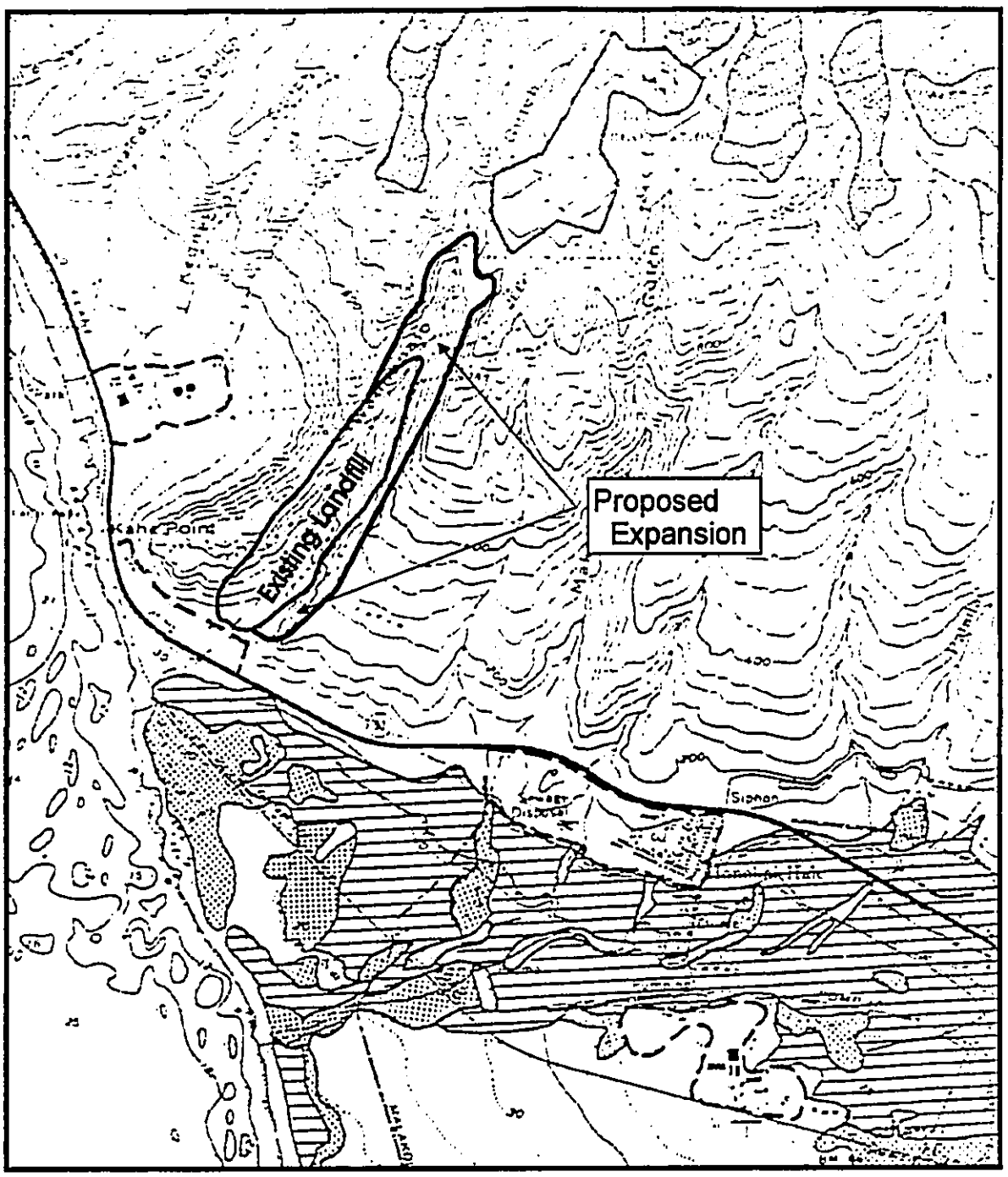
Stony Steep Land (rSY) consists of a mass of boulders and stones deposited by water and gravity on side slopes of drainageways. The slopes generally range from 40 to 70 percent with elevations of 100 to 1,500 feet. Stones and boulders usually cover 50 to 90 percent of the surface. There are usually small amounts of soil among the stones that provide a foothold for plants. The natural vegetation consists of kiawe, koa haole, and grasses (U.S. Department of Agriculture, 1972).

Rock land soil properties are not conducive to urban development as it 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 required for the administrative buildings within the existing landfill site.

The project site is not classified by the Agricultural Lands of Importance to the State of Hawaii (ALISH) system. (Figure 3-3, ALISH Map).

3.3.2 IMPACTS AND MITIGATION

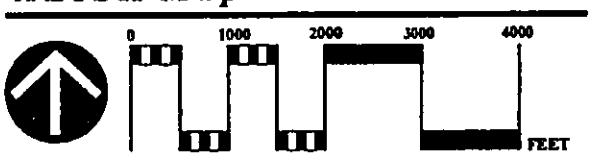
Although Rock land associated soils are unsuitable for most buildings, they are favorable for construction and operation of a sanitary landfill at Waimanalo Gulch. Arid weather conditions at the project site reduces the incidence of soil saturation which would lead to soil and foundation movement. Potential for negative adverse impacts are not anticipated or expected.



LEGEND

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

FIGURE 3-3
ALISH Map



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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The sanitary landfill process requires some water sprinkling to control fugitive dust, and then compacting and intermediate cover of waste materials on a daily basis. The normal landfill operation requires placement of six (6) 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. In areas which will not be actively filled for a period for 30 days or more, a minimum of one (1) foot of cover will be placed. The surface of the cover will be sloped to drain. The daily and intermediate cover will minimize infiltration from direct precipitation and runoff, and decrease the potential for leachate generation, order and vector problems. Portion of the intermediate cover can be scraped back and stockpiled for reuse when filling is to proceed over the same area. This serves to prevent generation of landfill associated leachate and gas, and maintains the soil cover balance.

The ash monofill landfilling operation currently being employed does not require a daily cover. 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 exhibits 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 frequently covered. Intermediate cover is placed over suitable cell areas that are not being actively worked. Intermediate cover is compacted to minimum 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.

3.4 SURFACE WATER AND HYDROLOGY

3.4.1 SURFACE WATER AND HYDROLOGY

Although there are no perennial streams or rivers within the project site, a drainageway is identified within the existing landfill property. This drainageway will be extended to provide for drainage of storm flows from the proposed expansion area.

3.4.2 IMPACTS AND MITIGATION

Leachate, a by-product of excess water within a sanitary landfill is not anticipated to result in potential for negative adverse impacts. The production of leachate containing organic and inorganic matter, in suspended and dissolved form, is dependent upon the presence of excess water. Water is introduced into a sanitary landfill by infiltration. When the net water infiltration into a sanitary landfill exceeds the absorptive and/or retention ability of the refuse, leachate will be produced.

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:

1) Surface Drainage System: The existing surface 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 are designed for rainfall runoff resulting from a peak discharge over a 622 acre drainage area with a 100 year probable storm recurrence interval. The system therefore accommodates runoff from areas upslope as well as within the project site.

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.

2) Landfill Liner System: The landfill liner system is designed in accordance with Environmental Protection Agency (EPA) requirements for two sources of wastes: (1) ash monofill; and, (2) municipal solid waste (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 liner (GCL) and high density polyethylene (HDPE) 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.

3) Leachate Collection System: A dual collection and independent monitoring system is employed to control the generation of leachate from both the ash monofill and municipal solid waste sections of the existing landfill. The system provides for collection of leachate from both the ash monofill and municipal solid waste fill areas and facilitates the prevention of further migration of leachate into the lower soil strata.

A system similar to the existing leachate collection system will be applied to the proposed landfill expansion area.

The ash monofill leachate collection system is developed to provide effective operational conditions and compatibility with characteristics of the ash material. The base grades of the ash cells and leachate flow line are graded to a minimum slope of 2% with an average of approximately 5% throughout. The leachate collection conduit consists of a graded, 7 foot wide swale with a maximum depth of 1.5 feet. The swale is lined as described for the base liner and includes an additional synthetic geonet layer to provide additional drainage capacity.

The municipal solid waste 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.

The collection system for both the ash monofill and municipal solid waste fill areas include leachate collection sumps, collection riser pipes, clean out riser pipes, and appurtenances. These features permit the safe and effective detection, monitoring, and collection of leachate. Approximately 50,000 gallons of leachate are generated, collected, and disposed of annually using this system.

4) Final Cover and Grades: The final cover and final grades will be designed to minimize infiltration of rainfall and assist in minimizing 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 areas of the landfill.

3.5 GROUNDWATER

3.5.1 GROUNDWATER

Groundwater found below and surrounding the Waimanalo Gulch Sanitary Landfill is brackish and is not designated as a groundwater recharge area by the City and County of Honolulu Board of Water Supply. (Prior to 1987, groundwater recharge areas for Oahu were identified by BWS. Since 1987, DOH has administered the No Pass Program).

Areas of groundwater recharge are situated over much of the island of Oahu. **Figure 3-4, BWS Groundwater Zones**, shows areas of brackish water supply and additional areas identified by BWS which may be acceptable for sanitary landfill development. The project area and adjacent existing sanitary landfill facility is 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 generally not permitted.

The proposed expansion project 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 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 3-5, UIC Line**).

3.5.2 IMPACTS AND MITIGATION

Potential for negative adverse environmental impacts are not anticipated. Protection of groundwater resources will be maintained through use of the existing groundwater management system which will include the following:

Groundwater Monitoring

Groundwater monitoring procedures which are practiced at the existing landfill will be extended to operations of the proposed expansion area. Groundwater monitoring wells will be placed in appropriate locations to assess water quality:

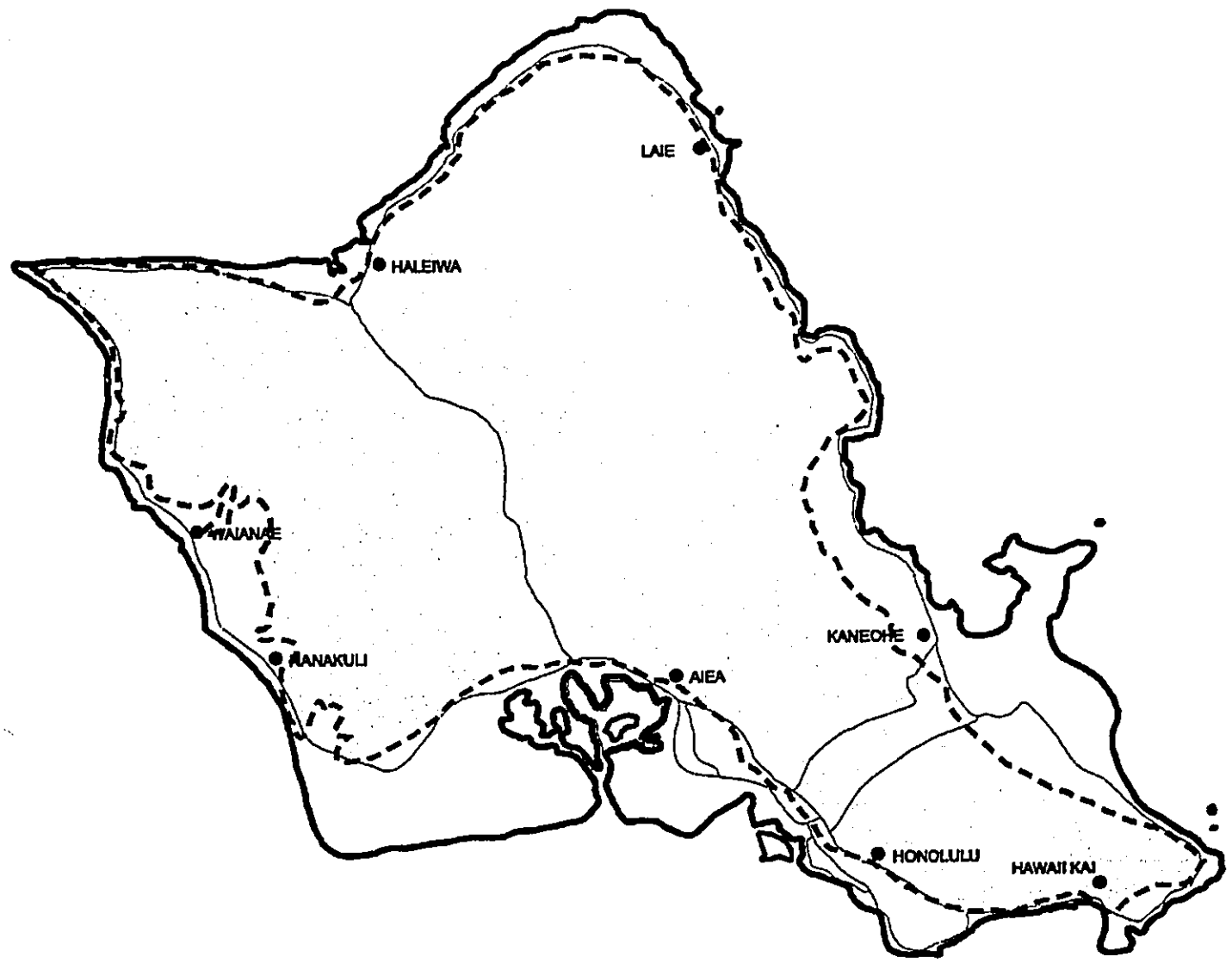
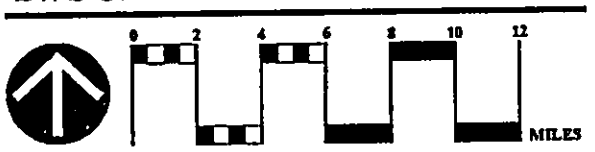


FIGURE 3-4
BWS Groundwater Protection Zones



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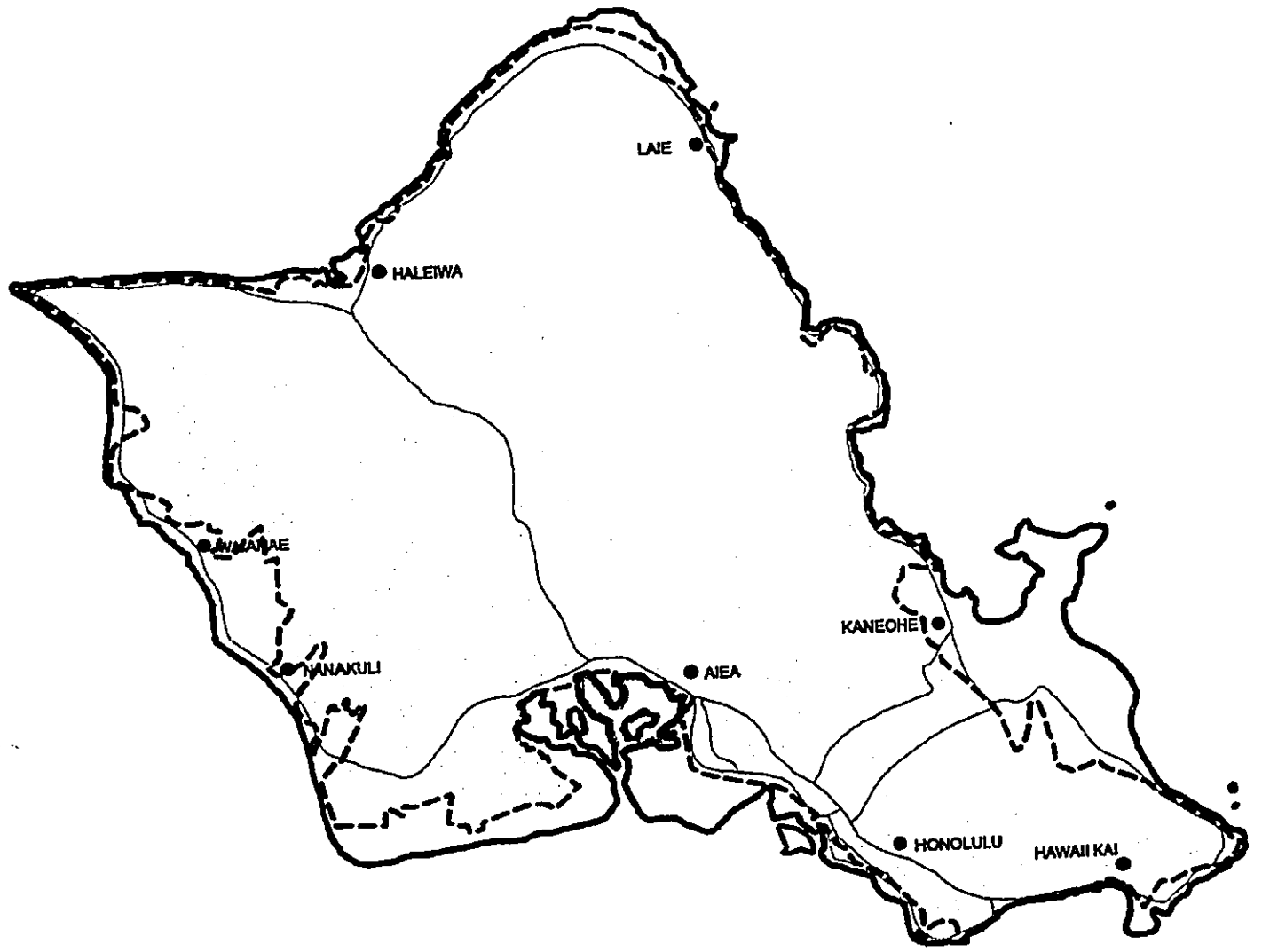
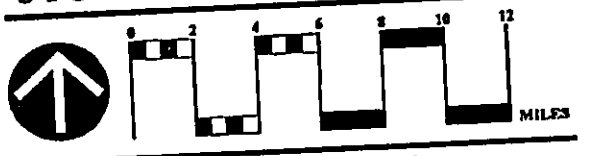


FIGURE 3-5
UIC Line



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

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(1) beneath the expansion site before it has passed the landfill boundary to determine background water quality; and, (2) at a point downgradient of 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.

Detection and monitoring of groundwater will continue to include analysis of specified water quality constituents as promulgated by the EPA, 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. 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.

Corrective Action Program

If the results of the groundwater quality monitoring program 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 owner/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 owner/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 the EPA/DOH.

The existing groundwater monitoring program used for early detection of contaminants in non-potable groundwater resources will continue. Specified operational practices involving use of appropriate preventative measures to protect against leachate infiltration will also be used. As required, further preventive/corrective measures will be implemented to ensure against potential for negative adverse impacts.

The proposed expansion will require an increase in the capacity of the existing drainage control systems. As designed for the existing sanitary landfill facility, the proposed expansion will require proper site drainage to route surface runoff in order to minimize infiltration which could affect groundwater through increased generation of leachate.

3.6 AIR QUALITY

3.6.1 GENERAL AIR QUALITY

Air quality in the project area is relatively good due to prevailing Hawaiian tradewinds. 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 (Atlas of Hawaii, 1983). Kona storm conditions are locally referred to as Kona Winds.

The natural tradewinds help to dissipate some of the traces of odor associated with the existing landfill. However, the winds also increase the incidence of litter and dust from active landfill cells.

There are two known conditions during which there is potential for increased landfill associated odors to affect properties to the south. This area includes the Ko Olina Resort and various properties owned by individuals along the Farrington Highway thoroughfare. The first condition involves periods of southeasterly winds, also known as Kona Winds. During this condition low wind speeds may cause odor to drift south of the landfill site. The second condition tends to occur during relatively cool morning and early evening hours when there are gentle southerly breezes.

According to Waste Management of Hawaii, Inc., the increased generation of odor is known to have been associated with the following periods: (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:

1) H-POWER Maintenance: H-POWER must be regularly scheduled for equipment and machinery maintenance. During these periods, ash and residue which are normally disposed of at Waimanalo Gulch temporarily ceases and municipal solid waste is directly disposed at the landfill. These periods normally last for approximately 3 weeks annually.

2) Queuing of Refuse Vehicles: The normal business hours at Waimanalo Gulch are 7:00 am to 4:30 pm. Previously, refuse vehicle drivers queued at the entrance of the landfill onto a deceleration lane adjoining Farrington Highway before start of the business day. Some of the vehicles which have queued at the entrance contained refuse with objectionable odors that have drifted to the area of the Ko Olina Resort.

3) Disposal of Sewage Sludge During Maintenance of Equipment: Sewage sludge is a regular component of refuse that is disposed of at Waimanalo Gulch. Sewage sludge is normally heat treated at wastewater treatment plants. The heat process stabilizes and pasteurizes the sludge which facilitates control of odors. During periods when wastewater treatment plants require maintenance or repair to this equipment, polymers and odor control liquids are added to the sludge to control odor and water content. The use of polymers and the type of odor control liquids used at WWTPs are not as effective a means of odor control as heat treatment.

3.6.2 AIR QUALITY ASSOCIATED WITH CONSTRUCTION ACTIVITIES

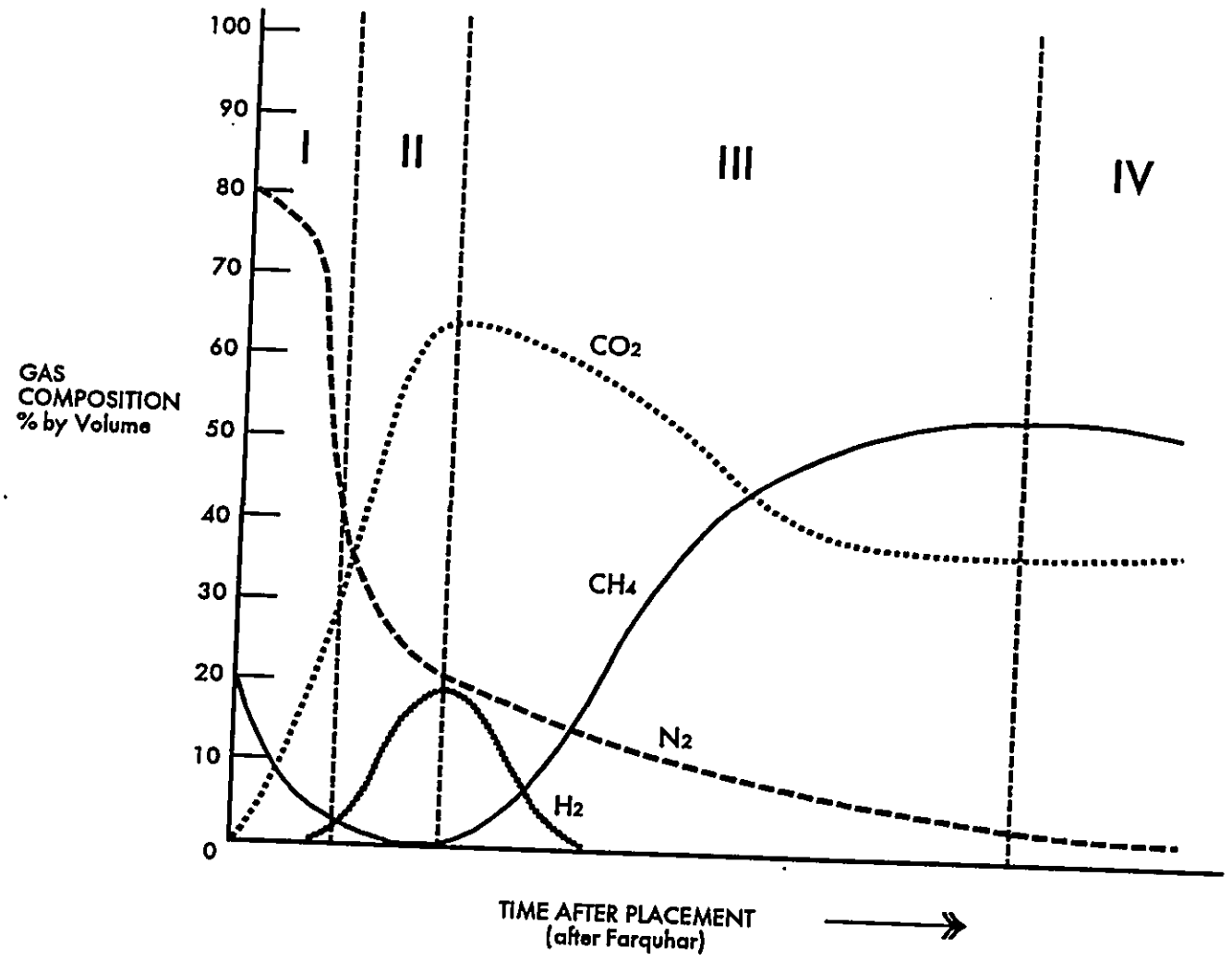
Airborne dust will be the primary air pollutant produced during the construction and operational phase of the landfill expansion. Dust will be generated during the clearing and grubbing of vegetation and site excavation and grading.

Operation of the expansion area will also result in daily traffic of municipal compactor trucks, transfer trailers, commercial vehicles, and public self-haul vehicles. Daily operation of these vehicles to and from the landfill will be a continuation of existing conditions.

3.6.3 GENERATION OF SANITARY LANDFILL ASSOCIATED GASSES

The proposed expansion of the landfill is expected to generate the same types of gases associated with operation of the current sanitary landfill site. Landfill-associated gases are generated under aerobic and anaerobic decomposition of organic materials in the landfill. The major gas components are carbon dioxide (CO_2) and methane (CH_4), lesser amounts of nitrogen (N_2), and occasional traces of hydrogen sulfide (H_2S). The composition of landfill gas evolves as the waste decomposes and goes through aerobic, then anaerobic, processes (Figure 3-4, Gas Composition Study).

GAS COMPOSITION STUDY



LEGEND	
DECOMPOSITION PHASE	
I. AEROBIC	
II. ANAEROBIC, NON-METHANOGENIC	
III. ANAEROBIC, METHANOGENIC, UNSTEADY	
IV. ANAEROBIC, METHANOGENIC, STEADY	
GAS COMPOSITION	
CO_2	Carbon Dioxide
CH_4	Methane
N_2	Nitrogen
H_2	Hydrogen

Source: Leachate Study, Landfill Inventory Study, City and County of Honolulu, EMCON Assoc., 1977.

FIGURE 3-6
Gas Composition

NO SCALE

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The first phase involving aerobic conditions range from several days to weeks. Oxygen present at the time of waste disposal is used for decomposition. CO_2 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 CO_2 and some N_2 and hydrogen (H) are produced.

The third phase is characterized by the first formation of CH_4, a reduction in CO_2 production, and depletion of hydrogen. The fourth phase differs from the third in that gas production and composition approach steady-state conditions. At this stage, the percentage of CH_4 in the gas may range from 50 to 70%, and CO_2 from 30 to 50%.

Carbon dioxide is a colorless, odorless, noncombustible gas and is highly soluble in water at atmospheric pressure. The solubility of CO_2 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. CO_2 in excess of 20 parts per million (ppm) affects iron, steel, and concrete. There is relatively little concern for the corrosive effects of CO_2 on groundwater or surface water, since little to no water quality degradation is attributable to CO_2 gas (City and County of Honolulu, 1977).

Methane is generated by the action of methane-producing bacteria on organic components of refuse. CH_4, 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 50% of the sanitary landfill gas composition is methane, the heat content produced by a sanitary landfill is approximately 500 BTUs per SCF.

Methane is highly combustible in concentrations between 5 and 15 percent by volume in air. For this reason, the uncontrolled release of methane may produce potential hazards including combustion or explosion in confined spaces. 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. Gas migration can be limited by the insolubility of methane in water so that groundwater can limit the migration of methane.

Because CH_4 is lighter than air it tends to rise and exit through landfill cover. A cover of clay is relatively impermeable and will restrict the vertical exit of gas. Rainfall can also 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. Typically, approximately 80% of landfill gas will exit through soil cover.

Anaerobic decomposition results in production of odors from gases. The best mitigative measure is rapid and continuous coverage of refuse with soil and continued maintenance of surface cracks as each work area is covered. Factors which are considered in evaluating odors include:

1) The olfactory sense becomes fatigued after continuous perception of an odor.

2) An odor is usually detected whenever there has been a significant change in odor quality or intensity. A pleasant odor can become objectionable to one who has become used to it under continuous exposure, when it increases in intensity.

3) Odors do not, in themselves, cause physical disease. However, the odor of many toxic materials, including chlorine, sulfur dioxide, hydrogen sulfide, etc., may serve as

a warning agent. Odors may also bring on nausea and have an adverse effect on asthmatics.

4) A person's ability to perceive odors varies from day to day.

5) Compounds of different constitution may yield similar odors, whereas compounds of very similar constitution may yield different odors.

6) An unfamiliar odor is more likely to cause complaints than a familiar odor.

7) The perception level of odors decreases with increasing humidity. High humidity tends to concentrate odors in a given locality.

8) Odor quality may change upon dilution.

9) Some persons can detect certain odor qualities, but not others. (City and County of Honolulu, 1977).

3.6.4 IMPACTS AND MITIGATION

General Air Quality

Management of odors which tend to become more pronounced during Kona Wind and cool morning and early evening hours (during gentle southerly breezes), will be addressed by the following:

1) General On-Site Odor Management: The following practices will be implemented at the landfill site for both the existing and expansion areas:

- New odor neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc., will be applied on-site to reduce or eliminate any odor caused by refuse. The type of odor neutralizers that will be used have been successfully used at other locations by Waste Management, Inc.

- The key to managing the odor problem is to actively deploy the neutralizers prior to and during periods when it is expected that liquid treated sewage sludge and diverted municipal solid waste from H-POWER will be received. The fine tuning of this equipment will be necessary to optimize the reduction of odors.

- The system in place uses a series of spray misters. Waste Management will make adjustments as necessary in the location of these systems to ensure off-loading trucks and the refuse itself is properly treated.

- As soon as possible cover material is placed over the refuse to further isolate odors which could be generated within the landfill. Checking and covering of surface cracks is also carried out to further reduce potential for release of anaerobic decomposition generated odors.

- A gas recovery and monitoring system is under development by Waste Management of Hawaii, Inc. (Section 3.6.4). The proposed system will employ gas recovery and monitoring which will further reduce the potential for discharges of landfill associated gasses.

2) Odor Management During H-POWER and Wastewater Treatment Plant Downtimes: Although use of new odor neutralizing solvents is expected to reduce the potential for generation of odors, operational procedures and equipment will include the following:

- H-POWER downtimes are regularly assessed by the City and County of Honolulu, Dept. of Environmental Services. Existing procedures call for H-POWER maintenance to be conducted during periods when generation of MSW are at seasonal lows. This practice will continue to be implemented to minimize potential for generation of odors.

- The Sand Island Wastewater Treatment Plant (SIWWTP) is currently scheduled for major modifications that will include improved treatment of both liquid and solid flows. SIWWTP is the largest single contributor of sewage sludge to Waimanalo Gulch. A new fluidized bed incinerator is planned to be installed to facilitate further treatment of sewage sludge prior to disposal at the landfill. The incinerator will process sewage sludge into ash and residues with both lower moisture content and corresponding odor. Installation of the incinerator will be contingent on the planned timing of development of the In-Vessel Bioconversion Program (see following).

- ENV is proceeding with development of the In-Vessel Bioconversion Program, which is scheduled for operation within the next several years. The proposed project will provide for treatment and conversion of sewage sludge and green waste into compost. The source of sewage sludge feed for the system will initially be from the SIWWTP. If successful, sewage sludge feed will be obtained from other wastewater treatment plants on Oahu and will lead to a major reduction in need for sewage sludge disposal at landfills on Oahu.

3) Queuing of Refuse Vehicles: The queuing of refuse vehicles onto Farrington Highway, prior to start of the business day has been addressed by permitting vehicles onto the landfill site before the start of business hours. Refuse vehicles may now queue at the area fronting the landfill scale house. This has led to a major reduction of

vehicles queuing along Farrington Highway which in turn, has led to reduced potential for objectionable odors to be carried to adjoining properties, such as at Ko Olina.

Construction Air Quality

During construction of the expansion area, the site will be cleared and grubbed of vegetation. Dust will be generated during site excavation and grading. However, dust levels will be controlled by use of standard water tanker trucks, or extended sprinkler systems from the existing sanitary landfill area. Air pollutants from construction equipment will be generated, but the amounts are expected to be similar to existing levels.

During operation of the proposed expansion area, dust will continue to be generated from sanitary landfilling activities. The proposed expansion will adhere to dust control practices according to Air Pollution Control Regulations Title 11 (Chapter 60) of the State Department of Health, which includes scheduled water sprinkling, compacting, and intermediate cover. Portable and permanent litter fences will also be installed at the working face of the site in relation to the prevailing winds to confine windblown litter. Additional maintenance personnel will be on standby at all times in case of high winds for litter collection off-site.

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 insignificant and similar to existing on-site conditions. 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.

Landfill Associated Gasses

Operation of the proposed expansion area will involve the generation of gases. Landfill gas is generated under aerobic and anaerobic decomposition of organic materials in the sanitary

landfill. The major constituents of sanitary landfill decomposition gas are carbon dioxide and methane, lesser amounts of nitrogen, and occasional traces of hydrogen sulfide.

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:

1) Placement of impervious liner materials to block the flow of gas;

2) Selective placement of granular materials and piping for gas venting and/or collection (gas recovery and monitoring system); and,

3) Evacuation and venting of gas from the sanitary landfill (gas recovery and monitoring system).

A landfill gas recovery and monitoring system is under development by Waste Management of Hawaii, Inc. The system will be designed to capture methane, non-methane, and anaerobic decomposition gasses 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 a municipal sanitary landfill.

Existing gas monitoring is conducted by barhole probing or boring on a quarterly basis along the perimeter of the landfill. The monitoring holes are approximately three to six inches in diameter with an average depth of three feet from grade. Upon completion of sampling and testing the monitoring holes are refilled with soil material to prevent moisture infiltration.

The proposed new system will require the installation of new piping within 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 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 gasses which could be used in the future generation of energy.

It is anticipated that because the existing landfill generated gasses 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 timespan of use of the site. Installation of the gas monitoring system, however, will enable Waste Management of Hawaii, Inc., to assess changes in gas composition and determine if use for energy production may in the future become feasible. A potential future user of the gas is the HECO Kahe Electrical Generating Station, located immediately adjacent to Waimanalo Gulch.

Venting or flaring will be automatically controlled from the 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, behind the ash monofill section.

Carbon dioxide and CH_4 will continue to be generated by the proposed landfill expansion. Although there have been no significant impacts at the existing landfill site resulting from concentrations of gas, the proposed gas recovery system will be employed to further manage the site.

Control of explosive gas (CH_4) 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, etc., or any area where air movement is restricted. Currently, the landfill structures are equipped with an electronic audible alarm landfill gas detection system.

The proposed gas recovery and monitoring system will provide a new management tool to improve management of the site and the surrounding area.

3.7 LITTER

3.7.1 SOURCES OF LITTER

The primary method of litter control at the existing landfill site involves the delivery and deposition of refuse into landfill cells using bulldozers followed by covering of the waste with fill material. Under normal operating conditions this practice is adequate to ensure the containment of refuse within the site. During periods of high winds the control of litter, especially lightweight items such as plastic and paper bags, is difficult to confine within the landfill. Litter fences erected around active working cells in combination with work crews are used to control litter which may drift off-site.

Current procedures call for the immediate mobilization of landfill work crews to assist in the collection of litter whenever there are instances of high winds which may cause litter to drift past the fencing to adjoining properties, such as Ko Olina Resort. Mobilization of work crews to clean up off-site windblown litter is triggered whenever one or both of the following conditions occur:

1) Waimanalo Gulch Sanitary Landfill management personnel observe that there is windblown litter drifting beyond the landfill property which may adversely affect adjoining properties; and,

2) There is notification of a complaint to Mr. Joseph Hernandez, Environmental Manager, Waimanalo Gulch Sanitary Landfill, at phone number 668-2985, extension 22. If a voice recording is received, additional phone numbers are provided directing the caller to contact specified Waste Management of Hawaii personnel who are on

standby. A work crew which is on-call will be dispatched to the location to facilitate in clean up operations.

Work crews which may be dispatched for clean up are available 24 hours a day, 7 days a week, on regular weekdays, weekends, and holidays.

Off site generation of litter is generally the result of improperly secured refuse loads from vehicles transiting the landfill. Operators of refuse vehicles delivering loads to Waimanalo Gulch Sanitary Landfill have been notified that all loads entering the landfill must 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.

3.7.2 IMPACTS AND MITIGATION

Windblown Litter

Litter in any form, when it is deposited along roadways and onto residences and places of business and recreation, is considered an objectionable nuisance. The situation concerning control of windblown refuse from Waimanalo Gulch Sanitary Landfill primarily involves loss of lightweight materials that become temporarily airborne due to high wind conditions. Mitigation measures and practices to further control this problem includes, but is not limited to, the following:

- Existing permanent fencing located along the perimeter of the landfill and at selected cell sites will be supplemented with additional portable fencing designed to further assist in the capture of stray windblown litter and debris.

- Fencing which is designed to capture litter has been previously cleaned by use of hand tools. Workcrews will be provided with new equipment such as MadVac™, which incorporates a vacuum device to speed in the pick up of

litter. This equipment will be truck mounted to also facilitate the removal of litter from off-site locations. Regular cleanup and maintenance of the fencing will increase efficiency and reduce visual impacts associated with litter deposited onto the surface.

- The use of workcrews will be evaluated for effectiveness and efficiency in removal of litter. As required, the size of workcrews will be adjusted to ensure there is sufficient manpower available to provide cleanup services.

- Additional measures are under consideration and include the potential for removal of paper and lightweight plastics going to the landfill. Use of this measure, however, will require further analysis to determine: 1) the possibility for further recycling of these materials; 2) changes needed in the current disposal of such products by the general public; and, 3) systemic changes needed to provide special treatment of these materials in the overall City and County of Honolulu waste management system.

Litter Along Highways

Litter along highways is primarily the result of improperly secured loads from refuse trucks making deliveries to the landfill. The following measures are currently being implemented to increase awareness and responsiveness to the impact of highway littering:

- ENV has consulted with refuse trucking firms to advise them of the objectionable nuisance that littering along the highways is creating for the public, and in particular residents and community members which regularly travel along portions of Farrington Highway and adjoining areas adjacent to the landfill.

- The Honolulu Police Department (HPD) has been contacted to enforce provisions of State and City and County of Honolulu laws and regulations governing littering from vehicles. HPD is being asked to actively enforce violations by issuing citations to offenders.

- Commercial and City refuse vehicles leaving the landfill are being inspected to ensure they have thoroughly cleaned out their vehicle beds prior to leaving the landfill. This is to ensure that any refuse remaining in vehicles beds are not swept onto the highway.

- Further prohibitions against refuse vehicles are under consideration and may include: refusal to accept deliveries from vehicles with improperly secured loads at the landfill weigh station; and, additional use of fines for non-compliance.

3.8 NOISE

3.8.1 NOISE

The proposed sanitary landfill expansion is not expected to result in noise levels significantly greater than produced from current activities involving use of bulldozers, trucks, and various types of equipment associated with operations at the landfill. This is because as the existing sanitary landfill space becomes exhausted, new space within the proposed expansion area will be utilized.

The source of the noise is expected to remain within the Waimanalo Gulch Sanitary Landfill site, shifting slightly to the northern and eastern boundary of the ±200 acre property.

3.8.2 IMPACTS AND MITIGATION

Expansion of the existing measures to reduce noise from ongoing sanitary landfill activities are expected to be employed at the expansion site. This will include:

- 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, soil stabilization, and noise reduction.

ENV/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 RESOURCES

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 purpose of the study was 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 RESOURCES

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.

CHAPTER 4
PUBLIC SERVICES AND RELATED IMPACTS

4.1 TRAFFIC AND ROADWAYS

4.1.1 TRAFFIC AND ACCESS

Access to the project site is from the Waimanalo Gulch Sanitary Landfill access road located off of and fronting Farrington Highway. Farrington Highway is a four-lane divided highway consisting of two 24-foot-wide travelways with a 24-foot-wide grassed median.

Acceleration and deceleration lanes provide entry and exit from the landfill. The posted speed limit is 45 miles per hour. Farrington Highway is the primary arterial highway serving the Waianae Coast. The landfill 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 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 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.

Traffic volumes vary with the day of the week, with the highest volumes occurring on Fridays. Weekday peak hours typically occur between 6:15 and 7:15 a.m. and between 3:30 and 4:30 p.m. Field observations and research indicate that the intersection of Farrington Highway and the landfill access road operate 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 two-thirds of the peak hourly volumes.

During the peak morning and peak afternoon 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.

Traffic volumes based on delivery of refuse loads to the landfill have indicated an overall reduction of refuse loads. Between calendar years 1997 to 1999, the available data indicates that the volume of refuse loads entering the landfill have been reduced by approximately 21 percent as follows:

Year	Total Loads Received
1997	102,052
1998	84,646
1999	80,460

4.1.2 IMPACTS AND MITIGATION

A traffic analysis was conducted for the proposed expansion of the existing landfill facility (Appendix C - Traffic Assessment and Recommendations). The results of the analysis indicate

that the two-lane access road, which was constructed during the development of the original landfill, will be sufficient to accommodate the proposed expansion.

Traffic volumes associated with expansion of the landfill are not expected to be significantly 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 (OMPO, Oahu Regional Transportation Plan, November 1995) 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) with 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 existing traffic would increase as the number of acceptable gaps in the highway traffic stream decreases.

According to the Traffic Analysis for the proposed landfill expansion, 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.

According to the State Department of Transportation (SDOT), because the proposed expansion will involve the continued use of the site for landfill purposes, significant impacts to State highway facilities are not expected (Letter from SDOT, January 18, 2000). The Department of Transportation Services (DTS) has also indicated that the proposed project does not affect streets under City jurisdiction (Letter from DTS, August 21, 2000).

It is anticipated that although there is sufficient capacity at the existing intersection of the landfill access road with Farrington Highway, that this situation could change with future conditions. Overall traffic conditions at the project site will therefore continue to be monitored by the City to assess the need and timing for installation of a traffic signal or other traffic control measure as may be appropriate.

4.2 WASTEWATER

4.2.1 WASTEWATER

The existing landfill facility is served by underground service lines connecting to municipal sewer service lines located along Farrington Highway. The closest municipal wastewater treatment facility which provides service to the area is the Honouliuli Wastewater Treatment Plant, located in the Ewa Region of Oahu.

4.2.2 IMPACTS AND MITIGATION

The proposed project is not anticipated to result in potential for negative adverse impacts to the continued provision of wastewater treatment. No additions or major new upgrades to either municipal wastewater service lines or the Honouliuli Wastewater Treatment Plant will be required. It is expected that existing facilities which have already been constructed will continue to be used to support the expansion of the landfill. This would primarily involve use of the existing sewer lines providing connection to the administrative and service buildings at the site.

All plans will therefore continue to conform with applicable provisions of HAR, Chapter 11-62, Wastewater Systems. No additional mitigation measures will be planned or required for the proposed project.

4.3 RECREATIONAL RESOURCES

4.3.1 RECREATIONAL RESOURCES

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.

Recreational areas are primarily located to the south across 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 vicinity are the beach parks along Kahe Point. The beach parks support surfing, swimming, picnicking, skin diving, boating, and related uses.

4.3.2 IMPACTS AND MITIGATION

Potential for negative adverse impacts to recreational resources are not anticipated. The proposed expansion of the Waimanalo Gulch Sanitary Landfill will be restricted to use of the existing 200 acre landfill property under ownership of the City. Furthermore, the proposed expansion will not include recreational activities to ensure continued safety of operations within the site.

4.4 POTABLE WATER

4.4.1 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.

4.4.2 IMPACTS AND MITIGATION

Potential for negative adverse impacts to use of potable water supplies are not anticipated or expected. 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 project.

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). 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 planned or required for the proposed project.

4.5 POWER AND COMMUNICATION

4.5.1 POWER AND COMMUNICATION

Electrical power is provided by Hawaiian Electric Company (HECO) via overhead service lines. 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.

Existing transmission lines owned by HECO traverse the mid 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 access 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.

4.5.2 IMPACTS AND MITIGATION

The proposed expansion will maintain the existing 100-foot-wide easements for each of the four transmissions lines. 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.

The proposed project will be coordinated with HECO to prevent disruption to services. Any modifications to existing utilities will be restored or relocated according to requirements of Waste Management of Hawaii, Inc., and HECO. Protection of the high tension 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. This will be to confine 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 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.

4.6 EMERGENCY FACILITIES

4.6.1 POLICE SERVICES

The project site is served by the Waianae and Kapolei Police Station.

4.6.2 FIRE SERVICES

The project site is served by the Nanakuli Fire Station approximately 3 miles from the project site. Additional fire support services are available from the Kapolei, Makakilo, and Waianae Fire Stations.

4.6.3 EMERGENCY SERVICES

The nearest hospitals and clinics include the Saint Francis West Hospital, Kaiser Maili Clinic, and the Waianae Coast Comprehensive Health Center.

4.6.4 IMPACTS AND MITIGATION

The proposed project is not anticipated to influence changes in emergency facilities within Waianae community or within the local neighborhood surrounding the site. The proposed landfill facility will not be an impetus to increased emergency service requirements or result in any adverse impacts that would disproportionately impact emergency service for the surrounding community.

Onsite 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 is 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 lb fire extinguisher will be supplied with each landfill work vehicle. All fire fighting equipment will be regularly maintained and inspected to ensure optimum operating efficiency.

City and County of Honolulu fire fighting personnel will be called on to assist whenever there is an emergency. 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.

4.7 SCHOOLS

4.7.1 SCHOOLS

The proposed project area is located within the Leeward Oahu School District. The proposed project will not in itself affect nor result in potential for negative adverse impacts to school facilities.

4.7.2 IMPACTS AND MITIGATION

The proposed project is not anticipated to influence changes in schools or educational facilities within the Nanakuli community or within the local neighborhood surrounding the site. No impacts are therefore anticipated or expected.

CHAPTER 5

SOCIO-ECONOMIC ENVIRONMENT AND RELATED IMPACTS

5.1 SOCIOECONOMIC CHARACTERISTICS

5.1.1 DEMOGRAPHICS

The proposed project involves the provision of essential public infrastructure which serves the broader island community of Oahu. The following identifies the general socioeconomic characteristics of the region in which the project is proposed.

The area for the site is in the Ewa District, on the western side of the Island of Oahu. This encompasses the communities of Kapolei, Makakilo, and portions of Nanakuli, which is a part of the Waianae Coastline. The overall Ewa region is experiencing new growth and development which has been due in part to: 1) the designation of Kapolei as the secondary urban center; 2) major new investment into Ko Olina for resort, residential, and commercial development; and, 3) existing resort, commercial, industrial, and related businesses which are achieving maturity in the region.

General Population

The Second Biennial Report produced by the City and County of Honolulu in 1997, provides population data for each Development Plan (DP) area which includes: Primary Urban Center, Ewa, Central Oahu, East Honolulu, Koolaupoko, Koolauloa, North Shore, and Waianae. Data from the report provides both the actual population to 1997, and projected population to the year 2020. According to the Second Biennial Report, the Primary Urban Center is the largest population center on Oahu, followed by Central Oahu and Koolaupoko (**Table 5-1, Population of Oahu, Actual and Projected: 1980 to 2020**).

TABLE 5-1
Population of Oahu
Actual and Projected: 1980 to 2020

DP Area	Actual Population			Projected Population		
	1980	1990	1997	2000	2010	2020
Primary Urban Center	417,240	432,023	422,600	440,300	470,300	492,800
Ewa	35,523	42,931	67,300	70,300	95,100	126,800
Central Oahu	101,685	130,526	148,600	153,700	165,400	174,000
East Honolulu	43,213	45,654	44,900	46,500	50,000	52,200
Koolaupoko	109,373	117,694	115,900	119,900	121,400	122,600
Koolauloa	10,983	14,263	13,900	14,300	15,400	16,300
North Shore	13,061	15,729	17,300	18,100	19,500	20,700
Waianae	31,487	37,411	39,400	40,900	42,900	45,200
TOTAL	762,565	836,231	869,900*	904,000	980,000	1,050,600

*Calculation correction

Examination of the population data by rate of percentage growth indicates the Ewa DP area experienced a 17% rate of growth from 35,523 persons in 1980 to 42,931 persons in 1990. This rate of growth was similar for both the Ewa and North Shore DP areas and constituted the third largest percentage rate of growth in population from 1980-1990. However, since 1990, the rate of growth in Ewa exceeded all DP areas with a 36.2% increase in population from 42,931 in 1990 to 67,300 in 1997.

A comparison of the Ewa DP population with other DP areas of Oahu indicates that between 2000 and 2020, most of the growth on Oahu will remain focused within the Ewa region which is projected to become the third largest population center on Oahu, exceeding the Koolaupoko DP area by approximately 4,200. The Primary Urban Center, comprising Central Honolulu is expected to remain Oahu's largest population center followed by Central Oahu, Ewa, and Koolaupoko (Table 5-1).

Population by Ethnic Distribution

Statewide population distribution by ethnicity provided by the Hawaii State Data Book, 1984 and 1996, shows that the Caucasian category increased from 25.2% to 31.6%; Black, from 2% to 3.1%; Chinese, from 5.9% to 7.6%; Filipino, from 10.5% to 14.4%; Japanese, from 23.3% to 23.1%; Hawaiian, from 0.7% to 11%; and, Others, from 1.0% to 8.6%. Almost all ethnicity categories experienced an increase in population over the past thirteen years observed.

The proposed project site is located within Census Tract 86.03. According to the U.S. Bureau of the Census, 1990 Census STF1A, the population of Census Tract 86.03, was comprised primarily of Caucasians, which amounted to about half of the census tract population, and Filipinos which comprised less than half of the Caucasian population. The population by ethnic distribution included other ethnicities, as follows (**Table 5-2 - Ethnic Population of Census Tract 86.03, 1996**):

TABLE 5-2
Ethnic Population of Census Tract 86.03
1996

Ethnicity	Number	Percent
Caucasian	2,952	48.72%
Black	244	4.03%
Native American	32	0.52%
Filipino	1,156	19.08%
Japanese	577	9.53%
Hawaiian	523	8.63%
Chinese	159	2.63%
Others	416	6.90%
Total	6,059	100%

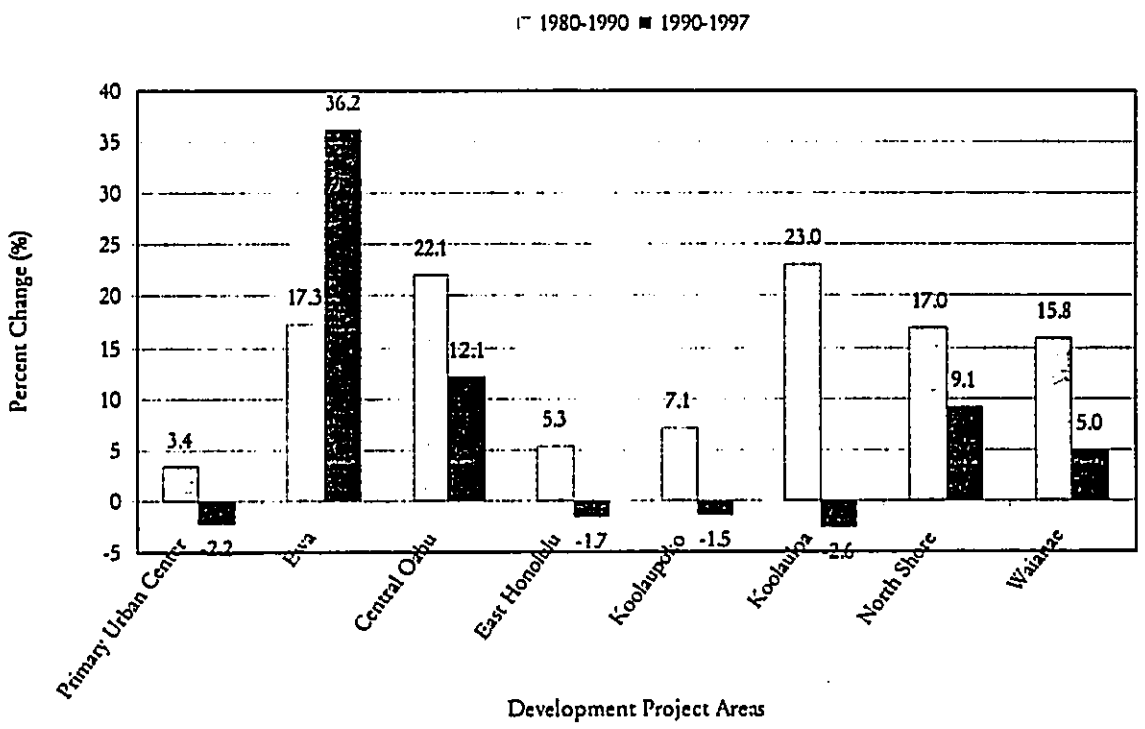
5.1.2 ECONOMIC CHARACTERISTICS

The Asian economic crisis of the 1990s coupled with the late 1980s to early 1990s statewide recession deeply impacted Hawaii's economy through lowered investments into development activities and tourism. Some economists are now expressing optimism and even anticipating

moderate expansion given limited signs of statewide economic recovery. Personal income has risen approximately 3-4% a year, with the unemployment rate in December 1999 at 4.4%, which was almost 2% lower than in 1988 (6.2%). Consumer sales have also grown at double-digit rates in both 1998 and 1999.

The Ewa DP area within this same time frame has experienced significant population growth. During 1990 to 1997 there were only four DP areas within the City and County of Honolulu General Plan that experienced increases in population. These areas included: Ewa, with a growth rate of 36.2%; Central Oahu, with a rate of 12.1%; North Shore, with a rate of 9.1%; and, Waianae, with a rate of 5% (**Figure 5-1, Comparative Rate of Population Growth of City and County of Honolulu, Development Plan Areas: 1980 - 1990 and 1990 - 1997**).

FIGURE 5-1
Comparative Rate of Population Growth of City and County of Honolulu
Development Plan Areas: 1980 - 1990 and 1990 - 1997



The Ewa median household income has increased considerably over the past 20 years from $19,458 in 1980 to $49,856 in 2000 (DOE Assessment Resource Center of Hawaii, Ewa Elementary: Community Profile) (**Table 5-3, Comparison of Median Annual Household Income for Ewa Area and Oahu: 1980 to 2000**). An explanation for this increase may in part involve the growth in housing supply as well as new development which has provided employment for the region.

TABLE 5-3
Comparison of Median Annual Household Income for
Ewa Area and Oahu: 1980 to 2000

Year	Area	Income
2000	Ewa	$49,856*
	Oahu	$38,829*
1990	Ewa	$40,679
	Oahu	$40,581
1980	Ewa	$19,458
	Oahu	$21,666

* Department of Education ARCH files: Community Profile based on 1990 School District Data Book

Residential Development Activities

A number of residential projects have been scheduled for development in Kapolei. In 1998, a total of 19,898 residential units existed. Current proposals by developers call for the addition of 44,402 additional residential units for a total of 64,300 units (**Table 5-4: Kapolei Area Residential Units, Existing and Proposed: April 2001**).

Existing and new residential developments within the region include, but are not limited to, the Kalaeloa Community Development District (former Barbers Point Naval Air Station), Ewa Beach, Ewa Villages, West Loch Estates, Naval housing at Iroquois Point, Kapolei Knolls, Villāges of Kapolei, Makakilo, Honokai Hale/Nanakai Gardens, and various projects associated with Ko Olina Resort, including the Ko Olina Fairways and Brookfield Homes residential subdivision (under construction).

Non residential features of the area include 12 public golf courses, the existing Ko Olina Marina and the proposed Ewa Marina, the existing Marriott Ihilani Hotel and proposed new hotels associated with the Ko Olina Resort, James Campbell Industrial Park, Barbers Point Harbor, St. Francis Medical Center West, Clinical Service Center and Rehabilitation Hospital of the Pacific, Hawaiian Waters Adventure Park, Kahe Power Generating Station, and the Kalaeloa Community Development District (former Barbers Point Naval Air Station).

TABLE 5-4
Kapolei Area Residential Units
Existing and Proposed: April 2001

Project	Existing Through 1998	Proposed by Developers	Total Development Plan*
Barbers Point NAS	1,087		1,087
The City of Kapolei			1,866
East Kapolei		6,093	6,093
East Kapolei-State			9,300
Ewa Beach	3,465		3,465
Ewa by Gentry	4,360	3,211	7,571
Ewa makai		2,000	2,000
Ewa Villages-City	400	800	1,200
Iroquois Point	1,480		1,480
Kapolei Knolls	3	422	425
Ko Olina Phase 1	280	4,920	5,200
Ko Olina Phase 2		3,500	3,500
Makaiwa Hills		3,066	3,066
Makakilo	4,239	2,059	6,298
Nanakai/Honokai	500		500
Ocean Pointe	35	4,815	4,850
Villages of Kapolei	2,450	2,350	4,800
West Loch Estates	1,599		1,599
TOTALS	19,898	44,402	64,300

* Total Development Plan for the Kapolei Region, City and County of Honolulu, Revised July 1999

5.1.3 IMPACTS AND MITIGATION

The proposed project involves the continued use of an existing public facility. 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 recent 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 area residents. Nuisances normally attributable to the operation of a sanitary landfill are expected to be managed by use of appropriate mitigation measures and new conditions which will include, but not be limited to, the following:

- On-site use of state of the art odor control solvents and dispersal units to ensure odors are effectively managed at the landfill;

- Installation of a new gas recovery and monitoring system;

- 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 in the planning stage and could include use of a new fluidized bed incinerator to further treat sewage sludge. Existing conditions involve use of Zimpro heat treatment units. Whenever the Zimpro units are under maintenance, polymers and odor control liquids are added to sewage sludge to control moisture content and odors. Because SIWWTP is the single largest contributor of sewage sludge to Waimanalo Gulch Sanitary Landfill, the fluidized bed incineration process will reduce odors through the incineration of sludge. Odors normally attributed to non Zimpro treated sewage sludge will be removed and will constitute a marked improvement over existing conditions.

  Installation of the incinerator will be contingent on the planned timing of development of the In-Vessel Bioconversion Program (see following description of In-Vessel Bioconversion Program);

- The In-Vessel Bioconversion Project is scheduled for development by the City and County of Honolulu, ENV, over the next several years. Sewage sludge which is currently processed at municipal wastewater treatment plants by Zimpro heat treatment and related processes will be diverted for the creation of compost. Because the In-Vessel Bioconversion Program is intended to one day handle municipal sewage sludge and green waste throughout most of Oahu, it is expected that there will be further improvement in the management of potential landfill associated odors.

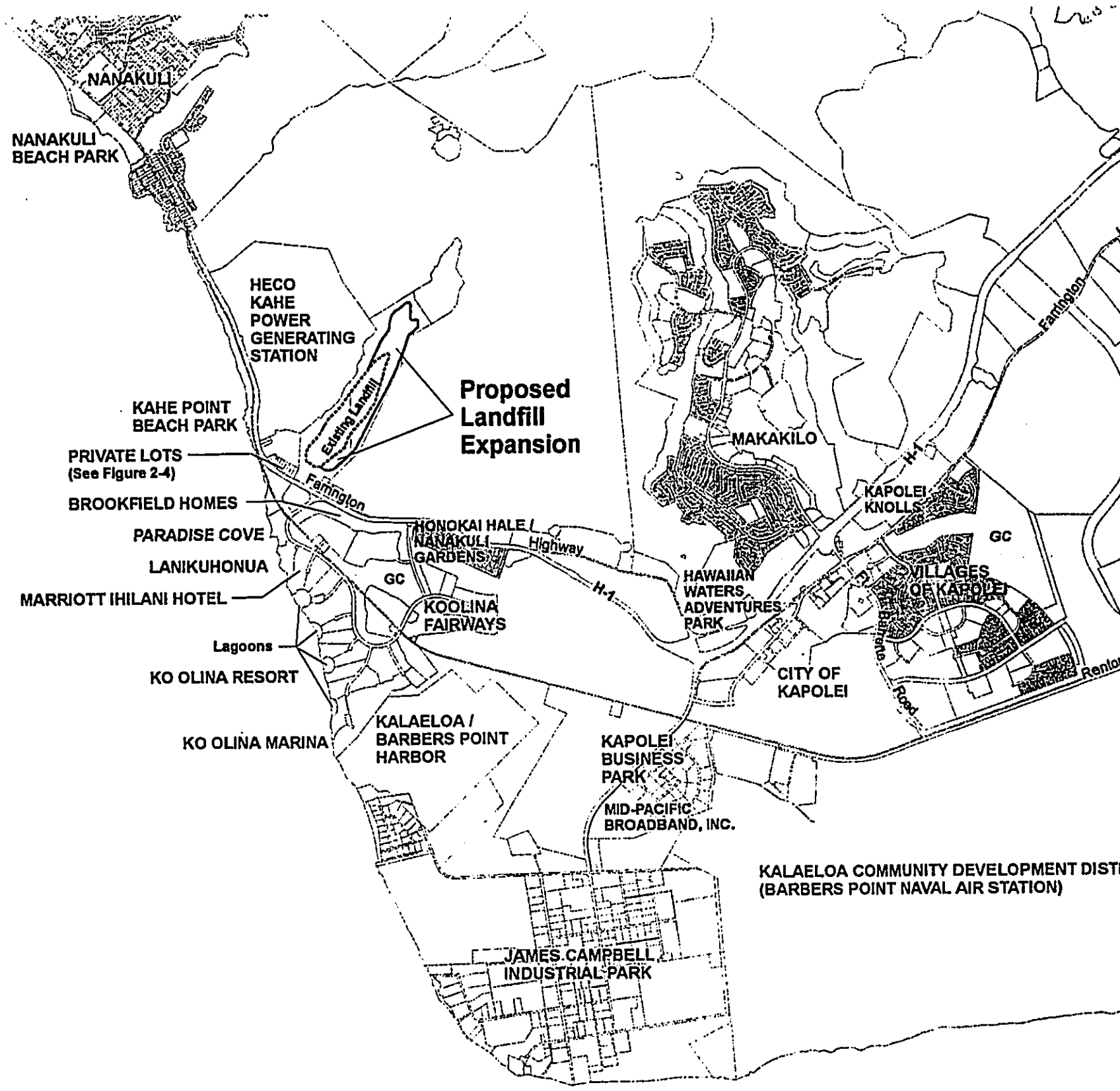
- Traffic conditions involving transit of refuse vehicles to the landfill are expected to require further work in progress by ENV, in conjunction with enforcement of traffic violations from refuse haulers. The Honolulu Police Department (HPD) is being asked to assist through the issuance of citations 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 EIS are expected to negate or ameliorate the potential for negative adverse impacts to demographic and economic resources of the community.

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 5-2, Regional Land Uses in Ewa**):



GC = Golf Course

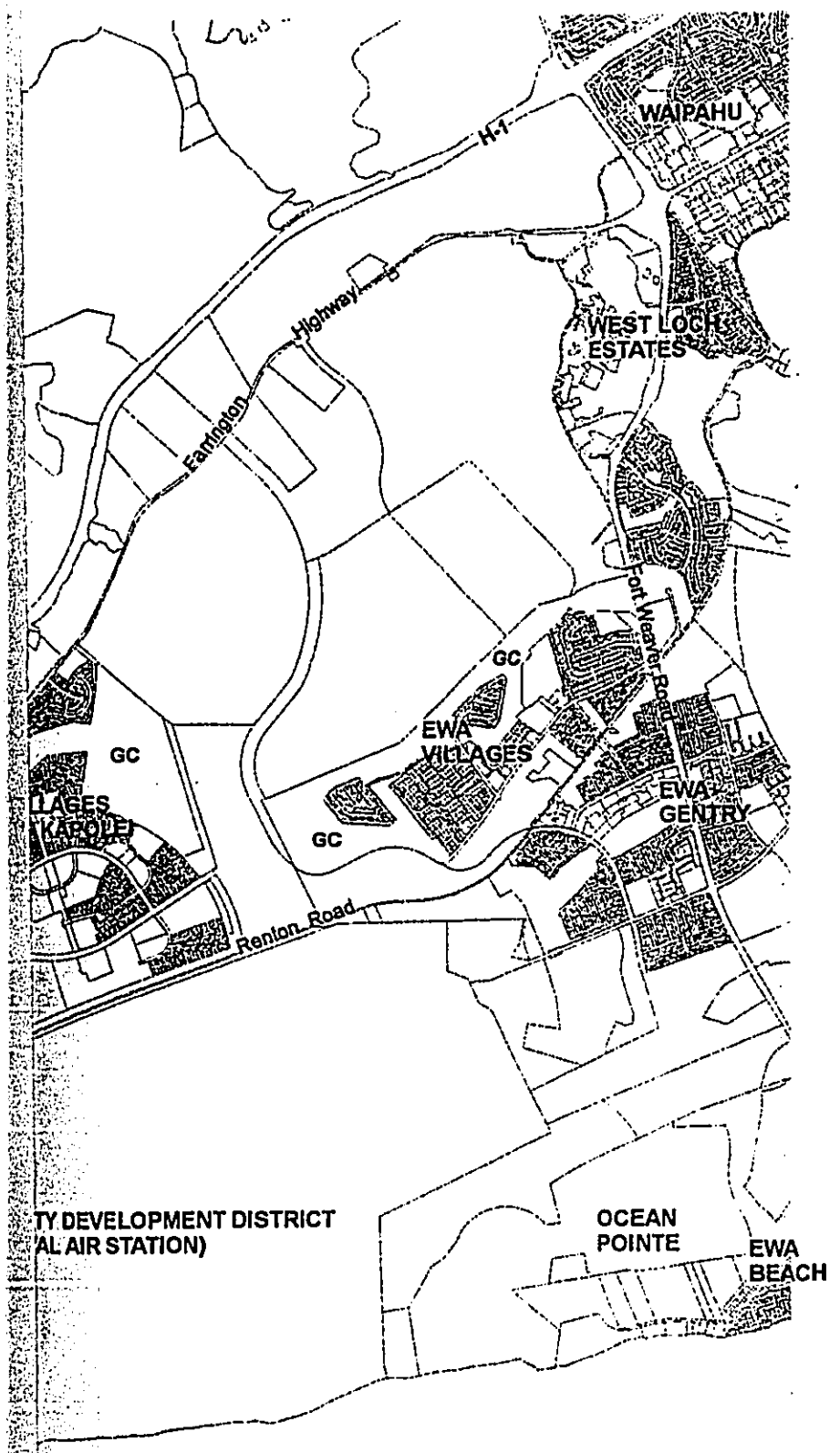
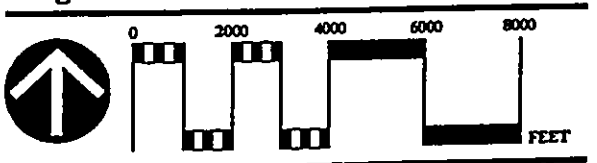


FIGURE 5-2
Regional Land Uses in Ewa



Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R.M. TOWILL CORPORATION

1. Hawaiian Electric Kahe Power Generating Station is a major power plant in the region providing electricity for residential, commercial, business, and industrial uses.

2. Kahe Point Beach Park is situated less than half a mile south from the landfill and is open to the general public.

3. 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.

4. Lanikuhonua is privately owned by the Estate of James Campbell. The site is used for recreational and related purposes.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. Honokai Hale and Nanakai Gardens subdivisions are residential developments located approximately 4,000 feet, or less than a mile, southeast from the landfill.

11. 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.

12. 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.

13. 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.

14. 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.

15. Ewa Gentry is a residential subdivision located on land that was once under active sugar cultivation.

16. Ocean Pointe is a residential development comprised of 400 units that is situated on 1,100 acres of land.

17. Kapolei Knolls is a residential subdivision located in the Kapolei area of Ewa.

18. 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.

19. 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 land fill. 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. (**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. Makai of the highway are private parcels under various ownership (**Table 5-5, Selected TMKs Along Farrington Highway** and **Figure 2-4, Selected TMKs Along Farrington Highway**).

TABLE 5-5
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 potion 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.

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 also 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 anaerobic 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 elsewhere in this document 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 can be provided by the Mayor's Representative, or by a designated representative of ENV or Waste Management of Hawaii, Inc.

2. Ongoing efforts to establish a working relationship with the adjoining Ko Olina Resort should continue. A formal monthly meeting involving presentation of information as provided to the neighborhood boards will be disseminated.

Both venues allow for the regular dissemination and sharing of information between the community and operators of the landfill. ENV and Waste Management of Hawaii, Inc., have expressed their commitment 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 can 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 D - 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 Ahupuaa settlement pattern:

1. There are three areas of Hawaiian settlement in the Honouliuli Ahupuaa; two are well documented and one is problematic:
   A. The extensive limestone plain surrounding Waimanalo Gulch is evidenced with recurrent use habitations for fishermen and sometime gardeners;
   B. 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
   C. The uplands around Puukuua 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.

2. 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).

3. The makai slope of Honouliuli Ahupuaa was not a major thoroughfare for early Hawaiians.

4. 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.

5. 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 proposed expansion area 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 E - 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 Jourdaine, Oahu Island Archaeologist, SHPD, DLNR
Mr. David Shiedler, 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 Engineering 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.

5.3.5 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 SCENIC RESOURCES

5.4.1 SCENIC RESOURCES

The region surrounding the landfill contains a diverse mixture of land uses including:

- Hawaiian Electric Company, Kahe Power Generation Station, immediately to the north;
- Nanakuli Subdivision, approximately one and a half miles north and to the west;
- Kahe Point Beach Park, to the west;
- Ko Olina Resort, to the south and southeast, which includes the Ko Olina Golf Course, Marriott Ihilani Resort, Paradise Cove, Lanikuhonua, the newly

constructed Brookfield Homes residences, Ko Olina Fairways residences, and related developments;

- Honokai Hale/Nanakai Gardens Subdivision, approximately 3,000 to 4,000 feet southeast;
- Barbers Point Harbor and Ko Olina Small Boat Harbor, approximately two miles and further to the south; and,
- Industrial facilities of the James Campbell Industrial Park, approximately four to five miles south and slightly to the west.

Various portions of the existing sanitary landfill site are visible to the public from Farrington Highway, the Nanakuli Subdivision, Ko Olina Golf Course, and Marriott Ihilani Resort. 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 proposed project will involve expansion of the current landfilling area to adjacent areas within the landfill property. Existing cells which have been completed and covered with soil will be revegetated with naturally occurring area vegetation.

Revegetation of the existing landfill area is expected to occur as work is initiated on the proposed expansion area. The result of the nearly completed landfilling of the existing area, and the anticipated startup of the expansion area will involve the following:

1. Completed landfill cells will be allowed to revegetate. This will improve scenic views toward the landfill since once open and cleared areas will be replaced with vegetation similar to that found along slopes which adjoin the landfill.

2. New construction of the expansion area will require clearing and grading of areas interspersed with vegetation and rock land. The existing vegetation

consists of kiawe, koa haole, and dry grasses with no rare or endangered flora species present (per flora report, see appendix).

3. Clearing and grading will be completed in increments to minimize erosion from wind and water, and to reduce the incidence of fugitive dust. All work 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 vegetated areas within the expansion area.

5.4.2 IMPACTS AND MITIGATION

The establishment of the current landfill in 1989 has resulted in views of the project site as an active, working sanitary landfill. Although the proposed expansion will result in an overall increase of area used for landfilling, the eventual closure of the current area will provide for increased revegetation and recruitment of the same types of plant species as found on the surrounding slopes.

Development of the expansion area will utilize the following mitigative measures to minimize potential for negative adverse impacts to views of the project site:

- Grading to establish landfill cells will be completed in accordance with a phasing plan to minimize exposure of any one area of the landfill at a time. This will reduce potential for negative adverse impacts due to erosion.

- A Landscaping Plan will utilize buffer strips comprised of landscaping and vegetation. It is expected that the buffer will be similar to the existing 400 foot wide buffer strip along the eastern portion of the landfill property, with a north-south separation of 800 to 1,000 feet.

Photographs taken by A-Mehr Inc. in April 18, 1997, show the existing landfill facility in operation. **Figure 5-3, View from Ihilani Resort**, shows how the graded and revegetated areas of the current landfill have begun to blend in with the surrounding scrub vegetation of the area. As the current landfill is filled to capacity and revegetated, additional green space will be provided. Upon completion of the proposed expansion area, it will similarly be graded and revegetated returning the area to conditions similar to the surrounding slopes adjoining the site.

Figure 5-4, View along Farrington Highway, shows how compaction and daily cover of active cells minimizes the impacts of landfill activities. Earth movement and landfill activity is restricted to active cells to minimize visual and air quality impacts. This photo also shows how the existing landfill area is located adjacent to Farrington Highway, whereas the majority of the proposed landfill expansion is planned further inland and away from the highway. As the current landfill area is closed and revegetated, and the expansion proceeds further inland, there will be some reduction of visual impacts along Farrington Highway and from the surrounding area.

Additional visual analysis of existing and proposed conditions is provided in Appendix F - Waimanalo Gulch Landfill Expansion, Final Visual Presentation. Photographs were taken for this analysis during the first quarter of 2001. The appendix provides two views of the landfill:

The first view location is of existing conditions along Farrington Highway. A plate showing proposed conditions with final landfill cover and revegetation follows.

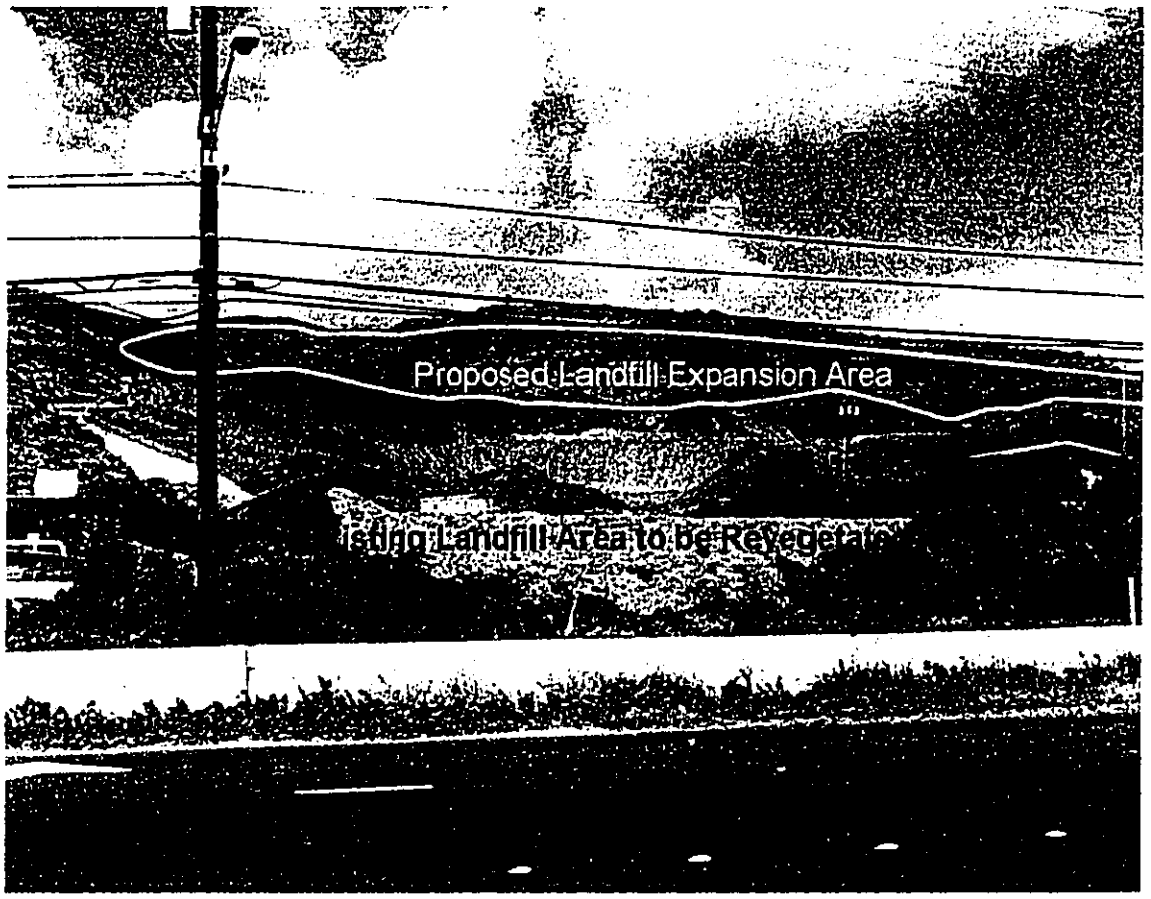
Approximate Elevation of Proposed Landfill Expansion
View from Ihilani Resort (northwest corner of the Hotel)

FIGURE 5-3
View From Ihilani Resort

NO SCALE

Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R. M. TOWILL CORPORATION



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

FIGURE 5-4
View Along Farrington Highway

NO SCALE

Waimanalo Gulch
Sanitary Landfill Expansion SEIS

R. M. TOWILL CORPORATION

The second view location is of existing conditions as seen from an upper floor of the Marriott Ihilani Hotel. The existing conditions plate shows views of the landfill including the drainage system (left), ash monofill section (foreground), municipal solid waste section (midground), and litter control fencing (midground and fronting the municipal solid waste section). The next series of plates depict the proposed intermediate fill conditions for the ash monofil sections, municipal solid waste sections, and final grade conditions upon closure of the proposed landfill expansion area. Note that the proposed conditions plates show the expected revegetation of closed areas of the existing landfill returning to vegetative conditions similar to that found along adjoining slopes.

CHAPTER 6

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

6.1 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 60.5 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 through at least the year 2017, when the landfill expansion area is anticipated to reach capacity. 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 be revegetated and allowed 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 15-year period of proposed 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.

6.2 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 rapidly 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 fluidized bed incineration process, or the scheduled implementation of the In-Vessel Bioconversion Program, which will convert sewage sludge and green waste to compost.

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 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 7
UNRESOLVED ISSUES

7.1 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) length of time required for final buildout of landfill space.

7.2 FINAL LANDFILL PHASING AND ENGINEERING PLANS

The 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 60.5 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.

7.3 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:

Cubic Yards	Explanation
±400,000 - 1.2 M	Anticipated volume of soils excavated from the site
±300,000	Soils reused onsite for landscaping and other purposes
±900,000	Remaining volume of soils with aggregate recovery rate of approximately 50% (total aggregate recovery of ±450,000 cubic yards).
±30,000	Estimated average annual generation of aggregate

As indicated above, given an estimated aggregate recovery rate of approximately 50 percent, approximately 450,000 cubic yards of aggregate can be expected to be generated. The average annual release of volume of material over an expected landfill lifespan of 15 years would amount to approximately 30,000 cubic yards per year.

7.4 DATE OF BUILDOUT OF PROPOSED LANDFILL EXPANSION AREA

The planned lifespan of the proposed landfill expansion is 15 years to the year 2017. Although this is based on current demand for landfill space and anticipated future population growth on Oahu, various factors could affect the planned 2017 buildout date.

Future efforts by the City to improve waste reduction and recycling programs could produce additional savings of space necessary to be landfilled. The magnitude of landfill savings associated with improved waste reduction and recycling, however, is difficult to determine with any accuracy, since it will depend on the willingness of most residents to embrace recycling, as well as to purchase goods and products incorporating less wasteful packaging. There are now few available products which incorporate use of recycled or biodegradable packaging. Additional incentives, including tax credits, could be implemented to increase compliance. However, waste reduction and recycling programs are not without cost and will have to be carefully considered by the public and State and City and County of Honolulu decision makers prior to implementation.

Conversely, there could be an increase in the rate at which waste is generated due to a number of factors. Two examples involve: (1) Future economic recovery, and associated development in Hawaii. Although increased economic activity would provide for increased public and private sector employment and spending, there would be an accompanying need for disposal of goods and materials that are replaced; 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 need to be upgraded. At the same time, emerging new technologies which are not now considered viable, may produce future technological breakthroughs which can be feasibly applied in the City and County of Honolulu.

Because of difficulties associated with predicting various factors affecting the level of waste that is generated, the proposed landfill has been designed for a 15-year lifespan. Should early indications point to a shortened potential buildout it is expected that sufficient lead time will be available to assess and select a new landfill site to replace the Waimanalo Gulch Sanitary Landfill Expansion. However, if future performance indicates an extended buildout beyond the 15-year horizon, no further action would be necessary until such time that it is reasonable to initiate selection of a new site.

CHAPTER 8
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 - Detrimentally 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 9

ORGANIZATIONS AND AGENCIES CONSULTED IN THE PREPARATION OF THE DRAFT AND REVISED DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

The following organizations, agencies and individuals were contacted during the preparation of the Draft and Revised Draft Supplemental Environmental Impact Statement and Preparation Notice:

9.1 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

9.2 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
  - Clean Air Branch
  - Environmental Division
  - 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

9.3 CITY AND COUNTY OF HONOLULU

Board of Water Supply

Department of Planning and Permitting

Department of Transportation Services

Honolulu Fire Department

Honolulu Police Department

9.4 PRIVATE AND COMMUNITY ORGANIZATIONS, AND ELECTED OFFICIALS

Hawaiian Electric Company

Honolulu Star-Bulletin

Honolulu Advertiser

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

State House Representative Emily J. Auwae, 44th District, Makaha, Waianae

State House Representative Mark Moses, 42nd District, Kunia, Makakilo, Ewa,

Waipahu, Kapolei

Councilmember John DeSoto, 9th District.

Makakilo-Kapolei-Honokai Hale Neighborhood Board No. 34

Waianae Coast Neighborhood Board No. 24

9.5 OTHERS

Additional coordination was conducted with interested members of the community through a series of informational meetings. A record of these meetings and persons involved are provided in **Appendix H - Public Meeting Notes.**

CHAPTER 10

COMMENTS AND RESPONSES TO THE DRAFT SUPPLEMENTAL EIS

MAJOR GENERAL EDWARD L. C... JR.
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE 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

PHONE (808) 733-4300
FAX (808) 733-4287

August 29, 2000

TO: Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

ATTENTION: Ms. Wilma Namumnart

FROM: Edward T. Teixeira
Vice Director of Civil Defense

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT 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 DEIS.

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.

c: Mr. Randall K. Fujiki
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813

LTC Ron Swafford
HIARNG Environmental Section

Mr. Brian Takeda
R. M. Towill Corporation, Inc.
420 Waikamilo Road, Suite 411
Honolulu, HI 96817-4941

Hawaii Civil Defense Agency

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.
ACTING DIRECTOR

IN REPLY REFER TO
RE 01-070

May 14, 2001

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

Dear Mr. Teixera:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated August 29, 2000, concerning the subject Draft SEIS. We acknowledge that you have no comments or recommendations on the proposed project.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22)

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR

ESTHER UEDA
EXECUTIVE OFFICER

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

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WES | NM
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August 28, 2000

Mr. Kenneth E. Sprague, Director
Department of Environmental
Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Draft Supplemental Environmental Impact Statement (DSEIS) for Waimanalo Gulch Sanitary Landfill Expansion, TMK 9-2-03: 72 and 73

We have reviewed the DSEIS for the subject project and have the following comments:

1) We confirm that the proposed expansion site is designated within the State Land Use Agricultural District. We note that the existing landfill site was established under LUC Docket No. SP87-362/Department of Public Works, City and County of Honolulu, pursuant to Findings of Fact, Conclusions of Law, and Decision and Order dated April 20, 1987. The site was further expanded by an additional 26 acres of land for a total permit area of 86.5 acres, pursuant to Findings of Fact, Conclusions of Law, and Decision and Order dated October 31, 1989. Nine conditions were imposed upon the approval (conditions enclosed). Clarification should be provided regarding the applicant's efforts to comply with the conditions of approval.

2) Clarification should be provided as to how the expansion area was determined to be 60.5 acres. Was a metes and bounds map of said area prepared? If so, it should be provided in the Final EIS.

3) An assessment of how the proposed use is not contrary to each of the 10 objectives of the Coastal Zone Management program (Chapter 205A, HRS) should be provided.

9. 4) We note that Figure 1-5 does not reflect the current land use districts in the area. We have enclosed a copy of a portion of

the Commission's official map, O-6 (Ewa), which depicts the updated boundaries.

5) We acknowledge that in the event the City and County of Honolulu Planing Commission recommends approval of the amendment to the special permit, a copy of the decision together with the complete record of the proceeding will be transmitted to the LUC for final disposition, pursuant to §205-6, Hawaii Revised Statutes.

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

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:aa

Enclosure

c: OEQC (w/encl.)
✓R.M. Towill Corporation (w/encl.)
Waste Management of Hawaii, Inc. (w/encl.)

ORDER

IT IS HEREBY ORDERED that an Amendment to Special Permit Docket Number 87-362 to expand the existing approved area by approximately 26 acres situate within the State Land Use Agricultural District at Waimanalo Gulch, Honouliuli, Ewa, Oahu, Tax Map Key Number: 9-2-03: portion of parcel 2, and approximately identified on Exhibit A attached hereto and incorporated by reference herein be approved subject to the following eight conditions of the original Special Permit and the additional condition as recommended by the Planning Commission:

1. That an earth berm shall be installed prior to the commencement of any waste disposal operations.

2. The landscaping plans which would include plant names, sizes, quantities and location shall be submitted to the Department of Land Utilization for approval and shall be implemented within 90 days of completion of the berm work.

3. The facility shall be operational between the hours of 7:00 a.m. and 4:30 p.m. daily.

4. The applicant shall obtain all necessary approvals from the State Department of Health, Department of Transportation, and Board of Water Supply for all on-site and off-site improvements involving access, storm drainage, leachate control, water and wastewater disposal.

5. The Planning Commission or Director of Land Utilization may at any time impose additional conditions when

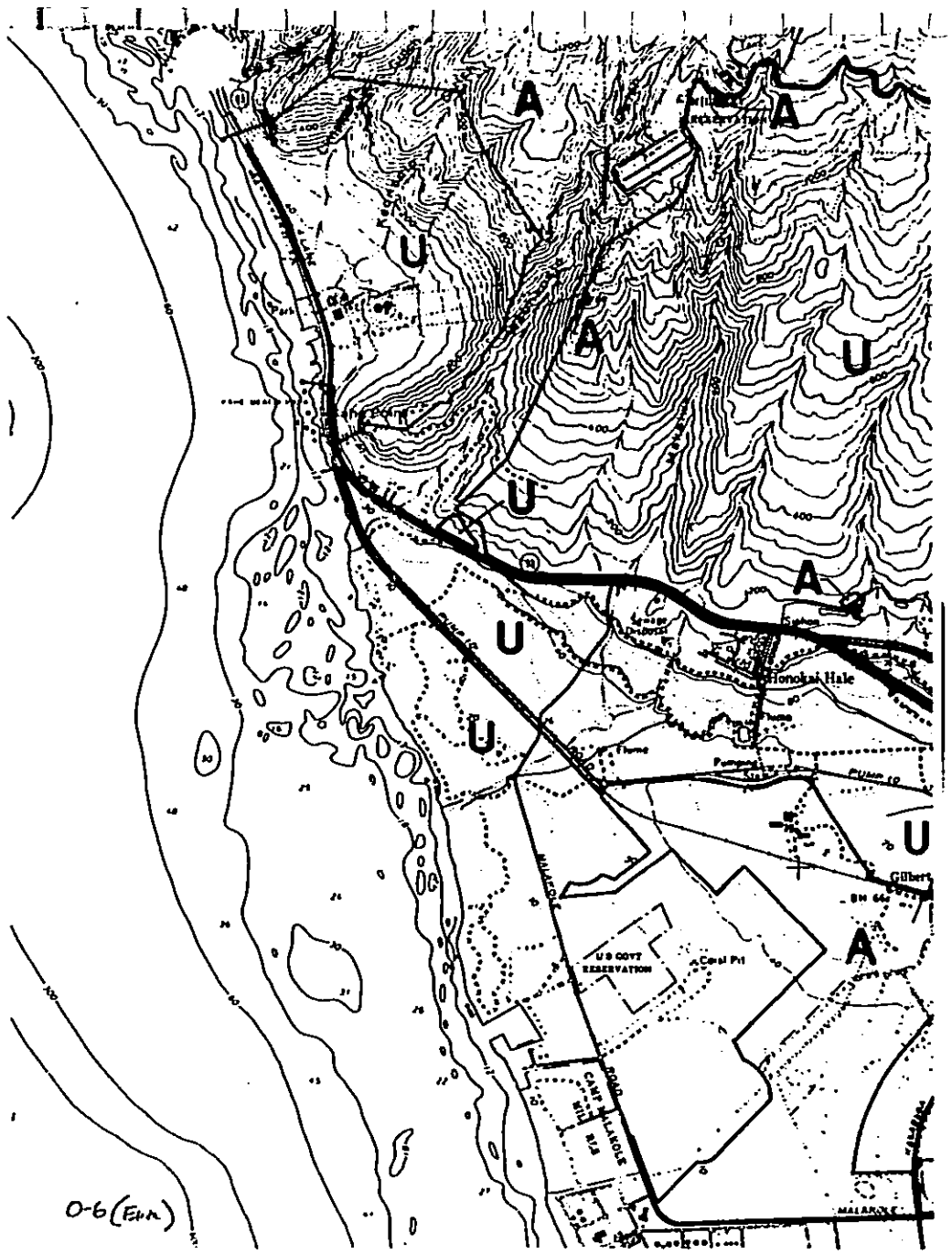
it becomes apparent that a modification is necessary and appropriate.

6. The applicant shall notify the Planning Commission of termination of use for appropriate Planning Commission action or disposition of the permit.

7. That the project be completed and operating within 3 years of the approval of the special use permit.

8. That the City and County of Honolulu indemnify and hold harmless the State of Hawaii and all of its agencies and/or employees for any lawsuit or legal action relating to any groundwater contamination, noise, or odor pollution relative to the operation of the landfill.

9. Petitioner shall coordinate construction and operation of the landfill with the Hawaiian Electric Company.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Gilbert
U S GOVT RESERVATION
Coral Pit
CAMP MALAKOLE
MALAKOLE
0-6 (Elm)

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-5575

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 01-044

April 24, 2001

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

Dear Ms. Ueda:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 28, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. We acknowledge the designation of the site within the State Agricultural District. All conditions of LUC Docket No. SP87-362, Department of Public Works, City and County of Honolulu, have been complied with.

2. The determination of the proposed expansion area is based on the existing property boundary of the site. All work proposed will be contained entirely within the existing property. No further delineation of the site is therefore proposed.

3. An assessment of the proposed activity in relation to objectives of the Coastal Zone Management (CZM) program, Chapter 205A, Hawaii Revised Statutes (HRS), will be provided in the forthcoming Revised Draft SEIS.

4. We acknowledge and appreciate your updated delineation of the State Land Use District Boundaries.

5. You have indicated that should the Planning Commission recommend approval of the amendment to the Special Use Permit, that a copy of the decision and record will be transmitted to the LUC for final disposition.

We appreciated your review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension.22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

AUG-22-00 08:24 F ENERGY RES

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM

Energy, Resources, and Technology Division
235 South Beretania Street, Leiopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/dbedt/ert

BENJAMIN J. CAYETANO
Governor
SEIJI F. NAYA
Director
SHARON S. NARIMATSU
Deputy Director
DAVID W. BLANE
Director, Office of Planning

Telephone: (808) 587-3807
FAX: (808) 587-3820

August 21, 2000

Dr. Kenneth Sprague, Director
Department of Environmental Services
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Subject: Draft Supplemental EIS for the Waimanalo Gulch Sanitary Landfill Expansion

Dear Dr. Sprague:

Thank you for the opportunity to comment on this subject project. Given the potentially significant environmental impacts resulting from expanding the existing landfill footprint, from 86.5 to 147 acres, it is critical to look at the alternatives to a large expansion of the landfill.

While the City and County has developed a number of very successful programs to divert material from the landfill, there are additional areas of potential development such as reuse and source reduction programs.

Reuse of materials through support of a materials reuse/exchange facility has proven to be successful in a number of urban and rural communities. Diversion of furniture, construction and demolition and other related material could substantially reduce the amount of material going to landfills and illegal dumps. If the facility were operated by a non-profit organization, individuals and businesses could receive tax deductions and reduced disposal costs, while supporting a worthy non-profit organization.

In conjunction with the Department of Health and the Hawaii Food Industry Association, the City and County should also continue to evaluate financial methods for support of recycling such as redemption programs. Programs such as these could yield valuable results to the recycling industry and divert significant volumes of material from the landfill.

We also believe that there should be greater attention to the management and possible use of the methane produced by the landfill. The methane offers a potential opportunity to meet some of Oahu's energy needs, or, at a minimum, should be flared to reduce methane emissions into the atmosphere.

In addition, we have the following comments regarding the project's effects on the environment and climate change:

1. **The Draft Supplemental Environmental Impact Statement (DSEIS) does not fully consider provisions of the Hawaii State Plan, particularly Act 176, Session Laws of Hawaii 2000.** The 2000 Legislature made its concern about greenhouse gas emissions clear by adding a fourth objective to Chapter 226-18, Hawaii Revised Statutes, which states that "Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

   (1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;
   (2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;

   (3) Greater energy security in the face of threats to Hawaii's energy supplies and systems; and
   (4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use." (emphasis added)

The same Act, Act 176, added the following new State policy: "Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications." The DSEIS should address the projects impact on these provisions.

2. **The City and County should consult the recommendations of Chapter 11 of the *Hawaii Climate Change Action Plan (HCCAP)* (enclosed).** The *HCCAP* was published in November 1998 jointly by the Department of Business, Economic Development & Tourism and the Department of Health under a Cooperative Agreement with the U.S. Environmental Protection Agency (USEPA).

Chapter 11 of the *HCCAP* was prepared by the University of Hawaii Environmental Center (UHEC). Based on information available at the time, in 1996, the Waimanalo Landfill held about 600,000 tons of municipal solid waste (MSW). With the annual addition of about 292,000 tons per year, by the end of this year, the landfill will hold about 1,768,000 tons, and in fifteen more years will contain about 4,380,000 tons. This does not include ash from H-POWER, which is assumed to produce little in the way of emissions.

According to the USEPA's *Landfill Gas-to-Energy Project Development Handbook* (1996) as cited by UHEC in the HCCAP, recommends that any landfill with greater than one million tons waste in place consider converting methane to energy. Further, USEPA performance standards required capturing or flaring of gas from operative landfills which: (a) have greater than 2.75 million tons design capacity, (b) accepted waste after November 1987, and (c) have non-methane organic compound emissions of greater than 50 tons per year. While we do not know the landfill's current or projected non-methane organic compound emissions, these provisions should be considered.

The City and County should reconsider installing equipment to vent and flare methane to reduce methane emissions from Waimanalo Landfill. Another option would be to install equipment to refine, transport, or burn methane for energy, thereby providing productive uses of the gas and generating revenues to offset some costs. Use of methane could also 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

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-5675

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

WES		KTS	
R-E		NM	
RTT		BRT	

RECD MAY 0 3 2001

IN REPLY REFER TO:
RE 01-045

May 1, 2001

Mr. Maurice H. Kaya
Energy, Resources, and Technology
Program Administrator
State Department of Business,
Economic Development, and Tourism
235 South Beretania Street
Leiopapa A Kamehameha Building, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Kaya:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 21, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. Materials Reuse and Recovery - The City and County of Honolulu will continue to investigate new and proven methods to further enhance its recycling and materials recovery programs. The adoption of such programs must provide for environmental benefits, as well as demonstrate financial and technical feasibility, for incorporation into the City's waste management system.

2. Act 176, Session Laws of Hawaii - Recovery of landfill-associated gasses is proposed with the Waimanalo Gulch Sanitary Landfill Expansion.

3. Chapter 11, Hawaii Climate Change Action Plan - As indicated, we will be implementing landfill gas recovery. If sufficient amounts are recovered, we will consider selling the gasses or electrical power. Since the landfill site is adjacent to the Hawaiian Electric Kahe Power Generating Station, the distance and cost to supply landfill gas and/or electric power will be minimized.

We appreciate your review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE (808) 523-4529 • FAX (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 21, 2000

TPD7/00-03533R

MEMORANDUM

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUMNART, REFUSE DIVISION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION

We have reviewed the draft supplemental environmental impact statement (DSEIS) prepared for the subject project. The following comments are the result of this review:

1. The proposed project does not affect streets under City jurisdiction. In view of this, we have no objections to the project.

2. Pages 1-17 and 4-3 of the DSEIS and Page 3 of Appendix IV (Traffic Assessment and Recommendations) include a statement that proper timing of the nearest traffic signals could provide gaps between platoons of traffic that would allow movements into and out of the landfill access road to continue with minimal delay. It appears that the signals are too far away from the landfill access road to provide any significant gaps between platoons of traffic.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

CHERYL D. SOON

cc: Office of Environmental Quality Control
Randall K. Fujiki, Department of Planning and Permitting
Brian Takeda, R. M. Towill Corp., Inc.

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
RE 01-046

April 24, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 21, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. We acknowledge that you do not object to the proposed project.

2. We acknowledge your statement concerning the distance of traffic signals from the intersection of the sanitary landfill access road with Farrington Highway. According to the Traffic Assessment and Recommendations in the Draft SEIS, the minor street volumes at this intersection would likely not meet the minimum volumes needed to satisfy any of the volume warrants for traffic signals.

We appreciated your review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE (808) 523-4529 • FAX (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 21, 2000

TPD7/00-03533R

MEMORANDUM

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUMNART, REFUSE DIVISION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION

We have reviewed the draft supplemental environmental impact statement (DSEIS) prepared for the subject project. The following comments are the result of this review:

1. The proposed project does not affect streets under City jurisdiction. In view of this, we have no objections to the project.

2. Pages 1-17 and 4-3 of the DSEIS and Page 3 of Appendix IV (Traffic Assessment and Recommendations) include a statement that proper timing of the nearest traffic signals could provide gaps between platoons of traffic that would allow movements into and out of the landfill access road to continue with minimal delay. It appears that the signals are too far away from the landfill access road to provide any significant gaps between platoons of traffic.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

CHERYL D. SOON

cc: Office of Environmental Quality Control
Randall K. Fujiki, Department of Planning and Permitting
Brian Takeda, R. M. Towill Corp., Inc.

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
RE 01-048

April 24, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated August 21, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. We acknowledge that you do not object to the proposed project.

2. We acknowledge your statement concerning the distance of traffic signals from the intersection of the sanitary landfill access road with Farrington Highway. According to the Traffic Assessment and Recommendations in the Draft SEIS, the minor street volumes at this intersection would likely not meet the minimum volumes needed to satisfy any of the volume warrants for traffic signals.

We appreciated your review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

JW MARRIOTT IHILANI
RESORT AND SPA
at Ko Olina

DK		KTS	
WSS		MM	
RTT		SF	
LTCD JUL 3 1 2000 RMTC			

July 27, 2000

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Subject: Waimanalo Gulch Landfill Expansion

Ladies and Gentlemen of Environmental Services:

Though I received no acknowledgement to my letter of July 5, 2000, I will take advantage of the extended comment period by offering a compromising recommendation.

If your department is unwilling to eliminate or relocate the eyesore that welcomes visitors and residents to the Waianae coast, I would suggest an action be taken to alleviate the present intolerable situation.

Prohibit the dumping of all paper products and lightweight plastics (predominantly plastic bags). This would save thousands of man-hours in retrieving wayward refuse both at the landfill and our highway beautification program.

Secondly, if a road was graded from Kapolei to the landfill north of Farrington Highway it would help keep the approach to Waianae clean and keep over 100 lumbering trucks daily off our adopted highway. It would also be considerably closer to the proposed landfill extension.

Thank you for your consideration.

Respectfully yours,

John A. Homer
General Manager

JAH:lta

cc: Office of Environmental Quality Control
R.M. Towill Corporation

JW MARRIOTT IHILANI.
RESORT AND SPA
at Ko Olina

DK		KTS	
WES		NM	
RTT		RF	
REC'D JUL 07 2000 RMTC			

July 5, 2000

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Subject: Waimanalo Gulch Landfill Expansion

Ladies and Gentlemen of Environmental Services:

As General Manager of the JW Marriott Ihilani Resort I feel a responsibility, not only to the Owners but also to Hawaii, to help promote the islands and develop the economy of my community.

To live with the present landfill situation has proven difficult but I felt it came with the territory. There was light at the end of the tunnel. Your proposal to extinguish that light by expanding the landfill lease appears to be poor business sense.

We are committed to a development within this Resort that will house and feed 2,000 visitors per day, 365 days per year. Their impression of Hawaii to a great degree will be influenced by their environment. Lumbering refuse trucks spewing out garbage in the shadow of a scarred mountainside hardly conjures up a Hawaii vacation. Every three months fifty of our associates (myself included) volunteer a Saturday morning to clear two miles of Farrington Highway of litter in an effort to relieve the eyesore on the approach to the Resort.

Our interest and concerns are genuine and I do not wish to minimize the difficult decision to relocate a garbage disposal site. However, the present proposal inhibits the progress of our economy and the future development of the Waianae coast.

Please reconsider your proposal and I am available to you if you wish me to expand on or clarify my concerns.

Respectfully yours,

John A. Homer
General Manager

JAH:lta

cc: Office of Environmental Quality Control
R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone (808) 527-6663 • Fax (808) 527-6676

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 01-049

April 24, 2001

Mr. John A. Homer, General Manager
JW Marriott Ihilani, Resort and Spa at Ko Olina
92-1001 Olani Street
Kapolei, Hawaii 96707

Dear Mr. Homer:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letters dated July 5 and 27, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. We acknowledge the situation you describe involving littering of plastic and paper products and believe there are two sources: 1) refuse trucks which have not properly secured their loads; and 2) high wind conditions at Waimanalo Gulch and the surrounding area. ENV has advised refuse trucking firms to be diligent in covering their refuse loads. HPD has also been asked to cite any offenders which litter our streets and highways. Commercial and City refuse vehicles leaving the landfill are being inspected to ensure they have thoroughly cleaned out their vehicle beds prior to leaving the site and/or resecured their covers.

   As you may be aware, Waste Management of Hawaii has a work crew on standby to pick up litter whenever there are incidences of windblown litter deposited onto the highway and the Ko Olina area. We ask for your assistance in notifying Waste Management whenever there are problems so that immediate action can be taken.

   The issue of high winds contributing to litter is being addressed by an aggressive program involving the use of fencing, work crews, and new equipment. Fencing designed to capture litter had been previously cleaned by use of hand tools. Work crews will be provided with new equipment, such as MadVac, which

   incorporates a vacuum device to speed the pickup of litter. This equipment will be truck-mounted to also facilitate the removal of litter from off-site locations.

   Additional measures are under consideration and include your suggestion for the prohibition of paper and lightweight plastics going to the landfill. The potential use of this measure, however, will require further analysis to determine if it is possible to further recycle these materials.

2. We have investigated the potential for construction of a second access road to the site. A new access road is not considered a viable option due to engineering constraints involving slope, grade, and need for eventual access back to Farrington Highway. It is expected that, with the proposed landfill expansion, space currently used for the existing landfill could become available for queuing of refuse vehicles within the site.

We appreciated your constructive review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart 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
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR

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

LETTER NO (P) 1360.0

JUL 18 2000

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Attention: Ms. Wilma Namumnart

Gentlemen:

Subject: Waimanalo Gulch Sanitary Landfill Expansion
Draft Environmental Impact Statement (DEIS)
Ewa, Oahu, Hawaii
Tax Map Keys: (1) 009-002-003: 072, 073

Thank you for the opportunity to review the DEIS for the subject project.

The proposed project does not impact any of our facilities, therefore, we have no comments to offer.

Should you have further questions regarding the above, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

RY:mo
c: Dept of Planning & Permitting
R.M. Towill Corp.
OEQC

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
RE 01-048

April 24, 2001

Mr. Gordon Matsuoka
Public Works Administrator
State Department of Accounting and General Services
Kalanimoku Building
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 18, 2000, concerning the subject Draft SEIS. We acknowledge your comment that the proposed project will not impact any of the facilities under DAGS jurisdiction.

We appreciated your review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

.NAE COAST NEIGHBORHOOD BOARD NO. 24
c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 406 • HONOLULU, HAWAII 96813

July 14, 2000

Dr. Kenn Sprague, Director
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

Re: Waimanalo Gulch Landfill Expansion - Draft Supplemental EIS

Dear Dr. Sprague:

During the July 5, 2000, regular Wai'anae Coast Neighborhood Board No. 24 meeting, the Board heard a recommendation from its Planning and Zoning committee to support the expansion of the Waimanalo Gulch Landfill. In the course of open discussion with the full set of board members and the public, additional positions and information was presented. At this time, the recommendation was withdrawn and a subsequent motion was made.

The motion was made to oppose the expansion of the Waimanalo Gulch Landfill until the Draft EIS is satisfactorily addressed to the public. The motion passed by a vote of 15 ayes - 0 nays - 1 abstention.

Concerns regarding the project included: the apparent failure to follow through on the original EIA, stating once the facility was at the capacity allowed by the original EIS the facility would be closed and another location sought for a landfill, continuing concern regarding the lack of total control of debris (flying plastic bags/papers/etc.), traffic and mud from trucks coming out from the landfill, flying debris from supposedly empty trucks, dust control, etc.

If you have any questions regarding the Board's position, please do not hesitate to contact me at 696-0131.

Sincerely,

Cynthia K. L. Rezentes, Chair
Wai'anae Coast Neighborhood Board No. 24

cc: Neighborhood Commission
Councilmember John DeSoto
Representative Mike Kahikina
Representative Emily Auwae
Senator Colleen Hanabusa
R.M. Towill Corporation, Attn: Brian Takeda

wcak14db0004

Oahu's Neighborhood Board System-Established 1973

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

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

FRANK J. DOYLE, P.E.
CHIEF

IN REPLY REFER TO
RE 00-092

July 17, 2000

Ms. Cynthia Rezentes, Chairperson
Waianae Neighborhood Board No. 24
87-149 Maipele Street
Waianae, Hawaii 96792

Dear Ms. Rezentes:

SUBJECT: Notice of Extension of Receipt of Comments for the Waimanalo Gulch Sanitary Landfill Expansion Supplemental EIS, Waimanalo Gulch, Island of Oahu

The receipt of public comments for the subject Draft Supplemental EIS has been extended from July 7, 2000, to August 21, 2000. Please provide notice of this extension at your next regularly scheduled meeting of the Waianae Neighborhood Board.

Should you have any questions please contact Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, or Mr. Brian Takeda, R.M. Towill Corporation, at 842-1133.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Councilmember John DeSoto
OEQC

LIFE OF THE LAND

Ua Mau Ke Ea O Ka 'Aina I Ka Pono

Hawai'i's Own Local Community Action Group
Protecting our Fragile Natural & Cultural Resources
through Research, Education, Advocacy & Litigation

July 7, 2000

Department of Environmental Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawai'i 96813

R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawai'i 96817
RMTC Ref No. 1 - 18573 - OE

Re: Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion – Waimanalo Gulch, Island of O'ahu – TMK 9-2-03:072 and 073 – April 2000

Aloha!

Life of the Land appreciates this opportunity to review and comments on the Draft Supplemental Environmental Impact Statement (DSEIS) for the proposed Waimanalo Gulch Sanitary Landfill Expansion.

Distribution of DSEIS:

Hawaii Administrative Rules Title 11 - Chapter 200 Subchapter 7 Section 11-200-15 Consultation prior to filing a draft environmental impact statement states:

(5) *In the preparation of a draft EIS, proposing agencies and applicants shall consult all appropriate agencies noted in section 11-200-10(10) **and other citizen groups, concerned individuals as noted in section 11-200-9 and 11-200-9.1.***

76 North King Street • Suite 203 • Honolulu, Hawai'i 96817

phone • fax • e-mail: 533-3454 • 533-0993 • lifeoftheland@hotmail.com

Section 11-200-9(1) states:

*(1) Seek, at the **earliest practicable time**, the advice and input of the county agency responsible for implementing the county's general plan for each county in which the proposed action is to occur, and consult with other agencies having jurisdiction or expertise **as well as those citizen groups and individuals which the proposing agency reasonably believes to be affected.***

Life of the Land notes that neither the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34, in whose district this project is proposed, nor the Ko Olina Community Association, one of the Landfill's nearest neighbors, were originally sent this document for review. Both of these entities are concerned about this project and its impacts on them. Why weren't they consulted parties on this project?

We further note that the developer went to the Wai'anae Coast Neighborhood Board No. 24 to present this project, but totally by-passed the Neighborhood Board in the district where the project is proposed. Why was this project not presented to the Neighborhood Board in its own community?

After Neighborhood Board No. 34 requested a copy of this document, will they be afforded the full 45-day review period?

Will the Ko Olina Community Association be afforded the full 45-day review period commencing with the date of their receipt of this document?

Project Summary:

We find it odd that the Proposing Agency and the Accepting Authority are the same - namely the Department of Environmental Services.

Chapter 343-5(b) states: "*.. The final authority to accept a final statement shall rest with: (2) The mayor, or the mayor's representative, of the respective county whenever an action proposes only the use of county lands or county funds.*"

Who is the Accepting Authority?

Alternatives:

This section is inadequate. Hawaii Administrative Rules Title 11 - Chapter 200 Section 11-200-17(f) Content Requirements states:

'The draft EIS shall describe in a separate and distinct section alternatives which could attain the objectives of the action, regardless of cost, in sufficient detail to explain why they were rejected. The section shall include 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.'

Solid Waste Management is a hot topic across the country and yet this document considers only 4 slim alternatives:

Alternative 1: No Action. Under this section, your justification for rejecting this alternative in favor of expansion is that "...collection would be restricted and the public may resort to illegal dumping of waste products in vacant yards and along roadways. H-POWER-related ash would also overflow the storage areas and spill over to adjoining lands, causing various health discomforts or possible hazards."

The State of Hawai'i Department of Health Office of Solid Waste Management's Draft Hawai'i 2000 Plan for Integrated Solid Waste Management states on Page 2-30: "...The C&C continues to investigate alternative uses for its ash, and currently has federal assistance to develop secondary markets."

What alternative uses for ash have been explored?

What type and/or amount of federal assistance has been received to develop secondary markets for H-POWER's ash?

Alternative 2: Delayed Action. Your justification for rejecting this alternative in favor of expansion is that it would result in a "...loss of time needed to design, analyze and assess impacts and options for a new or expanded facility."

What other options and/or technologies were investigated to handle Honolulu's solid waste? The Draft Hawai'i 2000 Plan for Integrated Solid Waste Management states on Page 2-34 that Hawai'i is a logical testing ground for these technologies for the following reasons:

- Disposal costs are relatively high
- Energy prices are high
- Counties, due to isolation as islands, have good control of waste flows
- There is a strong need for new solutions

Unlike large commercialized technologies, some emerging technologies are better at handling smaller waste streams and are favored by economies of scale.

Have you contacted the Hawai'i Department of Health's Office of Solid Waste Management and the University of Hawai'i to help you identify and evaluate alternatives? What was the outcome of these discussions?

Have you calculated the results of the diversion of solid waste from disposal through recycling and composting on O'ahu? How much of the waste stream would be diverted? How does that translate into time? With a serious effort, could the project be delayed another 5 or 10 years?

Alternative 3: Alternative Locations Life of the Land is concerned about Honolulu's solid waste management. Landfills are not a sustainable disposal strategy for a high percentage of the waste stream. What other options for waste processing have been explored? Please elaborate on the systems and technologies explored and the associated costs (economic, environmental, cultural, and social) of true alternatives.

Alternative 4: Proposed Expansion of the Existing Landfill From our read of this document, it appears that this alternative was the ONLY alternative of interest to the developer. Chapter 343 states: *'Examples of alternatives include.*

(1) The alternative of no action;

(2) Alternatives requiring actions of a significantly different nature which would provide similar benefits with different environmental impacts,

(3) Alternatives related to different designs or details of the proposed actions, which would present different environmental impacts;

(4) The alternative of postponing action pending further study; and,

(5) Alternatives locations for the proposed project.'

Litter:

The DSEIS states that: "Due to active coordination with the residents and businesses in the surrounding community, there have been only two complaints received since 1989, the inception of the landfill. These complaints were filed by passing motorists at the State Department of Health regarding litter control."

Life of the Land has been informed by many residents that paper and plastic shopping bags from the landfill are an almost constant problem in the area. We have been told that Ko Olina's Aloha Patrol picks up trash three times a week including that which flies from the landfill. At a community meeting, we heard that the plastic bags get caught in the trees making it very difficult to get to. Even though residents have said that when they call to report litter, the management of the landfill is very responsive, it is nevertheless, a problem for the community.

Therefore, though the DSEIS states that litter fences will continue to be installed, Life of the Land reminds you that this system has been inadequate to date. What measures will you take to insure, to the fullest extent possible, that little from the landfill will be controlled?

Flying debris is an eyesore. Flying debris can cause a power outage. Please detail a plan addressing the flying debris from the landfill in the FSEIS.

How can you insure that flying debris will not end up along our precious coastlines?

How can the community be assured that litter from the landfill will not be contaminated with harmful toxins?

Scenic Resources:

We notice in the photographs provided in the DSEIS the caption "Existing Landfill Area To Be Revegetated". When will this happen? When one cell of the landfill is closed out, do you revegetate the area? Do your permit requirements call for this condition? Have you revegetated any part of the landfill to date?

Visual Impacts:

Viewplanes are becoming increasingly important to the people of O'ahu. Since the landfill's proposed expansion would take place both vertically and horizontally, how will the visual impacts be mitigated?

Responses to Comment Letters:

The Office of Environmental Quality Control asked: "What is the anticipated solid waste disposal amount from each of the affected years? How much additional capacity will be provided by this new project? Do the disposal projections match the proposed landfill capacity? "

Life of the Land hereby asks for a thorough responses to these questions.

Dust Control:

The DSEIS glosses over the issue of H-POWER's ash and the impacts on air quality, human health and the environment from flying ash. The ash material contains heavy metals, dioxin, and furans. What are your plans to mitigate this health hazard? Please outline your litter and dust control program in the Final Supplement Environmental Impact Statement (FSEIS).

How will you keep the soil from grading activity from blowing all over surrounding communities?

Fire Hazard:

Your discussion of fire hazards is minimal. Has there ever been a fire at the Waimanalo Gulch Sanitary Landfill? What is your fire safety plan? How do you notify the community of the danger of fire? How are Hawaiian Electric and Hawaiian Telephone contacted in case of emergency? Please outline your safety plan for your employees and the surrounding community.

Maps:

Please include maps which show the surrounding residential areas as well as Ko Olina resort with appropriate indications to show their proximity to the current and proposed site in the FSEIS. The maps in the DSEIS were not very helpful.

Please add Life of the Land as a consulted party on this development and send up a copy of the Final Supplemental Environmental Impact Statement.

Traffic:

The community has expressed concerns about increased traffic, refuse trucks in their neighborhoods, and odors from trucks traversing their community to access Waimanalo Gulch Sanitary Landfill.

With the proposed expansion, how much extra traffic is to be realistically expected?

Even with the turn lane, do you anticipate traffic/trucks being backed up at the Freeway exit? How will this be mitigated?

Drainage Impacts:

Life of the Land is glad that you will be employing the liner, but will there be increased drainage problems because of the change in shape with the proposed expansion? How will these issues be addressed?

Again, mahalo nui loa for this opportunity to review the DSEIS for the Waimanalo Gulch Sanitary Landfill. Please list Life of the Land as a consulted party and send us a copy of the Final Supplemental Environmental Impact Statement.

Sincerely,

Kat Brady
Assistant Executive Director

By Fax to: Department of Environmental Services - 527-6675
R.M. Towill Corporation - 842-1937
Office of Environmental Quality Control - 586-4186
Maeda Timson, Chair - Makakilo/Kapolei/Honokai Hale NB - 525-7124
Ko Olina Community Association - 671-3640

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

WES		KTS	
R.E.		NM	
ATTY		BRT	

REC'D APR 30 2001 MATC

IN REPLY REFER TO:
RE 01-050

April 24, 2001

Ms. Kat Brady
Assistant Executive Director
Life of the Land
76 North King Street, Suite 203
Honolulu, Hawaii 96817

Dear Ms. Brady:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 7, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. Public Notification - Public notification of the project EIS Preparation Notice was initially provided in the Office of Environmental Quality Control (OEQC) publication, the Environmental Notice, on December 8, 1999. Since then, public notification was again provided for the project Draft SEIS in the Environmental Notice on May 23, 2000. In conjunction with both notices copies of both documents were provided to selected government agencies and members of the public. Based on public comments received, a Revised Draft SEIS will be prepared. In accordance with Chapter 343, HRS, we will again provide notice to all interested parties through OEQC. The public will again have the opportunity to comment within the 45-day public comment period.

2. Accepting Authority - The accepting authority for the EIS is the Mayor of the City and County of Honolulu.

3. Alternatives - a) An expanded investigation of potential alternatives to the current use of Waimanalo Gulch will be provided in the forthcoming Revised Draft SEIS; b) the City is prohibited from use of H-POWER ash for alternatives such as construction and building materials filler and binder by the State Department of Health, Office of Solid Waste Management; c) we concur there is a need to utilize new technologies which can assist with the reduction of solid waste requiring landfill disposal. Potential alternatives which have been considered by the City will be included in the forthcoming Revised Draft SEIS.

4. Litter - The issue of windblown litter is being addressed by an aggressive program involving the use of fencing, work crews, and new equipment. Fencing designed to capture litter had been previously cleaned by use of hand tools. Work crews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed in the pickup of litter. This equipment will be truck-mounted to also facilitate the removal of litter from off-site locations.

   Additional measures are under consideration and include the prohibition of paper and lightweight plastics going to the landfill. Use of this measure, however, will require further study to determine feasibility.

   Waimanalo Gulch Sanitary Landfill is not permitted to accept toxic and hazardous wastes.

5. Scenic Resources - Revegetation has already occurred on completed landfill cells. This consists of haole koa and other vegetation which is the same as found surrounding the landfill site. The practice of revegetating completed cells will continue until exhaustion of landfill space. Revegetation is a requirement during final closure of the landfill.

6. Visual Impacts - Visual impacts will be mitigated by use of a landscaping plan complementary to the natural topography, as much as practicable.

7. Anticipated Rate of Municipal Waste Generation - The proposed capacity of the landfill is approximately 9 million cubic yards at a fill rate of about 600,000 cubic yards per year, which will provide for an anticipated lifespan of 15 years. The current rate of disposal at Waimanalo Gulch is about 600,000 cubic yards annually. Over the timeframe of the proposed expansion there will be two major factors to consider: 1) new technologies to enable further reductions in waste requiring disposal are continually researched, evaluated, and implemented by the City (for example, the proposed In-Vessel Bioconversion Facility program which seeks to recycle sewage sludge and greenwaste); and 2) the rate of municipal waste generation has continued to increase.

8. Dust Control - Management of H-POWER ash and dust from excavation is an ongoing activity at Waimanalo Gulch. H-POWER ash is saturated when it leaves H-POWER. The bottom ash is processed through a water bath and the fly ash is wetted in a pug mill before loading into a haul truck. Onsite dust control during excavation is similarly practiced by judicious use of water misters and water trucks. During construction, dust screens may also be placed.

9. Fire Hazard - A copy of the fire safety plan is kept at the Waimanalo Gulch Sanitary Landfill administrative office. According to the fire safety plan, procedures to follow in the event of a fire include 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 onsite 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 to advise the surrounding community of the fire.

10. Maps - Figures will be provided in the forthcoming Revised Draft SEIS identifying the residential subdivisions surrounding the site.

11. Traffic - As indicated in the project Traffic Assessment and Recommendations report, page 3, "The traffic volumes due to the proposed expansion of the landfill are not expected to be any different from existing volumes."

12. Drainage Impacts - The existing drainage control system is expected to continue to handle flows from throughout the 200-acre property. Because both the existing 86.5-acre site and the 60.5-acre expansion area are well within the drainage tributary, no major new drainage control structures are expected to be required.

We appreciate this opportunity to respond. Should you have any further comments please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
2550 Campus Road • Crawford 317 • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

July 7, 2000
RE: 0703

Ms. Wilma Namumnart
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Ms. Namumnart:

Waimanalo Gulch Sanitary Landfill Expansion
Draft Supplemental Environmental Impact Statement
Ewa, Oahu

The Department of Environmental Services proposes the 60.5-acre expansion of the existing 64.5-acre Waimanalo Gulch Sanitary Landfill. The purpose of the project is to accommodate Oahu's refuse disposal needs, which is expected to fill the existing landfill to capacity by 2002.

This review was conducted with the assistance of Chittaranjan Ray, Civil Engineering; and Sherri Hiraoka, Environmental Center.

General Comments

We are pleased that the Environmental Impact Statement (EIS) was well done, and covered some of the potential impacts and mitigative measures completely. 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 EIS demonstrate a positive effort to reduce our dependence on landfills. Despite this, we also recognize that more can be done to reduce waste generation, thus increasing the life span of the landfill. To ensure that all potential impacts of this development are addressed, we suggest that the issues discussed below be addressed in the Final Supplemental EIS.

Litter Control

Litter control is cited as a problem in several parts of the draft SEIS, notably on page 1-14 and pages 3-16 to 3-17. Windblown litter seems to be a major concern of area residents. The placing of fences around the perimeters of active cells should help to address this problem but are there other methods that might be considered? For example, spraying pick-up trucks with water as they enter, or requiring that all open bed vehicles have a net placed over the waste they are hauling may be helpful.

Alternatives Considered

We are rather surprised that the recycling efforts thus far have not yielded a significant reduction in waste loads to landfills. We are curious to know if there has been a gradual decrease in municipal solid waste (MSW) entering the Waimanalo Gulch Landfill, as well as other landfills. A reduced expansion of the landfill space to last an approximate 10-year life span at the current rate of waste generation may be appropriate. This may be a tool in inspiring the City (as well as the State) to explore mandated programs for waste reduction. For example, Minneapolis bans the use of Styrofoam containers in grocery store meat departments. Is it possible for Honolulu to develop similar ideas to promote reusable products? Such an effort to reduce waste load may extend the overall life of the landfill by 5 or 10 years.

Surface Water

The location of the drainageway mentioned within the landfill property (page 3-6) is not identified. A map of the drainageway with respect to the operation areas would be helpful in determining the impacts of the project. We also suggest that the final document include whether or not the retention basin will hold all water and runoff within the landfill site.

The EIS would benefit from a more detailed description of the daily cover for the MSW and of the steps that will be taken to prevent infiltration of precipitation into the waste. Are the existing leachate collection systems functional? If so, what are the estimated daily and monthly volumes of leachate collected?

Traffic and Roadways

While the discussion on traffic (page 4-2) indicates that "the intersection of Farrington Highway and the landfill access road operate at acceptable conditions," a letter from the Department of Health dated February 4, 2000 (Chapter 11, Comments and Responses to the Preparation Notice), suggests that refuse trucks back up onto Farrington Highway when the H-Power facility is shut down. During these times, "all H-Power waste traffic is diverted to the Waimanalo Gulch Landfill." What is the effect of these back ups on the flow of traffic on Farrington Highway? Would it be possible to create a "holding area" for these trucks while they are waiting to deliver their loads?

Our reviewers also note that the number of vehicles using Farrington Highway at Kahe point will nearly double according to the Oahu Regional Transportation Plan but no date or time frame is mentioned. What is the time frame of the plan, and when will the predicted increase reach the 70,000 vehicles a day? It also seems strange that the peak volume will increase only 45 percent, from 2000 vehicles/hour to 2880 vehicles/hour, during the same period. If the total number does increase to 70,000, this will be an average of 2916 vehicles per hour, which is higher than the predicted peak volume.

Community Involvement

We note that in a recent Star Bulletin article dated June 29, 2000, the Makakilo/Kapolei Neighborhood Board states that the City had agreed in 1984 not to expand the landfill. Did the City in fact agree to this limitation? If so, then more intensive community planning seems to be in order, especially considering the opposition expressed by the Makakilo/Kapolei Neighborhood Board.

Landfill Closure and Monitoring

The closure of the landfill is discussed on page 2-5 to 2-6. It is stated in this section that monitoring for gas and leachate will continued as required after the closure. How will this monitoring be done, who will conduct the monitoring, and how long will the monitoring continue?

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 to this, more detailed information regarding the handling of surface water/leachate, and a response to the Makakilo/Kapolei Community Board's statements would be helpful in making appropriate assessments of the full impact of this landfill expansion.

Thank you for the opportunity to comment on this Draft Supplemental Environmental Impact Statement.

Sincerely,

Peter Rappa
Assistant Environmental Coordinator

cc: Randall Fujiki, Department of Planning and Permitting
Brian Takeda, R.M. Towill Corporation, Inc.
OEQC
James Moncur, WRRC
Chittaranjan Ray, Civil Engineering
Sherri Hiraoka, Environmental Center

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

WES		KTS	
RJF		NM	TIMOTHY E. STEINBERGER, P.E.
RTT		BRT	ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-043

REC'D MAY 0 2 2001 RMTC

April 30, 2001

Mr. Peter Rappa
Assistant Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Mr. Rappa:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 7, 2000, concerning the subject Draft SEIS. We offer the following comments in response:

1. Litter Control - We acknowledge that the issue of litter is of major concern to area residents. Actions to address this concern include the use of fencing, work crews, and new equipment. Fencing designed to capture windblown litter had been previously cleaned by use of hand tools. Work crews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed in the pickup of litter. This equipment will be truck-mounted to facilitate the removal of litter from off-site locations.

   ENV has advised refuse trucking firms to ensure that loads are properly covered prior to delivery to the landfill. Commercial and City refuse vehicles leaving the landfill are also being inspected to ensure they have thoroughly cleaned out their vehicle beds and/or resecured their covers.

   Additional measures are under consideration and include the prohibition of paper and lightweight plastics going to the landfill. Use of this measure, however, will require further study to determine feasibility.

2. Alternatives Considered - We concur there is a need to utilize new technologies which can assist with the reduction of solid waste requiring landfill disposal. Alternatives which have been considered by the City will be included in the forthcoming Revised Draft SEIS.

3. Surface Water - The following items will be provided in the forthcoming Revised Draft SEIS: 1) location of the drainageway; 2) design capacity of the retention basin; and 3) detailed description of leachate collection system and ground cover activities. The existing leachate collection system is fully operational.

4. Traffic and Roadways - Waste Management of Hawaii has instituted new procedures for refuse truck deliveries. Previously, the queuing of refuse trucks onto Farrington Highway was due to: 1) refuse trucks lining up while waiting for the landfill to open for business; and 2) increased queuing of refuse trucks during H-POWER shutdowns. The new procedures involve:

   - Permitting refuse trucks to queue inside the front gate before the start of the business day. This moves refuse vehicles off Farrington Highway, while allowing early arriving vehicles a place to wait prior to the opening of the landfill.

   - City refuse vehicles which regularly use the landfill during H-POWER shutdowns can be pre-weighed. This practice allows those vehicles to bypass the weigh station, which reduces vehicle queuing.

   We expect the landfill expansion to extend operations to the year 2017. Although the Oahu Regional Transportation Plan identifies projected traffic volumes, actual yearly traffic volumes will need to be regularly reviewed by DOT for safety and sufficiency of service. As indicated in the traffic assessment, although the installation of a traffic signal is a potential mitigation measure which can decrease future delay conditions, minor street volumes would likely not meet the minimum volumes needed to satisfy any of the volume warrants for traffic signals.

5. Community Involvement - The City has been unable to confirm the existence of a 1984 agreement that the landfill would not be expanded. The siting of a landfill is understandably difficult as the current land use, the federal regulations, Board of Water Supply's "Pass/No Pass" and the Underground Injection Control (UIC) severely limit locations for the siting of such a facility. The City is continuing to work with the surrounding communities of Ko Olina, Kapolei, Honokai Hale, and Waianae in efforts to address or provide answers to stated concerns.

6. Landfill Closure and Monitoring - Monitoring of the site will be the responsibility of Waste Management of Hawaii. This will include collection and sampling of landfill associated gasses and leachate for a period of 30 years.

We appreciate your constructive review of the Draft SEIS. Should you have any further comments please contact Ms. Wilma Namumnart 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
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

COPY

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RECD JUL 10 2000 RMTC			

TheFairways
Ko Olina Resort

July 6, 2000

Department of Environmental Services
City & County of Honolulu
650 South King Street, 3rd floor
Honolulu, Hawaii 96813

RE: Objection to the Expansion of the Waimanalo Gulch Landfill
And Brief Comments to the Draft Supplemental Environmental Impact Statement (SEIS) For the Waimanalo Sanitary Landfill Expansion, dated April 2000.

Ladies and Gentlemen:

I am writing to you as president of the Association of Apartment Owners (AOAO) at the Fairways at Ko Olina Resort. I am writing to you on behalf of a majority of our homeowners, to express our objection to the proposed expansion of the Landfill and to urge you to consider carefully and fully the negative impact that the proposed Landfill expansion would have on developing areas such as Ko Olina Resort and the second city of Kapolei.

The AOAO of the Fairways at Ko Olina Resort was not consulted in the preparation of the SEIS. We actively sought out a copy of the report for our review and we obtained it just a few days ago. We know that odors are emitted from the landfill, we have seen smoke from apparent fires in the landfill, and we have witnessed the trash left by trucks leaving the landfill that use the highway winds to clean out the back of the truck. Accordingly, Farrington Highway near Ko Olina Resort and Honokai Hale is covered with litter within a couple of miles of the landfill site. Extraordinary community efforts constantly are clearing litter in the area. In a brief reading of the SEIS it looks incomplete in the following areas; alternative site evaluation, impact on existing and planned communities and visual impact of the site. We have reviewed a letter dated June 29, 2000 to the Department of Environmental Services from the Ko Olina Community Association and we support and agree with their detailed comments and objections.

As you know, homeowners at the Fairways (280 townhomes) invested in a lifestyle on this private resort property. Many of us knew that the term of the Landfill was to end in a couple of years and this made "common sense" to buyers that the future would not include a Landfill across Farrington Highway.

Since the City & County of Honolulu and the State of Hawaii were both encouraging development on the southwestern section of the Island our investments in homes on a private resort made sense. Someone even coined the concept of the "Second City at Kapolei."

Please note our objection to an expansion of the Waimanalo Gulch Landfill. To entertain an extension of the Waimanalo Gulch Landfill now defies common sense, exacerbates years of planning, and sends the wrong message to homeowners and investors in our communities.

Please call anytime at (808) 679-0085.

Sincerely,

Ralph F. Harris
President AOAO
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)
Ko Olina Community Association (KOCA)
R. M. Towill Corporation

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DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
Ro01-047

April 24, 2001

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: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated July 6, 2000, concerning the subject Draft SEIS. We offer the following in response:

OBJECTION TO PROPOSED EXPANSION PROJECT

We acknowledge your objection to the proposed expansion of the Waimanalo Gulch Sanitary Landfill. The City and County of Honolulu remains committed to working with area residents and the community to address stated concerns and issues to reduce and minimize the potential for impacts. This is part of the reason why the City has decided to revise the previous Draft SEIS and to publish a forthcoming Revised Draft SEIS. Public notification of availability of this document will be provided through the Office of Environmental Quality Control (OEQC), Environmental Notice. Copies of the Revised Draft SEIS will be available for review from OEQC and area libraries.

ACTIONS TO ADDRESS POTENTIAL IMPACTS ASSOCIATED WITH OPERATION OF THE PROPOSED SANITARY LANDFILL EXPANSION

ODORS - We can verify that incidences of odor tend to increase whenever there is a shutdown of H-POWER. Whenever H-POWER is down, waste which would ordinarily be incinerated must be diverted to the landfill. Refuse trucks, which could constitute a part of the odor source, are managed by the various hauling companies, with oversight by the Department of Environmental Services (ENV). ENV and Waste Management of Hawaii are aware of this situation and are addressing this problem:

1. New odor neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc., are being applied onsite to reduce or eliminate odors. The type of odor neutralizers that are used are state-of-the-art and have been successfully used elsewhere by Waste Management.

2. The key to managing the odor problem is to deploy the neutralizers prior to and during periods when it is expected that diverted municipal solid waste from H-POWER will be received. We anticipate that fine tuning of this equipment will be necessary to optimize the reduction of odors.

3. The system in place uses a series of spray misters. Waste Management will make adjustments as necessary in the location of these systems to ensure off-loading trucks and the refuse itself are properly treated.

4. As soon as possible cover material is placed over the refuse to further surpress odors.

Sewage sludge, which is disposed of at the landfill, has also been identified as a potential odor source. Sewage sludge is normally heat-treated at the treatment plant prior to being loaded onto trucks for delivery to the landfill. Under normal circumstances the heat treatment, loading, and delivery procedures ensure against generation of objectionable odors. However, as with H-POWER, there are some periods when the heat treatment equipment requires regularly scheduled maintenance. We will review our procedures for sludge disposal during these periods and increase use of odor treatment systems. The Sand Island Wastewater Treatment Plant (SIWWTP), our largest source of sewage sludge, is in the process of initiating new upgrades to improve overall handling and treatment of both liquid and solid waste streams. We expect that the combination of using new odor treatment systems and improved solid waste handling at SIWWTP will markedly improve our ability to control odors.

LITTER ALONG HIGHWAYS - We acknowledge your concern regarding litter. Remedial actions include the use of additional fencing, work crews, and new equipment. Fencing designed to capture windblown litter had been previously cleaned by use of hand tools. Work crews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed the pickup of litter. This equipment will be truck-mounted to facilitate the removal of litter from off-site locations.

ENV has advised with refuse trucking firms about the importance of ensuring that refuse loads are properly covered prior to making deliveries to the landfill. Commercial and City refuse vehicles leaving the landfill are also being inspected to ensure they have thoroughly cleaned out their vehicle beds and/or have resecured their covers.

Additional measures are under consideration and include the potential for removal of paper and lightweight plastics going to the landfill. Implementation of this measure, however, will require further study to determine feasibility.

DISPOSAL ALTERNATIVES CONSIDERED - The forthcoming Revised Draft SEIS will include additional information about ongoing efforts to assess both technical alternatives and new landfill siting alternatives to the proposed expansion of Waimanalo Gulch.

IMPACT ON EXISTING AND PROPOSED COMMUNITY DEVELOPMENT - 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 continuing urbanization of Oahu, combined with stringent State and Federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved. The proposed expansion of Waimanalo Gulch is based on thorough review and assessment of a number of potential alternatives, including both new waste reduction technologies and over 40 potential landfill sites throughout Oahu. We have heard community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or if possible eliminate, the potential for impacts.

We appreciate your review of the Draft SEIS. While we understand your objection to the proposed project, we hope that you will continue to offer your constructive comments so that we can improve our landfill operation. Any further comments may be directed to Ms. Wilma Namumnart of our office at 527-5358 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Deputy Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Blvd, Rm 3-122
Box 50088
Honolulu, HI 96850

DK | KTS
WES | NM
RTI

REC'D JUL 10 2000 RMTC

In Reply Refer To JAK

JUL 6 2000

Ms. Wilma Namumnart
Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Re: Draft Supplemental Environmental Impact Statement (SEIS) for Waimanalo Gulch Sanitary Landfill Expansion, Oahu, Hawaii

Dear Ms. Namumnart:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft SEIS for the proposed expansion of the Waimanalo Gulch Sanitary Landfill, Oahu, Hawaii. The project sponsor is the City and County of Honolulu, Department of Environmental Services. The landfill is operated on behalf of the City and County by Waste Management Hawaii, Inc. The proposed project involves increasing the current landfill capacity by 60.5 acres, thereby expanding the existing landfill footprint to 147 acres within the 200-acre landfill site. Construction activities include clearing and grubbing of rocks and vegetation, excavating and stockpiling of up to 1.2 million cubic yards of soil, installation of a liner system, and grading and revegetation of the existing landfill area upon closure. The Service offers the following comments for your consideration.

Based on our review of the information provided in the Draft SEIS and in our files, there are no federally endangered, threatened, or candidate species, or other Federal trust resources, within the landfill site. The SEIS addresses potential impacts to Federal trust resources and adequately identifies measures to avoid or minimize impacts to these resources. Since native plant species may be removed during clearing, we recommend using native plants characteristic of the surrounding area for revegetation upon closure of landfill areas.

If you have questions regarding these comments, please contact Fish and Wildlife Biologist James Kwon by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,

Donald Palawski
FOR Paul Henson
Field Supervisor
Ecological Services

cc: Randall Fujiki, C&C of Honolulu
Brian Takeda, R.M. Towill

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

WES | KTS
R-F | NM
RTT | BRD

REC'D MAY 18 2001 RMTC

IN REPLY REFER TO
RE 01-073

May 14, 2001

Mr. Paul Henson
Field Supervisor, Ecological Services
Pacific Islands Ecoregion
Fish and Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

Dear Mr. Henson:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 6, 2000, concerning the subject Draft SEIS. We acknowledge your concurrence that there are no federally endangered, threatened, or candidate species, or other Federal Trust resources within the landfill site. Your recommendation for the use of native plant species for revegetation has been forwarded to Waste Management of Hawaii, Inc., who will handle the landfill closure.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

July 6, 2000

Kenneth Sprague, Director
Department of Environmental Services
City & County of Honolulu
650 So. King St., 3rd Floor
Honolulu, Hawaii 96813

Re: Waimanalo Gulch Sanitary Landfill Expansion

Dear ~~Dr. Sprague~~: Ken

The Community of Honokai Hale/Nanakai Gardens strongly opposes the planned expansion of this landfill for many reasons:

1. The Supplemental EIS (SEIS) fails to address the current situation in this area, which has greatly changed since the original EIS of 1984. Now, directly across from this landfill is the major expanding Ko Olina Resort with its 150 foot high Ihilani Hotel, a residential community called the Fairways, and plans for the construction of hundreds more residential dwellings including single family homes, duplexes, town houses and time share units.

   Also, of great personal concern to our community of Honokai Hale/Nanakai Gardens(which is not even shown on your maps, though it did exist in 1984) is the fact that the expansion of the Waimanalo Landfill will bring it even closer to our homes with all of its accompanying odor, dust and vermin problems.

2. The SEIS states that the odor, dust and litter problems will be mitigated, however, they have not been satisfactorily dealt with since the landfill's beginning. How will the landfill's expansion change anything?!

   Our community is sick and tired of having to look at the litter along Farrington Highway and HI as we travel to and from points East, litter which blows out of the refuse trucks on their way to the landfill, and even worse on their way back.

   And what a miserable sight for visitors, tourists and residents of Ko Olina to see all that litter which can only possibly be surpassed by odors as they approach the landfill , and perhaps worst of all, the sight of it from the hotel's higher floors.

   This whole expansion plan can seriously affect the positive economic effect the Resort can have on our Island and State economy.

3. The SEIS also does not clearly address the concerns our community has always had about leachates and their possible affects on the ground water in the area which, though it may be somewhat brackish, is still usable for irrigation. Also, we have concerns about leachate which may be carried downhill towards residences and the ocean during periods of rainfall or storms.

4. The SEIS is very skimpy in its addressing of alternative landfill locations. All Possible sites, which are away from residential, resort, as other populated areas should be thoroughly explored and not lightly dismissed as more expensive to get to or to operate.

   Refuse comes from all of Oahu, and all of Oahu should pay the price, even if it means beginning to charge for refuse pick up and disposal.

   Furthermore, what about other alternatives to landfills?! They are out there - clean, efficient, able to handle even hazardous and medical waste, often with no by products, or safe by products which can be used for construction purposes like making tiles or road construction materials. Kauai is looking at some of these right now. Why isn't the City and County of Honolulu?!

   The time has come to end the disposal of waste by burning and landfills and to step forward to the future by planning to use modern, environmentally sound technology instead.

5 Finally, our community never received the SEIS and learned of it from others who also should have received one, but had to ask for it to obtain one.

Please do not neglect us in the future.

Sincerely,

Jane A. Ross

Jane A. Ross
Corresponding Secretary for
Kuulei Jolonino, President

P.S. Future correspondence can be sent to the association at the following address:
92-783 Laaloa Place
Kapolei, Hi. 96707

cc: Mayor Jeremy Harris
Councilmember John DeSoto
Senator Colleen Hanabusa
Representative Mike Kahikina
Dept. of Environmental Quality Control
R.M. Towill, Corp.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-103

August 31, 2000

Ms. Jane A. Ross
92-783 Laaloa Place
Kapolei, Hawaii 96707

Dear Ms. Ross:

Thank you for your comments to Mayor Jeremy Harris expressing your opposition to the planned expansion of the Waimanalo Gulch Sanitary Landfill. I have confirmed that the consultant has received a copy of your letter and that your concerns will be addressed in the Final Supplemental Environmental Impact Statement. I am sorry you did not receive a copy of the draft. The consultant indicated that copies were sent to the neighborhood board chairs and to the Waianae Public Library, as required by the Office of Environmental Quality Control. We will send a copy of the Final Supplemental Environmental Impact Statement to you when it is issued.

Should there be any questions, please call Wilma Namumnart of the Refuse Division at 527-5378.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Office of the Mayor (Control No. 2718)
R. M. Towill

bcc: ENV-Refuse Division

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax (808) 547-7811

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

REC'D MAY 21 2001

IN REPLY REFER TO
RE 01-071

May 16, 2001

Ms. Jane A. Ross
Corresponding Secretary for
Kuulei Jolonino, President
92-783 Laaloa Place
Kapolei, Hawaii 96707

Dear Ms. Ross:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 6, 2000, concerning the subject Draft SEIS. We offer the following itemized response to your comments:

1. a. Changed Conditions at Ko Olina/Honokai Hale/Nanakai Gardens - We acknowledge that since completion of the 1984 Leeward District Sanitary Landfill EIS there have been significant changes in the region. A detailed description of the current area population, including subdivision projects, will be provided in the forthcoming Revised Draft SEIS.

   b. Location of Proposed Landfill Expansion Area - The Draft SEIS indicates that the proposed Waimanalo Gulch Sanitary Landfill Expansion project will be entirely contained within the existing 200-acre property owned by the City and County of Honolulu. Therefore, the proposed landfill site will not be moving closer to existing residences in the area.

2. a. Odor and Dust Concerns - We acknowledge your concerns regarding odor, dust, and litter associated with operations of the Waimanalo Gulch Sanitary Landfill. We have verified that complaints such as you describe tend to increase whenever H-POWER is shut down for periodic maintenance. During these periods waste which would ordinarily be incinerated is diverted to the landfill site. The Department of Environmental Services and Waste Management of Hawaii, operator of the landfill are addressing these problems through the following measures:

1). New odor-neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc., are being applied onsite to reduce or eliminate odors. The odor neutralizers used are state-of- the- art and have been successfully used elsewhere in the nation by Waste Management.

2). The key to managing odor is to deploy the neutralizers prior to and during periods when municipal solid waste is diverted from H-POWER. We anticipate that fine-tuning of this equipment will be necessary to optimize the reduction of odors.

3). The system uses a series of portable spray misters. Waste Management will make adjustments as necessary in the location of these misters to ensure off-loading trucks and the refuse itself are properly treated.

4). As soon as possible, cover material is placed over the refuse to further surpress odors which could be generated within the landfill.

Sewage sludge has also been identified as a potential odor source. Under normal circumstances, heat treatment, loading, and delivery procedures ensure against generation of objectionable odors. However, as with H-POWER, there are some periods when heat treatment equipment will require regularly scheduled maintenance. We will monitor our procedures during these periods and increase use of odor treatment systems as necessary. Sand Island Wastewater Treatment Plant (SIWWTP), our largest source of sewage sludge, is installing upgrades to improve overall handling and treatment of both liquid and solid waste streams. We expect that the combination of using new odor treatment systems and improved solid waste handling at SIWWTP will markedly improve our ability to control odors.

   b. Litter Along Highways - We are addressing litter with additional fencing, work crews, and new equipment. Fencing designed to capture windblown litter had been cleaned with hand tools. Workcrews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed litter removal. This equipment will be truck-mounted to facilitate the removal of litter from off-site locations.

We have reminded refuse trucking firms of the importance of covering their vehicles. Commercial and City refuse vehicles entering or leaving the landfill are also being monitored to ensure they have covers in place.

Additional measures to the above are under consideration and include the potential for removal of paper and lightweight plastics going to the landfill. Use of this measure, however, will require further study to determine feasibility.

c. Vector Concerns - The Waimanalo Gulch Sanitary Landfill is regulated by the State Department of Health, which regularly inspects the facility to ensure against vector problems. To date, we are not aware of any vector problems associated with operations of the landfill.

d. Impact to Resort and Area Residences - Under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Realistically, ongoing urbanization on Oahu, combined with stringent State and Federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved. The proposed expansion of Waimanalo Gulch is based on thorough review and assessment of a number of alternatives, including new waste reduction technologies and over 40 potential landfill sites throughout Oahu. We have been able to obtain some information on community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or if possible, eliminate, the potential for impacts.

3. Potential for Impacts Due to Generation of Leachate - The Waimanalo Gulch Sanitary Landfill has an existing leachate collection system, which has been designed to standards of the Federal Environmental Protection Agency (EPA) and State Department of Health. According the Draft SEIS, four preventative measures are in place to prevent and mitigate the potential for leachate migration into ground and surface water: 1) a surface drainage system; 2) a sanitary landfill liner system; 3) a leachate collection system; and 4) use of final cover and grades.

   To date, the existing system has successfully operated in accordance with Federal and State requirements for protection of surface and ground water. Waste Management of Hawaii will continue to properly maintain and operate this system to ensure against adverse impacts to our surface (inland and coastal) and ground water (potable, as well as non-potable) resources.

4. Alternatives Analysis - The forthcoming Revised Draft SEIS will include additional information on efforts we have been making to assess both technical and new landfill siting alternatives to the proposed expansion of Waimanalo Gulch.

5. Public Notification of Revised Draft SEIS - Public notification of availability of the Revised Draft SEIS will be provided in the Office of Environmental Quality Control (OEQC) Environmental Notice. Copies of the Revised Draft SEIS will be available for review from OEQC and area libraries. We will also be providing a copy of this document to the Kapolei/Makakilo/Honokai Hale Neighborhood Board.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

July 5, 2000

BROOKFIELD
HOMES

DK		KTS	
WES		NM	
RTT		RF	
REC'D JUL 10 2000 RMTC			

R.M. Towill Corporation
420 Waikamilo Road, Suite 411
Honolulu, HI 96817-4941

RE: Waimanalo Gulch Sanitary Landfill

To Whom It May Concern:

We are a residential homebuilder who has recently acquired over 700 homesites in the Ko Olina master plan. The above mentioned issue has been brought to our attention and we wanted to raise the following concerns:

Adjacent and Surrounding Uses. The location map (Figure 1-2) does not identify the Ko Olina Resort area, show major existing thoroughfares, and current geographical configurations of the Ko Olina lagoons. On this and other maps, more specific developments and proximity to the landfill site should be indicated clearly. In particular, existing residential developments such as the nearby agricultural lots, planned low-density residential developments on the Ko Olina Resort, and the Honokai Hale area should be clearly depicted graphically.

Proximity to surrounding land uses: The EIS states that the Ko Olina Golf Course and Ihilani Resort are one to two miles to the southeast. The Ko Olina Resort property is in fact about 500 feet from the landfill site. New low-density residential units are being constructed as close as 1000 feet directly downwind from the landfill site and only 200 feet from the landfill entrance road. The EIS should reflect this proximity and address associated impacts. We are particularly concerned about the expansion to the immediate east of the existing landfill, which will bring the landfill operations close to the highway and residential developments.

Airborne Impacts: The EIS states that impacts such as odor, dust and litter will be mitigated through various means, however, past experience has shown that these impacts are not addressed on a daily basis. Ko Olina Resort and other surrounding landowners have experienced problems with these impacts. Refuse trucks enroute to the landfill have often dropped litter along Farrington Highway. During certain times, odors from the landfill can be detected on the Ko Olina Golf Course, Ihilani Resort, Lanikuhanua, Paradise Cove, and the guard shack. Plastic bags blown from the landfill litter the resort site and nearshore areas; this is a persistent major problem. New residences consisting of single-family residential units in structures up to 30 feet high will be constructed near the highway interchange and will be even closer to the landfill and more sensitive to the odors, dust and noise generated at the landfill. The EIS should be amended . .effect these problems and indicate mitigation measures to address these concerns in the future.

Alternative Locations. The EIS devotes less than one page to a discussion of alternative locations. Per content requirements of Section 11-200-17 (f), Hawaii Administrative Rules:
"The draft EIS shall describe in a separate and distinct section alternatives which could attain the objectives of the action, regardless of cost, in sufficient detail to explain why they were rejected. The section shall include 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... In each case, the analysis shall be sufficiently detailed to allow the comparative evaluation of the environmental benefits, costs, and risks of the proposed action and each reasonable alternative." (emphasis added)

We fail to see any such discussion. Use of closed landfills or Federal lands in current use or over ground-water areas do not seem to qualify as reasonable alternatives. We would suggest that the 1984 EIS (Table 6-1) and the 1995 Solid Waste Integrated Management Plan be used as starting points. We would also like to see alternatives such as use of only the rear portion of the existing landfill site be explored.

We are extremely concerned with the landfill operations and the negative effect it has on the surrounding area. We strongly urge you to consider our points and act upon them on our behalf. We are available to discuss this and other matters at any time.

We thank you for your time and assistance.

Sincerely,
BROOKFIELD HOMES HAWAII INC.

Adrian Foley
Senior Vice President of Development

cc:	Jeffrey Prostor	President, Brookfield Homes
	Jeff Brown	TeamBuild Management Services
	Kenneth Williams	Ko Olina Community Association

SOUTHLAND BUSINESS GROUP
3090 Bristol Street, Suite 200, Costa Mesa CA 92626-3061
Phone 714 427.6868 • Fax 714 427.6869

DEPARTMENT OF ENVIRONMENTAL SERVICES
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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-082

May 25, 2001

Mr. Adrian Foley
Senior Vice President of Development
Brookfield Homes
Southland Business Group
3090 Bristol Street, Suite 200
Costa Mesa, California 92626-3061

Dear Mr. Foley:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 5, 2000, concerning the subject Draft SEIS. We offer the following itemized response to your comments:

1. Adjacent and Surrounding Uses - Additional information concerning developments close to the Waimanalo Gulch Sanitary Landfill will be provided in the forthcoming Revised Draft SEIS.

2. Proximity to Surrounding Land Uses - We acknowledge the location of the Ko Olina property is close to the entrance of the landfill site on Farrington Highway. However, landfill operations will continue to be contained entirely within the 200-acre Waimanalo Gulch landfill site owned by the City and County of Honolulu. Both ENV and Waste Management of Hawaii, Inc., are actively working to address many of the issues you describe involving odor, litter, and potential visual impacts.

   Odors - Odor and litter issues tend to increase whenever H-POWER is shut down for periodic maintenance. During these periods, waste which would ordinarily be incinerated is diverted to the landfill site. The following measures have been implemented to address this concern:

   A. New odor neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc., are being applied onsite to reduce or eliminate odors. These odor neutralizers are state-of- the-art and have been successfully used elsewhere by Waste Management of Hawaii.

   B. The key to managing the odor problem is to deploy the neutralizers prior to and during periods when municipal solid waste is diverted from H-POWER. We anticipate that fine-tuning of this equipment will be necessary to optimize the reduction of odors.
   C. The system in place uses a series of spray misters. Waste Management will make adjustments as necessary in the location of these misters to ensure off-loading trucks and the refuse itself are properly treated.
   D. As soon as possible, cover material must be placed over the refuse to further suppress odors.

   Sewage sludge which is disposed of at the landfill has also been identified as a potential odor source. Sewage sludge is normally heat treated prior to being loaded onto trucks for delivery. Under normal circumstances, the heat treatment, loading, and delivery procedures ensure against generation of objectionable odors. However, as with H-POWER, there are some periods when the heat treatment equipment will require regularly scheduled maintenance. We will review our procedures for sludge disposal during these periods and increase use of odor treatment systems. At this time, the Sand Island Wastewater Treatment Plant (SIWWTP), our largest source of sewage sludge, is initiating upgrades to improve overall handling and treatment of liquid and solid waste streams. We expect that the combination of using new odor treatment systems and improved solid waste handling at SIWWTP will markedly improve our ability to handle odor problems.

   Litter Along Highways - Actions which are underway to address litter include use of additional fencing, workcrews, and new equipment. Fencing designed to capture windblown litter had been previously cleaned with hand tools. Work crews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed pickup of litter. This equipment will be truck-mounted to facilitate the removal of litter from off-site locations.

   ENV has also consulted with refuse trucking firms to advise them of the importance of ensuring that refuse loads are properly covered prior to making deliveries to the landfill. Commercial and City refuse vehicles leaving the landfill are also being inspected to ensure they have thoroughly cleaned out their vehicle beds and/or are using their covers.

   Additional measures are under consideration and include the potential for removal of paper and lightweight plastics from refuse going to the landfill. Use of this measure, however, will require further study to determine feasibility.

3. Alternative Locations - The forthcoming Revised Draft SEIS will include additional information on ongoing efforts we have been taking to assess both technical and new landfill siting alternatives to the proposed expansion of Waimanalo Gulch.

4. Impact to Ko Olina Resort and Surrounding Land Uses - Under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Realistically, ongoing urbanization on Oahu, combined with stringent State and Federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved. The proposed expansion of Waimanalo Gulch is based on thorough review and assessment of a number of potential alternatives, including new waste reduction technologies and over 40 potential landfill sites throughout Oahu. We have been able to obtain some information on community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or if possible, eliminate the potential for impacts. We appreciate any additional constructive comments you may provide on how we may improve our operations.

5. Public Notification of Revised Draft SEIS - Public notification of availability of the Revised Draft SEIS will be provided in the Office of Environmental Quality Control (OEQC) Environmental Notice. Copies of the Revised Draft SEIS will be available for review from OEQC and area libraries. We will also provide a copy of this document to the Kapolei/Makakilo/Honokai Hale Neighborhood Board.

We appreciated your review and constructive comments regarding the subject Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

Enclosure

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

MAMORU J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
File:

July 5, 2000

93-049B/epo

Ms. Wilma Namumnart
Department of Environmental Services
City & County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Ms. Namumnart:

Subject: Draft Supplemental Environmental Impact Statement (DSEIS)
Waimanalo Gulch Sanitary Landfill Expansion
Ewa, Oahu
TMK: 9-2-03:72, 73

Thank you for allowing us to review and comment on the subject DSEIS. We have the following minor comments to offer, which we feel will make the DSEIS read more accurately:

On page 1-15, paragraph 1.4.10 Underground Injection Control (UIC) Line should be rewritten as follows:

> The State DOH established the UIC program in 1984. The purpose of this program is to protect the State's potable groundwater resources from pollution by subsurface wastewater [disposal] injection. The program's regulations are accompanied by UIC maps which [demarcate] depict a boundary line known as the UIC Line. Lands that are mauka of this line are considered to overlie potable groundwater, and underground injection is restricted to only nonpolluting activities. Lands that are makai of this line are [not] less restricted from [subsurface] wastewater disposal by underground injection. Location of the proposed landfill expansion is makai of the UIC line and therefore [is in conformance] conforms in principle with the purpose of the UIC program.

If there are any questions regarding these comments, please call

Post-it® Fax Note 7671	Date 7/11/00 # of pages ▶ 2
To Brian Takeda	From Wilma
Co./Dept.	Co.
Phone #	Phone # 527-3378
Fax # 842-7937	Fax #

93-049B/epo

Mr. Chauncey Hew of the Safe Drinking Water Branch at 586-4258.

Sincerely,

Gary Gill
Deputy Director
Environmental Health Administration

c: SDWB

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.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-075

May 14, 2001

Mr. Gary Gill, Deputy Director
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 5, 2000, concerning the subject Draft SEIS. We acknowledge your comment concerning our conformance in principle to the Underground Injection Control (UIC) program of the State Department of Health. Comments which you have provided will be incorporated into our forthcoming Revised Draft SEIS.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

July 1, 2000

KTS
NM
RF
RECD JUL 0 5 2000 RMTC

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

RE: Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion Dated April, 2000

Dear Sir or Madam:

The purpose of this letter is to express serious concerns I have regarding the Draft Supplemental Environmental Impact Statement (SEIS) for the expansion of the Waimanalo Gulch Sanitary Landfill prepared by Waste Management of Hawaii, Inc. and R.M. Towill Corp. I am a full time resident and owner of a townhouse at the Fairways in Ko Olina. During my comprehensive review of the SEIS, many concerns come to mind that are not adequately addressed in this document. My concerns deal with health and safety, the environment, and economics. I have outlined my issues and concerns below.

- Groundwater Contamination: The SEIS states that a liner system will be utilized to prevent the leakage of leachate into groundwater resources. It also states that monitoring wells will be installed in order to test for possible leachate contamination. It further states that, "as required" a leachate collection system will be installed within the landfill facility and pumped out regularly for treatment and disposal. I am confident that these measures are within City, County, and State regulations. However, what I do not know is what is done today at the current facility, how effective are these measures, and how and who monitors the Waste Management of Hawaii, Inc. to insure groundwater contamination is not occurring nor a threat.
- Scenic Resources: The SEIS mentions the region surrounding the landfill includes the Hawaiian Electric Kahe Power Plant, Kahe Point Beach Part, the Ko Olina Golf Course and the Ihilani Hotel. I find it quite interesting that "The Fairways" complex, located in the Ko Olina Resort, is not mentioned. This complex consists of over 275 units and/or families. Should this not be a consideration? As I understand it, one of the criteria to select a location for a landfill is an area with minimal residential development. This may have been the case in 1984; however, it is not the case in 2000. As you may know, additional residential development is planned for Ko Olina, such as "high end" single family homes, duplexes, and a large timeshare project. This continued development of the leeward side of Oahu is not only good for the leeward side but for Oahu as a whole. It produces additional jobs and tax revenues. One could conclude if the application of the criterion of "minimum residential development" were applied for selecting a landfill site, this site would be precluded from consideration for expansion.
- Leachate Production: The SEIS uses terms such as, "mitigate the potential of leachate migration." What's the negative impact to the Fairways, the Ko Olina resort and the surrounding area should leachate migrate?
- Odor Control: The SEIS states that the natural tradewinds of the island help to dissipate *some* of the traces of odor. It further states that "approved practices" will be employed, such as soil cover. As a full time resident, I never want to smell the odors a landfill site produces. Unfortunately, there are times that I do. The only conclusion I can draw is that these measures are not sufficient to control the odors the existing landfill produces. And further more, I can only conclude that it will get worse if the existing location is expanded which will be even closer to my home.
- Vector Problems: This is already a significant problem at the Fairways. We have a problem with flies in this area worse than in other parts of the Island: I can only conclude this is due to the close proximity of the existing landfill.
- Litter: There is constantly litter up and down Farrington Highway. I know the Waste Management of Hawaii, Inc. has personnel on standby to collect litter off-site. They have also been very responsive when called to collect litter. However, what proactive measures are they willing to take to keep the surrounding area and highway clean? Should the community be responsible to "police" the windblown litter?
- Gases: The SEIS state that gases will be evacuated and vented. What are the hazards and the impact to air pollution for nearby areas as a result of these practices? In addition, the SEIS states the existing facility is

equipped with an electronic, audible alarm for landfill gas detection. How many alarms have there been in the last five years? How were the alarms and issues remedied? The SEIS also states, "There have been no significant impacts at the existing landfill site resulting from concentrations of gas using the existing gas vent and/or gas recovery." What specifically does this mean? What are the toxic impacts of carbon dioxide, methane, nitrogen and hydrogen sulfide gases to the surrounding areas?

- Alternative Sites: The SEIS states that alternative sites were considered. It also states, "Due to difficulty in siting an entirely new facility and need for additional space for disposal of solid waste, the proposed expansion of the existing Waimanalo Gulch Sanitary Landfill is the preferred alternative." I believe that it is safe to say that the Waste Management of Hawaii, Inc. is proposing the easiest and least expensive solution to solve the problem. The management of Waste Management of Hawaii, Inc. has failed to accurately predict when additional landfill space would be needed. The waste company also states there is not enough time to find a new location, obtain the proper and necessary permits, and construct the landfill before the existing location is at full capacity. The implication is they are penalizing the residents, businesses and future development of Ko Olina, Kapolei, and Makakilo for their management's inability to accurately forecast the landfill needs.

I have also attached two newspaper articles that appeared in the ***Honolulu Advertiser*** on June 30th for you review. The first one addresses the Federal Government's interest in selling or leasing out land in several locations. The SEIS states the Federal Government is unwilling to relinquish certain locations that may be alternatives for landfill sites. Maybe since the development of the SEIS, the Federal Government may reconsider. Shouldn't every possibility be vigorously explored? The second article I have attached is in regards to Kauai's needs for a new landfill site. I find it quite interesting how proficiently and openly they are managing the process. Why can't the Waste Management of Hawaii, Inc. perform with the same proficiency and openness?

I am a very concerned resident. I am concerned about the environment and the community in which I live. I can not state one benefit to Ko Olina, Kapolei and Makakilo for the expansion of the existing landfill. However, I do see many benefits for Waste Management of Hawaii, Inc.

I strongly feel that this matter has thus far been mishandled and is only in the best interest of Waste Management of Hawaii, Inc. I do not believe that the SEIS accurately depicts the existing location and the impacts to the vicinity. I also do not believe they have done a thorough investigation of alternative sites and should be mandated to do so. Thank you for allowing me to share my concerns with you.

Respectfully yours,

Linda M. Porter
92-1459 F Aliinui Drive
Kapolei, HI 96707
(808) 678-0747

cc: Councilmember John DeSoto, 9th District
Office of Environmental Quality Control
✓R.M. Towill Corporation

PEARL HARBOR

Navy will sell land to finance project

Ford Island calls for $500 million

By Scott Ishikawa
Advertiser Staff Writer

PEARL HARBOR — The Navy is considering selling or leasing several of its properties on O'ahu to finance its estimated $500 million development of Ford Island.

The strategy is essential to the Navy's plan to develop commercial and residential areas on the 450-acre island in the heart of Pearl Harbor, Navy officials told a group of 60 people at the State Capitol auditorium yesterday.

Navy Capt. Jennifer Mustain, head of engineering for Navy Region Hawai'i, said the creative financing is needed to develop Ford Island within 12 to 15 years.

"If we went the usual route of acquiring military construction money through government funding, the timetable for full project would be up to 30 years," officials said.

Interested developers and contractors would be invited to a September meeting at Ford Island to tour the island and other Navy properties up for sale or lease.

The Navy has sold Hawai'i property before to pay for major construction. In 1993 the Navy's 108-acre Manana and 14-acre Pearl City properties were sold to the city for $108 million. The money from the sale, made possible by special federal legislation, helped pay for construction of the Ford Island Bridge that will pave the way for development of the island.

Some of the Navy properties being considered for sale or lease are:

A 25-acre property at the

See NAVY, A18

U.S. Navy photo

Aerial view of Pearl Harbor looking southwest with Ford Island and Adm. Clarey Bridge in foreground.

Navy: Several sites may be sold

FROM PAGE ONE

Pearl Harbor Naval Magazine's Waikele Branch, just west of the Waikele Shopping Center.

Some Navy family housing and related property on O'ahu, including the Iroquois Point/Pu'uloa area.

Various properties at the former Barbers Point Naval Air Station, including some housing areas there.

Various properties on the Pearl Harbor Naval Complex and Ford Island that are not essential to the Navy's military operations.

Navy spokesman Lt. Cmdr. Rod Gibbons said the Barbers Point golf course previously considered for sale probably won't be included on the list of properties for sale.

Sources said the Navy's Lualualei property on the Leeward side would not be considered for sale or lease since it is still in operation. The Navy yesterday sold its housing area at Pearl City Peninsula, which recently underwent millions of dollars worth of renovations, also would remain under Navy authority.

Stanford Yuen, executive assistant for intergovernmental affairs for Navy Region Hawai'i, said building housing on Ford Island for 600 military families and several hundred units for single service personnel will help the Navy centralize its operations in the Pearl Harbor area. The Ford Island plan also suggests commercial development on the south and central side of the island, including museums and supporting shops, restaurants and parks.

Charles Ota, director of military affairs for the Hawai'i Chamber of Commerce, said the Navy's intention to sell or lease outlying properties hopefully means more construction jobs for the local construction industry.

"This means development goes way beyond the $500 million projected for Ford Island alone," Ota said.

Navy officials declined to give a specific timetable for the development project, saying two reports need to be completed first: an environmental impact statement for the project and a report recommending ways to preserve historical structures on Ford Island, particularly those dating back to the 1941 attack on Pearl Harbor.

▲▲▲

What's next

- A September meeting for developers and contractors to tour Ford Island and the properties for sale or lease.
- An executive director must be selected for a Ford Island Development Authority to oversee the creation of the master plan. That is expected after the September meeting.
- A draft environmental impact statement is scheduled for completion by the end of the year, with the final statement ready six to 12 months later.
- A contractor would then be selected to help develop a master development plan to submit to Congress.

For more information

Those seeking more about the redevelopment project can log on to the Ford Island Development Web site at www.hawaii.navy.mil or contact the Navy Region Hawai'i Public Affairs Office at Pearl Harbor at 471-0281.

Kaua'i identifies 7 sites as landfill candidates

Selection expected as early as October

By Jan Tenfreggenaste
Advertiser Kaua'i Bureau

LĪHU'E, Kaua'i — County solid waste officials have identified seven potential sites for a new county landfill, and hope consultants will reduce that to a single recommendation by October or November.

The county's 34-acre Kekaha Landfill Phase II, opened in 1993, a year after Hurricane 'Iniki, is getting full. In 1999 it took in 67,590 tons of solid waste.

The state in 1998 permitted the county to expand the landfill vertically until it reaches a height of 60 feet. That gives it three to four more years.

Since landfills are politically and environmentally charged issues, the county is beginning its planning early. The 1993 landfill had to be rushed because the massive volume of debris resulting from the hurricane quickly filled Phase I.

An area mauka of Kaumualī'i Highway from the existing landfill is one of the seven landfill sites under consideration. The others are scattered around the island.

Other sites are at Kumukumu near Kealia, Mā'alo near Līhu'e, Kipū, Ha'ula near Kōloa Mill, Umi near Numila, Pu'u o Papai mauka of Kaumakani.

County solid waste coordinator Troy Tanigawa said the consulting firm Earth Tech has the contract to identify a site. A detailed evaluation of the seven sites is expected from the consultant next month, and a recommendation of a preferred site is expected in October.

Public meetings will be scheduled to review the recommendations, said Jean Camp, executive assistant to Mayor Maryanne Kusaka, who specializes in solid waste issues.

Once a site is selected, environmental and engineering studies are expected to run through the middle of 2002.

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. STEMBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-083

May 25, 2001

Ms. Linda M. Porter
92-1459 F Aliinui Drive
Kapolei, Hawaii 96707

Dear Ms. Porter:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated July 1, 2000, concerning the subject Draft SEIS. We offer the following in response:

GROUNDWATER CONTAMINATION
Environmental Protection Agency (EPA) and State Department of Health (DOH) require the testing of groundwater resources which may underlie sanitary landfills to ensure that operating practices and procedures are sufficient to protect public health and the surrounding environment. Testing of groundwater monitoring wells at Waimanalo Gulch indicates that the facility remains in compliance with regulations.

Waste Management of Hawaii, Inc., operators of the facility, are required to utilize the services of an independent analytical laboratory to perform groundwater testing. The testing results, including chain of custody and related documentation, are submitted to DOH.

SCENIC RESOURCES
We acknowledge the presence of a number of developments within the Ko Olina Resort, including, but not limited to, Ko Olina Fairways, the newly constructed Brookfield Homes, the Marriott Ihilani Hotel, Ko Olina Golf Course, Ko Olina Marina, Paradise Cove, and Lanikuhonua. We further acknowledge that there can be major economic benefits to both the region and to the City and County of Honolulu from development activities.

Public infrastructure services, such as provided by a municipal sanitary landfill, are an important and vital part of the mix of services needed to maintain and support development and growth. Under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Realistically, ongoing urbanization on Oahu combined with stringent State and Federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved. The proposed expansion of Waimanalo Gulch

is based on thorough review and assessment of a number of potential alternatives, including new waste reduction technologies and over 40 potential landfill sites throughout Oahu. We have heard community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or if possible, eliminate the potential for impacts.

LEACHATE PRODUCTION
A groundwater monitoring program is in place to provide continuous long-term testing of groundwater. The monitoring program is designed to alert the City and Waste Management of Hawaii, Inc., of problems well in advance of adverse impacts to surrounding locations. Results of the monitoring program have indicated that the facility is operating within regulatory limits established by the State Department of Health, and EPA. For this reason, we do not foresee negative impacts to the surrounding area or region.

ODOR CONTROL
Odor and litter issues tend to increase whenever H-POWER is shut down for periodic maintenance. During these periods, waste which would ordinarily be incinerated is diverted to the landfill site. The following measures have been implemented to address this concern:

A. New odor neutralizing solvents and deployment systems, such as manufactured by Benzaco Scientific, Inc., are being applied onsite to reduce or eliminate odors. These odor neutralizers are state-of- the-art and have been successfully used elsewhere by Waste Management of Hawaii.
B. The key to managing the odor problem is to deploy the neutralizers prior to and during periods when municipal solid waste is diverted from H-POWER. We anticipate that fine-tuning of this equipment will be necessary to optimize the reduction of odors.
C. The system in place uses a series of spray misters. Waste Management will make adjustments as necessary in the location of these misters to ensure off-loading trucks and the refuse itself are properly treated.
D. As soon as possible, cover material must be placed over the refuse to further suppress odors.

Sewage sludge which is disposed of at the landfill has also been identified as a potential odor source. Sewage sludge is normally heat treated prior to being loaded onto trucks for delivery. Under normal circumstances, the heat treatment, loading, and delivery procedures ensure against generation of objectionable odors. However, as with H-POWER, there are some periods when the heat treatment equipment will require regularly scheduled maintenance. We will review our procedures for sludge disposal during these periods and increase use of odor treatment systems. At this time, the Sand Island Wastewater Treatment Plant (SIWWTP), our largest source of sewage sludge, is initiating upgrades to improve overall handling and treatment of liquid and solid waste streams. We expect that the combination of using new odor treatment systems and improved solid waste handling at SIWWTP will markedly improve our ability to handle odor problems.

The location of the proposed expansion will remain within the existing 200-acre landfill boundary. The majority of the expansion area will therefore place it further mauka of its current location.

VECTOR PROBLEMS
Waimanalo Gulch Sanitary Landfill is being monitored for vectors by Waste Management of Hawaii, Inc. We know of no increase in the population of flies attributable to the landfill. In the event that you should experience any vector problems at Ko Olina, we ask that you immediately contact Mr. Joseph Hernandez, Environmental Manager, Waste Management of Hawaii, Inc., at 668-2985, extension 22, or the State Department of Health, Vector Control Branch, at 831-6767.

LITTER PROBLEMS ALONG FARRINGTON HIGHWAY
Litter Along Highways - Actions which are underway to address litter include use of additional fencing, work crews, and new equipment. Fencing designed to capture windblown litter had been previously cleaned with hand tools. Work crews will be provided with new equipment, such as MadVac, which incorporates a vacuum device to speed pickup of litter. This equipment will be truck-mounted to facilitate the removal of litter from off-site locations.

ENV has also consulted with refuse trucking firms to advise them of the importance of ensuring that refuse loads are properly covered prior to making deliveries to the landfill. Commercial and City refuse vehicles leaving the landfill are also being inspected to ensure they have thoroughly cleaned out their vehicle beds and/or are using their covers.

Additional measures are under consideration and include the potential for removal of paper and lightweight plastics from refuse going to the landfill. Use of this measure, however, will require further study to determine feasibility.

LANDFILL GASES
The State DOH, through laws and regulations of the EPA, is responsible for regulating landfill generated gasses. ENV and the operator of the landfill are responsible for compliance. Landfill management and monitoring of air quality have ensured that gasses, such as methane, are not generated in sufficient quantities which could constitute a health hazard, either to the general public or to surrounding communities and neighbors. There have been no alarms to date involving the release of toxic or hazardous gasses from the landfill.

Additional measures being considered by the City include the feasibility of recovering gas for the generation of electricity. The HECO Kahe Power Generating Station is located nearby and would be a logical user for either the gas or any electricity that may be produced. At this time, however, the dry climate of the site, combined with relatively low volumes of putrescible waste, precludes the feasible development of this option.

ALTERNATIVE SITES
Alternative Locations - The forthcoming Revised Draft SEIS will include additional information on ongoing efforts we have been taking to assess both technical and new landfill siting alternatives to the proposed expansion of Waimanalo Gulch.

We appreciated your review of the subject Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

JOHN DeSOTO
Councilmember
(808) 547-7009 (Voice)
(808) 523-4220 (Fax)
e-mail: desoto@co.honolulu.hi.us

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HAWAII 96813-3065 / TELEPHONE 547-7000

RECEIVED
JUN 30 9 AM '00
DIVISION OF REFUSE COLLECTION & DISPOSAL

Refuse
00-0943

RECEIVED
'00 JUN 29 P2:02
DEPT OF ENVIRONMENTAL SERVICES

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
Waimanalo Gulch 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 Waimanalo Gulch Landfill Expansion.

It is my understanding that Waianae Neighborhood Board #24 received the report after their June 6th meeting, and that the Makakakilo/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

Fax to MDO
Denny Smith
x4242

Log # pls.

Margie
Pam
x6664

JD:pw
KS_DS.WPD

cc: Maeda Timson, Makakakilo/Kapolei/Honokai Hale Neighborhood Board #34
Cynthia Rezentes, Waianae Neighborhood Board #23

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6675

REC'D JUL 19 2000 RMTC

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

JEREMY HARRIS
MAYOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-069

July 14, 2000

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
Draft Supplemental EIS

We anticipated that residents in the vicinity of the landfill would have concerns about the proposed expansion and included Neighborhood Boards No. 24 (Waianae Coast) and No. 34 (Makakilo/Kapolei/Honokai Hale) on the document mailing list. Copies of the Draft Supplemental EIS were mailed to all entities on the list on May 23, 2000, along with the copies for the Waianae Public Library, the Hawaii State Library, the University of Hawaii Hamilton Library, and others required by the Office of Environmental Quality Control (OEQC).

By copy of this letter to OEQC, we are extending the deadline 45 days, from July 7 until August 21, 2000, to give the two Neighborhood Boards, and anyone else, additional time to submit their comments. If you have any questions, please call Wilma Namumnart of the Refuse Division at 527-5378.

Sincerely,

KENNETH E. SPRAGUE
Director

FORWARDED:

BENJAMIN B. LEE, FAIA
Managing Director

cc: OEQC
Waianae Coast N.B. No. 24
Makakilo/Kapolei/Honokai Hale N.B. No. 34
The Honorable Colleen Hanabusa
Waste Management of Hawaii
R.M. Towill

.TROPOLITAN MANAGEMENT
Property Management Specialists

Refere 00-0955

RECEIVED
'00 JUL -3 18:40

Date: June 30, 2000

To: Department of Environmental Services

From: Jim Kolonick (President)
Metropolitan Management

Re: Waimanalo Gulch Sanitary Landfill Expansion

Metropolitan Management represents the Ko'Olina Community Association, of which Ko'Olina Fairways a community consisting of 280 memberships, is one of them. Our residents strongly object to the Waimanalo Gulch Sanitary Landfill Expansion Proposal.

If you have any questions regarding the Ko'Olina Community Association and Ko'Olina Fairways, please do not hesitate to contact me at 536-3511.

Thanking you in advance for your cooperation and consideration in this matter.

Sincerely,

Jim Kolonick
Metropolitan Management - President

cc: Mayor Harris

745 Fort Street, #2100 ▪ Amfac Center, Hawaii Tower ▪ Honolulu, Hawaii 96813 ▪ (808) 536-3511 ▪ FAX (808) 537-3655

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
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Phone (808) 527-6663 • Fax: (808) 527-6675

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO
RE 00-099

July 19, 2000

Mr. Jim Kolonick, President
Metropolitan Management
Amfac Center, Hawaii Tower
745 Fort Street, No. 2100
Honolulu, Hawaii 96813

Dear Mr. Kolonick:

SUBJECT: Notice of Extension of Receipt of Comments for the Waimanalo Gulch Sanitary Landfill Expansion Supplemental EIS, Waimanalo Gulch, Island of Oahu

The receipt of public comments for the subject Draft Supplemental EIS has been extended from July 7, 2000, to August 21, 2000. Comments may be submitted to us at the above address.

Should you have any questions please contact Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, or Mr. Brian Takeda, R.M. Towill Corporation, at 842-1133.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: OEQC w/mailing list

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-171

December 28, 2000

Mr. Jim Kolonick
President
Metropolitan Management
745 Fort Street, #2100
Honolulu, Hawaii 96813

Dear Mr. Kolonick:

Subject: Waimanalo Gulch Sanitary Landfill Expansion -
Draft Supplemental Environmental Impact Statement

Public response to the initial Draft Supplemental EIS has indicated the need for additional information on potential new technologies and alternative landfill sites; therefore, the City has decided to issue a Revised Draft Supplemental EIS which will provide expanded coverage of these issues

The Revised Draft Supplemental EIS is expected to be available mid-March 2001, and allow a new public comment period of 45 days. As discussed with you on November 27, 2000, the City and Waste Management of Hawaii have hired Herb Lee as community liaison to assist in broadening our community dialog on this issue.

Should you have any questions, please contact Ms. Wilma Namumnart of my staff at 527-5378.

Sincerely,

KENNETH E. SPRAGUE
Director

KS:wy(2691)

cc: Office of the Mayor

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.
ACTING DIRECTOR

IN REPLY REFER TO
RE 01-069

May 14, 2001

Mr. Jim Kolonick
Metropolitan Management
745 Fort Street, Suite 2100
Amfac Center, Hawaii Tower
Honolulu, Hawaii 96813

Dear Mr. Kolonick:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comment letter dated June 30, 2000, concerning the subject Draft SEIS. This supplements our prior letters to you dated July 19, 2000, and December 28, 2000.

We acknowledge your objection to the proposed project. The Department of Environmental Services and the operator of the facility, Waste Management of Hawaii, Inc., understand your concern and have been actively seeking the input of the communities surrounding the landfill and landfill users to address stated concerns and issues.

We hope that you will offer your constructive comments so that we can improve our facility. Any further comments may be directed to Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

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

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-JNB

June 29, 2000

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTENTION: WILMA NAMUMNART

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: WAIMANALO GULCH SANITARY LANDFILL EXPANSION
WAIMANALO GULCH, ISLAND OF OAHU
TMK: 9-2-03: 072 AND 073

Thank you for the opportunity to review and comment on the subject document. As previously stated, there may be an impact on calls for police service to the area while the landfill is being expanded.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By Eugene Uemura
EUGENE UEMURA
Assistant Chief
Support Services Bureau

cc: Department of Planning and Permitting
Office of Environmental Quality Control
R.M. Towill Corporation, Inc.

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.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-074

May 14, 2001

Lee D. Donohue
Chief of Police
Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Chief Donohue:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 29, 2000, concerning the subject Draft SEIS. We acknowledge your comment that there may be an impact on calls for police service to the area during construction activities associated with the landfill expansion.

We wish to extend our appreciation to Lt. Greg Yamamoto, who on two separate occasions attended meetings before the community to provide answers to questions concerning the enforcement of highway litter laws. Although we were not able to discuss this matter with Lt. Yamamoto, we continue to seek the assistance of HPD to cite violators which litter the areas adjoining the Waimanalo Gulch Sanitary Landfill.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

KO OLINA COMMUNITY ASSOCIATION
92-619 Farrington Highway
Ko Olina, Hawaii 96707
Telephone 808-671-2512, Facsimile: 808-671-3640

RECEIVED
00 JUN 30 P2:24

June 29, 2000

Via Certified Mail

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Subject: Comments to the Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion Dated April 2000

The Ko Olina Community Association (KOCA) has reviewed the Draft Supplemental Environmental Impact Statement (SEIS) for the Waimanalo Sanitary Landfill Expansion dated April 2000 and formally submits the following comments and concerns:

1. Consultation. Although Ko Olina Resort is located 200 feet from the landfill entrance road, KOCA was not consulted in preparation of the Draft SEIS (Section 9.4) and was not provided a copy of the Draft SEIS for review. A copy was obtained 12 days after its release on June 5, 2000 by chance during a periodic status check by KOCA staff.

2. Adjacent and Surrounding Uses. The location map (Figure 1-2) does not identify the Ko Olina Resort area, show major existing thoroughfares, and current geographical configurations of the Ko Olina lagoons. On this and other maps, more specific developments and proximity to the landfill site should be indicated clearly. In particular, existing residential developments such as the nearby agricultural lots, planned low-density residential

developments on the Ko Olina Resort, and the Honokai Hale area should be clearly depicted graphically.

3. Proximity to surrounding land uses: The SEIS states that the Ko Olina Golf Course and Ihilani Resort (J.W. Marriott Ihilani Resort and Spa) are one to two miles to the southeast. The Ko Olina Resort property is in fact much closer to the landfill site. New low-density residential units are being constructed as close as 1000 feet directly downwind from the landfill site and only 200 feet from the landfill entrance road. The SEIS should reflect this proximity and address associated impacts. We are particularly concerned about the expansion to the immediate east of the existing landfill, which will bring the landfill operations close to the highway and residential developments.

4. Airborne impacts: The SEIS states that impacts such as odor, dust and litter will be mitigated through various means, however, past experience has shown that these impacts are not addressed on a daily basis. Ko Olina Resort and other surrounding landowners have experienced problems with these impacts. Refuse trucks enroute to the landfill have often dropped litter along Farrington Highway. During certain wind conditions including no wind conditions, odors from the landfill can be detected on the Ko Olina Golf Course, Ihilani Resort, Lanikuhonua, Paradise Cove, and the guardhouse at the entrance to the Resort. Plastic bags and paper blown from the landfill litter the mountainside, resort site, near shore areas and the ocean; this is a persistent major problem. New residences consisting of single-family residential units in structures up to 30 feet high will be constructed near the highway interchange and will be even closer to the landfill and more sensitive to the odors, dust and noise generated at the landfill. The SEIS should be amended to reflect these problems and indicate mitigation measures to address these concerns in the future.

5. Visual Impacts: As shown in Figure 5-1 of the SEIS, the proposed landfill expansion will be highly visible from the JW Marriott Ihilani Resort and Spa as well as other areas of the Ko Olina Resort. It should be noted in the SEIS that the photos were taken

at ground level, such that the visual impacts would be much greater from upper levels of the 150-foot high hotel. Revegetation of the existing landfill area will help to reduce the visual impacts, but as the landfill operations move into the upper portions of the site they will be more visible than existing operations. Landscaping or buffer zones will not reduce the visual impact of the expanded operations, especially from upper floors of resort buildings.

6. Drainage Impacts. The SEIS needs to clarify existing drainage patterns and show more clearly (i.e. on maps and drawings) proposed drainage improvements to enable an assessment of how drainage is presently and planned to be handled to assure that leachates do not affect downstream properties and the coastal environment.

7. Fire hazard. The SEIS does not discuss potential fire hazards and how they would be addressed or prevented from occurring. We would note that in September 1999, there were 2 fires at the Kapaa Landfill, and that in 1994, a landfill in Nanakuli burned unabated for days emitting toxic fumes before it could be extinguished. There were landfill fires at the Waimanalo Gulch facility as recently as June 11 and June 23, 2000.

8. Duration of impacts: While the SEIS states that most of the impacts to Ko Olina Resort from the proposed landfill expansion will not be significantly different from current conditions, they will be extended for another 15 years. There was no indication in the 1984 EIS that the landfill could or would be expanded, and we had fully expected that the landfill would be permanently closed once it reached the capacity stated in the 1984 EIS. We strongly object to this latest expansion proposal.

9. Necessary Permits and Approvals: Please expand on the necessary permits and approvals, in particular the State Special Use Permit Amendment and Conditional Use Permit – why they are required, who would be the approving bodies, and the status of their approval. Shouldn't this expansion also be subject to amending the Public Infrastructure Map for Ewa?

10. Relationship to Land Use Plans, Policies, and Controls. We would like to see the relationship of the proposed expansion to land use plans, policies and controls discussed in much greater detail. This is required to be discussed in the EIS (Section 11-200-17(h), Hawaii Administrative Rules). In particular, we would note that the City and County of Honolulu's Ewa Development Plan (Page 4-24) states that "Siting and/or expansion of sanitary landfills should be analyzed and approved based on islandwide studies and siting evaluations." Clearly, this is not the case. The EIS rules provide that:

> "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." (Section 11-200-17(h), HAR)

11. Long Term Plan for Solid Waste Disposal. We would like to know why the City does not have a clear long term plan for solid waste disposal, and seems therefore almost forced at this time to expand this landfill.

12. Alternative Locations. The EIS devotes less than one page to a discussion of alternative locations. Per content requirements of Section 11-200-17 (f), Hawaii Administrative Rules:

> "The draft EIS shall describe in a separate and distinct section alternatives which could attain the objectives of the action, regardless of cost, in sufficient detail to explain why they were rejected. The section shall include 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... In each case, the analysis shall be sufficiently detailed to allow the comparative evaluation of the environmental benefits, costs, and risks

of the proposed action and each reasonable alternative."
(emphasis added)

We fail to see any such discussion. Use of closed landfills or Federal lands in current use or over ground-water areas do not seem to qualify as reasonable alternatives. We would suggest that the 1984 EIS (Table 6-1) and the 1995 Solid Waste Integrated Management Plan be used as starting points. We would also like to see alternatives such as use of only the rear portion of the existing landfill site be explored.

13. Final SEIS copies: Please provide three (3) copies of the Final SEIS to Ko Olina Community Association when available.

Thank you for allowing us the opportunity to comment on the SEIS for the Waimanalo Gulch Sanitary Landfill Expansion.

Very truly yours,

Kenneth M. Williams
General Manager

c: Office of Environmental Quality Control
R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6679

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE C1-067

May 16, 2001

Mr. Kenneth M. Williams
General Manager
Ko Olina Community Association
92-619 Farrington Highway
Kapolei, Hawaii 96707

Dear Mr. Williams:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comment letter dated June 29, 2001, concerning the subject Draft SEIS. We offer the following in response:

1. CONSULTATION - Public notification of the project EIS Preparation Notice was initially provided in the Office of Environmental Quality Control (OEQC) publication, the Environmental Notice, on December 8, 1999. Since then, public notification was again provided for the project Draft SEIS in the Environmental Notice on May 23, 2000. In conjunction with both notices, copies of both documents were provided to selected government agencies and members of the public. Based on public comments received, a Revised Draft SEIS will be prepared. In accordance with Chapter 343, HRS, we will again provide notice to all interested parties through OEQC. The public will again have opportunity to comment within the 45-day public comment period.

2. ADJACENT AND SURROUNDING USES, AND PROXIMITY TO SURROUNDING USES - The Revised Draft SEIS will provide further discussion and delineation of projects in proximity to the proposed landfill expansion.

3. AIRBORNE IMPACTS - Potential for adverse environmental impacts, including odor, dust, and litter, will be further discussed in the forthcoming Revised Draft SEIS. Mitigation measures will be provided to reduce, minimize, and, if possible, eliminate potential for impacts.

4. VISUAL IMPACTS - Additional photographic analysis depicting the proposed landfill expansion will be provided in the Revised Draft SEIS. You are correct in that landscaping or buffer zones will not completely screen views of the landfill from the public. It is expected that the proposed landscaping plan, in conjunction with the location of the majority of the expansion site in the mauka portion of the Waimanalo Gulch, will minimize visual impacts.

5. DRAINAGE IMPACTS - A description of the onsite drainage control system and leachate control system will be provided in the Revised Draft SEIS. As described in the Draft SEIS, the existing onsite drainage control system is designed to handle storm flows from a 622-acre drainage area, which includes the 200-acre Waimanalo Gulch Sanitary Landfill site. The expansion area will be properly graded and sloped for integration into the existing drainage control system.

6. FIRE HAZARD - According to Waste Management of Hawaii, Inc., on June 11, 2000, there was a small fire on a refuse truck delivering waste to H-POWER. The truck was diverted to the Waimanalo Gulch Sanitary Landfill for assistance. The fire was contained and extinguished with the assistance of the Honolulu Fire Department the same day.

   Neither ENV or Waste Management of Hawaii, Inc., is aware of the second fire, which you describe as occurring on June 23, 2000.

   Potential for fires at the landfill is addressed through an emergency plan, which tasks an emergency coordinator with overall fire control management. Preventative practices, equipment, and coordination with the Honolulu Fire Department and Honolulu Police Department are employed to ensure safety to site workers and the surrounding public. The incident on June 11, 2000, is an example of the immediate use and application of the onsite practices and measures that are employed to handle fires.

7. DURATION OF IMPACTS - We acknowledge your objection to the proposed project. Public infrastructure services, such as provided by a municipal sanitary landfill, are an important and vital part of the mix of services needed to maintain and support development and growth of projects like Ko Olina. Under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Realistically, ongoing urbanization on Oahu, combined with stringent State and Federal environmental regulations, makes the siting of any landfill a difficult undertaking for all involved.

The proposed expansion of Waimanalo Gulch is based on thorough review and assessment of a number of potential alternatives, including new waste reduction technologies and over 40 potential landfill sites throughout Oahu. We have heard community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or, if possible eliminate, the potential for impacts.

8. NECESSARY PERMITS AND APPROVALS - Further discussion of permits and approvals required for the proposed expansion will be provided in the forthcoming Revised Draft SEIS.

9. RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS - Additional discussion of permits and approvals needed for the proposed project will be provided in the forthcoming Revised Draft SEIS.

10. LONG TERM PLAN FOR SOLID WASTE DISPOSAL - The proposed Waimanalo Gulch Sanitary Landfill Expansion is designed to address the long-term need for a sanitary landfill for a period of approximately 15 years. At the same time, the siting of a municipal sanitary landfill is expected to remain a difficult process due to ongoing changes in land use and development on Oahu. Whenever feasible, new technologies will be implemented to better provide for the reduction of municipal solid waste requiring disposal in landfills.

11. ALTERNATIVE LOCATIONS - As noted, further discussion of alternative locations for landfills will be provided in the Revised Draft SEIS.

12. FINAL SEIS COPIES. - Copies of the Revised Draft SEIS will be made available for public review though OEQC and at selected public libraries (as determined by OEQC). A copy of this document will be provided to you as requested.

We appreciate your review of the subject Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart 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
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

GENEVIEVE SALMONSON
DIRECTOR

June 28, 2000

Mr. Kenneth Sprague, Director
City and County of Honolulu
Department of Environmental Services
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Draft Environmental Impact Statement for the Expansion of the Waimanalo Gulch Sanitary Landfill, Oahu

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

1. In accordance with section 11-200-20(d) of Hawaii Administrative Rules, please sign and date the original copy of the draft or final EIS and indicate that the statement and all ancillary documents were prepared under the signatory's direction or supervision and that the information submitted, to the best of the signatory's knowledge fully addresses document content requirements as set forth in sections 11-200-17 and 11-200-18, as appropriate.

2. Please study the potential of using the methane gas produced by the landfill for beneficial purposes. The landfill is near several industrial facilities that can probably use the methane or convert it into energy.

3. Please include a synopsis of the unresolved issues in the executive summary.

4. If the predicted solid waste diversion rate is not reached, is there more room to expand the landfill at the present site?

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

Sincerely,

Genevieve Salmonson
Director

c: 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

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-008

May 16, 2001

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

Dear Ms. Salmonson:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comment letter dated June 28, 2000, concerning the subject Draft SEIS. We offer the following in response:

1. Per your instructions, the Revised Draft SEIS shall include a signatory sheet with statement of supervision concerning the preparation of the document.

2. Waste Management of Hawaii, Inc., will provide for recovery of landfill gas for the generation of energy. As you are aware, the HECO Kahe Power Generating Station is located nearby and would be a logical user for either the gas or any electricity that may be produced.

3. The Executive Summary of the Revised Draft SEIS shall contain a synopsis of unresolved issues.

4. There is sufficient room for expansion of the proposed project within the existing 200-acre property. Although the expansion involves a planned lifespan of approximately 15 years, a number of factors could extend or reduce capacity. These factors include: the state of the economy (periods of economic prosperity tend to result in greater generation of refuse); the state of maturing new alternative technologies, such as plasma arc incineration, which may one day further reduce, but not completely eliminate, municipal solid waste requiring landfill disposal; and natural disasters, such as hurricanes, which will require a site for the disposal of clean-up debris.

We appreciate your review of the subject Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart 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
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

MAKAKILO/KAPOLEI/HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 406 • HONOLULU, HAWAII 96813

Refuse 00-09447 7/00

RECEIVED
JUN 30 A8:47
DEPT OF ENVIRONMENTAL SERVICES

June 27, 2000

Department of Environmental Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Re: Waimanalo Gulch Sanitary Landfill Expansion
Draft Supplemental Environmental Impact Statement (EIS)

Gentlemen:

On June 21, 2000 at our regular monthly Neighborhood meeting, the above referenced EIS was discussed as a concern from the community in attendance.

Let us first note that this Board was not consulted as stated in Chapter 9 of the EIS. Waste Management of Hawaii, Inc. informed us that an EIS was being prepared and that we would receive a copy for comment and a presentation would be made to our community. This was agreeable to us. However, we were not provided with the EIS because of an oversight by the consultant, R.M. Towill Corp and a presentation by Waste Management of Hawaii, Inc. is not yet scheduled.

As a result, the Board is requesting for an extension of 45 days from the due date and that this project not move forward until then to allow for our committee review and a presentation. We feel that this is a major expansion in our community and we must be allowed a complete review.

Concerns and comments stated by the community and Board on June 21st were:

1. Ko Olina Development, Hawaiian Electric and the Makakilo/Kapolei/Honokai Hale Neighborhood Board, the immediate neighbors to the landfill, did not receive a copy of the EIS. Why?
2. In 1984, the City said that the landfill would not be expanded at maturity. What happened with that agreement?
3. The landfill is now in the midst of a new City of homes, more industry, development and a larger population. Shouldn't the landfill be moved out of Kapolei?
4. Modern alternatives of trash disposal has been introduced throughout the US and Hawaii,eliminating landfills. The EIS does not address these alternatives. Why?
5. A landfill is a desecration of the aina.

We await your response.

Sincerely,

Maeda C. Timson
Chair

92-684 Nohona St.
Kapolei, Hi. 96707
Daytime No. 525-5601
Evening No. 672-9414

MCT: ak
cc: Mayor Jeremy Harris
Councilmember John DeSoto
Senator Colleen Hanabusa
Representative Mike Kahikina

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR
BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-091

July 19, 2000

Ms. Maeda Timson, Chairperson
Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34
92-684 Nohana Street
Kapolei, Hawaii 96797

Dear Ms. Timson:

SUBJECT: Notice of Extension of Receipt of Comments for the Waimanalo Gulch Sanitary Landfill Expansion Supplemental EIS, Waimanalo Gulch, Island of Oahu

The receipt of public comments for the subject Draft Supplemental EIS has been extended from July 7, 2000, to August 21, 2000. Please provide notice of this extension at your next regularly scheduled meeting of the Makakilo/Kapolei/Honokai Hale Neighborhood Board.

Should you have any questions please contact Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985, or Mr. Brian Takeda, R.M. Towill Corporation, at 842-1133.

Sincerely,

KENNETH E. SPRAGUE
Director

cc: The Honorable John DeSoto, Councilmember
OEQC w/mailing list

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR
BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-169

December 28, 2000

Ms. Maeda Timson, Chairperson
Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34
92-684 Nohana Street
Kapolei, Hawaii 96707

Dear Ms. Timson:

Subject: Waimanalo Gulch Sanitary Landfill Expansion - Draft Supplemental Environmental Impact Statement

Public response to the initial Draft Supplemental EIS has indicated the need for additional information on potential new technologies and alternative landfill sites; therefore, the City has decided to issue a Revised Draft Supplemental EIS which will provide expanded coverage of these issues

The Revised Draft Supplemental EIS is expected to be available mid-March 2001, and allow a new public comment period of 45 days. As discussed with you on November 27, 2000, the City and Waste Management of Hawaii have hired Herb Lee as community liaison to assist in broadening dur community dialog on this issue.

Should you have any questions, please contact Ms. Wilma Namumnart of my staff at 527-5378.

Sincerely,

KENNETH E. SPRAGUE
Director

KS:wy(2662)

cc: Office of the Mayor

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.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-072

May 14, 2001

Ms. Maeda C. Timson, Chair
Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Ms. Timson:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated June 27, 2000, concerning the subject Draft SEIS. This supplements our prior letters to you dated July 19, 2000, and December 28, 2000. We offer the following itemized response to your comments:

1. *"Ko Olina Development, Hawaiian Electric and the Makakilo/Kapolei/Honokai Hale Neighborhood Board, the immediate neighbors to the landfill, did not receive a copy of the EIS. Why?"*

   Public notification of the project EIS Preparation Notice was initially provided in the Office of Environmental Quality Control (OEQC) publication, the Environmental Notice, on December 8, 1999. Since then, public notification was again provided for the project Draft SEIS in the Environmental Notice on May 23, 2000. In conjunction with both notices, copies of both documents were provided to selected government agencies and members of the public. Based on public comments received, a Revised Draft SEIS will be prepared. In accordance with Chapter 343, HRS, we will again provide notice to all interested parties through OEQC. The public will again have opportunity to comment within the 45-day public comment period.

2. *"In 1984, the City said that the landfill would not be expanded at maturity. What happened with that agreement?"*

   ENV has conducted an exhaustive examination of prior correspondence and documentation from the early 1980s to the current period, relating to a stated 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.

3. *"The landfill is now in the midst of a new City of homes, more industry, development and a larger population. Shouldn't the landfill be moved out of Kapolei?"*

   We agree that since 1984, there have been major regional land use changes in Ewa. We believe this has been due, in part, to: 1) the designation of Kapolei as the secondary urban center; 2) major new investment in locations, including Ko Olina, for resort, residential, and commercial development; and 3) existing resort, commercial, industrial, and related businesses which are achieving maturity in the region.

   At the same time, public infrastructure services, such as provided by a municipal sanitary landfill, are an important and vital part of the mix of services needed to maintain and support development and growth of projects such as Ko Olina. Under ideal circumstances, a sanitary landfill would be sited in a location with no potential for impacts to the natural environment or community. Realistically, ongoing urbanization on Oahu, combined with stringent State and Federal environmental regulations, makes, the siting of any landfill a difficult undertaking for all involved. The proposed expansion of Waimanalo Gulch is based on thorough review and assessment of a number of potential alternatives, including new waste reduction technologies and over 40 potential landfill sites throughout Oahu.

   We have heard community concerns and issues and are willing to implement practices and procedures, as needed, to reduce, minimize, or, if possible eliminate the potential for impacts.

4. *"Modern alternatives of trash disposal has been introduced through the US and Hawaii, eliminating landfills. The EIS does not address these alternatives. Why?"*

   An expanded discussion of both alternative technologies and alternative locations for the siting of a municipal sanitary landfill will be provided in the forthcoming Revised Draft SEIS.

5. *"A landfill is a desecration of the aina."*

   The Department of Environmental Services and the operator of the landfill, Waste Management of Hawaii, Inc., consider the land of Waimanalo Gulch an important, finite, and precious resource of the City and County of Honolulu and the broader island community of Oahu. This is reflected in management practices which seek to minimize, mitigate, and if possible, eliminate any potential for adverse impacts to either the land or the environment.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart of our office at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

NORMAN MIZUGUCHI
PRESIDENT
AVERY B. CHUMBLEY
VICE PRESIDENT
S. HARA JR.
MAJORITY LEADER
JONATHAN CHUN
MAJORITY FLOOR LEADER
WHITNEY T. ANDERSON
MINORITY LEADER
SAM SLOM
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FIFTEENTH DISTRICT
NORMAN MIZUGUCHI
SIXTEENTH DISTRICT
NORMAN SAKAMOTO
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DAVID IGE
EIGHTEENTH DISTRICT
RANDY IWASE
NINETEENTH DISTRICT
CAL KAWAMOTO
TWENTIETH DISTRICT
BRIAN KANNO
TWENTY FIRST DISTRICT
COLLEEN HANABUSA
TWENTY SECOND DISTRICT
ROBERT BUNDA
TWENTY THIRD DISTRICT
BOB NAKATA
TWENTY FOURTH DISTRICT
MARSHALL IGE
TWENTY FIFTH DISTRICT
WHITNEY T. ANDERSON
CHIEF CLERK
PAUL T. KAWAGUCHI

The Senate
The Twentieth Legislature
of the
State of Hawaii

STATE CAPITOL
HONOLULU, HAWAII 96813

June 23, 2000

SENT VIA FACSIMILE AND REGULAR MAIL

Chester Koga
Project Manager
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawai'i 96817-4941

Facsimile No.: (808) 842-1937

RE: Request for Additional Time to Submit Comments on Waimanalo Gulch Landfill Expansion – Draft Supplemental EIS

Dear Mr. Koga:

Thank you for forwarding my office a copy of the Draft Supplemental Environmental Impact Statement, Waimanalo Gulch Sanitary Landfill Expansion, Waimanalo Gulch, Island of Oahu, TMK 9-2-03: 072 and 073.

My office has been in contact with the Wai'anae Coast Neighborhood Board No. 24 (N/B 24) and the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 (N/B 34), both Boards represent the communities that will be directly impacted by the proposed expansion project. They have informed us that they will not be able to submit comments by the July 7 deadline and would appreciate additional time to do so.

N/B 24's Planning and Zoning Committee received a copy of the draft EIS report prior to its June 15 meeting. The next scheduled meeting of the full neighborhood board will take place on Wednesday, July 5.

At its June 21 meeting, N/B 34 informed the community that it did not receive a copy of the report and, therefore, has not had the opportunity to review it. (Although it is not legally required, it is our understanding that a courtesy copy is usually presented to the neighborhood board that is directly impacted by the project.). The Board also will be seeking additional time to submit its comments.

Members voiced a strong desire to review and comment on the report as they have a number of concerns about the Waimanalo Gulch Landfill operations. It was pointed out that:

1. The previous commitments that were made have not been kept;
2. Assurances were given that the landfill would not be expanded;
3. The landfill is in close proximity to a major resort and planned housing development;
4. Despite efforts, trash continually litters the area and is not under control – some of it ending up in the ocean;
5. Delivery trucks do not secure their loads;
6. An odor permeates down to the ocean area when the winds are up;
7. On a recent inspection of the Kahe power station, trash debris was openly visible on the mountainside and against the fence. It was represented that it was a "good day" and that it happens despite the efforts of the landfill to control the problem;
8. While on the tour it was also mentioned that the power plant was concerned about the flying debris hitting the transmission lines; and,
9. Were alternatives to expanding the landfill or other possible sites considered?

The next scheduled meeting of N/B 34 will take place on Wednesday, July 19.

We are certain that you will agree that community consideration and involvement in this process is crucial and should encouraged.

Your consideration of this request and cooperation is greatly appreciated.

Sincerely,

COLLEEN HANBUSA
Senator, Twenty-First District

cc: Mayor Jeremy Harris
Councilmember John Desoto
Wilma Namumnart, Dept. of Environmental Services
Joseph Hernandez, Waste Management of Hawai'i
Neighborhood Board No.s 24 & 34

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

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

May 25, 2000

DK		KTS	
WES			
RTT			

REC'D MAY 30 2000 RATC

Ms. Wilma Namumnart
City and County of Honolulu
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

Dear Ms. Namumnart:

Subject: Waimanalo Gulch Sanitary Landfill Expansion,
TMK 9-2-3:72 & 73, Waianae, Oahu, Dated April, 2000

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

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

Aloha,

Darrell Yagodin

fn Raynard C. Soon, Chairman
Hawaiian Homes Commission

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6676

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00 084

June 21, 2000

Mr. Raynard C. Soon, Chairman
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Draft Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Landfill Expansion, Island of Oahu, TMK: 9-2-072 and 073

Thank you for your letter dated May 25, 2000. We acknowledge that the Department of Hawaiian Home Lands has no comments to offer concerning the proposed landfill expansion.

We appreciate the time you have taken to review this project. Should you have any further questions, please contact Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985.

Sincerely,

KENNETH E. SPRAGUE
Director

Attach.

cc: Mr. Brian Takeda - R.M. Towill Corporation
Mr. Joe Hernandez - Waste Management of Hawaii, Inc.

COPY

PHONE (808) 594-

FAX (808) 594-1865

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

COPY

DK | KTS | NM | RF | RECD MAY 2 5 2000 RMTC

May 22, 2000

Ms. Wilma Namumnart
Department of Environmental Services
City & County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawai'i 96813

EIS# 393

Subject: Draft Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Landfill Expansion; Waimanalo Gulch, Island of Oahu; TMK 9-2-03: 072 and 073

Dear Ms. Namumnart,

Thank you for the opportunity to review and comment on the above-referenced document. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted. According to your findings the proposed project is not anticipated to result in adverse impacts to archaeological or cultural resources in the area and coordination with the State Historic Preservation Division of the Department of Land and Natural Resources has found that no known historic sites exist within the expansion area.

Based upon this information, the Office of Hawaiian Affairs has no further concerns at this time. If you have any question, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Department of Planning and Permitting
Waste Management of Hawai'i, Inc.
R.M. Towill Corporation
OEQC

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUHAGA
DEPUTY DIRECTOR

NM | RF | REC'D JUN 2 6 2000 RMTC

IN REPLY REFER TO:
RE 00 083

June 21, 2000

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Draft Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Landfill Expansion, Island of Oahu, TMK: 9-2-072 and 073

Thank you for your letter dated May 22, 2000. We acknowledge your comment that the Office of Hawaiian Affairs has no further concerns at this time concerning the proposed project.

We appreciate the time you have taken to review this project. Should you have any further questions, please contact Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985.

Sincerely,

KENNETH E. SPRAGUE
Director

Attach.

cc: Mr. Brian Takeda - R.M. Towill Corporation
Mr. Joe Hernandez - Waste Management of Hawaii, Inc.

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

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

June 13, 2000

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTENTION: WILMA NAMUMNART
PLANNING AND ENGINEERING BRANCH
REFUSE DIVISION

FROM: JOHN CLARK, ACTING FIRE CHIEF

SUBJECT: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
WAIMANALO GULCH SANITARY LANDFILL EXPANSION
WAIMANALO GULCH, ISLAND OF OAHU
TAX MAP KEY: 9-2-003: 072 AND 073

We received the request for comments regarding the above-mentioned project. The Honolulu Fire Department requests that fire apparatus accessibility be maintained 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.

JOHN CLARK
Acting Fire Chief

JC/KS:ms

cc: Randall K. Fujiki, Department of Planning and Permitting
Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone (808) 527-6083 • Fax (808) 527-6675

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

May 14, 2001

WES		KTS	
R-F		NM	
RIT		BRT	

RECD MAY 17 2001

IN REPLY REFER TO
PE 01-076

Mr. Attilio K. Leonardi
Fire Chief
Honolulu Fire Department
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819

Dear Chief Leonardi:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 13, 2000, concerning the subject Draft SEIS. Fire apparatus access will be provided throughout the construction site for the duration of the project.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

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

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

June 27, 2000

LD-NAV

Ref.: WAIMANALOGULCH.RCM3

Honorable Ronald K. Fujiki
Planning Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Draft Environmental Impact Statement for Waimanalo Gulch Sanitary Land Fill Expansion

This is a follow-up to our letters to you dated June 8 and June 19, 2000(Ref.: WAIMANALOGULCH.RCM and RCM2) regarding the subject matter.

Attached herewith is a copy of our Land Division Engineering Branch comment.

The Department has no other comment to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division's Support Services Branch at 808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Oahu District Land Office
R. M. Towill Corporation

DLNR-LAND DIVISION
ENGINEERING BRANCH

Ref.: WAIMANALOOGULDCH.COM

COMMENTS

The proposed Sanitary Landfill Expansion does not affect our current projects and programs.

We confirm that the project site, according to FEMA Community Panel Number 15001 0130 C, is located in Zone D. This is an area in which flood hazards are undetermined.

If further studies indicate that the project site is within the flood hazards area, the proposed project must comply with rules and regulations of the National Flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Sterling Yong, of the Department of Land and Natural Resources at 587-0248. If there are questions regarding flood ordinances, please contact the applicable County representative.

M:\WLD\MAKAI\SUZIE\OAHU\W.Gulch071.DOC

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

May 25, 2000

Ref.: WAIMANALOGULCH.COM

Suspense Date: 06/29/00

MEMORANDUM:

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

FROM: Dean Y. Uchida, Administrator
Land Division

SUBJECT: Review Draft Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Land fill Expansion Island of Oahu, Hawaii - Tax Map Keys: 9-2-03: 072 and 073

Please review the Draft Supplemental Environmental Impact Statement

ONE (1) COPY OF THE SUBJECT DOCUMENT IS LOCATED IN ROOM 220

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

( ) We have no comments.

(X) Comments attached.

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

Date: 6/21/00

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

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

June 19, 2000

LD-NAV

Ref.: WAIMANALOGULCH.RCM2

Honorable Ronald K. Fujiki
Planning Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Draft Environmental Impact Statement for Waimanalo Gulch Sanitary Land Fill Expansion

This is a follow-up to our letter to you dated June 8, 2000 (Ref.: WAIMANALOGULCH.RCM) regarding the subject matter.

Attached herewith is a copy of our Commission on Water Resource Management's comments related to water resources.

The Department has no other comment to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division's Support Services Branch at 808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Oahu District Land Office
R. M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

TIMOTHY E. JOHNS
CHAIRPERSON

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

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

JUN 1 11 32 '00

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

June 5, 2000

00 JUN 7 P12:52

TO: Mr. Dean Uchida, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Waimanalo Gulch Sanitary Landfill EIS, TMK 9-2-03:072 and 073

FILE NO.: WAIMANALOGULCH.COM

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

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

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

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

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

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

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

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

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

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

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

[ ] OTHER

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

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

00 MAY 26 A9:32

May 25, 2000

Ref.: WAIMANALOGULCH.COM

Suspense Date: 06/29/00

MEMORANDUM:

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

FROM: Dean Y. Uchida, Administrator
Land Division

SUBJECT: Review Draft Supplemental Environmental Impact Statement for Waimanalo Gulch Sanitary Land fill Expansion Island of Oahu, Hawaii - Tax Map Keys: 9-2-03: 072 and 073

Please review the Draft Supplemental Environmental Impact Statement

ONE (1) COPY OF THE SUBJECT DOCUMENT IS LOCATED IN ROOM 220

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

( ) We have no comments.

(✓) Comments attached.

Signed: W. Roy Hardy

Date: 5/30/00

'00 JUN 13 PM 12 31

CITY & COUNTY HONOLULU

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

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

June 8, 2000

Ref.: WAIMANALOGULCH.RCH

LD-NAV

Honorable Ronald K. Fujiki
Planning Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Draft Environmental Impact Statement for Waimanalo Gulch Sanitary Land Fill Expansion

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

We have transmitted the subject informational material to our appropriate divisions for their review and comment on the proposed project.

Attached herewith is a copy of our Division of Forestry and Wildlife's comments.

The Department has no other comment to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division's Support Services Branch at 808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Oahu District Land Office
R. M. Towill Corporation

Division of Forestry and Wildlife
1151 Punchbowl St. Room 325, Honolulu, Hawaii 96813
(808) 587-0166 Fax (808) 587-0160

Memo

To: Nick Vaccaro, Land Agent
Land Division

Through: Dean Uchida, Administrator
Land Division

From: Michael G. Buck, Administrator
DOFAW

Date: May 31, 2000

Subject: Waimanalo Gulch Sanitary Landfill

The expansion of the existing landfill at Waimanalo Gulch is understandable considering the amount of solid waste that is generated by human activity within the City & County of Honolulu. We note that the added space will meet the waste disposal projections through the year 2017 whereas the current 60.5 acres has accommodations only till 2002.

Since the proposal is within the 200 acre footprint for the Waimanalo Gulch Sanitary Landfill (WGSL), the environmental concerns expressed for the 1984 EIS remain the same, i.e. noise/fugitive dust/flooding, etc.

Particular emphasis is placed on the wildfire issue at this time because of the fire history associated with the location. The WGSL sits in the midst of a fire rich environment and measures to prevent fire starts and rapid spread must be treated with added precautions.

We urge that the applicant make a conscious and realistic appraisal of the risk-hazard-value of not only the immediate project area but also of its surroundings. Such an assessment can help detail a sound plan to prevent and rapidly suppress occurrence of wildfire. For example, possible ignition sources should be identified and appropriate measures detailed to prevent fire starts.

Section 4.6.2-Fire Services, change this section to indicate that Station 40, Kapolei Fire Station provides coverage for the WGSL.

We also note that Section 4.6.4-Impacts and Mitigation Measures has provisions for fire protection but it does not detail a clearly defined plan for prevention, presuppression and suppression. For instance, the inclusion of firebreaks as part of the sanitary landfill operations is commendable but it should be designed and placed with consideration for its proximity to flashy fuels, steep topography, and wind speed/direction. The presence of a 6,000 gallon water truck coupled with workers on site can help provide initial attack but responding personnel must be properly trained to understand and avoid risks associated with wild land fire scenarios.

Once again, special attention must be given towards the fire potential for all activities associated with the WGSL. Its surroundings interface with residential and commercial centers so every precaution must be taken to prevent wildfires from impacting those locations either directly by threat of open flames or indirectly. For instance, the proposed expansion will underlie a major power transmission line from the Kahe Point Power Plant. Any smoke plumes that emerge from wildfires can trigger major power failure as was evidenced several years ago by agriculture burning activities.

Regarding the flora, we checked our references for the presence of T & E species and confirm the absence of any species of concern in the vicinity. As a double check, however, the State Botanist should be consulted also to assure that the location is free of a unique plant community. Our experiences at E. Kapolei, i.e. Abutilon menziesii, have given us reason for caution.

This memo serves as our response to your request for comment. Should you have any questions, please feel free to contact Pat Costales, Oahu Branch Manager, Division of Forestry and Wildlife at 973-9787.

Mahalo!

C: DOFAW, Oahu Branch

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.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-079

May 14, 2001

Mr. Dean Y. Uchida, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Uchida:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your letter dated June 27, 2000, concerning the subject Draft SEIS. We offer the following itemized response to your comments:

Engineering Branch Comments

The proposed site is not within the flood hazard area. We acknowledge the comments of the Engineering Branch that the proposed project will not affect current DLNR projects and programs.

Commission on Water Resource Management

The proposed project is intended to be developed in accordance with all necessary environmental permits and approvals, including the State Department of Health (DOH) Solid Waste Disposal Permit. All DOH requirements relating to protection of water quality, including Hawaii Administrative Rules, Section 11-54, Water Quality Standards, and Section 11-55, Water Pollution Control, will be followed.

Division of Forestry and Wildlife

1. We acknowledge your concern regarding fire control and will revise the forthcoming Revised Draft SEIS to note the following:

   - Fire coverage for the project site is provided by Station 40, Kapolei Fire Station; and

   - Additional detail concerning fire control and suppression will be provided.

2. We acknowledge your comment that there are no threatened and endangered flora located at the project site. Per your request, we will consult with the State Botanist to again verify that the location does not serve as habitat for species such as *Abutilon menziesii*, which you have located in East Kapolei.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BOARD OF WATER S
CITY AND COUNTY OF HO...
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STID, Vice Chairman
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KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

June 1, 2000

DK		KTS	
WES		NM	
ATT		RF	
JUN 13 2000 RMTC			

TO: MR. KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

ATTN: WILMA NAMUMNART

FROM: CLIFFORD S. JAMILE

SUBJECT: R.M. TOWILL CORPORATION'S TRANSMITTAL OF MAY 23, 2000 REGARDING THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WAIMANALO GULCH LANDFILL EXPANSION, TMK: 9-2-03: 072 AND 73

Thank you for the opportunity to review and comment on the Draft Supplemental Environmental Impact Statement (SEIS) for the proposed Waimanalo Gulch Sanitary Landfill expansion project.

Our SEIS Preparation Notice comments of January 11, 2000 are still applicable and include in Chapter 11 of the document.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Office of Environmental Quality Control
Randall Fujiki, Department of Planning and Permitting
Brian Takeda, R.M. Towill Corporation, Inc.

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.
ACTING DIRECTOR

IN REPLY REFER TO
RE 01-001

May 25, 2001

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments, dated June 1, 2000, regarding the subject Draft SEIS. We acknowledge your prior comment that waste disposal matters should be coordinated with the State Department of Health.

Should you have any further comments, please contact Ms. Wilma Namumnart of my staff at 527-5378.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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AQUATIC RESOURCES
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CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

May 30, 2000

Wilma Namumnart
Department of Environmental Services
City and County of Honolulu
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

LOG NO: 25536
DOC NO: 0005EJ33

Dear Ms. Namumnart:

SUBJECT: Chapter 6E-8 Historic Preservation Review -- Draft Supplemental Environmental Impact Statement for the Waimanalo Gulch Sanitary Landfill Expansion, Waimanalo Gulch, O`ahu
Honouliuli, `Ewa, O`ahu
TMK: 9-2-03: 072, 073

Thank you for the opportunity to review the 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 DSEIS incorporates the results of an archaeological inventory survey conducted for this project as well as our comments on the draft SEISPN (SHPD log 24720). We believe that the report has documented the lack of archaeological and/or historic sites in the proposed project area. Although the survey did locate two sites outside of the proposed expansion area, these sites have been recommended for preservation. Because no historic sites have been located within the proposed expansion area, and 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 Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

c: Brian Takeda, R. M. Towill Corp., 420 Waiakamilo Rd, Ste 411, Hon., Hawaii 96817-4941

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.
ACTING DIRECTOR

IN REPLY REFER TO
RE 01-077

May 14, 2001

Mr. Don Hibbard, Administrator
State Historic Preservation Division
State Department of Land and Natural Resources
Kakuhihewa Building, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated May 30, 2000, concerning the subject Draft SEIS. We acknowledge your concurrence that no historic sites have been located within the proposed expansion area and that the project will have "no effect" on historic sites.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namumnart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR

RECEIVED
'00 MAY -5 A10:31

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

Ref. 00-0664

MAY -3 2000

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KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
HWY-PS
2.8255

Post-it® Fax Note 7671	Date 5/15/00 # of pages ▶ 1
To Brian Takeda	From James Lams
Co./Dept. RMTC	Co. Refuse Div
Phone # 842-1133	Phone # 527 5832
Fax # 842-1937	Fax #

Mr. Kenneth E. Sprague
Director
Department of Environmental Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Traffic Study, Draft Supplemental Environmental Impact Statement Preparation Notice, Expansion of Waimanalo Gulch Sanitary Landfill

Thank you for providing the requested traffic study for our review.

From our review, we confirmed that the expansion of the landfill will not significantly impact our State highway facilities. If there are any changes to the operation of the landfill that would significantly change the traffic situation, please coordinate with the Highways Division.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

Amend Section 639 - Temporary Project Water Pollution Control (Soil Erosion) to read as follows:

SECTION 209 - EROSION CONTROL

209.01 Description. This work includes constructing temporary erosion control measures according to the contract or as specified by the Engineer during the life of the project to prevent water pollution and clogging of drainage system. Erosion control measures include use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, and slope drains.

Apply temporary erosion and siltation control measures to erodible material of this project, including local material sources and work areas and haul roads. Temporary erosion control may include construction work outside the right-of-way where such work is necessary due to roadway construction such as borrow pit operations, haul roads and equipment storage sites.

209.02 Materials.

(A) **Erosion Control Mat.** Erosion control mat shall be jute mat.

(B) **Mulches.** Mulches may be bagasse, hay, straw, fiber mats, netting, wood cellulose, bark, wood chips, or other suitable material acceptable to the Engineer. Mulches shall be clean and free of noxious weeds and deleterious materials.

(C) **Grass.** Grass shall be seashore paspalum.

(D) **Fertilizer and Soil Conditioners.** Fertilizer and soil conditioners shall be a standard commercial grade acceptable to the Engineer. Fertilizer shall conform to Subsection 712.18(A) - Commercial Fertilizer.

209.03 Erosion Control Conference. Hold an erosion control conference with the Engineer before the start of the applicable construction to discuss the sequence of work, plans and proposals for accomplishment of erosion control.

Plan, design and submit to the Engineer, at least 10 days before the conference:

(1) diagrams that show the installation of each erosion control feature in exact relation to the sequence of each construction operation, and

(2) plans that show approximate locations and typical details of each erosion control feature and drainage patterns. When altering drainage patterns critically by the progress of the construction, submit a separate drawing for each phase.

No work shall start until the erosion control plans are accepted by the Engineer.

Modify the accepted plans and schedules to correct conditions that develop during construction that were not foreseen during the design or preconstruction stage.

209.04 Construction Requirements. The Contractor shall be responsible for obtaining all necessary permits to work near and/or in the ocean. Coordinate the temporary erosion control provisions with the permanent erosion control features specified in the contract throughout the construction and post construction period.

The Engineer has the authority to:

(1) limit the surface area of erodible earth material exposed by clearing and grubbing,

(2) limit the surface area of erodible earth material exposed by excavation, borrow, and fill operations and

(3) direct the Contractor to provide immediate erosion control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment.

Limit the surface area of earth material exposed:

(1) to do the next operation within a given area and

(2) its capability and progress in keeping the finish grading, mulching, seeding, and other pollution control measures current according to the accepted plans and schedule.

Confine the grubbing of vegetative root mat and stumps, and the stripping of topsoil within the limits of excavation that the Contractor can continuously prosecute within 15 days.

Confine excavation, borrow and embankment construction to the minimum area necessary to ease its equipment and work force engaged in the earth moving work.

The surface area of earth material exposed shall not exceed 50,000 square feet. Hydromulch seed within three days the areas remaining bared or cleared for more than 15 days within three days at no cost to the State.

Shape the earthwork at the end of each work day to control and direct the runoff of rainwater. Construct earth berms along the top edges of embankments or

critical areas within the project such as along the right-of-way or streams, water channels or bodies of water to intercept runoff water.

Provide temporary slope drains to carry runoff from cuts and embankments. The slope drains may be of flexible or rigid construction. Shorten or extend the slope drains as the cut or fill advances. Provide a portable flume at the entrance to the temporary slope drains. Provide controlled discharges for waters impounded, directed or controlled by project activities or erosion control measures.

Shape, install topsoil, and plant or finish the cut slopes according to the contract as the work progresses. Seed and mulch the cut slopes as the excavation continues. Exposed surfaces shall not be greater than 15 feet in height. If the Contractor or the Engineer suspends or halts major excavation and the slope is bared for more than 15 consecutive days, hydro-mulch seed the exposed surfaces at no cost to the State. As an alternative, the Contractor may spread a two inch layer of wood chips conforming to Subsection 712.45(A) - Wood Chips over the entire area and till the wood chips into the soil as soil amendment just before planting.

Finish the fill slopes according to the contract. Also, protect and preserve the finished and previously seeded areas from damages and spillover materials placed in the upper lifts of embankment.

Construction of berms, cofferdams or diversions in or near the streams, ponds, waterways or bodies of water shall be of accepted materials.

Use brush, limbs and root mat, except stumps cleared on the project, to construct silt barriers according to the contract or as specified by the Engineer. When rock excavation is available on the project, dump spread an 8 to 15 inch layer of such materials over the lower region of embankments in the immediate area of stream crossings. Use the rock to cover ditches, channels and other drainage ways leading away from cuts and fills. Prepare drainage ways to receive the rock excavation to avoid reducing their cross section. When rock excavation is not available on the project, use materials according to Subsection 209.02(B) - Mulches and as specified by the Engineer.

When requiring water pollution control measures due to the Contractor's convenience, negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, do such work at no cost to the State. Such work includes:

(1) shaping the earthwork to control or to direct the runoff at the end of each work day,

(2) constructing and maintaining earth berms, swales, temporary slope drains, and cofferdams or diversions in or near the area of streams, ponds,

waterways or bodies of water or within the limits of the project and other erosion work according to the contract and,

(3) erosion control measures specified by the Engineer.

When failing repeatedly to control erosion, water pollution, and/or siltation, the Engineer reserves the right to:

(1) employ outside assistance or

(2) use the Engineer's own forces

to provide the necessary corrective measures. The Engineer will charge the Contractor such incurred direct costs plus project engineering costs. The Engineer will make appropriate deductions from the Contractor's monthly progress estimate.

The Contractor shall maintain the erosion control features.

When there are conflicts between these requirements and pollution control laws, rules, or regulations of other Federal or State or local agencies, the more restrictive laws, rules, or regulations shall apply.

Failure to conform with the above will be cause for suspension of the operations.

209.05 Method of Measurement. The Engineer will measure erosion control; installation and maintenance of site-specific NPDES best management practices required; and disposal of hazardous waste on a force account basis according to Subsection 109.04 - Extra and Force Account Work.

The Engineer will not measure erosion control work required that is due to the Contractor's convenience, negligence, carelessness, or failure to install permanent controls.

The Engineer will measure the work involved in dump spreading rock excavation material, when available on the jobsite, or other materials when rock excavation is not available on the project as described above on a force account basis according to Subsection 109.04 - Extra and Force Account Work.

209.06 Basis of Payment. The Engineer will pay for the accepted erosion control; installation and maintenance of site-specific NPDES best management practices required; and disposal of hazardous waste on a force account basis according to Subsection 109.04 - Extra and Force Account Work.

The Engineer will not authorize progress payment until the Engineer accepts the Site-Specific NPDES Best Management Practices plans as noted in the contract plans.

The Engineer will deduct the amount from the progress payment for citations received by the Department for non-compliance of the NPDES Permit requirements.

The Engineer will not pay for erosion control work required that is due to the Contractor's convenience, negligence, carelessness or failure to install permanent controls.

The Engineer will not pay for dewatering and/or hydrotesting facilities separately. The cost for these facilities shall be considered incidental to the work that requires their use and shall be paid for by the Contractor.

The Engineer will not pay for topsoil, grassing, erosion control mat, and 90-day maintenance period. The cost for these items of work shall be considered incidental to the work that requires their use and shall be paid for by the Contractor.

The Engineer will pay for the work involved in dump spreading rock excavation material, when available on the jobsite, or other materials when rock excavation is not available on the project as described above on a force account basis according to Subsection 109.04 - Extra and Force Account Work.

The Engineer will make payment under:

Pay Item	Pay Unit
Erosion Control	Force Account"

END OF SECTION

If the Contractor decides to revise its working method that requires grading, noise, and/or NPDES permits, the Contractor shall be responsible in getting the necessary permits and licenses.

Delays in meeting the requirements of the permits and licenses shall not be a cause for time extension or cost increase."

(V) Delete **107.11 Federal Aid Provisions** in its entirety.

(VI) Amend **107.12 Sanitary, Health, And Safety Provisions** to read as follows:

"**107.12 Sanitary, Health, And Safety Provisions.** The employees shall not work in conditions that are unsanitary, hazardous or dangerous to its health or safety. Provide and maintain sanitary, health and safety provisions for its employees according to the Department and local Boards of Health.

The Contractor is directed to the Federal, State, and County laws, rules, and regulations concerning construction safety and health standards."

(VII) Amend **107.13 Public Convenience and Safety** to read as follows:

"**107.13 Public Convenience and Safety.** Provide for the safety and convenience of the public and the protection of people and property according to Subsection 104.04 - Maintenance of Traffic."

(VIII) Amend **107.15 Use of Explosives or Combustibles** to read as follows:

"**107.15 Use of Explosives.** When the use of explosives or combustibles is necessary, do not endanger life or property including the new work. The Contractor shall be responsible for damages and injuries resulting from the use of explosives.

The storage and use of explosives shall be according to Section 396-9, HRS.

Notify each public utility company working near the work site in writing of its intentions to use explosives. Give 10 working days notice.

Use only electric detonators for blasting. Do not use common fuses."

(IX) Amend **107.17 Protection of Rivers, Streams, Impoundments, Forests and Archeological, Historical, and Burial Site Findings** as follows:

Amend **(B) Pollution** by adding the following after the first paragraph:

"The Contractor shall dispose of hazardous waste material according to local or State regulation or by the manufacturer and instruct the project personnel of these regulations. The Contractor shall be responsible for seeing that these regulations are followed."

(X) Amend **107.21 Contractor's Responsibility for Utility Property and Services** as follows:

Amend (B)(5) to read as follows:

"(5) The Contractor shall obtain an excavation permit two weeks before starting construction for work greater than 12 inches in depth and/or the addition of new sign or guardrail posts. The Contractor shall obtain the permits from HECO's Mapping and Records Division located on the fourth floor at 820 Ward Avenue."

Amend (D) **Notes for Wastewater Management (DWM) Facilities** to read as follows:

"(D) **Notes for Wastewater Management (DWM) Facilities.**

(1) The Contractor shall perform all sewer construction according to the City's specifications, September 1986; the DWM's standard details, September 1984; current city practices and Revised Ordinances of Honolulu, 1990 as amended; and the Design Standards of the DWM, Volume 1, July 1993.

(2) The Contractor shall notify the Construction Section, DWM at 527-5820 or 523-4345 to arrange for inspection services and submit four sets of approved construction plans 7 days before commencement of sewer work.

(3) The Engineer will show on the plans the underground pipes, cables, or ductlines known to exist from the Engineer's research of records. The Contractor shall verify the location and depth of the facilities and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.

(4) The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.

(5) The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notification and press releases."

Amend (E)(2) by revising the telephone number "547-3575" in the second sentence of the second paragraph to read "594-5575".

(XI) Add the following:

"**107.25 Contaminated and/or Hazardous Material.** The Contractor shall at all times conduct its operations according to all Federal and State permit requirements concerning the disposal of contaminated or hazardous materials. Permit requirements include those established by the federal regulations administered by the United States Coast Guard and the U.S. Army Corps of Engineers.

The Contractor shall require appropriate permits for all activities associated with or incidental to the Contractor's operations including those on the Project site and in all adjacent areas, waste and disposal areas, borrow and gravel banks, storage areas, haul roads, access roads, detours, field office areas, and any other temporary staging areas. The Contractor shall be responsible for, and hold the State harmless from, any penalties or fines which any authority may assess due to the Contractor's failure to comply with the terms of all applicable permit requirements.

The Contractor shall submit all applications and obtain all permits required for Contract work within the limits shown on the plans or identified elsewhere in the Contract documents.

The Contractor shall submit in writing any request for authorization of activities or methods not specifically called for by the Contract, plans, applications submitted or applicable permits issued for the project. Include a detailed description of the proposed activities and supporting documentation showing that the proposed activities or methods, the justification for those activities and supporting documentation showing that the proposed activity or method will not create risks of damage to the environment. If the Engineer accepts such proposal, the Contractor shall process an application to the appropriate regulatory agency or agencies for any permit for any permit amendment, modification, revision, or new permit required for the Contractor to carry out the additional activities or implement the changed methods on the project.

The Engineer will not grant any extension of time as a result of the Contractor's request to perform work not authorized as part of the established permit requirements. No such proposed additional activity shall commence nor shall the Contractor implement such changed method until the Engineer accepts the Contractor's request in writing.

The Contractor shall acquire any permits, identification numbers, and approvals required under the Resource Conservation and Recovery Act; Comprehensive Environment Response, Compensation, and Liability Act; or any

other applicable Federal, State, or local environment law, for the management and disposal of all contaminated and/or hazardous material known to exist or discovered during construction operations, provided that:

(1) such material is within the construction limits defined in the Contract, and;

(2) such material is not comprised of waste materials generated by the Contractor.

If the Department has defined an area of known or suspected contamination within the project limits, and if contaminated material in that area has not been removed before the start of the project, the Contractor shall arrange for the disposition of such material with an appropriate party.

If the Contractor encounters or exposes any material, not previously known or suspected to be contaminated, but which exhibits abnormal properties which may indicate the presence of hazardous or contaminated material, the Contractor shall cease all operations in the vicinity of the abnormal condition, and notify the Engineer immediately. The presence of barrels, discolored earth, metal, wood, visible fumes or smoke, abnormal odors or excessively hot earth may indicate the presence of hazardous or contaminated material, and shall treat them with extreme caution. The Contractor shall arrange for the proper disposition of the material with an appropriate party.

When the Contractor performs support work incidental to the removal, treatment, or disposal of hazardous or contaminated material, the Engineer will make payment at the unit prices for applicable pay items in the Contract. When the Contract does not include appropriate pay items, the Engineer will make payment according to Subsection 104.03 - Extra Work.

The Contractor shall faithfully observe all security precautions established according to OSHA regulations including all revisions and amendments and shall not work in any area known to contain or suspected of containing hazardous or contaminated material without prior written acceptance of the Engineer.

The Contractor shall assume sole responsibility for the proper storage, handling, management, and disposal of all regulated materials and wastes associated with the Contractor's operations, including lubricants, antifreeze, engine fluids, paints, and solvents. All costs associated with the Contractor's failure to properly manage such materials according to Federal and State regulations, and all remedial and punitive costs incurred by the Department as a result of such failure will be charged to the Contractor. After properly disposing of such contaminated and/or hazardous material and after the State and/or utility company accepts such disposition in writing, the State and/or utility company will, thereafter, be responsible and liable for the contaminated and/or hazardous material."

END OF SECTION

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Make the following amendments to said Section:

(I) Amend **107.01 Laws to be Observed** by adding the following after the first paragraph:

"The Contractor shall expose the work to the inspection of the appropriate Federal agency. Such inspection shall not make the Federal Government a party to this contract."

(II) Amend **107.02 Wages and Hours Requirements** as follows:

Amend the first paragraph to read as follows:

"**107.02 Wages and Hours Requirements.** The Contractor shall at all times observe and comply with all provisions of Chapter 104, HRS, which are emphasized in Attachment I entitled 'Requirements of Chapter 104, HRS Wages and Hours of Employees On Public Work Law', appended hereto and which require, in part, the following:"

Amend (A) **Hours of Labor** by revising the first paragraph to read as follows:

"(A) **Hours of Labor.** Workers shall receive compensation at a rate of not less than one and a half times the worker's basic hourly rate if the worker works:

(1) over 8 hours in one day;

(2) over 40 hours in one week; or

(3) on Saturdays, Sundays or legal State holidays

plus the cost of fringe benefits according to wage rate schedules issued by the Director of Labor and Industrial Relations."

Amend (B) **Rate of Wages** to read as follows:

"(B) **Rate of Wages.** The Contractor shall pay:

(1) no less than the prevailing wages, and

(2) no less than the increases to the prevailing wages to the various classes of laborers and mechanics as published in the wage rate bulletins determined by the Director of the Department of Labor and Industrial Relations (DLIR) for the entire term of the contract. For Federal

projects, such wage rate schedule shall be applicable if consistent with Federal law, statutes or regulations.

For bidding purposes, the wage rate schedule established by DLIR five calendar days before the date of bid opening shall be applicable. For Federal-Aid projects, such wage rate schedule shall be applicable if consistent with Federal law, statutes or regulations.

Said wage rate schedule may be obtained from the Contracts Office, Department of Transportation, 869 Punchbowl Street, Honolulu, Hawaii 96813. The Department will include the current State wage rate schedule physically in the contract documents executed by the successful bidder.

The United States Department of Labor and the DLIR have established minimum wage rate schedules for workers. The Contractor shall not pay the workers less than the wages set forth on the applicable schedules.

Flaggers who perform traffic safety duties and no actual construction work on contract subject to the Davis Bacon labor standard provisions shall be considered laborers or mechanics within the meaning of the Davis Bacon Act.

On all Federal-Aid projects, both wage rate schedules shall apply, and the higher rates shall prevail.

The Contractor shall post the schedule of prevailing rates of minimum wages applicable to the work in a prominent and easily accessible place at the project site. The Contractor shall give to each worker employed under the contract a copy of that rates of wages required to be posted at the time of employment.

The following applicable wage rate schedule or schedules shall be appended hereto:"

(III) Delete **107.04 Citizen Labor** in its entirety.

(IV) Amend **107.08 Permits, Licenses, And Taxes** by adding the following paragraph:

"The Contractor shall be responsible in meeting the requirements of the grading, noise, and National Pollutant Discharge Elimination System (NPDES) permits and licenses needed to do its work on a timely basis.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6678

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 61-078

May 16, 2001

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

Dear Mr. Minaai:

Subject: Draft Supplemental Environmental Impact Statement (SEIS)
Waimanalo Gulch Sanitary Landfill Expansion

Thank you for your comments dated May 30, 2000, concerning the subject Draft SEIS. We acknowledge your comment that the proposed project will not significantly impact State Highway facilities.

We appreciate your review of the Draft SEIS. Should you have any further comments, please contact Ms. Wilma Namuminart at 527-5378 or Mr. Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (extension 22).

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director

cc: Mr. Joe Hernandez, Waste Management of Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

CHAPTER 11

COMMENTS AND RESPONSES TO THE SEIS PREPARATION NOTICE

BENJAMIN J. CAYETANO
GOVERNOR
SELJI F. NAYA, Ph.D.
DIRECTOR
BRADLEY J. MOSSMAN
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-8343

DK		KTS	
WSS		HM	
		EF	
RECD DEC 27 1999 RMTC			
		CRC	
		DT	

what does this mean? what do we do now?

December 23, 1999

Dear Project Manager:

Subject: Environmental Assessment and Environmental Impact Statement Reviews

For your information, the Hawaii Coastal Zone Management (CZM) Program is no longer routinely reviewing environmental assessment and environmental impact statement reports. If there are any questions, please call John Nakagawa of our CZM Program at (808) 587-2878.

Sincerely,

David W. Blane
Director
Office of Planning

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

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

December 28, 1999

DK		KTS	
WES		NM	
RTT		SF	
REC'D	DEC 30 1999	RMTC	

Mr. Kenneth E. Sprague, Director
City and County of Honolulu
Department of Wastewater Management
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: EIS Preparation Notice for the Waimanalo Gulch Sanitary Landfill Expansion, Waianae, Oahu

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

1. Please describe whether the grading activity would generate any excess soils. If so, please describe where the soils would be disposed? Are the soils contaminated? Would the soils be treated before disposal?

2. Please illustrate the visual impacts of the landfill from public places such as roads and lookouts. Photos of existing conditions taken from public view points are helpful in evaluating visual impacts. Renderings of future conditions superimposed on photos of existing views should be provided.

3. Please provide a list of all complaints received on the landfill since its inception. Please describe what steps will be taken in this second phase to avoid or minimize similar complaints.

4. Please analyze the project based the Coastal Zone Management Objectives listed in HRS 205A.

5. The proposed project is intended to address the need to provide sufficient space for disposal of Oahu's MSW from 2002 to 2017. What is the anticipated solid waste disposal amount for each of the affected years? How much additional capacity will be provided by this project? Do the disposal projections match the proposed landfill capacity? If not,

please explain the discrepancy. Please describe existing and future plans to keep solid waste away from landfills.

6. Discuss the findings and reasons for supporting the EISPN determination based on the significant criteria listed in §11-200-12 of the EIS rules.

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

Sincerely,

Genevieve Salmonson
Director

c: R.M. Towill
Planning and Permitting

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-026

March 6, 2000

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

Dear Ms. Salmonson:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments, dated December 28, 1999, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. The following response to your comments will be included in the Draft SEIS:

1. Almost all material from grading activities will be stockpiled onsite for use in the daily operation of the landfill. Soil material will be utilized for cover material and development of interior roadways and drainage systems. Rock will be crushed for aggregate and removed from the site. We anticipate that the above practices will greatly minimize the amount of material needing disposal or removal from the project site. The soil is not contaminated and will not be treated before leaving the site.

2. The existing landfill site is visible to the public from Farrington Highway, from the Nanakuli subdivision adjacent to the landfill, and from Ko Olina Resort. The proposed expansion will continue the 400-foot-wide buffer strip along the eastern portion with a north-south separation of 800 to 1,000 feet with ongoing landscaping to help mitigate some of the visual impacts.

   Although mitigation to screen views of the landfill will be employed, the proposed project will continue to provide views of an active, working landfill. Photos of existing conditions will be used for a photo-analysis to evaluate visual impacts.

3. Due to active coordination with the residents and businesses in the surrounding community, there have been only two complaints received since 1989, the inception of the landfill. These complaints were filed by passing motorists at the State Department of Health regarding litter control. The use of portable and permanent fences will continue to be installed at the working face of the site in relation to the prevailing winds to confine windblown litter. Maintenance personnel will also remain on standby at all times in case of high winds for litter collection off-site.

4. We acknowledge your request to include an analysis of the project based on the Coastal Zone Management (CZM) Objectives listed in Hawaii Revised Statues (HRS) 205A.

5. The proposed project is intended to address the need for additional safe and efficient disposal of Oahu's municipal solid waste from 2002 to 2017. The applicant will provide anticipated estimates of solid waste generation for the current year to the year 2020 in the DSEIS. The DSEIS will provide an analysis of the proposed expansion project and projection of waste generation. The DSEIS will also provide a discussion of existing and future plans to divert solid waste from landfills.

6. We acknowledge your request to include a discussion of findings and reasons for supporting the EISPN determination based on significance criteria listed in §11-200-12 of the Environmental Impact Statement (EIS) rules.

Should you have questions or require additional information, please do not hesitate to contact Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation

FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

3375 KOAPAKA STREET SUITE H425
HONOLULU HAWAII 96819-1869

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

DK		KTS	
WES		NM	
RTT		RF	

RECD JAN 0 6 2000 RMTC

January 3, 2000

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Takeda:

Subject: Draft Supplemental Environmental Impact Statement Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

We received your letter dated December 14, 1999, regarding the draft Supplemental Environmental Impact Statement Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill site.

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 Acting Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/LR:jo

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO
RE 00 0027

March 2, 2000

MEMORANDUM

TO: ATTILIO K. LEONARDI, FIRE CHIEF
HONOLULU FIRE DEPARTMENT

ATTENTION: LLOYD ROGERS, ACTING BATTALION CHIEF
FIRE PREVENTION BUREAU

FROM: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS) PREPARATION NOTICE FOR THE EXPANSION OF THE WAIMANALO GULCH SANITARY LANDFILL

Thank you for your comments dated January 3, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. Fire apparatus access will be maintained throughout the construction site for the duration of the project.

Should you have questions or require additional information, please do not hesitate to contact 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

GracePacific
CORPORATION
P O Box 78 Honolulu Hawaii 96810 • (808) 447-7916 • (808) 672-3545
FAX (808) 486-8025

January 6, 2000

Mr. Frank Doyle
City & County Of Honolulu
Department of Environmental Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Doyle,

I am writing to request that the following comments be addressed in the forthcoming Draft SEIS for the Waimanalo Gulch Sanitary Landfill Expansion.

1) what volume of additional landfill capacity, in cubic yards, will the proposed expansion provide?

2) of the volume in #1, how much is to be obtained through excavation?

3) of the excavated material noted in #2, how much will be retained on-site for cover material, roadways, etc?

4) how will the balance of the excavated material be disposed of?

Sincerely,

Robert M. Creps
Vice President Finance & Administration
Grace Pacific Corporation

cc: R.M. Towill Corporation
Office of Environmental Quality Control

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO
RE 00-030

March 6, 2000

Mr. Robert M. Creps
Vice President Finance & Administration
Grace Pacific Corporation
P.O. Box 78
Honolulu, Hawaii 96810

Dear Mr. Creps:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. Your comments, dated January 6, 2000, will be used to prepare the Draft SEIS:

1. The proposed landfill expansion will provide approximately fourteen million cubic yards of additional landfill capacity.
2. The proposed landfill expansion will require the excavation of approximately 400,000 to 1 million cubic yards of material.
3. Almost all of the material excavated for construction of the proposed expansion is intended to remain onsite. The excavated material will be screened to produce soil, which will be used for cover material, roadways and other purposes associated with the landfill, and rock, which will be crushed and removed from the site.
4. As stated above, almost all material excavated for construction of the proposed expansion will remain onsite and not require disposal or removal.

Should you have questions or require additional information, please do not hesitate to contact Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation

BOARD OF WATER SUPPLY

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

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY AIAI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

January 11, 2000

R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

DK
RECD JAN 14 2000 RMTC

Attention: Brian Takeda

Gentlemen:

Subject: Your Transmittal of December 14, 1999 of the Supplemental Environmental Impact Statement Preparation Notice for the Waimanalo Gulch Sanitary Landfill Expansion, Waianae, Oahu, TMK: 9-2-03: 72, 73

Thank you for the opportunity to review and comment on the document for the proposed landfill expansion.

We have no objections to the proposed project. Waste disposal matters should be coordinated with the State Department of Health.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Department of Environmental Services
Office of Environmental Quality Control

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6676

REMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO
RE 00 0029

March 2, 2000

MEMORANDUM

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

ATTENTION: BARRY USAGAWA, PLANNING BRANCH

FROM: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS) PREPARATION NOTICE FOR THE EXPANSION OF THE WAIMANALO GULCH SANITARY LANDFILL

Thank you for your comments, dated January 11, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. We acknowledge your comment that waste disposal matters should be coordinated with the State Department of Health.

Should you have questions or require additional information, please do not hesitate to contact 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

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JAMES E. SANDOL
DAVID H. SIMMONS

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

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

JAN 15 2000

January 12, 2000

Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

LOG NO: 24720
DOC NO: 0001EJ12

Dear Mr. Takeda:

SUBJECT: Chapter 6E-8 Historic Preservation Review -- Draft Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Expansion of the Waimanalo Gulch Sanitary Landfill
Honouliuli, `Ewa, O`ahu
TMK: 9-2-03:072, 073

Thank you for the opportunity to review the Supplemental EISPN 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.

A review of our records shows that there are no known historic sites within the expansion area. An archaeological survey conducted in 1983 for the present landfill did not locate any historic sites although, in 1989 the SHPD recorded a petroglyph site (SIHP # 50-80-12-4110) located in the southwest corner of the present landfill area. In 1999, an archaeological reconnaissance survey conducted for the 60.5 acre expansion did not locate any archaeological or historic sites within the proposed expansion area. However, two sites, (remnants of Battery Arizona and a modern rock shrine) were located outside of the landfill expansion footprint and have been recommended for preservation.

We thank you for providing us a copy of *An Archaeological Reconnaissance Survey and Assessment for the Waimanalo Gulch Sanitary Landfill Project Site, Honouliuli, `Ewa, O`ahu* (Hammatt and Shideler, August 1999). We do not review archaeological reconnaissance surveys under the State's historic preservation review process. However, this report is really an archaeological inventory survey report. It presents the former settlement pattern and likely sites that might be present, and then it documents that the parcel was adequately checked for sites and none were found. Thus, we can conclude that

an acceptable archaeological inventory survey has been done, with no historic sites being found in the project area -- with the understanding that the cover page and title page be revised identifying the study as an archaeological inventory survey and not a reconnaissance or assessment.

If you have any questions please call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

420 Waiakamilo Road
Suite 411
Honolulu Hawaii 96817-4941
Telephone 808 842 1133
Fax 808 842 1937
eMail rmtowll@h-one.com

R. M. TOWILL CORPORATION
SINCE 1930

Planning
Engineering
Environmental Services
Photogrammetry
Surveying
Construction Management

January 17, 2000

Mr. Rodney Chiogioji
Cultural Surveys Hawaii
733 North Kalaheo Avenue
Kailua, Hawaii 96734

Dear Mr. Chiogioji:

Subject: Preparation of Final Archaeological Reconnaissance Survey and Assessment for The Waimanalo Gulch Sanitary Landfill Project Site, Honouliuli, Ewa, Oahu

Please find enclosed, a copy of the response letter from the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD) regarding the subject report prepared by your office. As required by SHPD, we would appreciate your assistance in revising the cover page and title page identifying the study as an archaeological inventory survey. Upon completion of this revision, please send two copies of the Final report to our office.

Should you have any question or require additional information, please do not hesitate to contact Debra Tom or myself at 842-1133.

Very truly yours,

Brian Takeda
Senior Planner

Enclosure

BT:dlt

cc: Ms. Wilma Namumnart (Department of Environmental Services)
Mr. Joe Hernandez (Waste Management of Hawaii, Inc.)

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu HI 96840

Scott W H Seu, P.E.
Manager
Environmental Department

January 14, 2000

HECO JAN 18 2000 SMTC

R.M. Towill, Corporation
Attn: Brian Takeda
420 Waiakamilo Road, Suite 411
Honolulu, HI 96817-4941

Dear: Mr. Takeda

Subject: **Waimanalo Gulch Sanitary Landfill**

Thank you for the opportunity to comment on your October 1999 Draft Supplemental EIS Notice for the Waimanalo Gulch Sanitary Landfill, proposed by the City and County of Honolulu, Department of Environmental Services. We have reviewed the subject document and have the following comments:

1. Page 9, 3rd paragraph, 1st bullet: states that "Modification to existing utilities, such as power lines or water sources, shall be restored to their pre-existing condition." HECO has existing 138kV and 46kV power lines crossing the Waimanalo Gulch. Any excavation work by the contractor in proximity to existing structures and anchors, or landfill operations resulting in inadequate ground clearance will necessitate permanent mitigation measures such as structures or line relocations, support structure, etc. Should any of these mitigation measures be implemented, restoration of the power lines to their pre-existing conditions will not be possible.
2. The Supplemental EIS should address the planned construction work in terms of the existing structure locations and where any excavation work is planned, and what mitigation measures will be implemented if the excavation work will impact the structural integrity of the wood and steel structure and accompanying guy wires and anchors.
3. The Supplemental EIS should address the planned construction work in terms of the existing conductor to ground clearance, and the proposed conductor to ground clearance following the landfill operations, and what mitigation measures will be implemented of the landfill operations will result in an inadequate conductor to ground clearance as required by the State's General Order No. 6 (Rules for Overhead Electric Line Construction).
4. The Supplemental EIS should address the prevention of debris flying up into the conductors by strong winds and causing power line outages.

Our point of contact for this project, and the originator of these comments, is Francis Hirakami (543-7536) Principal Engineer. I suggest your staff and consultants deal directly with Francis to coordinate HECO's continuing input on this project.

Sincerely,

cc: F. Hirakami

WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-026

March 2, 2000

Mr. Francis Hirakami
Principal Engineer
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Hirakami:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments dated January 14, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. The following response to your comments will be included in the Draft SEIS:

1. Modifications to existing utilities, such as power lines or water sources, shall be restored or relocated according to requirements of the landfill operation and respective service provider.
2. The Draft SEIS will provide details regarding the planned construction work around existing structures as well as the proposed excavation work. All discussion will include project impacts and mitigation measures.
3. The Draft SEIS will provide discussion regarding existing conductor-to-ground clearance. This will include project impacts and mitigation measures to standards required by the State's General Order No. 6 (Rules for Overhead Electric Line Construction).
4. Portable and permanent litter fences will be installed at the working face of the site in relation to the prevailing winds to confine windblown litter. In the event of high winds, maintenance personnel will be on standby for litter collection off-site. At the end of each working day, the compacted refuse will be covered with approximately six inches of soil material to reduce vector, odor, fire and litter problems.

Should you have questions or require additional information, please do not hesitate to contact Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation
Mr. Scott W.H. Seu - Hawaiian Electric Company, Inc.

BENJAMIN J. CAYETAN
GOVERNOR

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

KAZU HAYASHI
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
HWY-PS
2.6818

JAN 18 2000

DK		KTS	
WFS		NM	
GTT		RF	

REC'D JAN 20 2000 RMTC

R. M. Towill Corporation
420 Waiakamilo Road, suite 411
Honolulu, Hawaii 96817-4941

Attention: Mr. Brian Takeda

Dear Sir:

Subject: Draft Supplemental Environmental Impact Statement Preparation Notice Expansion of Waimanalo Gulch Sanitary Landfill, TMK: 9-2-03: 072, 073

Thank you for the opportunity to provide comments for the preparation of the supplemental EIS.

Since the expansion of the sanitary landfill is to provide continued landfill capacity, we do not anticipate that the expansion would significantly impact our State highway facilities. However, we want to review the traffic study when it is available.

Sincerely,

BRIAN K. MINAAI
Deputy Director

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

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00 028

March 2, 2000

Mr. Brian K. Minaai
Deputy Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments, dated January 18, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. We acknowledge your comment that the Department of Transportation does not anticipate significant impacts to State highway facilities. As requested, we are enclosing a copy of the traffic study by Julian Ng for your review.

Should you have questions or require additional information, please do not hesitate to contact Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

KENNETH E. SPRAGUE
Director

Enclosure

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

FEB 0 2 2000

In reply, please refer to:
File:

February 4, 2000

93-049A/epo

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-1133

Dear Mr. Takeda:

Subject: Supplemental Environmental Impact Statement Preparation Notice (SEISPN)
Expansion of the Waimanalo Gulch Sanitary Landfill
Kahe, Oahu
TMK: 9-2-03: 72 & 73

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

The City and County of Honolulu, Department of Environmental Services proposes to expand by 60.5 acres the existing Waimanalo Gulch Sanitary Landfill in Kahe Valley, Oahu. This expansion would address the solid waste and ash related disposal needs to the year 2017.

Solid Waste

The Waimanalo Gulch Sanitary Landfill is the only municipal solid waste landfill serving the island of Oahu. It accepts both municipal solid waste and the ash residue from the H-Power facility. Municipal solid waste is accepted at a rate of about 1000 tons per day and ash at a rate of approximately 400 tons per day. The site is located off Farrington Highway and adjacent to a major resort and residential developments.

The expansion of the Waimanalo Gulch Sanitary Landfill is subject to regulation by the Department's Office of Solid Waste Management. As such, all technical aspects of the landfill's expansion will be addressed through the solid waste permitting process. However, there are several issues the Department feels should be addressed through the Environmental Impact Statement process. These issues include those of litter, odor, dust, traffic and visual impacts.

Litter and Dust

Current landfill operations include both a litter and dust control program. However, both programs should be enhanced in conjunction with the landfill's expansion due to the nearby resort and residential developments.

At present, landfill operations take place below the ridge lines of the Waimanalo Gulch. The ridge lines act to contain dust and litter generated by landfill operations. It should be noted that the proposed landfill expansion will take place both horizontally and vertically. The proposed vertical expansion will eventually lead to landfill operations that rise over the existing ridge lines. The elimination of the ridge lines as a natural barrier for dust and litter, in addition to increasing refuse tonnages being deposited in the landfill, will result in greater quantities of dust and wind blown litter exiting the landfill area.

Dust control is also an issue in regards to the disposal of H-Power ash. The ash material contains heavy metals, dioxin, and furans. For these reasons, the Department feels that a more extensive litter and dust control program is essential to keep these nuisances to a minimum and should be addressed in the Draft Environmental Impact Statement (DEIS).

Traffic

While the issue of traffic is addressed in the Supplemental EIS, we feel that all potential problems were not adequately discussed. As the major solid waste facility serving the island of Oahu, truck traffic can be significant. Increasing solid waste generation has already resulted in truck queues that exceed the facility's entrance road and spill out onto the highway area. This increases the potential for litter, odor and traffic problems.

Additionally, it should be noted that the H-Power facility is shut down annually for maintenance and repairs. During this scheduled one month closure, and all other unscheduled closures, all H-Power waste traffic is diverted to the Waimanalo Gulch Landfill. During these times, daily tonnage at the landfill increases to approximately 3,000 tons of waste per day. During these periods of increased traffic, it is not unusual for refuse trucks to be backed-up onto Farrington Highway. Expansion plans should include provisions to reduce or eliminate these traffic problems.

Visual Impacts

Because of the nature of nearby areas, which include residential as well as resort areas, the visual impact of the landfill is an important factor to be addressed.

The visual impact of landfill operations should be minimized by keeping appurtenant facilities out of the visual plane. Methods that may be employed include: the use of berms, the sequencing of active landfill workface activities, and keeping all haul and service roads on the perimeter of the property.

Other

The current wash-down area is at the lower service area of the landfill and a relocation may be needed to reduce the potential for odor generation related to truck wash-downs.

Please contact Mr. Lane Otsu of the Office of Solid Waste Management at 586-4240 with any questions regarding these comments.

Clean Air Branch (CAB)

Proposed Expansion and Permit Applicability:

As a result of the proposed expansion, the Waimanalo Gulch Landfill is required to obtain a covered source air permit. The landfill will be subject to Federal New Source Performance Standard, 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. If you have any questions, please contact the Engineering Section of the Clean Air Branch at 586-4200.

Control Of Fugitive Dust:

There is a significant potential for fugitive dust emissions to be generated during all phases of landfill operations due to the typically arid climatic conditions and regional topography that exists in that part of the island. It is suggested that a dust control management plan be developed which identifies and addresses activities having a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of landfill operations are warranted. Landfill activities must comply with provisions of Chapter 11-60.1, "Air Pollution Control," Hawaii Administrative Rules, section 11-60.1-33 on Fugitive Dust.

The operation should provide adequate means to control dust from road areas and during the various phases of landfill activities, including but not limited to:

a. focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. providing an adequate water source at site prior to start-up of construction activities;

c. landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. controlling of dust from shoulders, project entrances, and access roads; and

e. providing adequate dust control measures during landfill activities, after hours, and prior to daily start-up.

If you have any questions regarding fugitive dust, please contact Mr. Timothy Carvalho of the Clean Air Branch at 586-4200.

Sincerely,

GARY GILL
Deputy Director for
Environmental Health

c: OSWM
CAB

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone: (808) 527-6663 • Fax: (808) 527-6676

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-024

March 7, 2000

Mr. Gary Gill, Deputy Director
Environmental Health Services Division
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Draft Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Expansion of the Waimanalo Gulch Sanitary Landfill

Thank you for your comments, dated February 4, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. The following response to your comments will be included in the Draft SEIS:

Litter and Dust

Due to active coordination with the residents and businesses in the surrounding community, there have been only two complaints received since 1989, the inception of the landfill. These complaints were filed by passing motorists at the State Department of Health regarding litter control. The use of portable and permanent fences will continue to be installed at the working face of the site in relation to the prevailing winds to confine windblown litter. Maintenance personnel will also remain on standby at all times, in case of high winds, for litter collection off-site.

The final grades for the landfill expansion are below the ridge line so the landfill operations will remain below the ridge lines. The ridge lines will continue to be a natural barrier for dust and litter.

Dust generated from H-POWER ash will also be further addressed with appropriate discussion concerning potential for adverse impacts and proposed mitigation measures.

Traffic

We note your comments concerning traffic and will coordinate this item with the State Department of Transportation.

Visual Impacts

The proposed landfill expansion will involve the continuation of an existing land use. The region surrounding the landfill already contains a diverse mixture of land uses including the Hawaiian Electric Kahe Power Plant immediately to the north, Kahe Point Beach Park to the west, the Ko Olina Resort approximately one to two miles southeast, the Barbers Point Deep Draft

Harbor two to three miles south, and the industrial facilities of the Campbell Industrial Park approximately four to five miles south and slightly to the west. The Honokai Hale subdivision is located approximately one mile southeast and the Nanakuli subdivision approximately one and a half miles north.

We acknowledge the need to minimize the potential for visual impacts associated with landfill operations. As much as practicable, mitigation measures, including use of berms, construction sequencing and placement of roads, will be employed.

Other

There is no "wash-down area" within the landfill, including the "lower service area." All vehicles permitted to the active cell sites are required to transfer all material at the site. There is also no "washing down" of transfer vehicles within the sanitary landfill facility. Excess water within the landfill can result in the development of leachate. Therefore, the use of water is strictly regulated to control dust on roadways and within the active cell sites.

Clean Air Branch (CAB)

We acknowledge the proposed landfill expansion will be subject to the Federal New Source Performance Standard, 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills, and will coordinate with the Clean Air Branch to fulfill all guidelines and requirements.

Control of Fugitive Dust

Dust and litter will be controlled by use of standard water tanker trucks or sprinkler systems extended from the existing landfill to the expansion area. During operation of the proposed expansion area, dust will continue to be generated from landfilling activities. The proposed expansion will adhere to dust control practices according to Air Pollution Control Regulations Title 11 (Chapter 60) of the State Department of Health, which includes scheduled water sprinkling, compacting, and intermediate cover. Portable and permanent litter fences will also be installed at the working face of the site in relation to the prevailing winds to confine windblown litter. In the event of high winds, maintenance personnel will be on standby for litter collection off-site.

We acknowledge the importance of controlling and minimizing fugitive dust. Fugitive dust management and mitigation measures will be addressed in the Draft SEIS document.

Should you have questions or require additional information, please do not hesitate to contact Joseph Hernandez of Waste Management of Hawaii, Inc., at 668-2985 (ext. 22).

Sincerely,

KENNETH E. SPRAGUE
Director

cc: Mr. Joe Hernandez - Waste Management of Hawaii, Inc.
Mr. Brian Takeda - R.M. Towill Corporation

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU HAWAII 96813
PHONE (808) 523-4414 • FAX (808) 527-6743

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
ACTING DIRECTOR

LORETTA A. C. CHEE
DEPUTY DIRECTOR

OK | RT | RF | AM | RF
RECD FEB 10 2000 RMTC

GW

February 8, 2000

R.M. Towill Corporation
Attn: Brian Takeda
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Takeda:

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE EXPANSION OF THE WAIMANALO GULCH SANITARY LANDFILL

We have reviewed the above-referenced document and offer the following comments:

1. While the proposed actions appear generally consistent with provisions of the General Plan, the Ewa Development Plan, and applicable zoning regulations, we will reserve comment until we have had an opportunity to review the forthcoming Draft SEIS.

2. Some statements regarding the Ewa Development Plan should be revised. This plan was adopted in August 1997, and became effective in October 1997. The plan does not designate this site Agricultural; instead, the plan's illustrative Open Space and Phasing maps depict the site as within the Preservation area. The SEIS should also clarify that the plan's illustrative Public Facilities map depicts a symbol for the existing landfill but does not delineate the boundaries of the existing landfill.

3. Consistent with the guidelines set forth in OEQC's Environmental Guidebook, the maps provided in the SEIS should be prepared to scale.

4. We note the intent of the proposed actions is to extend the useful life of this facility to 2017. Section 3.13 states that the facility will be operated by Waste Management Hawaii, Inc (WMH). The SEIS should clarify whether current contractual agreements between the City and WMH extend to 2017.

5. The SEIS should provide supporting data for the conclusions stated therein. For example, Section 3.15 states that the number of people entering the work force has fallen due to "baby boomers having fewer children" but provides no data to support this assertion.

6. The calculation that expanding the landfill will allow it to stay open until 2017 should be revisited. The State Department of Business, Economic Development and Tourism has issued draft population and economic projections to 2025. These new projections indicate Oahu's population growth will be about half that originally projected through 2020, and economic growth will be about one-third less than previously projected for the same period. Thus, it is possible that the proposed expansion in capacity may suffice beyond the 2017 frontier.

7. A discussion of fire hazards is typically included in an EIS, and should be included in this SEIS. It should be made clear, for example, that the high-voltage power lines above the valley are high enough that it is unlikely they would suffer damage from a landfill fire. A statement on the need to provide a fire buffer zone around each active working area should also be included.

8. Chapter 5 addresses alternatives to the proposed actions. Much of the argument against the presented alternatives has to do with their inability to provide timely response to Oahu's current need for additional solid waste disposal capacity to provide "the time desperately needed for the phasing of resource recovery, recycling, bioconversion, and other programs." The SEIS should clarify whether the proposed actions will provide the needed time and, if not, what measures are anticipated to be necessary when the additional capacity provided by the current proposals is exhausted.

9. The SEIS should address what, if any, plans have been developed with regard to eventual closure of the landfill and anticipated use(s) of the site after its capacity is exhausted.

Thank you for the opportunity to review this preparation notice. Should you have any questions or concerns regarding these comments, please contact Gordon Wood of my staff at 527-6073.

Sincerely yours,

for RANDALL K. FUJIKI, A.I.A.
Acting Director of Planning and Permitting

RKF:lh

cc: Kenneth E. Sprague, Director, Department of Environmental Services

0113Re gw

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
Phone (808) 527-6663 • Fax (808) 527-6676

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE, P.E., Ph.D.
DIRECTOR

BARRY FUKUNAGA
DEPUTY DIRECTOR

IN REPLY REFER TO:
RE 00-0023

March 6, 2000

MEMORANDUM

TO: RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTENTION: GORDON WOOD, PLANNING DIVISION

FROM: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS) PREPARATION NOTICE FOR THE EXPANSION OF THE WAIMANALO GULCH SANITARY LANDFILL

Thank you for your comments, dated February 8, 2000, regarding the subject Draft SEIS Preparation Notice for the expansion of the Waimanalo Gulch Sanitary Landfill. The following response numbered to correspond to your comments will be included in the Draft SEIS:

1. Comment noted.

2. We will revise the section discussing the adoption of the Ewa Development Plan (DP) and the proposed project's compliance with the DP's illustrative maps, policies and principals.

3. The selected figures will be revised to scale as noted.

4. The original contract between the City and Waste Management of Hawaii, Inc., has been amended to include the management of the proposed expansion of the existing landfill facility.

5. Additional documentation supporting conclusions stated in the Preparation Notice will be provided. The Draft SEIS will provide a more comprehensive analysis with data to support conclusions.

6. We acknowledge your concern regarding the proposed landfill expansion, capacity and lifespan. Further discussion of these items will be provided in the forthcoming Draft SEIS.

7. The proposed project will utilize a variety of mitigation measures, including earth stockpiles near the working face, fire breaks and off-highway water pull. We acknowledge your concern and will discuss potential fire related impacts and mitigation measures for the proposed project.

8. The proposed landfill expansion will be required regardless of current efforts to reduce Oahu's waste stream. The existing landfill capacity is becoming exhausted by non-recyclable and non-reclaimable municipal solid waste (MSW) and H-POWER ash. Current City efforts with resource recovery, recycling, and biocoversion, however, remain important and will continue to be investigated and implemented, as practicality allows Although these alternatives will extend the useful life of the proposed landfill, it is not cost-effective to reclaim some materials since recycling markets are unstable. However, as appropriate, we will include a discussion of potential measures that might be considered as the proposed landfill expansion capacity becomes exhausted.

9. Additional information will be provided concerning actions associated with the eventual closure of the landfill.

Should you have questions or require additional information, please do not hesitate to contact 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

CHAPTER 12
LIST OF PREPARERS

R.M. Towill Corporation	Chester T. Koga, Project Manager Gregg Hiyakumoto, Project Engineer Brian Takeda, Senior Planner Debra Tom, Planner (Draft SEIS Preparation Notice and Draft SEIS) Jim Niermann, Planner
Waste Management of Hawaii, Inc.	Steve Cassulo, District Manager, Hawaii Joseph Hernandez, Environmental Manager, Hawaii
Cultural Surveys Hawaii (Archaeology)	Hallett H. Hammatt, Ph.D. Rodney Chiogioji
Char & Associates (Flora)	Winona Char, Principal
Phillip L. Bruner (Fauna)	Phillip L. Bruner, Assistant Professor of Biology BYU-H
Julian Ng, Inc. (Traffic)	Julian Ng, PE, President

CHAPTER 13
REFERENCES

University of Hawaii, Department of Geography (1998) *Atlas of Hawaii* (3rd Edition), University of Hawaii Press, Honolulu, Hawaii.

State of Hawaii, Department of Business, Economic Development & Tourism (DBEDT) (1996) *The State of Hawaii Data Book.* Honolulu, Hawaii.

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A-Mehr Inc. (AMI), *Waimanalo Gulch Sanitary Landfill Expansion, Oahu, Photographic Documentation*, Trabuco Canyon, California, 1997. (Photos taken on 4/7/97 between 2:00 and 5:00 p.m. and 4/8/97 before 10:00 a.m.

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

Scientific name	Common name	Status	Vegetation type k	Vegetation type 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.	spiny amaranth, pakai kuku	X	–	+
Amaranthus viridis L.	slender amaranth, pakai	X	–	+
ASCLEPIADACEAE (Milkweed family)				
Stapelia gigantea N.E. Brown	carrion flower, Zulu-giant	X	+	–
ASTERACEAE (Daisy family)				
Ageratum conyzoides L.	maile hohono	X	+	+
Bidens cynapiifolia Kunth	West Indian beggar's tick	X	+	–
Cyanthillium cinereum (L.) H. Rob.	little ironweed	X	–	+
Emilia fosbergii Nicolson	pualele	X	+	+
Pluchea carolinensis (Jacq.) G. Don	pluchea, sourbush	X	+	–
Pluchea indica (L.) Less.	Indian pluchea, Indian fleabane	X	+	–
Sonchus oleraceus L.	sowthistle, pualele	X	+	–
Tridax procumbens L.	coat buttons	X	+	+

Scientific name	Common name	Status	Vegetation type k	Vegetation type r
Xanthium strumarium var. canadense (Mill.) Torr. & A. Gray	cocklebur, kikania	X	+	-
BUDDLEIACEAE (Butterfly bush family)				
Buddleia asiatica Lour.	dog tail, huelo 'ilio	X	+	-
CACTACEAE (Cactus family)				
Opuntia ficus-indica (L.) Mill.	panini, papipi	X	+	-
CHENOPODIACEAE (Goosefoot family)				
Atriplex semibaccata R. Br.	Australian saltbush	X	+	-
Chenopodium murale L.	'aheahea	X	+	-
CONVOLVULACEAE (Morning glory family)				
Ipomoea cairica (L.) Sweet	koali	X?	+	-
Ipomoea indica (J. Burm.) Merr.	koali 'awa, koali 'awahia	I	+	-
Ipomoea obscura (L.) Ker-Gawl.	field bindweed	X	+	+
Merremia aegyptia (L.) Urb.	hairy merremia, koali kua hulu	X?	+	+
CUCURBITACEAE (Gourd family)				
Coccinia grandis (L.) Voigt	coccinia, ivy gourd	X	+	-
Momordica charantia L.	wild bitter melon	X	+	+
EUPHORBIACEAE (Spurge family)				
Chamaesyce hirta (L.) Millsp.	hairy spurge, garden spurge	X	+	-
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	X	+	+
Euphorbia heterophylla L.	Mexican fireweed, kaliko	X	+	-
Ricinus communis L.	castor bean, koli	X	+	-
FABACEAE (Pea family)				
Acacia farnesiana (L.) Willd.	klu	X	+	-
Chamaecrista nictitans (L.) Moench	partridge pea, lauki	X	+	+
Crotalaria incana L.	fuzzy rattlepod, kukaehoki	X	-	+
Crotalaria pallida Aiton	smooth rattlepod, pikakani	X	-	+
Crotalaria retusa L.	rattle-box, sauni	X	+	-
Desmanthus pernambucanus (L.) Thellung	virgate mimosa, slender mimosa	X	+	+

Scientific name	Common name	Status	Vegetation type k	Vegetation type r
Erythrina sandwicensis Degener	wiliwili	E	+	–
Indigofera suffruticosa Mill.	indigo, 'iniko	X	–	+
Leucaena leucocephala (Lam.) de Wit	koa haole, ekoa	X	+	+
Macroptilium latyroides (L.) Urb.	wild bean, cow pea	X	+	+
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe	X	+	–
LAMIACEAE (Mint family)				
Hyptis pectinata (L.) Poit.	comb hyptis	X	+	–
Leonotis nepetifolia (L.) R. Br.	lion's ear	X	+	+
MALVACEAE (Mallow family)				
Abutilon grandifolium (Willd.) Sweet	hairy abutilon, ma'o	X	+	+
Abutilon incanum (Link) Sweet	hoary abutilon, ma'o	I?	+	+
Malvastrum coromandelianum (L.) Garcke	false mallow	X	+	+
Sida ciliaris L.		X	–	+
Sida fallax Walp.	'ilima	I	+	+
Sida spinosa L.	prickly sida	X	+	–
NYCTAGINACEAE (Four-o'clock family)				
Boerhavia glabrata Blume	alena, nena	I	+	–
PASSIFLORACEAE (Passion flower family)				
Passiflora edulis forma flavicarpa Degener	passion fruit, liliko'i	X	–	+
PLUMBAGINACEAE (Leadwort family)				
Plumbago zeylanica L.	'ilie'e, hilie'e	I	+	–
PORTULACACEAE (Purslane family)				
Portulaca oleracea L.	common purslane, pigweed, 'ihi	X	+	+
SOLANACEAE (Tomato family)				
Nicandra physalodes (L.) Gaertn.	apple of Peru	X	–	+
Nicotiana glauca R.C. Graham	tree tobacco	X	+	+
Solanum americanum Mill.	popolo	I?	–	+

Scientific name	Common name	Status	Vegetation type k	Vegetation type r
Solanum lycopersicum L.	cherry tomato	X	–	+
STERCULIACEAE (Cacao family)				
Waltheria indica L.	'uhaloa, hi'aloa, kanakaloa	I?	+	+
VERBENACEAE (Verbena family)				
Lantana camara L.	lantana, lakana	X	+	–
Stachytarpheta jamaicensis (L.) Vahl	Jamaica vervain, owi, oi	X	+	–
MONOCOTS				
COMMELINACEAE (Spiderwort family)				
Commelina benghalensis L.	hairy honohono	X	+	–
POACEAE (Grass family)				
Bothriochloa pertusa (L.) A. Camus	pitted beardgrass	X	+	–
Bothriochloa sp.		X	+	–
Cenchrus ciliaris L.	buffelgrass	X	+	+
Chloris barbata (L.) Sw.	swollen fingergrass, mau'u lei	X	+	+
Dactyloctenium aegyptium (L.) Willd.	beach wiregrass	X	+	–
Eleusine indica (L.) Gaertn.	wiregrass, goosegrass	X	–	+
Eragrostis cilianensis (All.) Link	stinkgrass	X	+	–
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	pili, pili grass	I?	+	–
Melinis repens (Willd.) Zizka	Natal redtop, Natal grass	X	+	+
Panicum maximum Jacq.	Guinea grass	X	+	+
Setaria verticillata (L.) P. Beauv.	bristly foxtail, mau'u pilipili	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

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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.

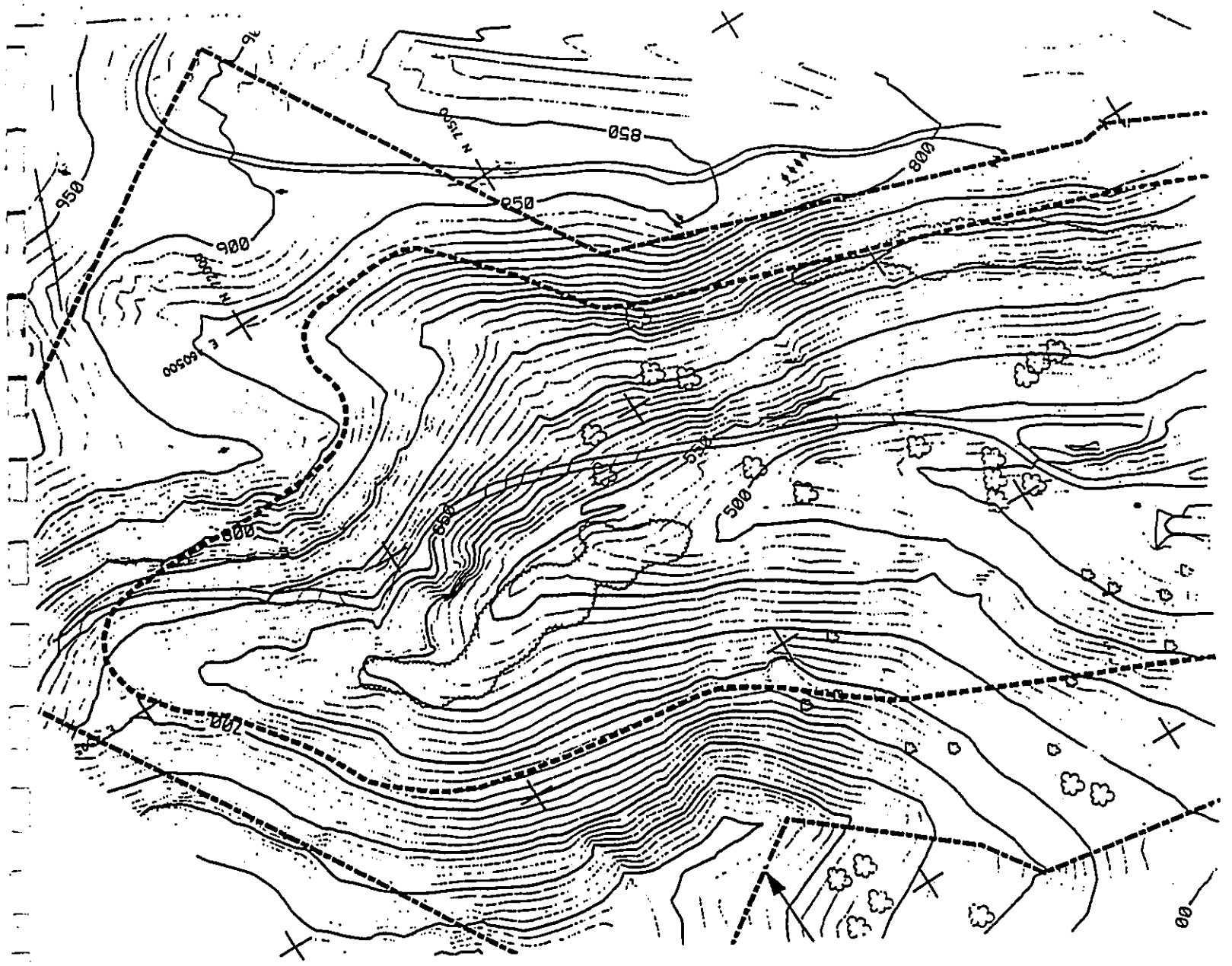

Fig. 1. Location of proposed Waimanalo Gulch Landfill Expansion Project. Faunal survey followed the road running through the center of the site.

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	*Bubulcus ibis*	U
Erckel Francolin	*Francolinus erckelii*	R
Rock Dove	*Columba livia*	C
Spotted Dove	*Streptopelia chinensis*	A
Zebra Dove	*Geopelia striata*	C
Red-vented Bulbul	*Pycnonotus cafer*	A
Common Myna	*Acridotheres tristis*	A
Japanese White-eye	*Zosterops japonicus*	R
Northern Cardinal	*Cardinalis cardinalis*	R
House Finch	*Carpodacus mexicanus*	U
Common Waxbill	*Estrilda astrild*	A
Nutmeg Mannikin	*Lonchura punctulata*	U
Java Sparrow	*Padda oryzivora*	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

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	1993	1994	1995	1996	1997
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

	24-hour total	AM Peak Hour		PM Peak Hour	
direction of travel	(both directions)	east	west	east	west
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.

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* Oahu Metropolitan Planning Organization, *Oahu Regional Transportation Plan*, November 1995. Tables 2-6 and 2-7.

APPENDIX D

Archaeological Inventory Survey

AN ARCHAEOLOGICAL INVENTORY SURVEY FOR THE WAIMĀNALO GULCH SANITARY LANDFILL PROJECT SITE, HONOULIULI, `EWA, O`AHU

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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.

TABLE OF CONTENTS

ABSTRACT i

ACKNOWLEDGMENTS ii

LIST OF FIGURES iv

I. INTRODUCTION 1

II. PROJECT AREA DESCRIPTION 6

III. LAND USE 8
- A. Pre-contact Period and Early History 8
- B. Mid to late 19th Century 9
- C. Modern Land Use 10
  - Battery Arizona 10
  - The Waimānalo Gulch Landfill 14
- D. Honouliuli Settlement Patterns 16
  - The Physical Layout 16
  - Settlement of Inland Areas 18
  - Summary 18

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH 20

V. RESULTS OF SURVEY 22

VII. RECOMMENDATIONS 28

VIII. REFERENCES 29

LIST OF FIGURES

Figure 1 State of Hawai`i 2

Figure 2 General Location Map, O`ahu Island 2

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 3

Figure 4 Portion of Tax Map Key (TMK) 9-2-03 Showing approximate Location of Project Area 4

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 5

Figure 6 1943 plan of Battery Arizona complex 12

Figure 7 U.S.S. *Arizona* turret installed at Battery Arizona above Kahe Point (U.S. Army Museum of Hawai`i) 15

Figure 8 General view of proposed landfill expansion area; view to south 23

Figure 9 General view of proposed landfill expansion area; view south-southwest 23

Figure 10 View of northeast portal of Battery Arizona; view to northwest 24

Figure 11 Battery Arizona: Arizona Battleship gun turret foundation (just outside property); view to southwest 24

Figure 12 "Shrine site" showing waterworn cobbles and shell offerings in foreground; view to southwest 25

Figure 13 Close-up of petroglyph stone at "shrine site"; view to southwest 25

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.

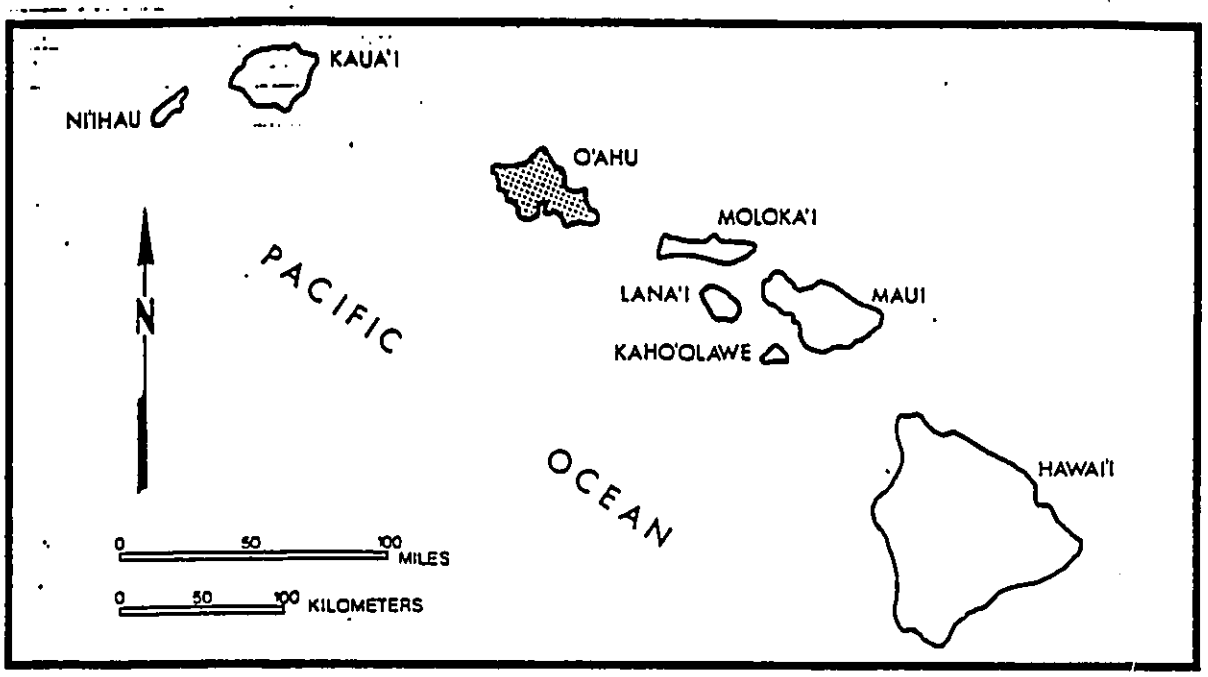

Figure 1 State of Hawai'i

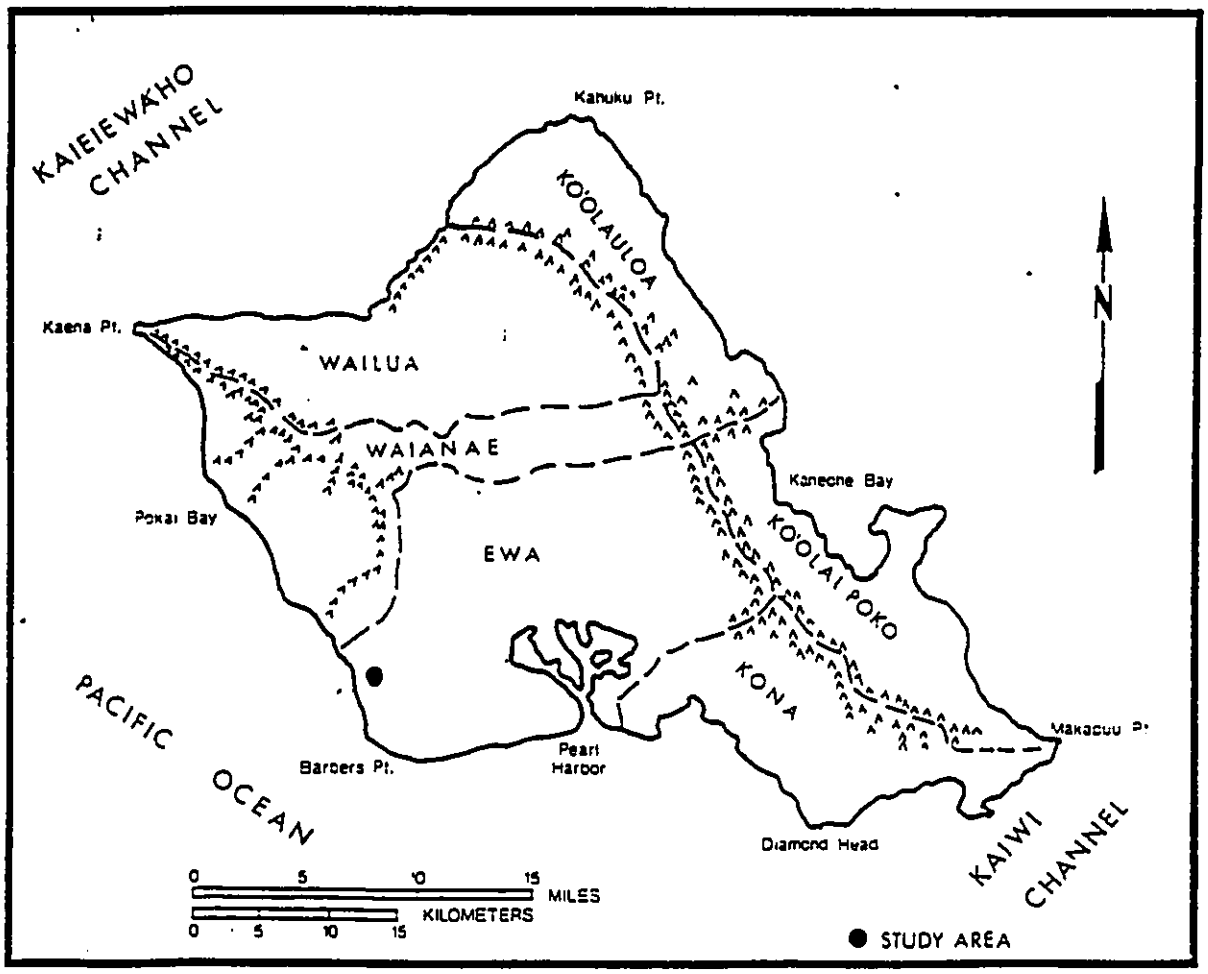

Figure 2 General Location Map, O'ahu Island

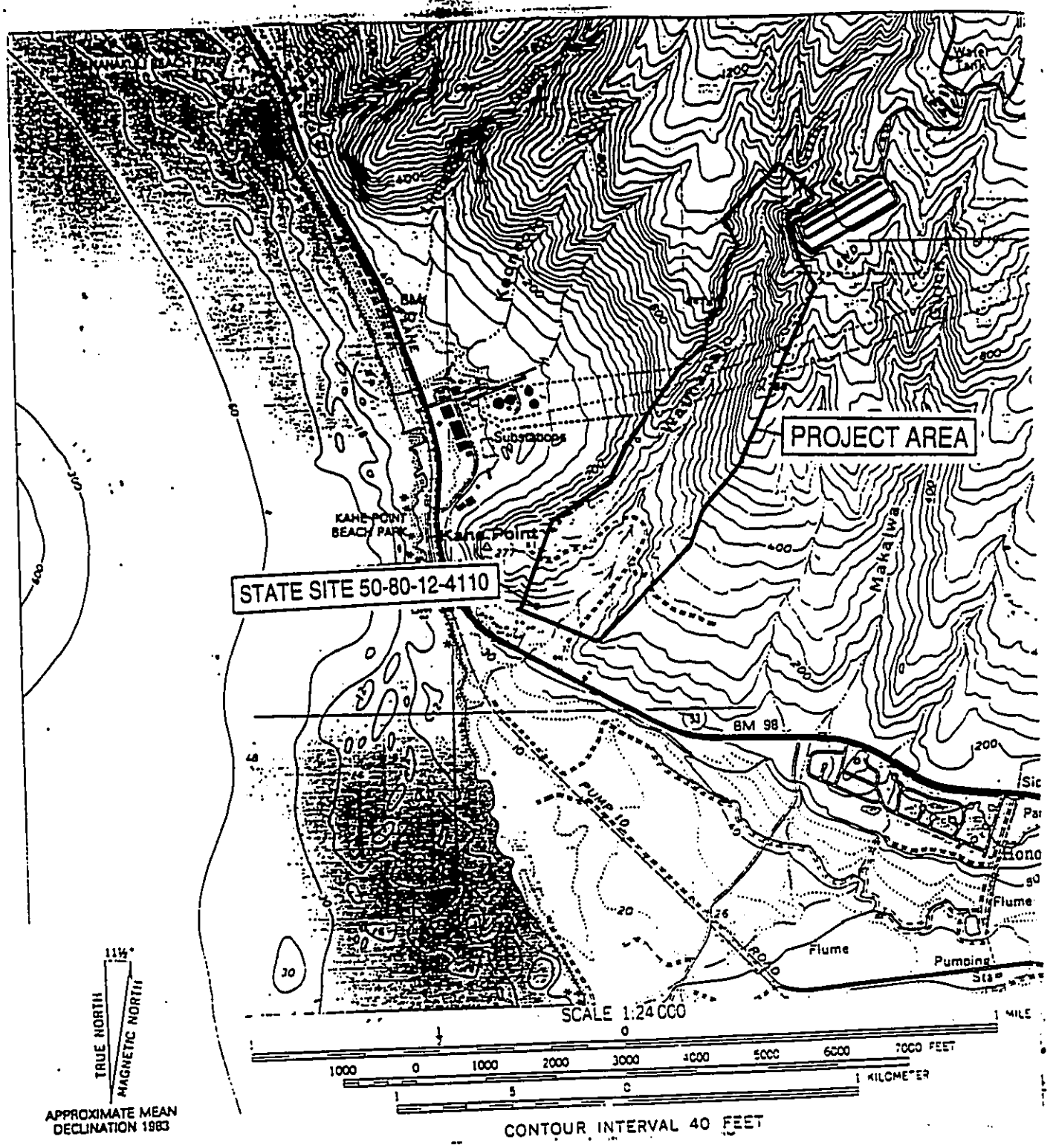

Figure 3 Portion of USGS 7.5 Minute `Ewa, Hawai`i Map showing location of project area and only previously recorded archaeological site in project area

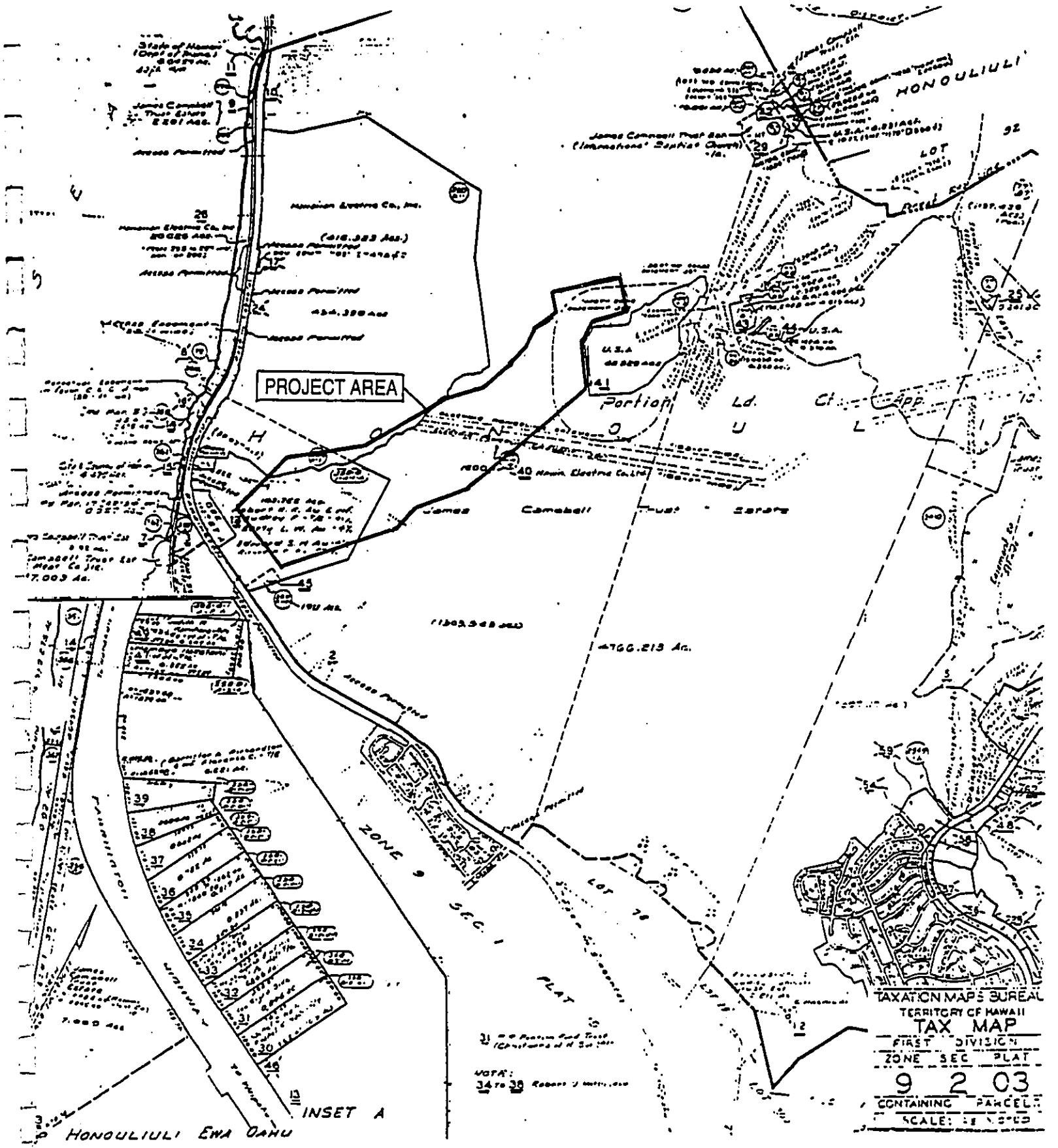

Figure 4 Portion of Tax Map Key (TMK) 9-2-03 Showing approximate Location of Project Area

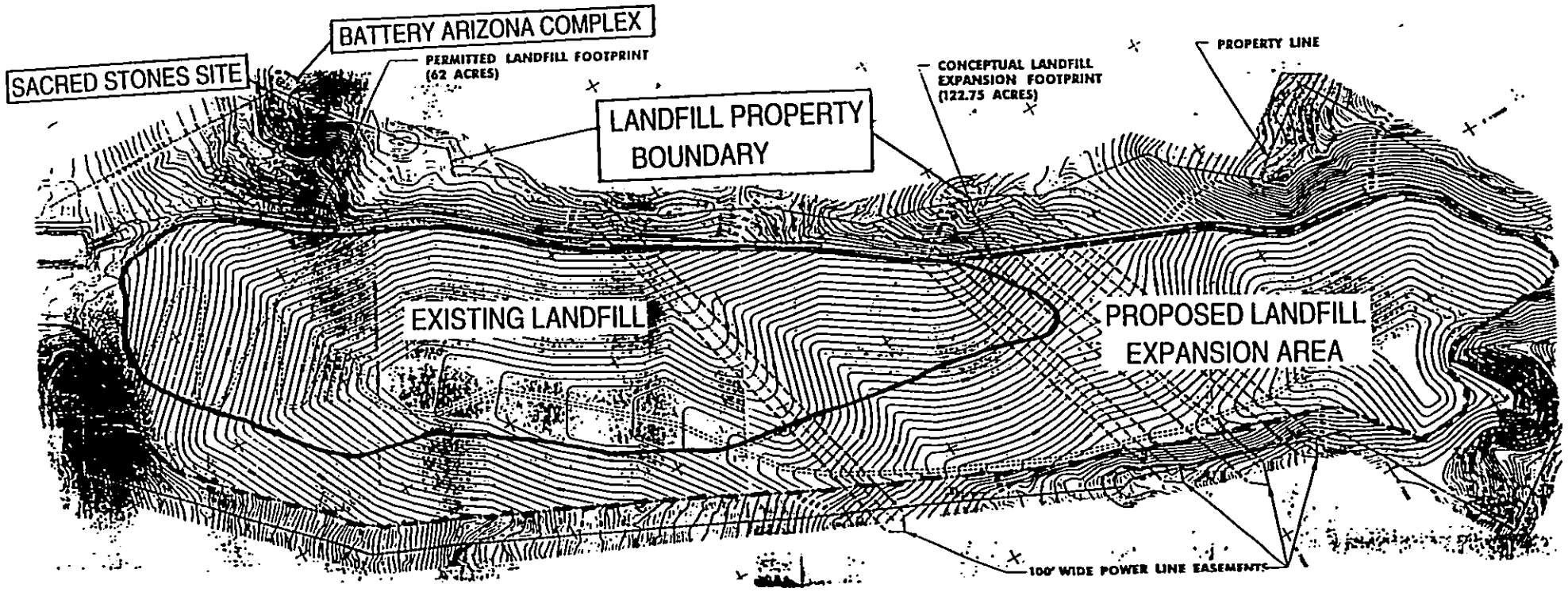

Figure 5 Waimānalo Gulch project area showing landfill property boundary, existing landfill, proposed landfill expansion area, and locations of Battery Arizona complex and sacred stones site

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 - *`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.

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 `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.

`I`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 `I`ī was staying at Nānākuli he learned

> of the burning of the houses in Waimanalo. The overseer in charge of the burning told [`I`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 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 taht befell the people through the fault of the chiefs. The punishment fell on others, though they were not to blame. (*Ibid.*:29)

`I`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.

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 *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 1815-1830. 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

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 (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)

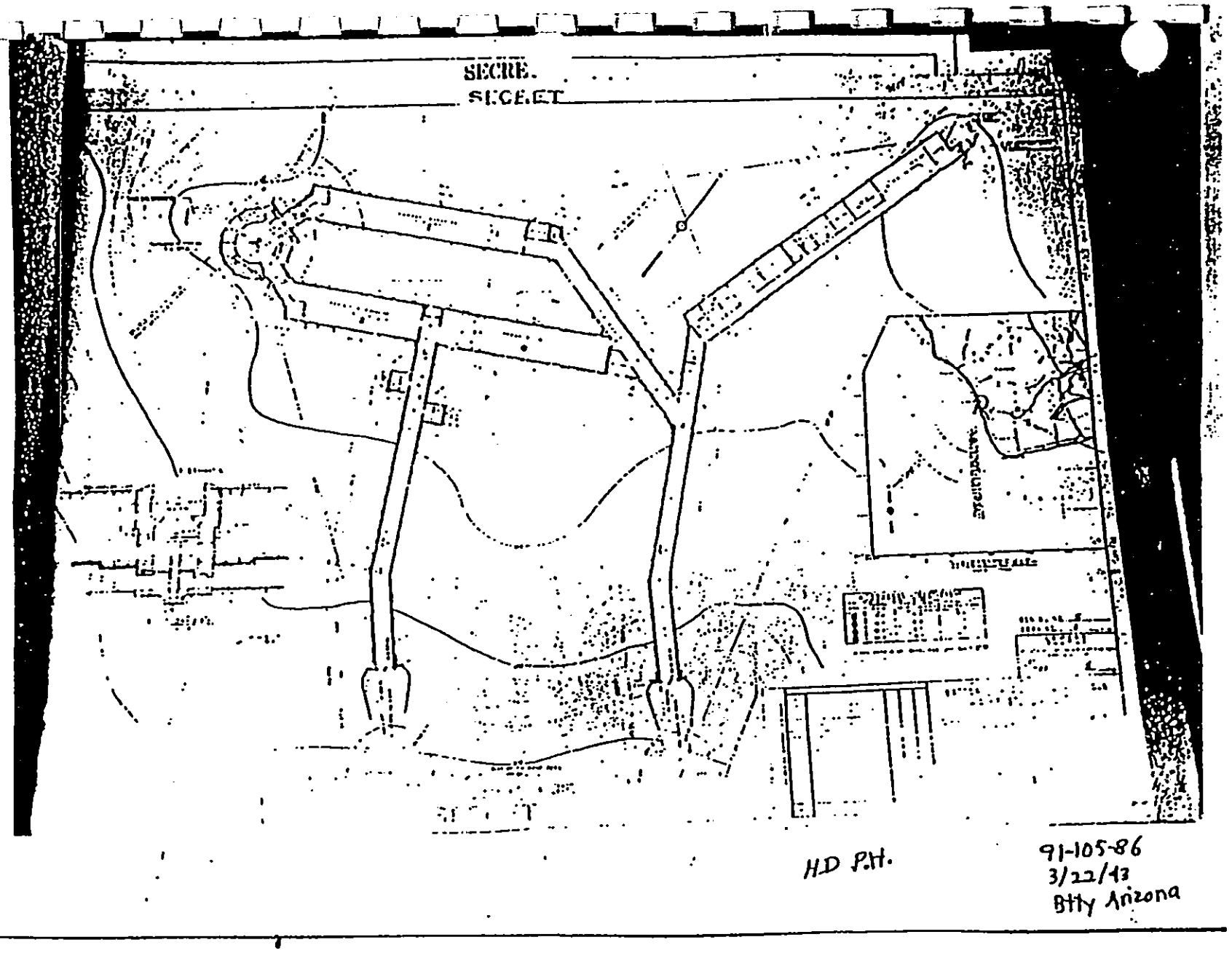

Figure 6 1943 plan of Battery Arizona complex

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 rasing 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 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, smashingthe 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 Hawai`i)

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 potion 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 Honoluliuli *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 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 Makaīwa 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 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 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

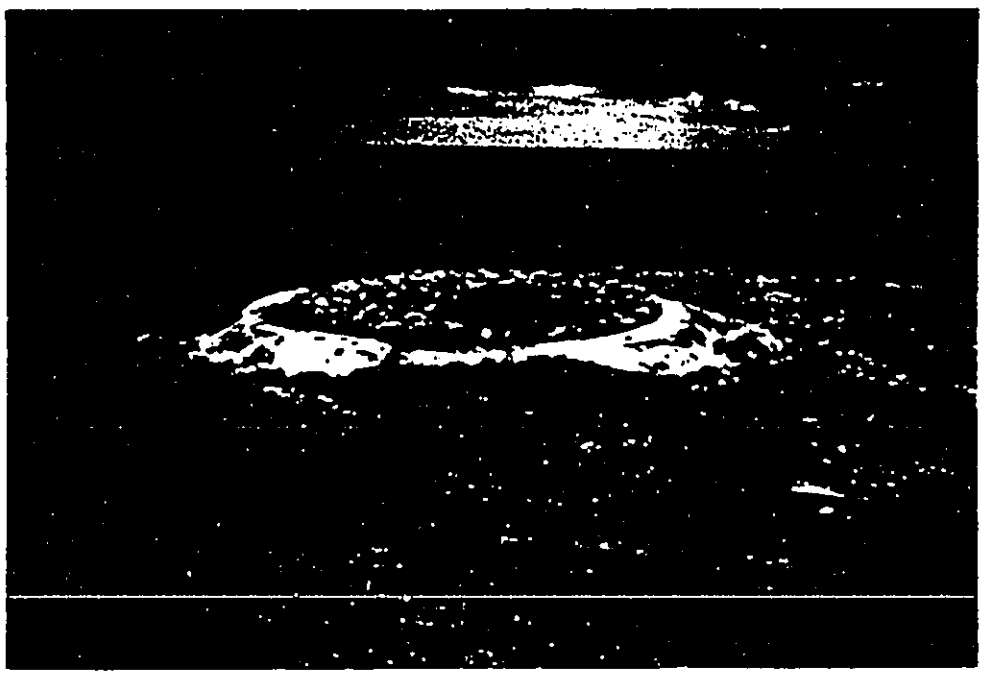

Figure 11 Battery Arizona: Arizona Battleship gun turret foundation (just outside property); view to southwest

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 E

Archaeological Site Visit Meeting Notes of April 12, 2001

CULTURAL SURVEYS HAWAII, INC.
Archaeological Studies

Hallett H. Hammatt, Ph.D.
733 N. Kalaheo Ave., Kailua, Hawaii 96734
Bus: (808) 262-9972/Fax: 262-4950
e-mail:csh@dps.net

April 12, 2001

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawai`i 96817
Fax # (808) 842-1937

Subject: Waimānalo Gulch Sanitary Landfill (`Ewa) Meeting of April 10, 2001with 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") Jourdane (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. Namumnart (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 Kahe 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.

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

David W. Shideler
O`ahu Office manager
Cultural Surveys Hawai`i, Inc.

733 N. Kalaheo Ave. • Kailua, Hawaii 96734 • Bus: (808) 262-9972 • Fax: 262-4950

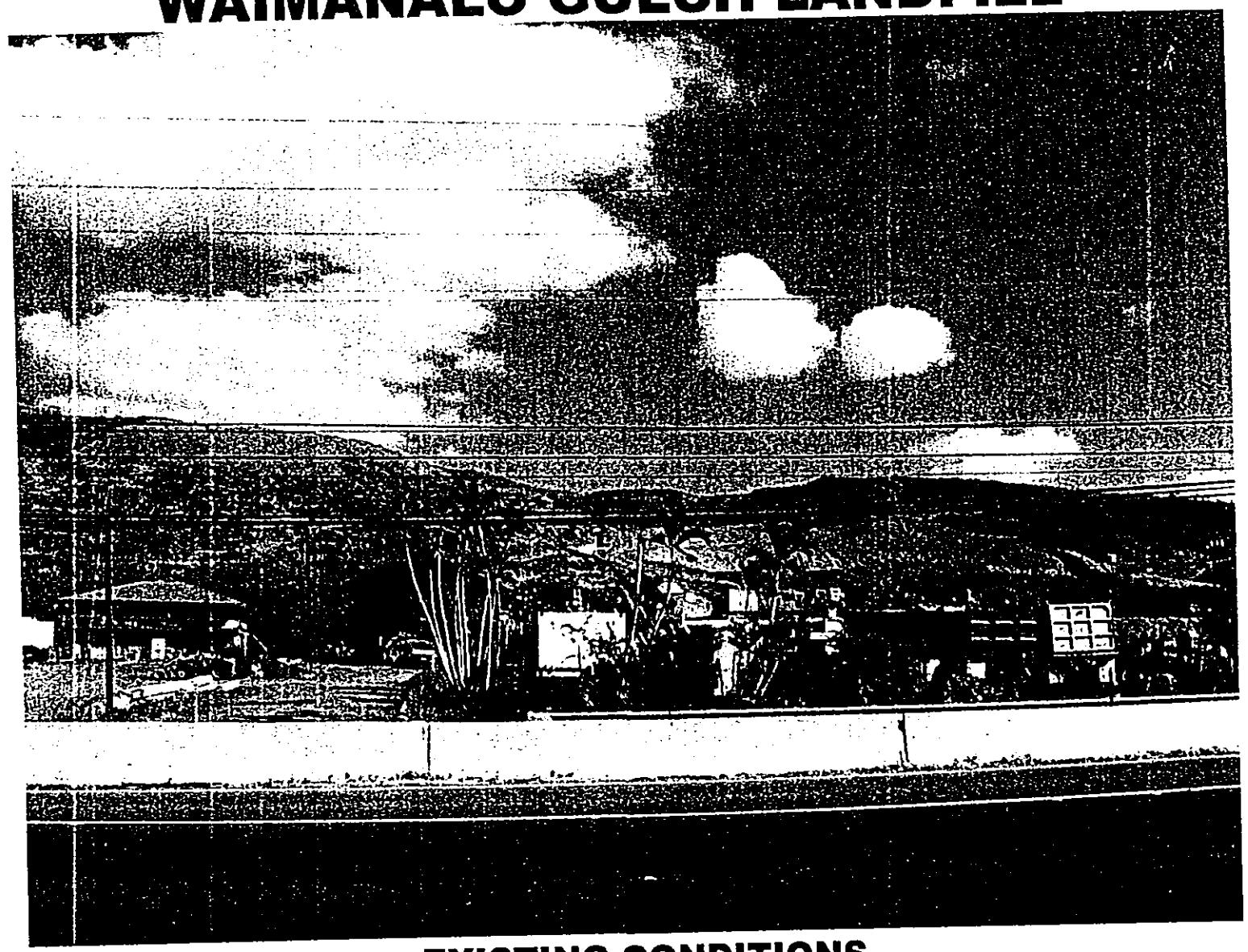
APPENDIX F

Waimanalo Gulch Landfill Expansion
Final Visual Presentation

Waimanalo Gulch Landfill Expansion

Final Visual Presentation

WAIMANALO GULCH LANDFILL

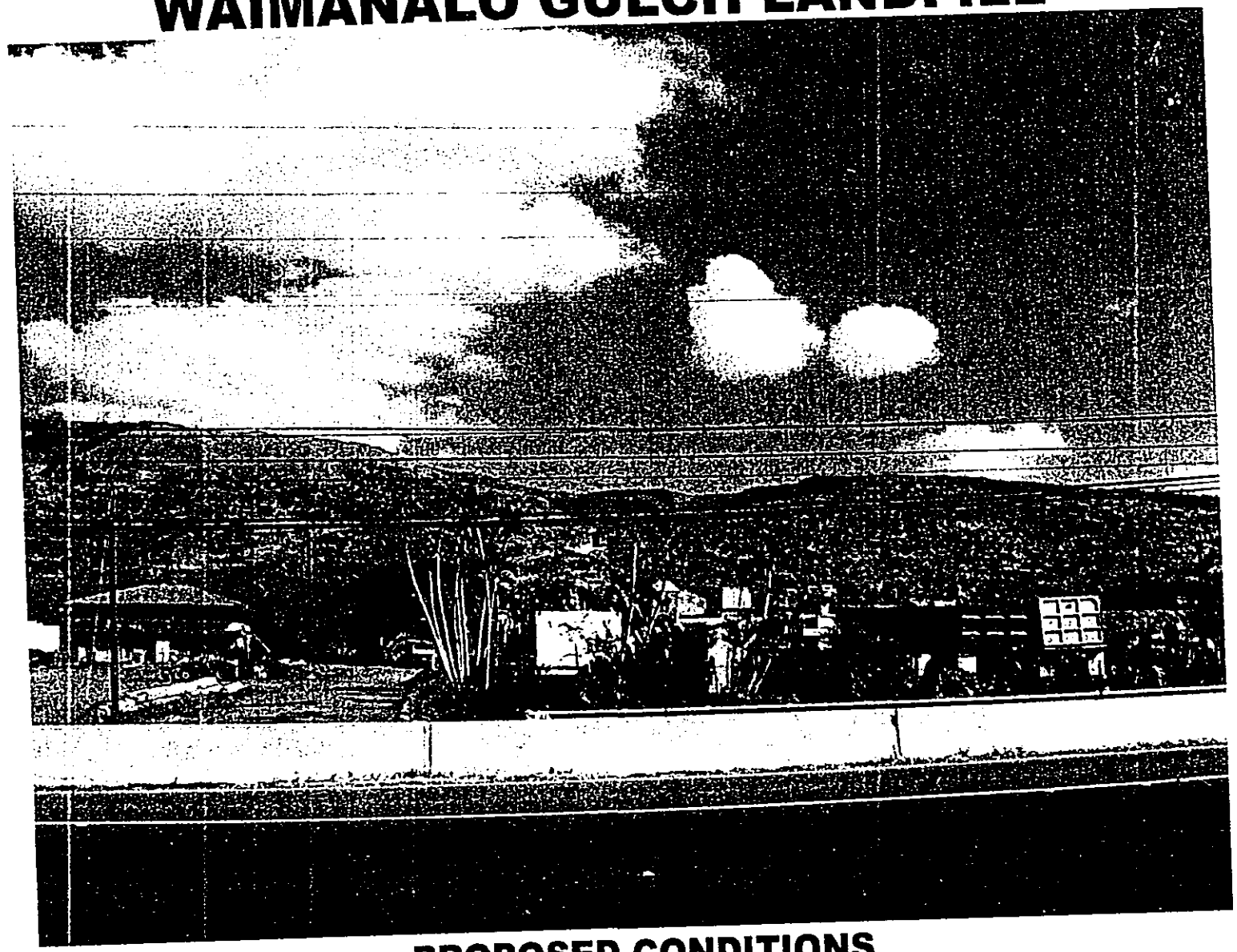


EXISTING CONDITIONS

LOCATION #1 - FARRINGTON HIGHWAY

WASTE MANAGEMENT, INC.

WAIMANALO GULCH LANDFILL

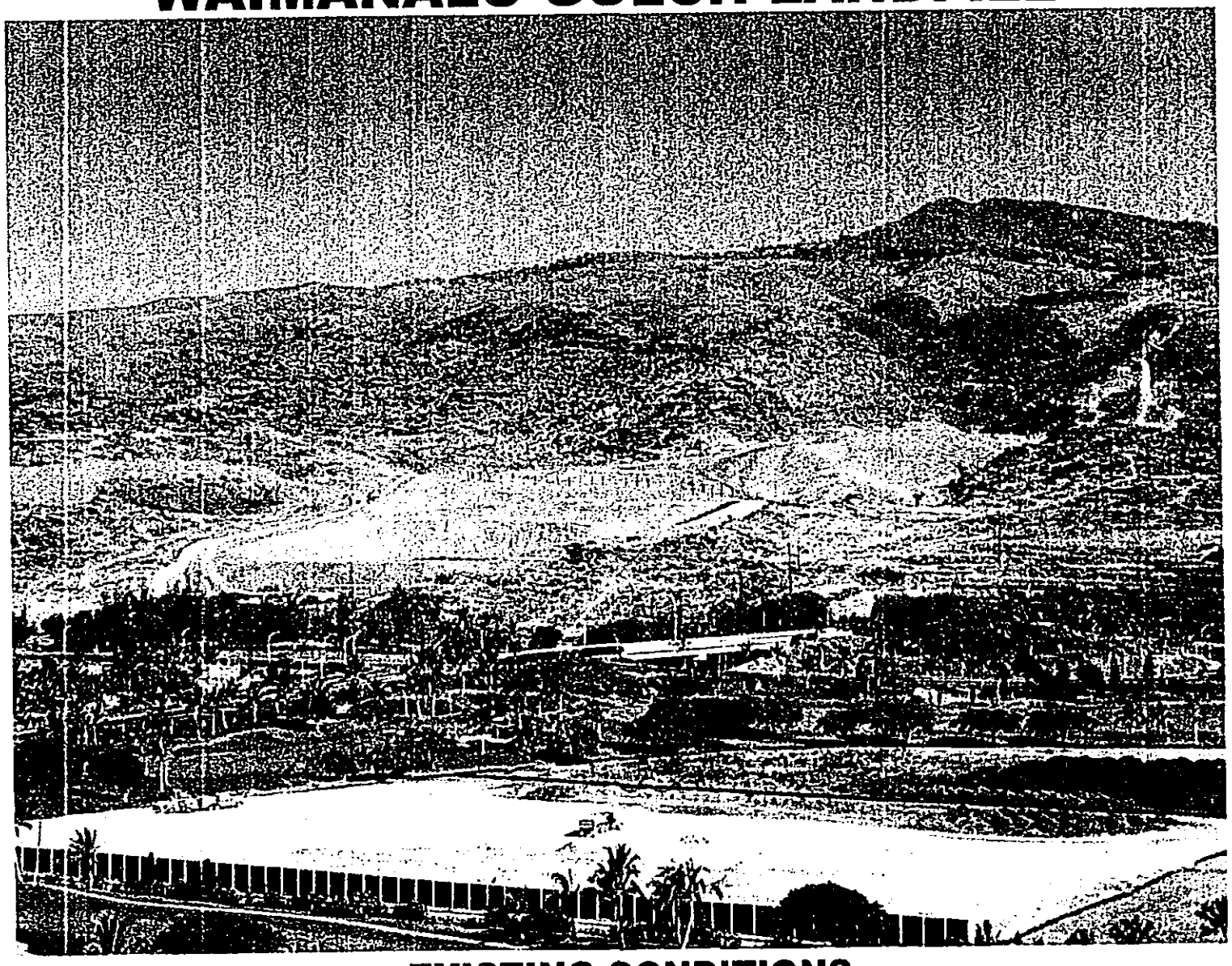


PROPOSED CONDITIONS

LOCATION #1 - FARRINGTON HIGHWAY

WASTE MANAGEMENT, INC.

WAIMANALO GULCH LANDFILL

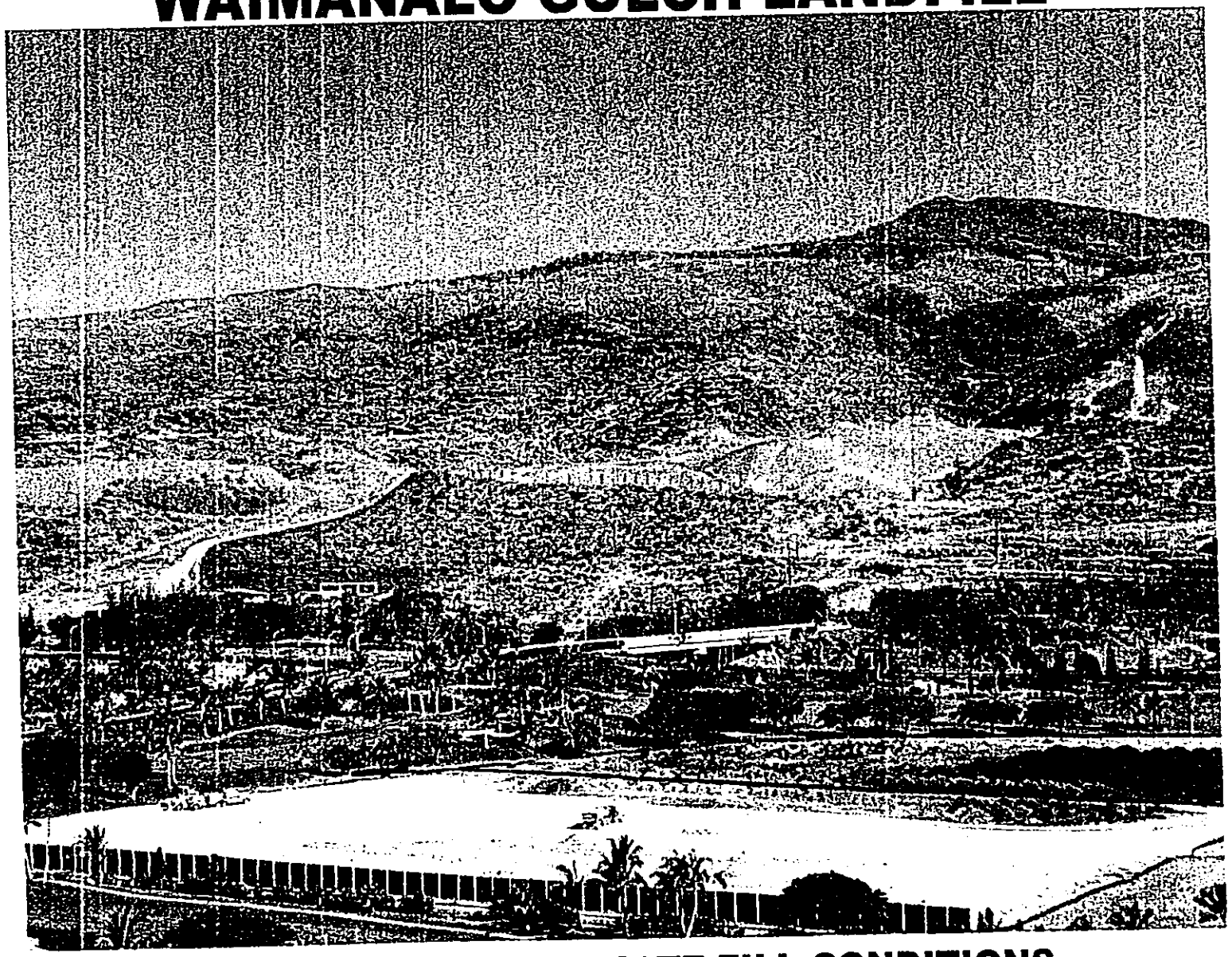


EXISTING CONDITIONS

LOCATION #2 - HOTEL ROOFTOP

WASTE MANAGEMENT, INC.

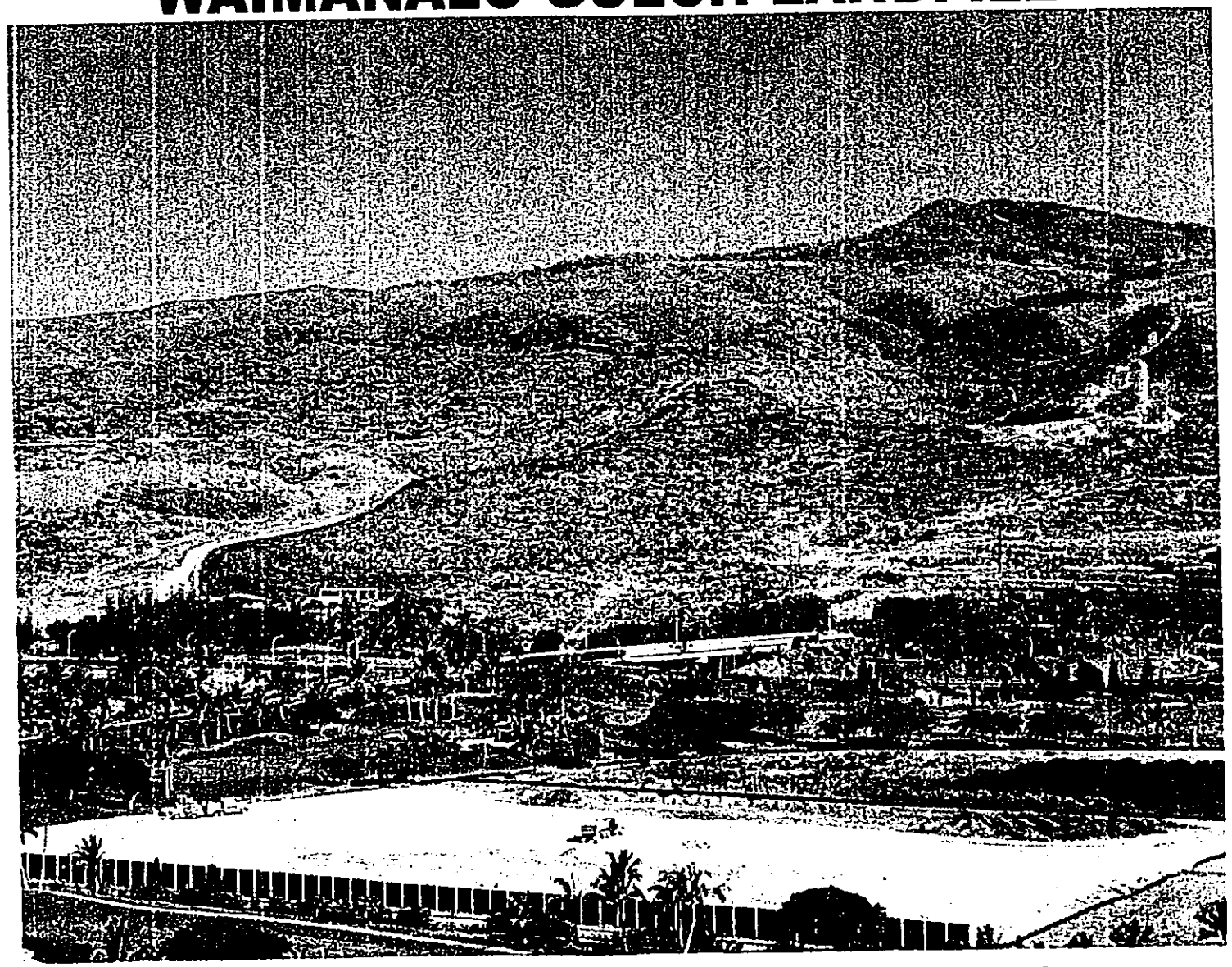
WAIMANALO GULCH LANDFILL



PROPOSED INTERMEDIATE FILL CONDITIONS
ABOVE ASH MONOFILL AREA
LOCATION #2 - HOTEL ROOFTOP

WASTE MANAGEMENT, INC

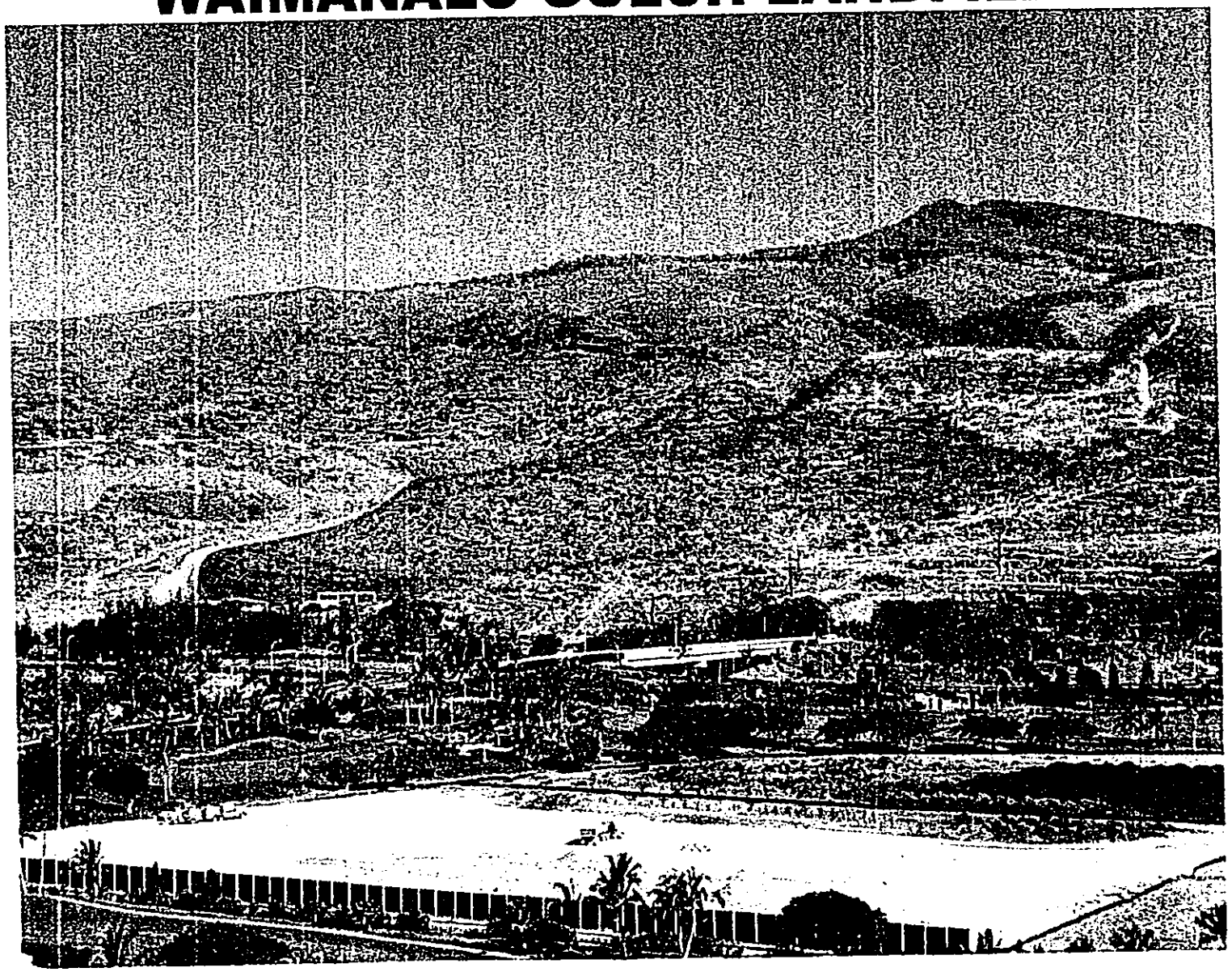
WAIMANALO GULCH LANDFILL



PROPOSED INTERMEDIATE FILL CONDITIONS
ABOVE MSW AREA
LOCATION #2 - HOTEL ROOFTOP

WASTE MANAGEMENT, INC.

WAIMANALO GULCH LANDFILL



PROPOSED FINAL GRADE CONDITIONS

LOCATION #2 - HOTEL ROOFTOP

WASTE MANAGEMENT, INC

APPENDIX G (under separate cover)

Alternatives Analysis for Disposal of Municipal Refuse

APPENDIX H

Public Meeting Notes

OAHU LANDFILL COMMUNITY DISCUSSION GROUP
Kapolei High School

February 2, 2001
(Revised)

ATTENDANCE:
City and County of Honolulu, Department of Environmental Services:
Wilma Namumnart, Suzanne Jones, James Louis
Waste Management of Hawaii:
Steve Cassulo, Joseph Hernandez
R.M. Towill Corporation:
Brian Takeda

See attached sign-in sheet for meeting attendees.

MEETING NOTES:
A community discussion group meeting was held at Kapolei High School on January 31, 2001, at 7:00 pm, to discuss issues related to the need for landfill space on Oahu, and the proposed expansion of Waimanalo Gulch Sanitary Landfill. Following introductions of all members present community concerns and issues were discussed. Summary points of discussion included the following:

- The owner of the facility is the City and County of Honolulu. The facility is operated by Waste Management of Hawaii, a private firm under contact to the City. Waste Management began operations in 1989, following approval of the project EIS and related permits including the Solid Waste Permit issued by the Dept. of Health, and State Special Use Permit issued by the Dept. of Land Utilization and State Land Use Commission.

- The current landfill space is expected to reach capacity in the 2003 to 2004 timeframe. At this time Dept. of Environmental Services (ENV) and Waste Management of Hawaii are working to prepare new permits that would allow the expansion of the current site.

- The first Draft Supplemental EIS published in 1999 was based on the prior Waimanalo Gulch EIS which was published in 1984. This spans a period of 17 years. The forthcoming revised Draft Supplemental EIS will be updated with new information and details concerning the proposed expansion.

- The community requested information on the project schedule and timetable for filing of permits. The overall project schedule calls for preparation and submittal of the current Revised Draft EIS by April/May of 2001. Public comments will be received

for a period of 45 days following publication in the OEQC bulletin. There will be an additional opportunity for public comments for a 60-day period following the publication of the Final EIS.

- The issue involving waste disposal is an islandwide issue and not solely limited to the region surrounding Waimanalo Gulch.

- Decision makers in the landfill expansion will involve the City Council to authorize funding. The EIS will also have to be reviewed by governmental agencies and the public. All comments, concerns and issues will need to be responded to.

- The current landfill space is expected to reach capacity in the 2003 to 2004 timeframe.

- A community member stated the current process is shibai and that the project has a predetermined outcome. Other members stated the series of meetings proposed are only a formality to the continued use of the site. The City's community specialist responded that the project does not have a predetermined outcome.

- Members of the community reminded the audience that former Mayor Frank Fasi had committed to closing Waimanalo Gulch landfill once it reached capacity. A new landfill site was supposed to be found once this happened. This was during the prior establishment of the site. The City responded that although this may have been stated over a decade ago, that events have since changed. These changes include new federal regulations governing the siting of landfills in 1993, and ongoing urbanization throughout Oahu, that has resulted in the removal of most of the previously identified alternative sites. This situation makes it extremely difficult today to find a new location.

- The community requested information on what goes into the landfill. The community stated that this information was not clearly provided in the presentation. An example included the disposal of sewage sludge. It was responded that the landfill accepts municipal solid waste (MSW), HPOWER ash, and sewage sludge (a component of MSW).

- Community responses to the alternative landfill sites included questions regarding the designation of the Underground Injection Control (UIC) and groundwater protection zone lines. Questions were raised concerning the location of the line going around the Waimanalo Gulch landfill site and that it looked suspect. It was responded that the Honolulu Board of Water Supply (BWS) and Department of Health designated the location of the line, not ENV.

- Waste Management of Hawaii was asked to make a commitment to clean up the nuisances caused by the landfill. Items of commitment requested included: a promise to clean up litter every day; a plan to ensure exiting trucks are monitored before leaving the landfill; actions taken to stop the odor problem now; and, a landscaping plan to shield the landfill from community view. Waste Management indicated that although a promise could not be made to clean litter on a daily basis, that whenever there is a problem that a workcrew would be dispatched for litter pick up. Other items would be seriously reviewed for action measures.

- The landfill accepts dead animal carcasses. Data on exact weight or volume is not known, but is of a very low level. An incinerator at Halawa is used by the State to dispose of a portion of this waste stream.

- Treated medical waste is accepted by the landfill, but must be bagged and sealed in accordance with federal and state law. The majority of treated medical waste is in the form of used syringes and needles which have been autoclaved. Other forms of medical waste which could constitute a biohazard are not accepted in accordance with law.

- Commercial toxic/hazardous waste is not accepted at the landfill.

- The community requested that the information presented at the meeting be provided to all attendees. It was responded that the presentation notes on alternative landfill sites and technologies would be provided to all attendees that signed up for the meeting.

- A complaint was made that the presentation format and the information provided was difficult to understand and unacceptable. The graphics provided were also too small and difficult to read. An improved format should be provided for ease of understanding.

- Ihilani/Marriott and the Ko Olina community should not be responsible for cleaning up the garbage that comes from the landfill, whether or not it is from refuse trucks making garbage deliveries. The refuse trucks already drive poorly creating a hazard on the highway from speeding and irresponsible driving. This is bad for the hotel guests, the community, and the ambience of the area. These issues should be dealt with now.

- Waste Management of Hawaii should be responsible for helping to clean up the refuse trucks on the highway and within the landfill. Why should be community be willing to accept the landfill when even current problems involving refuse trucks and litter cannot be addressed. This is an opportunity to try to make the project work. This is

why the community wants to have a commitment in writing. The community wants solutions not excuses.

- The ENV indicated they are asking for assistance from the Honolulu Police Department to help enforce the highway littering problem. Further efforts will also be undertaken to ensure trucks are properly cleaned out before exiting the landfill. The solution will have to involve a multilayered approach involving all parties involved including the City ENV, Waste Management of Hawaii, the Honolulu Police Department, and the community.

- Trucks transiting to and from the landfill must be covered. The community wants this enforced. Rules should be enacted to require this from Waste Management of Hawaii. It was responded that Waste Management is working on this issue with the City. The larger issue is that Waste Management cannot legally enforce truckers from littering along the highway, once they arrive at the landfill site, however, Waste Management has jurisdiction. ENV confirmed this and restated that this problem is being worked on.

- The following phone numbers were provided for Joseph Hernandez and Steve Cassulo at Waste Management - Joseph can be reached at 668-2985, extension 22, and cell no. 479-4608. Steve can be reached at 668-2985, extension 23, and cell no. (808) 960-4607. Both Joseph and Steve asked that the community contact them immediately whenever there is a complaint involving odor, litter, or other problem involving the landfill.

- ENV and Waste Management of Hawaii indicated their ongoing commitment to trying to work out any issues or problems with the community. Additional meetings will be scheduled to answer questions generated from this and future meetings with the community.

- The next meeting was scheduled for February 20th, at 7:00 pm. It was announced that attendees for the next meeting would include representatives of the Waianae community.

ATTENDANCE LIST

Date: January 31, 2001

PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
(Kapolei High School/Adult Learning Center Library)

Name	Address or Representation	Phone	Fax
MARK & BRENDA FIELDS	679105B	92-1479 H Alinui Drive ALINUI D KAPOLEI, HI	
Carrie Shone	92-100 Waipahe Pl. Kapolei 96707 KoOlina Marina	679-0888	679-1055
c/o → NANCY MAEDA	92-1001 Olani ST #404 KoOlina Kapolei 96707	679-3324	679-0297
DAVID F. MURPHY	92-1070 Olani St. Kapolei 96707 BROOKFIELD HOMES	680-9778	
Ralph & Darlene Harris	(KoOlina Fairways)	679-0085	679-0086
Jeff Stone	(KoOlina Resort	531-9761	
Bill Blaisdell	KoOlina 92-1480 Alinui Dr. Development	673-7678	
Pamela Witty-Parkland	Parkland [illegible]	527-5693	530 S. King 202
92-619 Farr Hwy KoOlina 96707 Mike Hospodar	KoOlina 92-619 Farrington Hwy Community Assn	671-0273	
Rep Mark Moses	State Capitol Rm 310	586-8520	
~~David Murphy~~	~~[illegible]~~		
Sen. Brian Kanno	State Capitol RM. 202 Hon. Hi 96813		

ATTENDANCE LIST

Date: January 31, 2001

PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
(Kapolei High School/Adult Learning Center Library)

Name	Address or Representation	Phone	Fax
LT. GREGG YAMAMOTO	c/o HPD 801 S. Beretania	692-4234	
Gary Siu	DOH, SW	586-4244	
Bert Wareshina	Sen. Hanabusa # 218	586-7793	586-7797
JOE HERNANDEZ	WASTE MANAGEMENT HAWAII 94-460 Farrington Hwy	CELL- 479-4608 668-2985 EXT. 22	

DOH Environ Mgt Div. Solid & Hazardous Waste Br. 919 Ala Moa Bl. 96814 Room 212

ATTENDANCE LIST

Date: January 31, 2001

PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
(Kapolei High School/Adult Learning Center Library)

Name	Address or Representation	Phone	Fax
MARTHA MAKAIWI	NB #34	6[illegible]	SAME
JANE A. ROSS	92-783 Laalou Pl. N.B. #34	682-5577	
LINDA PORTER	92-1459 F KAPOLEI ALIINUI DR.	678-0747	671-7457
TOM PORTER	"	"	"
JOHN HOMER	MARRIOTT	679-0079	
Marry Menefie Aipoalani	Rep Kahikin #404	586-8465	586-8469
→ Maeda Timsen	92-684 Nohona St.	525-5601	525-[illegible]
2 address (?)			

ATTENDANCE LIST

Date: January 31, 2001

PROJECT: Waimanalo Gulch Sanitary Landfill Expansion
(Kapolei High School/Adult Learning Center Library)

Name	Address or Representation	Phone	Fax
Keith Timson	92-684 Wahona St		
Mike Freitas	92-734 Paola Lp Kapolei HI 96707		

OAHU LANDFILL COMMUNITY DISCUSSION GROUP
Ihilani Resort

February 21, 2001
(Revised)

ATTENDANCE:
See attached list for attendees

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.

  Response - The City responded that they would 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? HPOWER expansion should also proceed.

Response - HPOWER 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 HPOWER ash for other uses?

  Response - Transhipment 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.

ATTENDANCE LIST - Waimanalo G[illegible]n Landfill Expansion, February 20, 2001

	NAME	REPRESENTATION/ADDRESS	PHONE/FAX NO.	E-MAIL ADDRESS
1	JAMES LOUIS	City Refuse Division	527-5832	JLOUIS@co.Honolulu.HI.US
			527-5864	
2	KIMO WILLETT	UNITEK SOLVENT SVC.	673 3227	
			6733241	
3	Brian Takeda	R.M. Towill Corp.	842-1133	
4	Anita Kalamau	89-1110 Maracholoa Pl.	668-2764	
		Nanakuli 96792		
5	DAVID C. AUWAE	Liason for representative	695-5926	Room 328 State capitol
	(For Rep. Emily Auwae)			
6	DANNY BORREGUES	[illegible]	668-4483	DLRTT77@Aol.com
	DENNIS RHODEN	92-1465 #D Aliinui DR Kapolei	6790027	
7	William + Melva Aila	86-630 Lualualei Homestd. Rd	6969921	
8	DON DVORAK	92-1515 Aliinui #F Kapolei	679-0281	DONDVORAK@AOL.COM
9	DAVID MURPHY	BROOKFIELD HOMES	680-9778	92-1070 OLANI STREET
				KAPOLEI, HI ~~96~~ 96707
10	Cynthia K L Rezentes	87-149 Maipela St.	696-0131	rezentesc@aol.com
		Waianae, HI 96792		

City and County of Honolulu
Held @ Ihilani Hotel

Sheet 1 of 5

ATTENDANCE LIST - Waimanalo G... Landfill Expansion, February 20, 2001

	NAME	REPRESENTATION/ADDRESS	PHONE/FAX NO.	E-MAIL ADDRESS
1	Steve Cassulo	Waste management	668-2985	—
2	Ken Williams	Ko Olina Community Assoc	6712512	
3	Sher Rector	Waste Management	668-2985 ext 10 668-1366	srector@wm.com
4	Paulette Dibibor	N.B. #24 87-828 Helekula Way - Waianae 96792 OCDA	668-5913	
5	MARK Suiso	N. Board	6959317	suiso@aloha.net
6	Martha Makaiwi	NHBD 34 · 92283 Lanloa Pl Kapolei Hi 96707	682-5577	
7	LLAYLL FRY	92-1475A ALIINUI DR KAPOLEI HI 96707	679 8889	
8	MIKE FREITAS	92-734 Paaca Lp Kapolei Hi 96707	682-3702	
9	Gabe Kilakalua Jr.	Civil Defense 89-440 Mokiawe St. Waianae 96792		
10	Evelyn (Lyn) Martin	92-1511 Balii Nui Dr. Kapolei 96707	679-0159	twcflames19@hotmail.com Please send all mailings

City and County of Honolulu
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Sheet 2 of 5

	NAME	REPRESENTATION/ADDRESS	PHONE/FAX NO.	E-MAIL ADDRESS
1	Pam Witty-Oakland	Staff of Councilmember John DeSoto City Council	5275693	pwitty@co.honolulu.hi.us
2	Ray Wakimura	" "	"	"
3	Jeff Stone	Ko Olina Resort	673-7678	on File
4	Marjorie Collier	KoOlina Fairways 92-1503 Aliinui Dr A KoOline Resort, HI 96707	679-0103	on File
5	Donna Broome	Council member John DeSoto	523-4708	~~[illegible]~~ @
6	Jaya Edwards	KOOLINA RESORT		
7	Bert Darashina	Sen. Colleen Hanabusa	586-7793	
8	DUKE HOSPODAR	Resident Fairways	679-0035	AlohaDukeSan@Aol.Com
9	Nina Fisher	Senator Colleen Hanabusa	586-7793	
10	William + Melva Aila	86-630 Lualualei Hmstd. Rd Waianae Hi 96792		

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ATTENDANCE LIST - Waimanalo Gulch Landfill Expansion, February 20, 2001

	NAME	REPRESENTATION/ADDRESS	PHONE/FAX NO.	E-MAIL ADDRESS
1	Jane A. Ross	NHB #34 + Honokai Hale Assoc	682-3544	92-783 Laaloa Pl. Kapolei
2	Maeda Timson	NHB #34	535-5601	
3				
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Sheet 5 of 5

Ko Olina
Resort & Marina

April 13, 2001

Wilma Namumnart
Department of Environmental Services
City and County of Honolulu
650 South King St. 6th Floor
Honolulu, Hawaii 96813

Subject: Meeting notes for February 2 and February 21, 2001

The following are comments and corrections to the focus group meeting of February 2, 2001 and February 21, 2001:

1. Why was "focus group" changed to "community discussion group"?
2. Why are "meeting notes" provided and not "minutes" as promised by the City's community specialist, Herb Lee?
3. Where is the critical path of permits Mr. Taketa was scribbling on the large sheets of paper at front of the room. The community was promised that the permits required and timing thereof would be provided as a part of the "minutes". Nothing has been submitted to the community. When will we receive the information that was promised.
4. Herb Lee, Wilma Namumnart and R.M. Towill stated that the capacity would be reached in 2002. Why do the meeting notes refer to 2003 to 2004 these notes need to accurately reflect what transpired at the meeting.
5. In the eighth bullet point, please add the following:
   "The City's community specialist responded that the project does not have a predetermined outcome".

February 21, 2001 Meeting Notes

In the fifth bullet point ("If there's a study and it finds another sites for $30 million will you consider it?"), please add the following:

"The City replied yes."

Please revise the meeting notes as stated above and provide answers to the many questions left open. When may we expect a response?

Very truly yours,

Ken Williams
General Manager

Ko Olina Community Association • 92-619 Farrington Highway, Ko Olina, Hawaii 96707
Phone: [illegible] • Facsimile: [illegible]

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.
ACTING DIRECTOR

IN REPLY REFER TO:
RE 01-087

May 24, 2001

Mr. Kenneth Williams
General Manager
Ko Olina Community Association
92-619 Farrington Highway
Ko Olina, Hawaii 96707

Dear Mr. Williams:

Subject: Community Meeting Notes of February 2, 2001 and February 21, 2001

Thank you for your letter dated April 13, 2001. We offer the following in response:

1. The title "Community Discussion Group" was changed in response to the community concern that the title "Focus Group" would imply an endorsement of the community meeting process. The objective for the series of meetings, regardless of the name, is to exchange information and obtain additional community feedback on concerns, issues, and problems that need to be addressed. We intend to use this information to help improve operations at Waimanalo Gulch.

2. The record of public meetings was always intended to be provided in the form of meeting notes. We apologize for any confusion this may have caused.

3. The proposed project Revised Draft EIS will be published shortly. Per your prior request, you will be provided with a copy of the subject document. We do not have a firm date for the filing of environmental permits at this time. We intend to notify the Makakilo/Kapolei/Honokai Hale and Waianae Neighborhood Boards concerning the status of this project over the next month.

4. As noted in our prior Draft Supplemental EIS, the landfill space is "...estimated to be exhausted as early as 2002." The 2003 to 2004 timeframe is provided to reflect the potential life remaining in the landfill with good engineering and landfill management practices.

5. We will add the following to the eighth bullet point in the meeting notes of February 2, 2001, per your request:

   "The City's community consultant responded that the project does not have a predetermined outcome."

6. We will add the following to the fifth bullet point in the meeting notes of February 21, 2001, per your request:

   "Response - The City replied yes, they would be willing to consider any new sites proposed by the Community Discussion Group."

Thank you for this opportunity to respond. Should you have questions please contact Ms. Wilma Namumnart of the Refuse Division at 527-5378.

Sincerely,

TIMOTHY E. STEINBERGER
Acting Director