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LETTER OF TRANSMITTAL

841 Bishop Street, Suite 500, Honolulu, HI 96813
Tel No: 808.523.8874 Fax No. 808.523.8950

Date: 09/09/2008	Job No.: 103274.03
Attention: Ms. Kris Poentis	
RE: Waimanalo Gulch Sanitary Landfill Updated Storm Water Pollution Control Plan	

TO: Hawai`i State Department of Health
Clean Water Branch
919 Ala Moana Blvd., Room 301
Honolulu, HI 96814

☐ WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via_____the following items:
☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ Other ____

COPIES	DATE	NO.	DESCRIPTION
1 hard	July 2008		*Storm Water Pollution Control Plan, Waimanalo Gulch Sanitary Landfill, Kapolei, O`ahu, Hawai`i*

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit ____copies for approval
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☐ For review and comment ☐ Other ____
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REMARKS: Please see attached Storm Water Pollution Control Plan for the Waimanalo Gulch Sanitary Landfill.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

COPY TO Justin Lottig, WMH, 2 hard copies
Wayne Hamada, City and County of Honolulu, Refuse Division, 1 hard copy
DOH Solid and Hazardous Waste Branch – Room 212, 1 hard copy

SIGNED: Michelle Mason

Michelle Mason

08E714

Rev. July 2008

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Storm Water Pollution Control Plan Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii

Notice of General Permit Coverage No. HI R50A533

Prepared for

Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Kapolei, Oahu, Hawaii 96707

Prepared by

Earth Tech AECOM
841 Bishop Street, Suite 500
Honolulu, Oahu, Hawaii 96813

July 2008

Revision 2

Certification

CERTIFICATION OF STORM WATER POLLUTION CONTROL PLAN

An authorized signatory must complete this certification before the effective date of the plan.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Eric S. Takamura

Name: Dr. Eric S. Takamura, P.E.

Title: Director

Company: Department of Environmental Services, City and County of Honolulu

Date: Sep. 5, 2008

Facility Description

FACILITY NAME AND ADDRESS:	Waimanalo Gulch Sanitary Landfill 92-460 Farrington Highway Kapolei, Oahu, Hawaii 96707
TYPE OF FACILITY:	Municipal Solid Waste and Incinerator Ash Landfill
OWNER AND ADDRESS:	City and County of Honolulu Department of Environmental Services - Refuse Division 1000 Uluohia Street, Suite 212 Kapolei, Oahu, Hawaii 96707 Phone: (808) 768-3486
FACILITY OPERATOR:	Waste Management of Hawaii, Inc. a subsidiary of Waste Management, Inc. Phone: (808) 668-2985
VICE PRESIDENT/GENERAL MANAGER:	Joseph Whelan 92-460 Farrington Highway Kapolei, Oahu, Hawaii 96707 Phone: (808) 668-2985

This plan is available for on-site inspection during normal working hours. Please contact the Vice President/General Manager, as listed above.

EXECUTIVE SUMMARY

This revised Storm Water Pollution Control Plan (SWPCP) was prepared for the Waimanalo Gulch Sanitary Landfill (WGSL), located at 92-460 Farrington Highway, Kapolei, Oahu, Hawaii. The WGSL is owned by the City and County of Honolulu and operated by Waste Management of Hawaii, Inc. (WMH), a subsidiary of Waste Management, Inc. (WMI). This SWPCP is a revision to the original SWPCP for WGSL that was prepared in 1994 (WMI 1994) and the updated SWPCPs submitted in August 2005 (Earth Tech 2005) and September 2006 (Earth Tech 2006).

This SWPCP was prepared in accordance with the *National Pollutant Discharge Elimination System General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities* (Hawaii Administrative Rules Title 11 Chapter 55, Appendix B). In addition, the *Guidance Manual for Developing the SWPCP for Industrial Facilities* (DOH 1994) also was used in preparing this SWPCP. The City and County of Honolulu was issued a Notice of General Permit Coverage under the National Pollutant Discharge Elimination System (NPDES), on March 2, 2005, which was assigned File No. HI R50A533 and herein referred to as the General Permit. The General Permit was administratively extended on October 19, 2007 pending processing of the renewal Notice of Intent. Under the General Permit, the WGSL is authorized to discharge only storm water run-off associated with industrial activity from its facility, to the receiving State water named the Pacific Ocean, a Class A, Marine Water at coordinates 21°00'04"N and 158°07'35"W.

This SWPCP addresses the following issues, as required by the General Permit:

- Storm water outfalls and monitoring points
- Pollutants potentially present in storm water
- Pollutant sources
- Pollution control procedures
- Monitoring procedures
- Spill prevention and response procedures

Storm water will be managed by controlled grading on the surface of the landfill and by maintaining an engineered system of drainage swales, rock rip-rap lined channels, risers, pipes, and detention ponds. A concrete-lined drainage channel runs along the western property boundary and diverts surface waters to the detention pond located in the southwest corner of the site. Monitoring and reporting will be conducted at the detention pond as described in the Storm Water Monitoring and Reporting Program Plan appended to this document.

The current industrial activities at the WGSL include the disposal of solid waste and incinerator ash. During the dry season annual site inspection, evidence of significant materials exposed to storm water and unauthorized non-storm water discharges will be evaluated. Erosion of the landfill cover, drainage system, and access roads is the most significant potential source of storm water pollution at the landfill; therefore, sediments are a potential pollutant of concern at the WGSL.

This revised and updated SWPCP incorporates information on upgraded drainage and an erosion control structure designed to minimize erosion of the landfill cover, drainage system, and access roads, and includes recommendations for additional measures to be implemented for surface water management at WGSL.

The SWPCP will be evaluated and updated as often as needed to comply with the conditions of the General Permit, and the need for additional pollution control measures will be assessed. Due to the dynamic nature of solid waste landfill operations, on-site drainage measures and best management practices (BMPs) will be evaluated to verify adequacy on a routine basis. If additional measures appear necessary, appropriate BMPs will be identified and included in a revised SWPCP.

CONTENTS

CERTIFICATION i

FACILITY DESCRIPTION iii

EXECUTIVE SUMMARY v

ACRONYMS AND ABBREVIATIONS ix

1.0 INTRODUCTION 1-1

1.1 Purpose of Storm Water Pollution Control Plan 1-1
1.2 Regulatory Background 1-2

2.0 GENERAL SITE DESCRIPTION 2-1

2.1 Location 2-1
2.2 Site Size, Elevation, and Limits 2-1
2.3 Types and Quantities of Waste 2-1
2.3.1 Municipal Solid Waste 2-1
2.3.2 MSW Incinerator Ash 2-1
2.3.3 Other 2-1
2.4 Surrounding Area 2-1
2.5 Existing Storm Water Drainage and Erosion Control Features 2-2
2.5.1 Main Haul Road Swale and Downdrains 2-2
2.5.2 Slopes 2-2
2.5.3 Swales and Detention Pond 2-2
2.5.4 West Berm 2-3
2.5.5 Discharge Location 2-3
2.5.6 Prevention of Pollutant Discharges 2-3

3.0 NON-STORM DISCHARGE ELIMINATION AND PREVENTION PROGRAM 3-1

3.1 Introduction 3-1
3.2 Identification, Prevention, and Elimination of Prohibited Non-Storm Water Discharges 3-1
3.2.1 Management Practices for Elimination and Prevention of Prohibited Non-Storm Water Discharges 3-1
3.3 Non-Storm Water Discharge Conveyance System Investigation 3-1
3.3.1 Identification of Outfall 3-2
3.3.2 Procedures for Field Inspections 3-2
3.3.3 Summary of Non-Storm Water Discharge Identification and Testing Plan 3-3

4.0 POLLUTION CONTROL STRATEGY 4-1

4.1 Potential Pollution Sources 4-1
4.1.1 Municipal Non-Hazardous Solid Waste and Landfill Cover 4-1
4.1.2 Access Roads 4-2
4.1.3 Leachate 4-2
4.1.4 Maintenance/Equipment Fueling Area 4-2
4.2 Existing BMPs 4-3
4.2.1 Erosion 4-3
4.2.2 Leachate 4-3
4.2.3 Historical Spills and Releases 4-4
4.2.4 Certification of Non-Storm Water Discharges 4-4
4.3 Pollution Control Practices 4-4
4.3.1 Good Housekeeping BMPs 4-5

4.3.3 Future BMPs for Sediment and Erosion Prevention 4-5
4.3.4 Detention Pond 4-6
4.3.5 West Berm Area and Northern MSW Fill Area 4-6
4.3.6 Eastern Perimeter 4-6
4.3.7 Maintenance Measures 4-6

5.0 SWPCP IMPLEMENTATION AND EVALUATION 5-1

5.1 SWPCP Implementation 5-1
5.1.1 Storm Water Pollution Control Team 5-1
5.1.2 Storm Water Pollution Control Team Training 5-2
5.1.3 Inspections 5-2
5.1.4 Record Keeping 5-2
5.2 SWPCP Evaluation 5-2
5.2.1 Documentation of Revisions 5-3
5.3 Implementation Schedule 5-3

6.0 REFERENCES 6-1

APPENDIXES

A Notice of General Permit Coverage Dated March 2, 2005

B Storm Water Monitoring and Reporting Program Plan

C Blank Forms

FIGURES

2-1 Project Location Map 2-5

2-2 Site Location Map 2-7

2-3 Site Layout Map 2-9

2-4a Site Drainage Features 2-11

2-4b Site Drainage Features 2-13

2-5 Site Drainage Map 2-15

TABLES

4-1 Assessment of Potential Pollution Sources and Corresponding Best Management Practices Summary 4-2

5-1 Storm Water Pollution Control Team, WGSL SWPCP 5-2

5-2 Best Management Practices, WGSL SWPCP 5-3

ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit
BMPs	best management practices
C&D	construction and demolition
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CWB	Clean Water Branch
DOH	Department of Health, State of Hawaii
HAR	Hawaii Administrative Rules
H-POWER	Honolulu Program of Waste Energy Recovery
msl	mean sea level
MSW	municipal solid waste
NPDES	National Pollutant Discharge Elimination System
NGPC	Notice of General Permit Coverage
RCP	reinforced concrete pipe
SHWB	Solid and Hazardous Waste Branch
SPCC	Spill Prevention, Control, and Countermeasures
SWMRPP	Storm Water Monitoring and Reporting Program Plan
SWPCP	Storm Water Pollution Control Plan
tpd	tons per day
U.S.	United States
USEPA	United States Environmental Protection Agency
WGSL	Waimanalo Gulch Sanitary Landfill
WMH	Waste Management of Hawaii, Inc.
WMI	Waste Management, Inc.

1.0 INTRODUCTION

This revised and updated Storm Water Pollution Control Plan (SWPCP) was prepared for the Waimanalo Gulch Sanitary Landfill (WGSL), located at 92-460 Farrington Highway, Kapolei, Oahu, Hawaii. The WGSL is owned by the City and County of Honolulu and operated by Waste Management of Hawaii, Inc. (WMH), a subsidiary of Waste Management, Inc. (WMI). This SWPCP was prepared in accordance with the *National Pollutant Discharge Elimination System General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities* (Hawaii Administrative Rules [HAR] Title 11 Chapter 55 (Chapter 11-55, Appendix B).

In addition, the *Guidance Manual for Developing the SWPCP for Industrial Facilities* (DOH 1994) also was used in preparing this SWPCP. The City and County of Honolulu was issued a Notice of General Permit Coverage (NGPC) under the National Pollutant Discharge Elimination System (NPDES) on March 2, 2005, which was assigned File No. HI R50A533 and herein referred to as the General Permit. The General Permit was administratively extended on October 19, 2007 pending processing of the renewal Notice of Intent. A copy of the NGPC and administrative extension are presented in Appendix A. Under the General Permit, the WGSL is authorized to discharge only storm water run-off associated with industrial activity from its facility, to the receiving State water named the Pacific Ocean, a Class A, Marine Water at coordinates 21°00'04"N and 158°07'35"W.

1.1 PURPOSE OF STORM WATER POLLUTION CONTROL PLAN

The activity covered by this SWPCP is the operation of the WGSL. The purpose of the SWPCP is to describe and ensure the implementation of management practices to reduce the pollutants in storm water discharges associated with the WGSL and to ensure compliance with the State of Hawaii Department of Health (DOH), HAR Chapter 11–55, which includes preparation of a SWPCP and a Storm Water Monitoring and Reporting Program. The Storm Water Monitoring and Reporting Program Plan (SWMRPP) is attached as Appendix B.

The purpose of the SWPCP is to:

- Identify potential sources of storm water and non-storm water contamination to the storm water drainage system;
- Identify appropriate best management practices (BMPs) to reduce or eliminate the potential for storm water contamination;
- Eliminate non-storm water discharges, and;
- Develop an implementation schedule for storm water management activities in compliance with the General Permit requirements.

The purpose of the SWMRPP is to:

- Ensure that the quality of storm water discharges is in compliance with Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations specified in HAR Chapter 11-54, HAR Chapter 11-55, and the *NPDES General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities*;
- Evaluate materials management practices adopted at the WGSL to control pollutants in storm water discharges, and revise materials management practices, as needed, to meet changing conditions;
- Aid in the implementation of the SWPCP, and;
- Measure the effectiveness of BMPs in preventing, minimizing, or removing pollutants in storm water discharge.

The State of Hawaii has been delegated NPDES permitting authority by the United States Environmental Protection Agency (USEPA). Through such delegation, the DOH is responsible for administering the NPDES program throughout Hawaii in the same manner that the regional offices of the USEPA administer the program in non-NPDES states. On October 29, 1992, the DOH put rules into effect to implement the storm water program in the HAR Chapter 11–55, which include General Permit requirements.

Discharges covered by the General Permit must comply with the following requirements:

- Discharges of material other than storm water, which are not otherwise regulated by a NPDES permit, to a storm water system or waters of the U.S. are prohibited;
- Storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance,and;
- Storm water discharges regulated by the General Permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations (CFR) Part 117 and/or 40 CFR Part 302.

Additionally, dischargers must comply with the following receiving water limitations:

- Storm water discharges to any state waters, as defined by DOH HAR Chapter 11-54-04, *Basic Water Quality Criteria Applicable to All Waters*, shall not adversely impact human health or the environment, and;
- Storm water discharges shall not cause or contribute to a violation of applicable water quality standards contained in the DOH water quality standards for inland waters and marine waters.

The SWPCP for the WGSL is a complete and comprehensive compliance document, developed to meet the State and Federal requirements described above. The SWPCP is intended to be a "living document." It will be updated as additional information becomes available regarding operation, maintenance, or construction of new facilities that may affect the discharge of significant quantities of pollutants to surface water, groundwater, or storm water systems; records of routine maintenance activities and significant spills; and changes to the Storm Water Pollution Control Team. Due to the dynamic nature of solid waste landfill operations, on-site drainage measures and BMPs will be evaluated to verify adequacy on a routine basis. If additional measures appear necessary, appropriate BMPs will be identified and included in a revised SWPCP.

This SWPCP was prepared following the *Guidance Manual for Developing the SWPCP for Industrial Facilities* (DOH 1994), and is organized as follows:

- Section 2.0 contains the site description of the WGSL including the location of the landfill; an overview of landfill size, elevation, and limits; and a discussion of the surrounding area;
- Section 3.0 discusses the Non-storm Water Discharge Elimination and Prevention Program;
- Section 4.0 discusses pollution control strategy including an assessment of potential pollution sources and a description of pollution control practices, such as existing and new BMPs, and;
- Section 5.0 contains SWPCP implementation and evaluation including the Storm Water Pollution Control Team, training, inspections, and record keeping.

2.0 GENERAL SITE DESCRIPTION

This section presents a summary of the WGSL facility including its location; size, elevation, and limits; types and quantities of waste; and its surrounding area. It also describes the current storm water drainage system at the landfill.

2.1 LOCATION

The WGSL is located near the community of Kapolei, approximately 15 miles northwest of Honolulu International Airport and 2 miles southeast of Nanakuli, as shown in Figure 2-1. The landfill property begins at the north side of Farrington Highway, just east of Kahe Point, and extends approximately 1.2 miles inland up Waimanalo Gulch.

2.2 SITE SIZE, ELEVATION, AND LIMITS

The WGSL property measures approximately 7,000 feet long and ranges from 820 to 1,900 feet wide. It encompasses 198.6 acres. The entry road at Farrington Highway is approximately 60 feet above mean sea level (msl), and the elevation at the extreme northeast corner of the property is approximately 990 feet above msl. Figure 2-2 shows the topography of the existing landfill area prior to waste placement.

Currently, 78.9 acres of the property are permitted for landfill activities, of which, approximately 58.9 acres are designated for municipal solid waste (MSW) disposal and 20 acres are assigned to receive ash (combustion residue) from the City and County of Honolulu's Program of Waste Energy Recovery (H-POWER) plant, currently being operated under contract to Covanta Honolulu Resource Recovery Venture. Figure 2-3 presents the site layout.

2.3 TYPES AND QUANTITIES OF WASTE

2.3.1 Municipal Solid Waste

The WGSL is permitted to receive up to 3,300 tons per day (tpd) of MSW. The site currently receives an average of 1,200 tpd of MSW from Oahu. When the H-POWER waste-to-energy plant shuts down for annual maintenance during a 2- to 4- week period each year, the MSW load increases to approximately 3,000 tpd.

MSW received at the site is non-hazardous solid waste from residential, commercial, and industrial sources. Construction and demolition (C&D) debris is also accepted, although much of the C&D is being diverted to another facility at this time. Figure 2-3 presents the location of the MSW cells.

2.3.2 MSW Incinerator Ash

Approximately 20 acres of the landfill are designated and developed as a monofill for the disposal of non-hazardous MSW incinerator ash from the H-POWER waste-to-energy plant. The site is permitted to receive up to 400 tpd of ash, residue, and unburnable materials, 24 hours per day, 7 days per week. Figure 2-3 presents the location of the ash cells.

2.3.3 Other

The WGSL receives certain wastes managed under special operating procedures for disposal. These special wastes include wastewater treatment sludge, septic tank and cesspool pumpings, and asbestos-containing materials.

2.4 SURROUNDING AREA

As shown on the site location map (Figure 2-2), the site is surrounded by rugged terrain and open space on three sides. Nearby major land uses and developments include the Hawaiian Electric Company's

approximately 0.5 miles to the north, the Ko Olina resort area directly across Farrington Highway to the south, and the Honokai Hale residential area approximately 1.0 mile east of the site. The nearest residences are approximately 13 single-family dwellings located along Farrington Highway, adjacent to the western property boundary. The nearest of these residences is approximately 500 feet from the southernmost end of the disposal area.

2.5 EXISTING STORM WATER DRAINAGE AND EROSION CONTROL FEATURES

The construction of the new surface water management features at the WGSL, as discussed in the revised SWMP (Earth Tech 2006), began in August 2006. The majority of the improvements made to the drainage system at the WGSL were completed by November 2006. An additional drainage outlet was constructed in March 2007, in the lower ash monofill area, on top of the front stability berm. Views A and B of Figure 2-4 illustrate the current site drainage features based on the most recent topographic map for the site (March 2007). The following summary of existing storm water drainage and erosion control features are taken from the updated *Surface Water Management Plan* for WGSL (Earth Tech 2007b).

2.5.1 Main Haul Road Swale and Downdrains

The upper portion of the main haul road was re-graded and lined with gravel to reduce sediment-laden run-off from entering the storm water conveyance system. The existing drainage swale, located adjacent to the main haul road, was modified in size to better convey surface water run-off from the upper areas of the landfill. The drainage swale is now rock-lined to reduce surface run-off velocities and to increase sediment control. Five drainage inlets and down-drain pipes were installed at appropriate intervals to convey swale flows down to the western concrete-lined drainage channel. Gravel check dams were also installed at the drainage inlet locations to reduce flow velocities and potential over-flow along the length of the drainage swale.

2.5.2 Slopes

Geosynthetic tarps cover the lower west facing landfill slopes and eliminate storm water contact with landfill cover material, thus reducing sediment accumulation in the concrete-lined drainage channel. The south facing slope above the main haul road was recently hydroseeded to establish grass for erosion control. Other areas of the landfill were hydroseeded; however, a consistent stand of grass did not develop due to lack of rainfall and unavailability of an irrigation system at the time. Some of these areas may have grass that is dormant and will reestablish during the wet season. A silt fence was installed at the toe of the lower western landfill slope to reduce velocities and provide sediment control for sheet flow coming off the geosynthetic tarps before entering the concrete-lined channel. The silt fence consists of woven geotextile held in-place with steel rebar posts and backfilled with coarse gravel along the up-slope side of the fence.

2.5.3 Swales and Detention Pond

For the remainder of the site, concentrated on-site flows are conveyed via a series of rock-lined swales and pipes that ultimately drain into the western concrete-lined drainage channel and then into the detention pond, which is located near the facility entrance. The detention pond has a 30-foot-long energy dissipater at the outfall of the western concrete channel consisting of 18-inch to 24-inch rocks. A rip-rap berm is also located within the detention pond and detains initial storm water run-off entering the pond in a pre-holding area, thus reducing the amount of sediments and particulates that will reach the 48-inch reinforced concrete pipe inlet risers. Subdrains are located within the pond to minimize standing water conditions during low flow events.

2.5.4 West Berm

The 2003 expansion plan for the landfill required the construction of a soil stabilization berm (west berm) along the northwestern perimeter of the landfill, which consequently covered (filled in) a portion of the existing western drainage channel. Prior to the construction of the west berm in 2006, two temporary 48-inch corrugated metal pipes (CMP) were installed in the western drainage channel to accommodate up canyon surface water, which flows down the drainage channel. The pipes convey run-off generated from the canyon area above the landfill as well as small amounts of run-off from the northern-western corner of the MSW area. These pipes will be abandoned after the west berm construction is completed and the western drainage channel is realigned further to the west. These two temporary 48-inch diameter CMP pipes carry run-off beneath the west structural fill berm into the lower reach of the channel and down to the detention pond located at the southwestern corner of the site.

2.5.5 Discharge Location

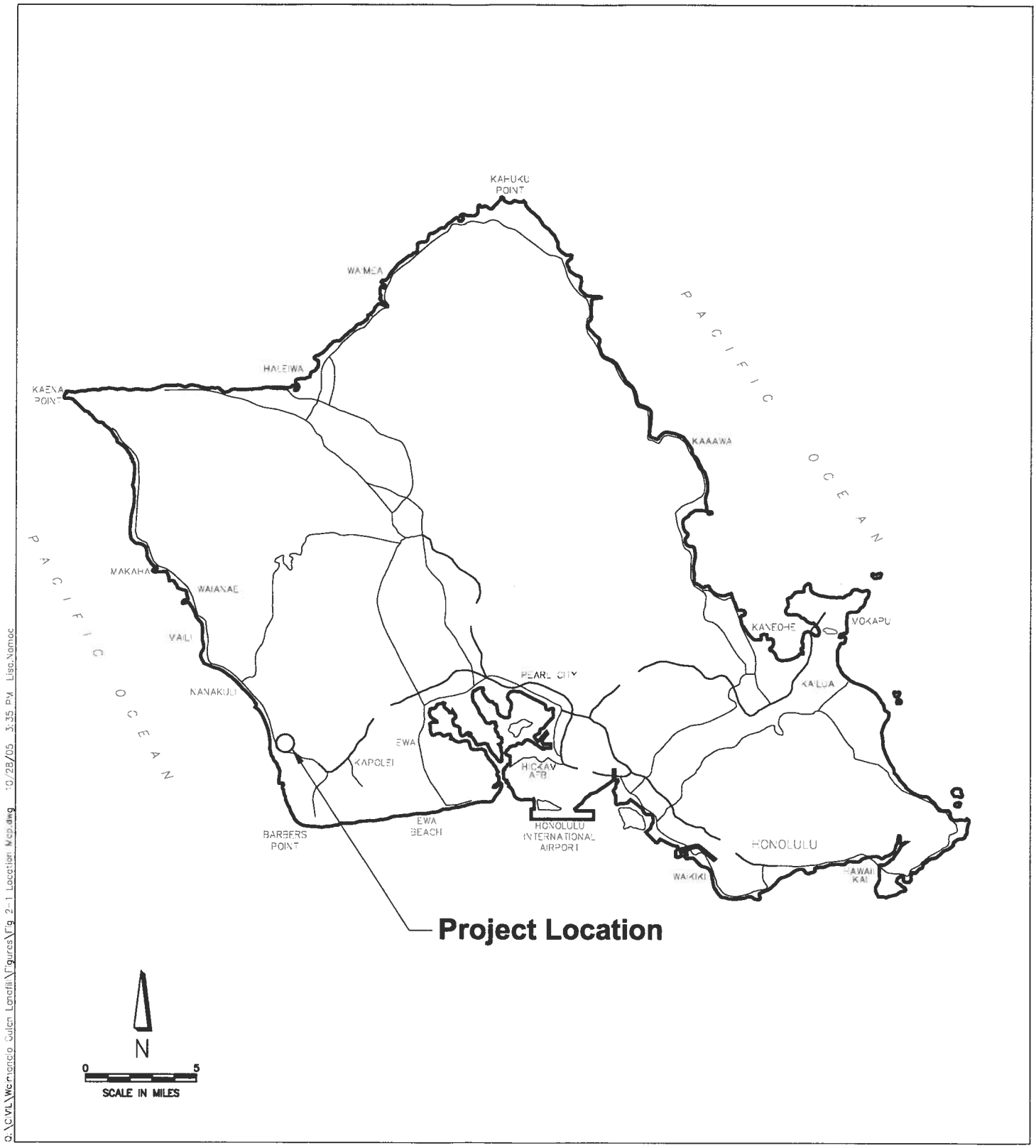
The detention pond is the only discharge location associated with the WGSL and includes two actual outfalls of the detention pond (WGSL-DB01W and WGSL-DB01E, where W denotes the western outfall and E the eastern outfall) as presented on Figure 2-5. The outfall pipes are 42-inch diameter corrugated metal pipe (CMP) connected to two vertical, perforated inlet CMPs located in the detention pond. The risers are perforated and have a gravel filter mounded around the base of each CMP. If storm water is discharged from the site, an annual storm water sample will be collected from one of the detention pond outfalls.

2.5.6 Prevention of Pollutant Discharges

The surface water management system for the landfill should prevent any discharge of pollutants to U.S. waters or violation of water quality regulations by:

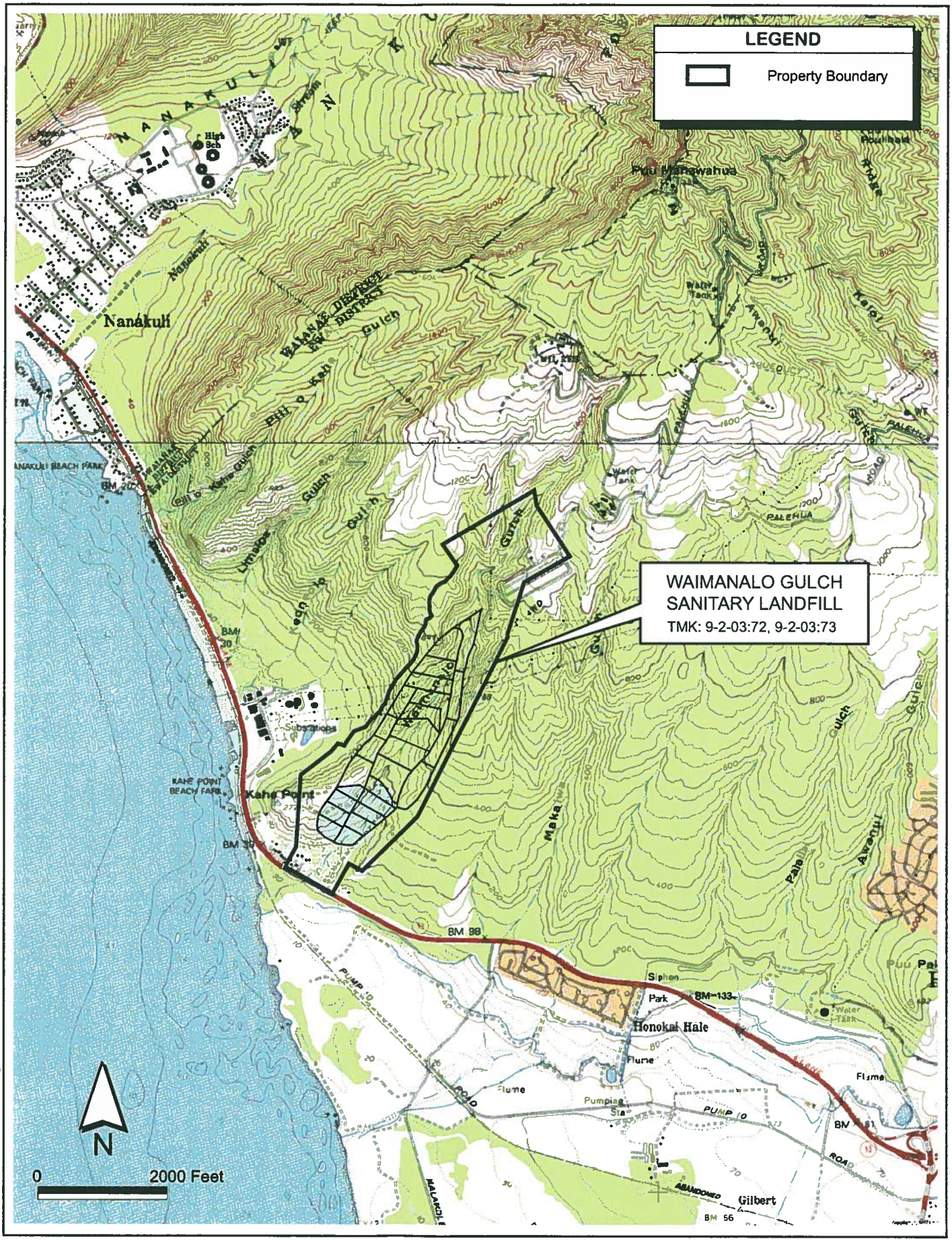
- Preventing run-off of surface water that has contacted waste;
- Controlling erosion to prevent loss of cover or washout of refuse slopes;
- Managing leachate, and;
- Retaining and removing silt from surface water before it is discharged from the site.

In addition, the WGSL implements a Spill Prevention, Control, and Countermeasure Plan (SPCC) (Earth Tech 2007a) to prevent releases of petroleum products used on the site from being discharged to surface water.



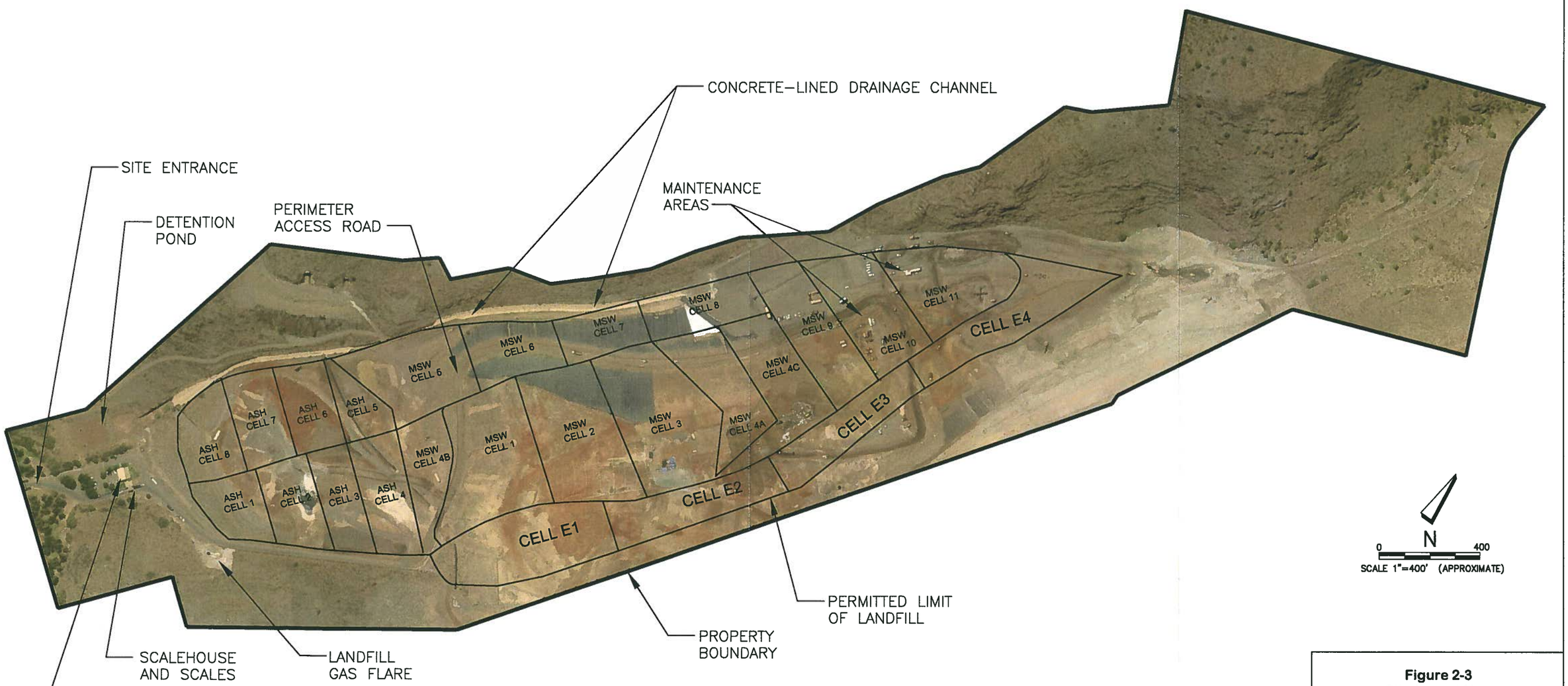
Q:\CVL\Waimanalo Gulch Landfill\Figures\Fig 2-1 Location Map.dwg 10/28/05 3:35 PM Lisa.Namoc

Figure 2-1
Project Location Map
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii



Q:\GIS\Waimanalo Gulch\PDFs\Figure 2-2.ai 08/30/05 rks

Figure 2-2
Site Location Map
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii



LEGEND

PROPERTY BOUNDARY

NOTE

DATE OF FLIGHT: MARCH 2007

Figure 2-3
Site Layout Map
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii

:\work\FRW\Projects\Waste Management of Hawaii\Waimanalo Gulch Landfill Environmental\Grading Plan Mod Permit Appl\Attachment P 1\fig2-3 Site Layout.dwg 05/22/08 12:27 PM lisa.namac

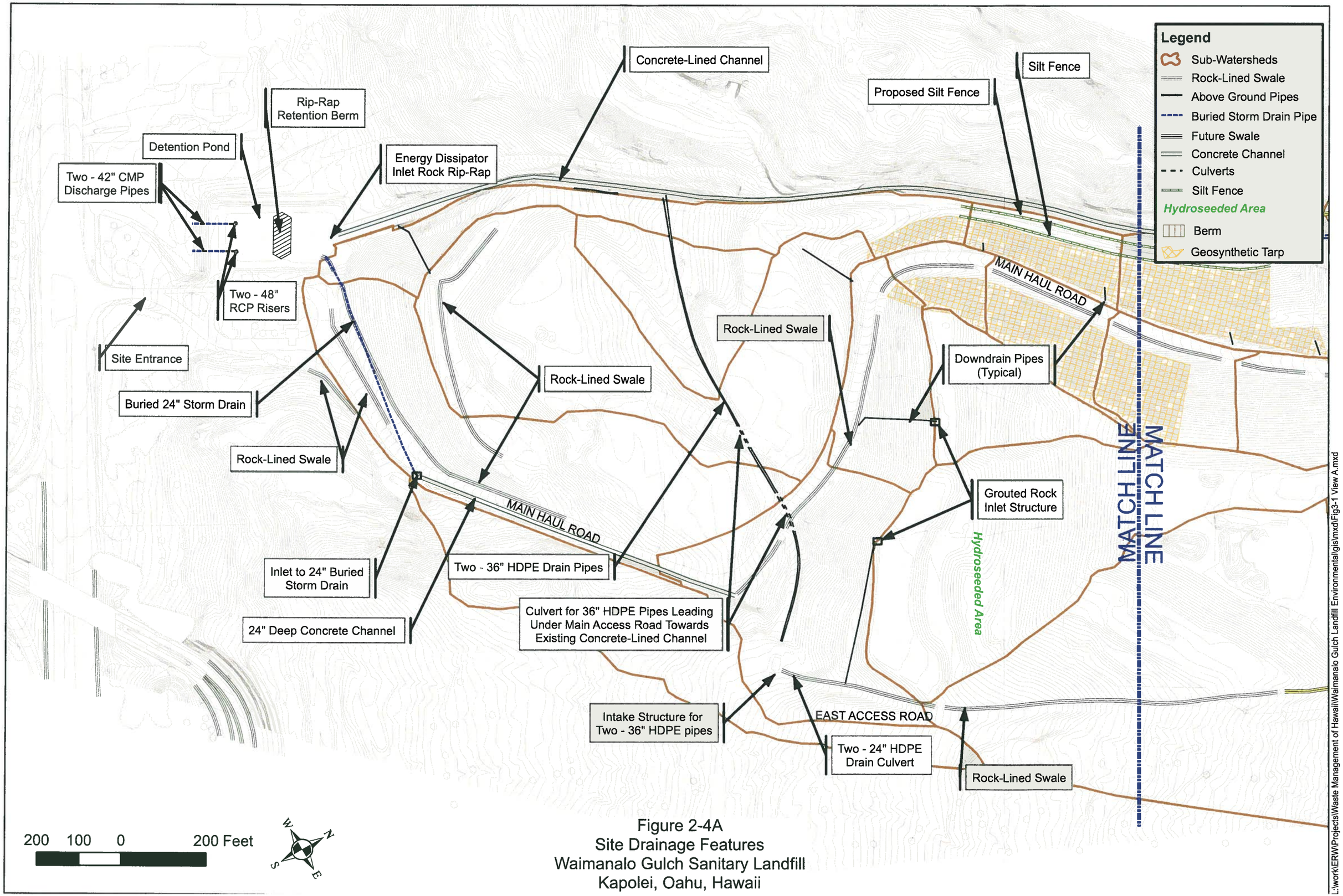


Figure 2-4A
Site Drainage Features
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii

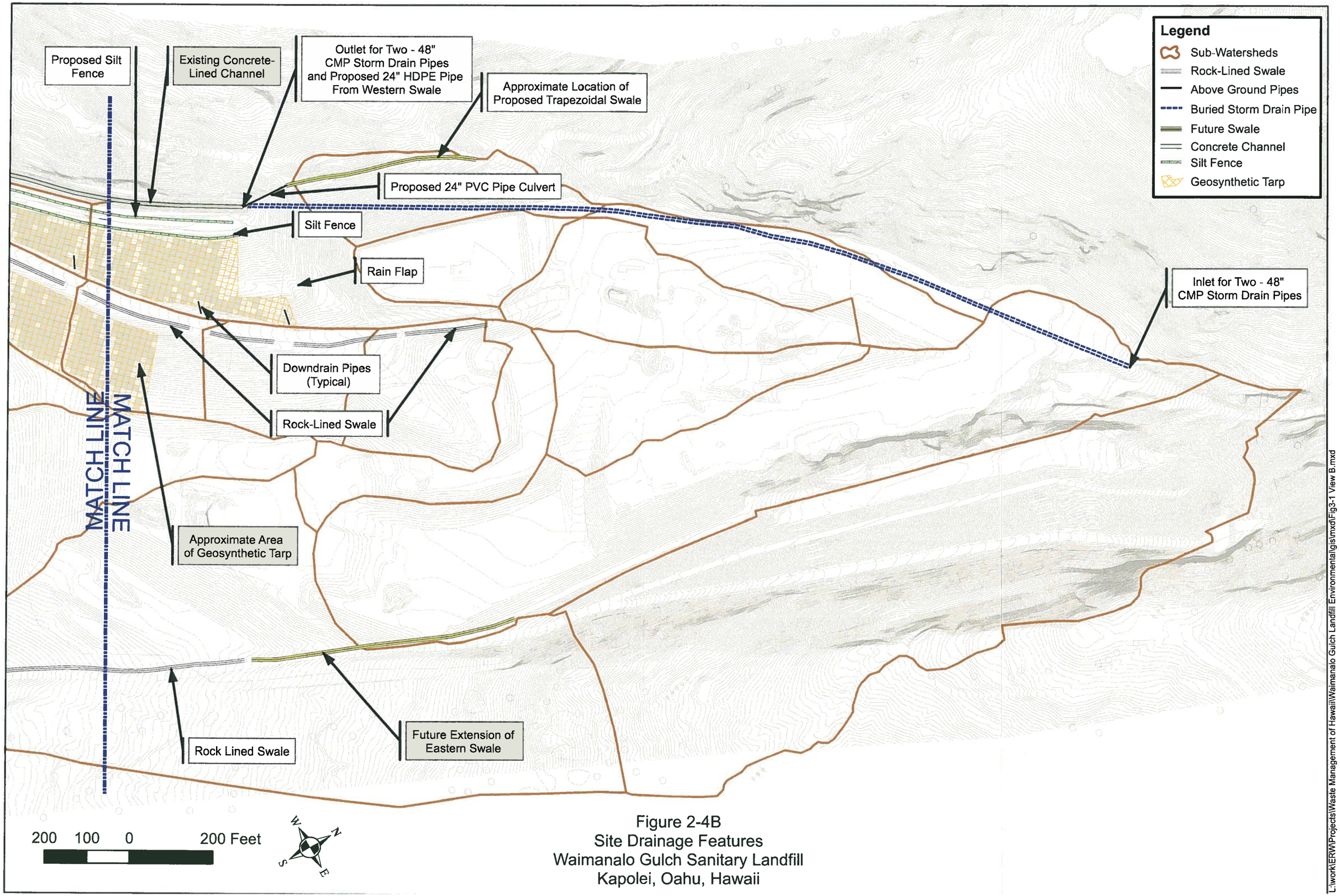


Figure 2-4B
Site Drainage Features
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii

L:\work\ERW\Projects\Waste Management of Hawaii\Waimanalo Gulch Landfill Environmental\gis\mxd\Fig3-1 View B.mxd

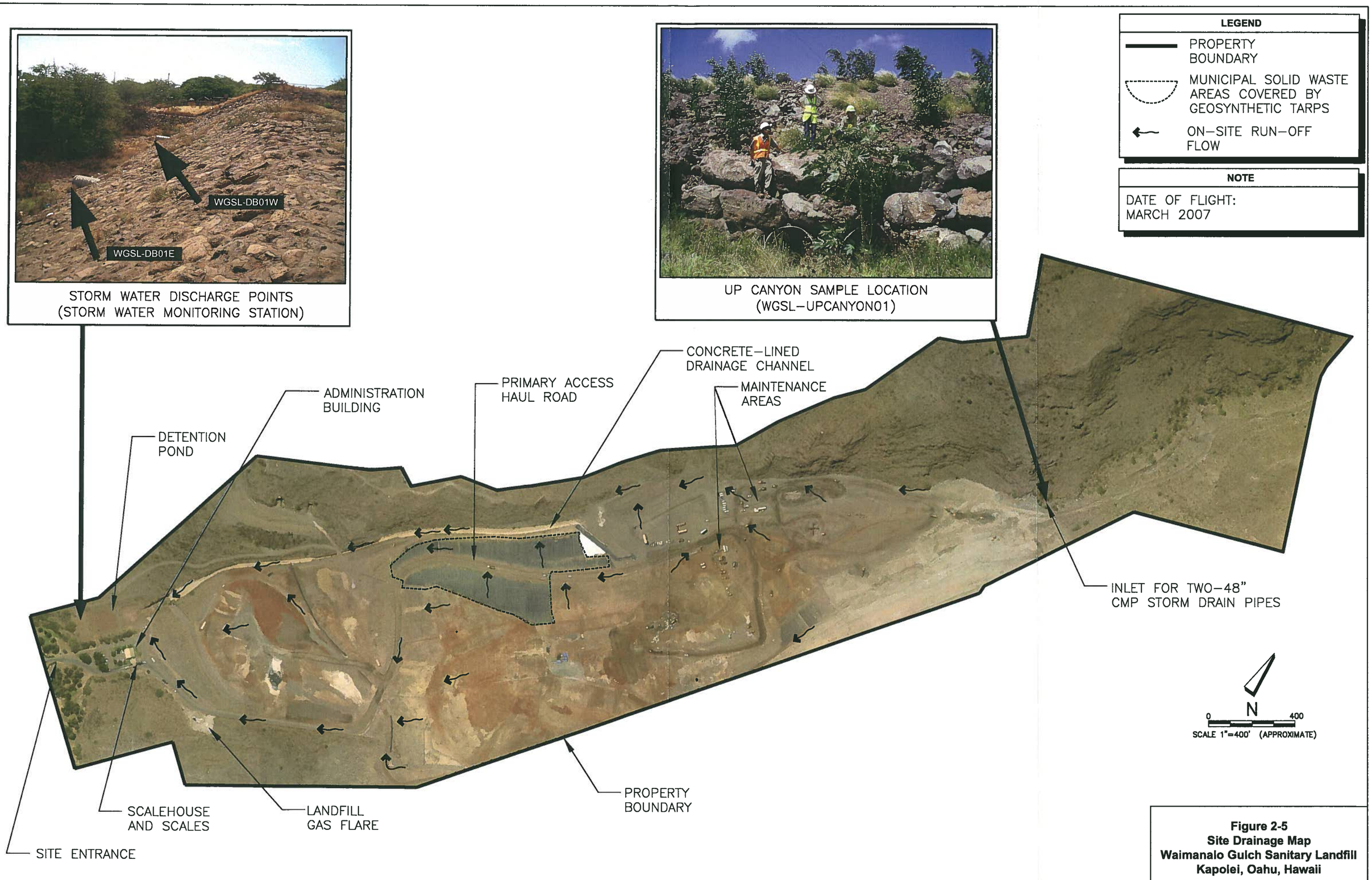


Figure 2-5
Site Drainage Map
Waimanalo Gulch Sanitary Landfill
Kapolei, Oahu, Hawaii

3.0 NON-STORM DISCHARGE ELIMINATION AND PREVENTION PROGRAM

3.1 INTRODUCTION

Discharges that do not result from precipitation are known as "non-storm water discharges." The General Permit does not authorize any non-storm water discharges. The State of Hawaii prohibits non-storm water discharges and/or discharges that contain toxic pollutants (as identified in 40 CFR Part 122 and that exceed the acute water quality standards set forth by HAR 11-54-04). The SWPCP Guidance Manual (DOH 1994) requires an annual certification by a responsible official to verify that an inspection of the facility for the presence of non-storm water discharges was conducted during the dry season. This section describes the Non-storm Water Discharge Elimination and Prevention Program management plan to eliminate and prevent prohibited discharges related to industrial activities from entering the storm water system at the WGSL.

3.2 IDENTIFICATION, PREVENTION, AND ELIMINATION OF PROHIBITED NON-STORM WATER DISCHARGES

Identification of non-storm water discharges involves an evaluation of the storm water system by reviewing plumbing schematics and/or drainage plans, as well as inspecting all discharge points and the storm water conveyance system for the presence of dry weather flows containing prohibited discharges.

Prohibited discharges can be prevented by implementing management practices and is one focus of the SWPCP. These management practices include one-time measures, such as identifying and eliminating existing illicit connections.

3.2.1 Management Practices for Elimination and Prevention of Prohibited Non-Storm Water Discharges

The most cost-effective method to eliminate prohibited non-storm water discharges, including unauthorized disposal and illicit connection discharges, is to prevent prohibited liquids and materials from entering the storm water system. This is accomplished by adopting the following BMPs on an activity-wide basis, as appropriate:

- Train employees to properly dispose of wastes;
- Use overpack containers or containment pallets to store 1-pint to 55-gallon drums or containers outside of storage areas;
- Maintain and continuously monitor the automated leachate collection sumps and leachate storage tanks;
- Routinely inspect the landfill perimeter for evidence of leachate seepage;
- Routinely inspect the storm water discharge location for evidence of floating or suspended materials, discoloration, turbidity, or odor;
- Prepare appropriate spill prevention and response plans, and;
- Conduct personnel training regarding the SWPCP.

3.3 NON-STORM WATER DISCHARGE CONVEYANCE SYSTEM INVESTIGATION

The procedures presented in this section are used to:

- Identify the presence of non-storm water discharges at the WGSL;
- Inspect the storm water conveyance system and facilities for the presence of illicit connections, and;

- Provide information on recommendations for additional investigation and maintenance of the storm water systems at the WGSL.

Visual observations to detect non-storm water discharges to storm water conveyance systems located at the WGSL will be conducted bi-annually. The observations and field screening work will consist of the following steps:

- Identification of the system to be screened;
- Documentation of field observations, and;
- Preparation of a summary of the results of the non-storm water investigation.

3.3.1 Identification of Outfall

A review of existing drainage maps, reports, and site inspections have identified only one discharge location associated with the WGSL, designated as the two outfalls of the detention pond or WGSL-DB01W and WGSL-DB01E (where W denotes the western outfall and E the eastern outfall), as presented on Figure 2-5. However, because the detention pond does not discharge unless there is a significant storm event, an evaluation of non-storm water discharges must include inspection of the drainage swales and concrete channel in addition to the outfall.

3.3.2 Procedures for Field Inspections

Conducting site inspections during periods of dry weather reduces the possibility that flows in the storm water conveyance system are due to storm water run-off. Therefore, site visits will be scheduled to ensure, to the extent possible, that 72 hours of dry weather precede inspections. The Non-Storm Water Discharge Assessment and Certification form included in Appendix C will be completed for the inspected storm water conveyance system and outfall to document the following information:

- General information, including identity of storm water drainage structures and outfall evaluated, date and time of the site visit, and name(s) of the inspection team member(s);
- Method used to test or evaluate non-storm water discharges;
- Presence of non-storm water flow, and;
- Evidence of possible illicit connections or potential sources of non-storm water discharges.

3.3.2.1 Visual Observations

Visual observations of the storm water system will be made and the presence (or absence) of the following will be noted:

- An oily sheen or floatables (e.g., debris, trash, sewage);
- Blockage in the storm water system;
- Evidence of dry weather flows, such as staining or corrosion (even if no water was flowing in the drainage system);
- The condition of surrounding vegetation (excessive or inhibited growth may indicate the presence of nutrients or toxic substances in run-off, or illicit discharges), and;
- Evidence of unauthorized disposal in the vicinity of the drainage system.

3.3.2.2 Non-Storm Water Flow Inspection and Sampling

The detention pond, drainage swales, and concrete channel will be checked for the presence of non-storm water flow. If the source and type of prohibited non-storm water discharge can be determined, it will

not be necessary to take a sample because the type of pollutant can be identified without analysis. However, sampling should be conducted if there is any question about the source or type of discharge, if the discharge is mixed, or if more than one source contributes to the discharge. Samples of both flowing and standing discharges, including leachate, should be taken using the following procedures:

- If the flow stream is too shallow to use a sample bottle, a small plastic scoop or beaker can be used to collect the water for filling the bottle;
- Visual parameters, weather conditions, presence of odors, and pH will be documented on the sampling form presented in Appendix C, and;
- The field crew will collect a sample of the discharge, place it on ice, and deliver it to the analytical laboratory within 24 hours of sample collection for appropriate analyses.

3.3.3 Summary of Non-Storm Water Discharge Identification and Testing Plan

Routine inspection of the inlet and outfalls of detention pond WGSL-DB01W and WGSL-DB01E and storm water conveyance systems at the WGSL is an effective method to identify non-storm water discharges that may need to be eliminated. Currently, the Environmental Protection Manager is conducting monthly facility site inspections including non-storm water discharge assessment. Inspections include all areas where industrial materials or activities are exposed to storm water and an evaluation of the existing storm water BMPs. Inspections also indicate not only the presence of ongoing discharges, but supply information regarding the presence of past discharges and/or intermittent discharges. Upon identification of a non-storm water discharge, the source of the discharge will be identified.

4.0 POLLUTION CONTROL STRATEGY

The SWPCP must identify potential sources of pollutants and specify BMPs intended to control them. The storm water BMPs will be evaluated for effectiveness. Possible sources of pollution that must be considered are industrial activities, erosion, and non-storm water discharges. The following control strategies listed in the General Permit are to be considered: containment structures, covering materials by roof or tarpaulin, preventive maintenance, good housekeeping, waste minimization, removal of exposed pollutants, and spill prevention practices.

This section identifies the potential pollutants and their sources at the WGSL and describes the pollution control practices including existing and new BMPs to be implemented under this SWPCP.

4.1 POTENTIAL POLLUTION SOURCES

A site inspection will be conducted to identify activities and site conditions that have a reasonable potential to contribute pollutants to storm water discharges. The site inspection and information collected will be summarized in the form included in Appendix C.

Potential sources of storm water pollution identified at the landfill are the actual municipal non-hazardous solid waste, erosion of the landfill cover and access roads, and leachate. These potential pollutant sources are discussed in more detail below. In addition, in the solid waste collection industry, activities with the greatest potential for storm water pollution relate to the maintenance and repair, collection vehicles and collection of materials recovered as part of the site load check program. In particular, there is a potential for the following pollutant sources:

- Vehicle fuels;
- Vehicle lubricants and fluids;
- Paints and solvents, and;
- Waste oil, fluids, and coolants.

The items listed above are addressed in the SPCC (Earth Tech 2007a) along with their associated BMPs. An assessment of the potential pollutant sources at WGLF as well as their corresponding BMPs are summarized in Table 4-1.

4.1.1 Municipal Non-Hazardous Solid Waste and Landfill Cover

The active MSW disposal working face is kept limited in size to reduce the potential for exposure to rain water. In addition, the active MSW disposal area is covered at the end of each day with a minimum of 6 inches of daily cover soil. In areas where additional waste will not be placed for a period of 30 days or more, intermediate cover consisting of a minimum of 12 inches of soil is placed over the waste, and graded to promote surface water drainage. When additional waste is to be placed over such areas, the upper part of the intermediate cover soil may be scraped off for subsequent reuse. In addition, if any contact water is generated on the active working face, the area will be graded to confine the water.

Ash landfilling does not require daily cover. The rate of disposal and routine 24 hours per day delivery make a daily cover operation impractical and unnecessary. The ash material is delivered to the site with relatively high moisture content, and is uniformly spread out for drying, a process that requires it to be uncovered. As areas dry out, additional layers of moist ash are spread over them.

Intermediate soil cover is placed over areas that are not being actively worked and are exposed for more than 7 days without receiving additional ash. Intermediate cover consists of soil compacted to a minimum thickness of six inches and graded to promote run-off of surface water.

4.1.2 Access Roads

All access roads used by WGSL customers are maintained as all-weather roads by re-surfacing with additional rock, gravel, or concrete/asphalt rubble. They are graded as needed to maintain safe operating conditions, and are watered during dry periods to control dust. Roadside drainage ditches/culverts are cleaned or otherwise maintained routinely to prevent road washouts due to inadequate drainage control.

Two-way access roads have a minimum width of 30 feet, and one-way roads are to be at least 15 feet wide. Roads are to be constructed with a maximum grade of eight percent except for short distances where less steep grades cannot be achieved.

Temporary roads used only by WGSL personnel and vehicles may be constructed as other than all-weather roads, provided they are not needed for maintenance of drainage facilities or emergency access.

4.1.3 Leachate

All disposal areas at the WGSL constructed since 1991 are equipped with a bottom and side slope composite liner and leachate collection and removal system meeting Federal (Subtitle D equivalent) and State requirements (HAR 11-58.1-14). A description of the liner systems that are in place at the WGSL are detailed in the Site Operations Manual (Earth Tech 2007c). Federal Subtitle D and State regulations require that leachate not be allowed to accumulate on the landfill bottom liner to a depth of more than 1 foot, not including that contained in collection sumps.

There are three leachate collection sumps at the WGSL – the ash sump, the E-1 sump, and the MSW 4B sump. In mid-November 2005, fully automatic, variable speed, leachate pumping systems and instrumentation were installed at the ash & E1 sumps. Leachate that is pumped out of the riser sumps is temporarily stored on-site in 20,000-gallon steel frac tanks. There are currently three 20,000-gallon steel frac tanks on-site at the WGSL that are dedicated to the temporary storage of leachate. An outside contractor pumps the leachate out of the storage frac tanks and into a mobile tanker truck. The leachate is then transported to the Waianae Wastewater Treatment Plant for disposal.

4.1.4 Maintenance/Equipment Fueling Area

The SPCC is utilized for the proper spill prevention and control measures that are implemented at the facility in the case of a release (Earth Tech 2007a). Proper spill and overflow protection devices are utilized and employees are properly trained on fueling, cleanup, and spill response techniques.

Table 4-1: Assessment of Potential Pollution Sources and Corresponding Best Management Practices Summary

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Working Face	Waste Disposal	Non-Hazardous Municipal Solid Waste	Contact Water	• Limit area of working face, use berms to divert runoff • If contact water is generated, the active working face will be graded to confine it
All areas containing waste	Waste Disposal	Leachate breakouts	Leachate	• Repair small leachate breakouts with soil • Collect leachate when measurable flow is present
Leachate Storage Tanks	Leachate Collection and transfer	Leachate spills	Leachate	• Monitor and maintain tank levels • Inspect regularly and correct any deficiencies
Detention Pond	Sediment control	Silt discharge	Sediment	• Clean out pond on a routine basis • Maintain and upgrade standpipes and other hardware as necessary

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Access Roads around site	Access Roads	Soil Erosion	Sediment	• Apply mechanism for sediment control • Use outsloping, insloping, and culverts to control water
Maintenance/Equipment Fueling Area	Fueling Maintenance	Spills and leaks during delivery Spills caused by topping off fuel tanks Leaking storage tanks	Fuel, oil, coolant, waste oil, waste coolant	• Use spill and overflow protection • Minimize run-on of storm water into the fueling area • Use dry cleanup methods rather than hosing down area • Implement proper spill prevention control program • Implement adequate preventative maintenance program to preventive tank and line leaks • Inspect fueling areas regularly to detect problems before they occur • Train employees on proper fueling, cleanup, and spill response techniques
Parking Lot	Truck Parking	Leaking trucks	Fuel ,oil	• Inspect parking lot regularly to detect leaking trucks • Implement adequate preventative maintenance program to prevent trucks from leaking • Use drip pans for trucks that are leaking until the leaks are fixed • Routinely clean the parking lot

4.2 EXISTING BMPS

4.2.1 Erosion

Erosion is controlled primarily by the storm water management system, which incorporates but is not limited to, diversion berms, hydroseeded slopes, and geosynthetic tarps. Side slopes are inspected during the bi-annual site inspections and eroded areas are repaired as necessary. The tarps facilitate the prevention of erosion at the site.

4.2.2 Leachate

Leachate generation is minimized by using the following BMPs at the WGSL:

- Maintaining positive drainage on top of the landfill to minimize infiltration. Runoff from covered areas of the landfill is directed to pipes/swales that will carry the runoff to the storm water basin. Precipitation that falls on the active face is managed there and not directed off the landfill;

- Installation of geosynthetic tarps on areas where waste and intermediate soil cover has already been placed. These tarps prevent rainfall and storm water from infiltrating the waste cells and reduce the potential for erosion, and;

- Maintaining surface water drainage around the perimeter of the landfill to prevent surface water run-on into the active disposal area.

When sufficient leachate has accumulated, the automated pump systems that were installed in the three sump locations pump out the leachate into temporary storage tanks, from which it is then transported for disposal to the Waianae Wastewater Treatment Plant. Leachate storage tanks are situated within the limits of the landfill waste footprint (lined area), which, in the event of a spill or release, provides secondary containment.

The leachate riser pump systems are monitored at least 2-3 times per week. Leachate data such as transducer and bubbler height levels (depth, in inches, in the sumps); pump run times; total flow; gallons pumped and transported off-site, and any comments or observations noted (faults, storage frac tank okay / full, etc) are recorded on a monthly leachate log (attached).

During removal of gas from the landfill gas collection system, condensate develops and collects in the system and a temporary storage tank. The condensate will be handled in the same manner as leachate, as discussed above.

4.2.3 Historical Spills and Releases

On the morning of May 31, 2008, the Waimanalo Gulch Sanitary Landfill (WGSL) site foreman notified site management that a tank truck containing a 4000-gallon diesel tank was leaking diesel fuel. The truck was parked over an inactive portion of the landfill, which contains at least 12 inches intermediate cover soil and is situated over a lined portion of the landfill in a dedicated parking area. Shortly after discovery of the leak, a soil berm was constructed around the leaking truck to minimize the spread of diesel over the ground surface. The diesel fuel did not reach any surface water or stormwater. The diesel fuel remaining in the leaking tank was removed to prevent further leakage to the ground surface and placed into a viable approved container. The estimated quantity of diesel fuel that spilled onto the landfill surface is 200-250 gallons and was caused by a small crack in the base of the tank.

The State of Hawaii, Department of Health, Solid Waste Section and the HEER office was orally notified of the spill on June 2 and in writing on June 6, 208. Approximately 50 cubic yards of soil was excavated .profiled, and approved for disposal at the WGSL.

4.2.4 Certification of Non-Storm Water Discharges

The General Permit does not authorize any non-storm water discharges. The SWPCP Guidance Manual (DOH 1994) requires an annual certification by a responsible official to verify that an inspection of the facility for the presence of non-storm water discharges was conducted during the dry season. This evaluation will be performed annually, and the results will be documented on the blank copies of Worksheet 6 (Non-Storm Water Discharge Assessment and Certification) included in Appendix C.

4.3 POLLUTION CONTROL PRACTICES

This subsection discusses the BMPs that will be implemented to eliminate or control the potential storm water pollution sources discussed in Section 4.1. The SWPCP Guidance Manual (DOH 1994) states that the SWPCP must address the following general categories of BMPs:

- Good housekeeping;
- Preventive maintenance, and;
- Sediment and erosion prevention.

Monthly inspection of all areas of the facility where industrial materials or activities are exposed to storm water will be conducted. These inspections will include an evaluation of the existing storm water BMPs addressed below and will be documented on the monthly site inspection form presented in Appendix C.

4.3.1 Good Housekeeping BMPs

Good housekeeping practices are intended to maintain potential pollution source areas in a clean and orderly condition so that materials that are potential sources of storm water pollution are not exposed to storm water run-off. These materials could include illicitly dumped solid or other waste. The following good housekeeping BMPs are appropriate for the potential pollutant sources at the WGSL.

4.3.1.1 Landfill Cover BMPs

The landfill cover will be inspected for evidence of erosion or flagging.

4.3.2 Preventive Maintenance BMPs

Preventive maintenance practices include inspection and maintenance of the storm water conveyance system, access roads, and other facilities whose failure could result in discharge of pollutants to storm water. The following systems at the WGSL require preventive maintenance:

- Landfill cover;
- Drainage system;
- Access roads, and;
- Leachate collection systems.

Preventive maintenance on the cover will consist primarily of inspection and repair, as needed. The following preventive maintenance BMPs will be employed to minimize the potential for storm water pollution from these systems.

4.3.2.1 Landfill Cover BMPs

The landfill cover will be inspected routinely for discolored or malodorous run-off or seeps; areas of bare soil or erosion; and accumulated sediment. Inspections will be followed up with appropriate actions (e.g., determining and stopping run-off or seeps, repair of erosion gullies).

4.3.2.2 Drainage System BMPs

As a part of the bi-annual site inspections, the landfill storm water conveyance system will be inspected to check for structural damage, blocked conveyances, and drain obstructions. In addition, the drainage system will also be inspected after significant storms (greater than 0.1 inch of rainfall) or wet weather to ensure that the system remains in good condition and free of trash and debris. Maintenance to the drainage system will be conducted as necessary.

4.3.2.3 Landfill Access Road BMPs

The access roads will be inspected routinely for evidence of erosion, gully formation, and general accessibility. Access roads must be cleared and not be overgrown with brush and trees. Gullies will be repaired as necessary. If gullies reoccur at specific locations, additional measures, such as diverting run-off across the road above the area of gully formation, will be implemented.

4.3.2.4 Landfill Leachate Collection System BMPs

The leachate collection system will be inspected routinely. Leachate will be collected as described in Sections 4.1.3 and 4.2.2.

4.3.3 Future BMPs for Sediment and Erosion Prevention

WMH is considering the following BMPs to improve surface water management and erosion control at the WGSL.

4.3.4 Detention Pond

WMH plans to re-route run-on flows from the upper watershed around the landfill via a lined channel (western perimeter channel) and bypass the detention pond. Therefore, only surface water from the landfill footprint will flow into the detention pond. With construction of the new western perimeter channel and minor modifications to the outlet risers, the pond will be able to achieve flood control and water quality design criteria for a 25-year, 24-hour storm.

4.3.5 West Berm Area and Northern MSW Fill Area

The drainage basins near the west berm and the northern MSW fill area have changed due to filling activities during the last year, therefore, a new rip-rap lined swale is recommended along the western edge of the west berm. The alignment of the new swale is shown on Figure 2-4B. A culvert and 24-inch high-density polyethylene pipe are recommended to convey the swale flows down to the open concrete-lined western channel.

4.3.6 Eastern Perimeter

The eastern perimeter swale may be extended further up the canyon as shown on Figure 2-4B to receive flows from the recently filled MSW cell E-3 area and the recently excavated rock slopes to the east. However, since additional MSW filling is planned during the next few months in the area of the new swale, it is recommended that the existing perimeter access road above the head of the existing east swale be resurfaced with gravel material to provide temporary erosion control in this area. A diversion berm may be constructed to divert surface sheet flow into the head of the existing eastern swale. Once MSW filling is completed, the eastern swale may be extended up the canyon and would be constructed with the same dimensions as the existing swale.

4.3.7 Maintenance Measures

The following maintenance measures are recommended:

- As necessary, fiber rolls or silt fences will be placed along the top of banks along exposed active work areas to reduce erosion and sediment loss due to storm water sheet flow.
- A silt fence may be installed up against the chain link fence that borders the eastern edge of the western perimeter concrete-lined channel in the area of the geosynthetic-tarped slopes. The silt fence will act as a secondary erosion control measure would excessive flow from the geosynthetic-tarped slopes overtop the silt fence at the toe of slope.

5.0 SWPCP IMPLEMENTATION AND EVALUATION

This section describes the mechanisms and procedures through which the SWPCP will be implemented and evaluated. It identifies the Storm Water Pollution Control Team (those individuals responsible for implementing various aspects of the SWPCP), the storm water pollution control employee-training program, required inspections and follow-up actions, and recordkeeping procedures (Section 5.1). Section 5.2 discusses bi-annual SWPCP evaluation procedures, and Section 5.3 addresses the implementation schedule.

5.1 SWPCP IMPLEMENTATION

5.1.1 Storm Water Pollution Control Team

All employees at the WGSL are part of the Storm Water Pollution Control Team, as they each have a responsibility to:

- Comply with BMPs;
- Conduct work utilizing good housekeeping methods;
- Report any spills/releases, and;
- Report any non-storm water discharges encountered.

The operating personnel at the WGSL involved in the routine daily operation of the landfill include equipment operators, scale attendants, spotters/laborers, and mechanics. Additional WMH personnel provide managerial, engineering, and administrative support. Key management personnel and their respective duties include:

- *General Manager*: Overall responsibility for planning, operation, environmental and contract compliance, customer relations, and financial management.
- *Environmental Protection Manager*: Responsible for environmental compliance and monitoring. Supervises consultants and personnel responsible for monitoring and inspection, prepares or supervises preparation of required reports, and provides a point of contact for regulatory agencies.

The Storm Water Pollution Control Team members and their respective responsibilities are summarized below and presented in Table 5-1:

- *Team Leader*: Responsible overall for implementation of the SWPCP. All other team members report to the Team Leader.
- *Personnel Trainer*: Responsible for the personnel training program including preparing training documents and materials, as well as scheduling, coordinating, and conducting training sessions.
- *Storm Water Sampling Coordinator*: Responsible for collection and evaluation of storm water samples and submittal of monitoring results to the DOH.
- *Site Inspector*: Responsible for conducting bi-annual site inspections, conducting dry weather visual inspections, and preparing site inspection documentation.
- *Record Keeper*: Responsible for archiving all documents associated with the SWPCP including the site map, inspection reports, maintenance records, and annual reports.

Table 5-1: Storm Water Pollution Control Team, WGSL SWPCP

Team Member	Contact – Company/Agency	Phone Number	E-mail Address
Team Leader	Michelle Mason – Earth Tech AECOM	356-5322 – work 348-8818 – cell	michelle.mason@aecom.com
Personnel Trainer	Michelle Mason – Earth Tech AECOM	Same as above	Same as above
Storm Water Sampling Coordinator	Terri Choy – Earth Tech AECOM Michelle Mason– Earth Tech AECOM	356-5330 – work Same as above	terri.choy@aecom.com Same as above
Site Inspector	Justin Lottig– WMH Environmental Protection Manager Pete La Placa– Earth Tech AECOM	668-2985– work 356-5341 – work	JLottig@wm.com pete.laplaca@aecom.com
Record Keeper	Justin Lottig– WMH Pete La Placa– Earth Tech AECOM	Same as above.	Same as above.
Other Team Members	Willie Gomez- Earth Tech AECOM	554-6748 – cell	william.gomez@aecom.com
	Tanya Copeland- Earth Tech AECOM	356-5323– work	tanya.copeland@aecom.com
	Dan Frerich- Earth Tech AECOM	356-5355– work	dan.frerich@aecom.com
	Andrea Von Burg- Earth Tech AECOM	356-5311– work	andrea.vonburg@aecom.com
	Carrie Plath- Earth Tech AECOM	356-5363– work	carrie.plath@aecom.com
	Cortney Springsted- Earth Tech AECOM	356-5317– work	cortney.springsted@aecom.com
	Neil O. Pflum- Earth Tech AECOM	356-5314– work	neil.pflum@aecom.com

5.1.2 Storm Water Pollution Control Team Training

The General Manager is responsible for ensuring that all staff and contractors working at the facility understand the components of the SWPCP, how it will be implemented, and their role in contributing to the effectiveness of the storm water control measures. Training will address the following topics:

- Storm water pollution control awareness;
- Inspection procedures, and;
- Reporting procedures.

Training will be conducted at least annually and documented on the form provided in Appendix C.

5.1.3 Inspections

Monthly inspections of the landfill cover, the drainage system, the access roads, and the leachate sumps will be performed by personnel designated in Table 5-1. The log sheet in Appendix C will be used to document the results of the inspection.

5.1.4 Record Keeping

Records of the following actions must be kept with the SWPCP for at least 5 years following expiration of the General Permit. Blank forms for documenting these activities are provided in Appendix C. Each time a form is completed, it is to be filed in WGSL site files.

5.2 SWPCP EVALUATION

The effectiveness of the SWPCP at preventing storm water pollution will be evaluated and updated as often as needed to comply with the conditions of the General Permit. The review will include an assessment of the effectiveness of the employed BMPs, and an assessment of compliance with the

procedural requirements of the SWPCP (training, reporting, recordkeeping, SWPCP updates). Due to the dynamic nature of solid waste landfill operations, on-site drainage measures and BMPs will be evaluated to verify adequacy on a routine basis. If additional measures appear necessary, appropriate BMPs will be identified and included in a revised SWPCP.

The effectiveness of individual BMPs will be assessed using visual observations made during the bi-annual inspections. The inspection form in Appendix C will be used to record these field observations. In addition, storm water monitoring will be conducted at detention pond WGSL-DB01 in the northwest corner of the landfill, either at the western or the eastern outfall, as described in Appendix A.

5.2.1 Documentation of Revisions

Changes to the SWPCP will be incorporated through updates, addenda, additions, changes, or attachments. The revision documents format will be selected as appropriate for the change. All revisions will include the revision date. The update log in Appendix C will be utilized to document any updates or revisions to the SWPCP. The update log for this revision is included in Appendix D.

5.3 IMPLEMENTATION SCHEDULE

Table 5-2 lists the target dates for implementation of the various BMPs specified in this SWPCP.

Table 5-2: Best Management Practices, WGSL SWPCP

BMP	Responsible Entity	Implementation Date
Bi-annual inspection	Environmental Protection Manager	Dry (May-October) and wet season (November-April) annually
Document inspection	Environmental Protection Manager	Day of inspection
Follow-up on inspection, as needed	Environmental Protection Manager	Next inspection
Monthly Inspection	Environmental Protection Manager	Monthly
Document inspection	Environmental Protection Manager	Day of inspection
Follow-up on inspection, as needed	Environmental Protection Manager	Next inspection
Annual Training	Environmental Protection Manager	Annually
Annual SWPCP Review	Environmental Protection Manager	Annually
Erosion Control, as needed	Environmental Protection Manager	Implement as needed by next inspection.
Remove sediment from detention pond, as needed	Environmental Protection Manager	Implement as needed by next inspection.
Other BMPs	Environmental Protection Manager	Implement as needed by next inspection.
Repair local erosion and scour	Environmental Protection Manager	Repair as needed by next inspection.
Keep access roads and drainage swales clear of vegetation/debris	Environmental Protection Manager	Repair as needed by next inspection.
Spill Prevention and Control	Environmental Protection Manager	In accordance with SPCC Plan
Inspect leachate sump; pump out as needed	Environmental Protection Manager	As needed

6.0 REFERENCES

Department of Health, State of Hawaii (DOH). 1994. *Guidance Manual for Developing the SWPCP for Industrial Facilities.*

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Rust Environmental and Infrastructure, Inc. (Rust) 1997. *Groundwater and Leachate Monitoring Plan for Waimanalo Gulch Sanitary Landfill, Ewa Beach, Oahu, Hawaii.* Irvine, California. June.

Waste Management Inc. (WMI) 1994. *Waimanalo Gulch Sanitary Landfill, Storm Water Pollution Control Plan, Waste Management of Hawaii Inc.* April.

Appendix A
Notice of General Permit Coverage Dated March 2, 2005

R50A533

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

for AW
EC
03/08/05

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

In reply, please refer to:
EMD / CWB

R50A533.FNL
mailed 3/2/05

March 2, 2005

Dr. Eric S. Takamura, P.E.
Acting Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

Attention: Mr. Wayne Hamada
Disposal Operations Engineer
Refuse Division

Dear Dr. Takamura:

Subject: NOTICE OF GENERAL PERMIT COVERAGE (NGPC)
National Pollutant Discharge Elimination System (NPDES)
Waimanalo Gulch Sanitary Landfill
File No. HI R50A533

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. § 1251 et seq.; the "Act"); Hawaii Revised Statutes, Chapter 342D; and Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55, Department of Health (DOH), State of Hawaii,

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF ENVIRONMENTAL SERVICES

(hereinafter PERMITTEE)

is authorized to discharge storm water runoff associated with industrial activity from its facility located in Kapolei, Oahu, Hawaii, to the receiving State water named the Pacific Ocean, a Class A, Marine Water, at the coordinates: Latitude 21°00'04"N and Longitude 158°07'35"W.

The Permittee shall:

1. Comply with HAR, Chapter 11-55, Appendix B, NPDES General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities (enclosed).

2. Comply with HAR, Chapter 11-55, Appendix A, DOH, Standard General Permit Conditions (enclosed).

3. Comply with HAR, Chapter 11-55, Sections 11-55-34.04(a), 11-55-34.07, 11-55-34.11, 11-55-34.12 (enclosed), and any other sections applicable to the subject activity.

4. Comply with all materials submitted in and with the Notice of Intent, dated August 21, 2002.

5. Retain a copy of this NGPC and all other related materials at the facility.

6. Sample the storm water discharge as described below:

Effluent Parameter (units)	Effluent Limitation (1)	Minimum Monitoring Frequency (2)	Type of Sample (3)
Flow (gallons)	{4}	Annually	Calculated or Estimated
Biochemical Oxygen Demand (5-Day) (mg/l)	{4}	Annually	Grab or Composite
Chemical Oxygen Demand (mg/l)	{4}	Annually	Grab or Composite
Total Suspended Solids (mg/l)	100	Annually	Grab or Composite
Total Phosphorus (mg/l)	{4}	Annually	Grab or Composite
Total Nitrogen (mg/l) {5}	{4}	Annually	Grab or Composite
Nitrate + Nitrite Nitrogen (mg/l)	{4}	Annually	Grab or Composite
Oil and Grease (mg/l)	15	Annually	Grab {6}
pH Range (Standard Units)	7.6 - 8.6	Annually	Grab {7}
Total Recoverable Iron (mg/l)	1.0	Annually	Grab or Composite
Ammonia (mg/l)	10 {8} 4.9 {9}	Annually	Grab or Composite
Alpha Terpineol (mg/l)	0.033 {8} 0.016 {9}	Annually	Grab or Composite

Effluent Parameter (units)	Effluent Limitation {1}	Minimum Monitoring Frequency {2}	Type of Sample {3}
Benzoic Acid (mg/l)	0.12 {8} 0.071 {9}	Annually	Grab or Composite
p-Cresol (mg/l)	0.025 {8} 0.014 {9}	Annually	Grab or Composite
Phenol (mg/l)	0.026 {8} 0.015 {9}	Annually	Grab or Composite
Total Recoverable Zinc (mg/l)	0.022 {8} 0.022 {9}	Annually	Grab or Composite

mg/l = milligrams per liter = 1000 micrograms per liter

NOTES:

{1} Pollutant concentration levels shall not exceed the storm water discharge limits or be outside the ranges indicated in the table. Actual or measured levels which exceed those storm water discharge limits or are outside those ranges shall be reported to the Clean Water Branch (CWB) required in HAR, Chapter 11-55, Appendix B, Section 10(c).

{2} "Annually" means once per calendar year.

{3} The Permittee shall collect samples for analysis from a discharge resulting from a representative storm. A representative storm means a rainfall that accumulates more than 0.1 inch of rain and occurs at least 72 hours after the previous measurable (greater than 0.1 inch) rainfall event.

The Permittee shall analyze the sample collected during the first 15 minutes as a grab sample. If two (2) or more samples are collected, the Permittee shall analyze the samples as a composite sample.

"Composite sample" means a combination of at least two (2) sample aliquots, collected at periodic intervals. The composite shall be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to the total flow of storm water discharge flow since the collection of the previous aliquot. The Permittee may collect aliquots manually or automatically.

{4} No limitation at this time. Only monitoring and reporting is required.

{5} The Total Nitrogen parameter is a measure of all nitrogen compounds in the sample (nitrate, nitrite, ammonia, dissolved organic nitrogen, and organic matter present as particulates).

{6} The Permittee shall measure Oil and Grease using EPA Method 1664, Revision A.

{7} The Permittee shall measure pH within 15 minutes of obtaining the grab sample.

{8} This value is a daily maximum limitation.

{9} This value is a maximum monthly average limitation.

7. Revise the Storm Water Pollution Control Plan (SWPCP) to include the following information and submit the revised SWPCP within 120 days from the date of this NGPC:

   a. Additional Best Management Practices (BMPs) employed at the facility, including the sedimentation basin.

   b. Storm water monitoring program in accordance with HAR, Chapter 11-55, Appendix B, Section 6.

8. Revise the SWPCP should any discharge limitation or water quality standards established in HAR, Section11-54-4, for salt water be exceeded. The revisions shall include BMPs and/or other measures to reduce the amount of pollutants found to be in exceedance from entering storm water runoff.

9. Submit any changes to information on file with the CWB as soon as such changes arise, and properly address all related concerns and/or comments to the CWB's satisfaction.

10. Complete and submit the Notice of Cessation (NOC) Form (CWB-NOC Form) to the CWB within two (2) weeks of cessation of industrial activities at the subject facility. The CWB-NOC Form can be downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/pdf/cwb-noc.pdf

This NGPC will take effect on the date of this notice. This NGPC will expire at midnight, November 6, 2007, or when amendments to HAR, Chapter 11-55, Appendix B, are adopted, whichever occurs first. Any non-compliance with the conditions of this NGPC may be subject to penalties of up to $25,000 per violation per day.

The Permittee is responsible for obtaining other Federal, State, or local authorizations as required by law.

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,

Thomas E. Arizumi

THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

KP:np
Enclosures: 1. HAR, Sections 11-55-01 and 11-55-34 to 11-55-34.12
2. HAR, Chapter 11-55, Appendices A and B
3. Title 40, Code of Federal Regulations Citations as referenced in HAR, Chapter 11-55, Water Pollution Control, Appendix A

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
OCT 30 2007
Waimanalo Gulch Sanitary Landfill

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
DOH/CWB

R50A533.EXT

October 19, 2007

Dr. Eric S. Takamura, P.E.
Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 212
Kapolei, Hawaii 96707

Dear Mr. Takamura:

Subject: Administrative Extension of Notice of General Permit Coverage (NGPC) Waimanalo Gulch Sanitary Landfill Kapolei, Oahu, Hawaii File No. HI R50A533

The Department of Health (Department), Clean Water Branch (CWB), acknowledges receipt of your Notice of Intent (NOI) and $500 filing fee for coverage under the National Pollutant Discharge Elimination System general permit provisions, in accordance with the Hawaii Administrative Rules (HAR), Section 11-55-34.08.

The Department is unable to complete the processing of your project's NOI prior to the current NGPC expiration date. Therefore, in accordance with HAR, Section 11-55-34.09(d), the Department hereby administratively extends the subject NGPC until a notice of renewed coverage under the applicable general permit is issued or until notified by the Department, whichever occurs first. Please note that the Department may request you submit additional information in order to complete the processing of your NOI for the renewed coverage.

The Permittee shall not be held in violation of Hawaii Revised Statues, Chapter 342D-6(h), and HAR, Chapter 11-55, during the pendency of its NOI, so long as it acts consistently with the NGPC presently granted. **Note: The Permittee shall continue sampling as required by the current NGPC.** Any non-compliance with the conditions of the administratively extended NGPC may be subject to penalties of up to $25,000 per violation per day.

It is the Permittee's responsibility to ensure that anyone working under this administrative extension of your NGPC understands and complies with the terms and conditions therein.

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,

THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

c: Mr. David Jappert, Waste Management of Hawaii, Inc. (w/Receipt No. 31642 for filing fee)

Appendix B
Storm Water Monitoring and Reporting Program Plan

Contents

ACRONYMS AND ABBREVIATIONS B-iii

1.0 INTRODUCTION B-1

2.0 PROJECT ORGANIZATION B-1

3.0 STORM WATER MONITORING STATION B-1

4.0 STORM EVENT SELECTION B-2

4.1 Storm Selection B-3
4.2 Storm Water Monitoring Readiness B-3
4.2.1 Team Mobilization B-3

5.0 STORM WATER MONITORING PROCEDURES B-4

5.1 Sampling Location B-4
5.2 Field Measurements B-5
5.2.1 Flow Measurements B-5
5.2.2 pH Measurements B-6
5.3 Monitoring Procedures B-6
5.3.1 Pre-sampling Preparations B-6
5.3.2 Team Mobilization and Sampling Sequence B-9

6.0 ANALYTICAL PROCEDURES B-10

6.1 Parameters B-10
6.2 Sample Analysis B-11

7.0 QUALITY ASSURANCE B-11

7.1 QA/QC Plan Purpose and Objectives B-11
7.2 Data Quality Control B-12
7.3 Laboratory Duplicates B-12
7.3.1 Accuracy B-12
7.3.2 Method Blanks B-12
7.3.3 Reagent Blanks B-12
7.4 Holding Times B-12

8.0 RECORDS MANAGEMENT AND REPORTING REQUIREMENTS B-13

8.1 Records Management B-13
8.2 Reporting Requirements B-13
8.3 Monitoring Program Evaluation B-13

TABLES

B-1 Volume of Discharge through Outfall WGSL-DB01W B-5

B-2 Volume of Discharge through Outfall WGSL-DB01E B-6

B-3 Required Sample Containers B-7

B-4 Storm Water Monitoring Equipment Checklist B-8

B-5 Laboratory Analyses B-11

Acronyms and Abbreviations

°C	degree Celsius
µg/L	microgram per liter
BMP	best management practice
BOD	biochemical oxygen demand
CMP	corrugated metal pipe
COC	chain-of-custody
COD	chemical oxygen demand
DOH	Department of Health, State of Hawaii
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency, United States
H_2SO_4	sulfuric acid
HNO_3	nitric acid
L	liter
MCAWW	Methods for Chemical Analysis of Water and Waste
mg/L	milligram per liter
ml	milliliter
NGPC	Notice of General Permit Coverage
NO_3+NO_2–N	nitrate plus nitrite nitrogen
NWS	National Weather Service
pH	hydrogen ion concentration
QA	quality assurance
QC	quality control
RPD	relative percent difference
SM	standard method
SWMRPP	Storm Water Monitoring and Reporting Program Plan
SWPCP	Storm Water Pollution Control Plan
TSS	total suspended solids
U.S.	United States
WGSL	Waimanalo Gulch Sanitary Landfill
WMH	Waste Management of Hawaii, Inc.

1.0 INTRODUCTION

The Waimanalo Gulch Sanitary Landfill (WGSL) is owned by the City and County of Honolulu and operated by Waste Management of Hawaii, Inc. (WMH), a subsidiary of Waste Management, Inc. The City and County of Honolulu was issued a Notice of General Permit Coverage (NGPC) under the National Pollutant Discharge Elimination System for the WGSL on March 2, 2005, which was assigned File No. HI R50A533 and herein referred to as the General Permit. The General Permit was administratively extended on October 19, 2007 pending processing of the renewal Notice of Intent. Under the General Permit, the WGSL is authorized to discharge only storm water runoff associated with industrial activities from its facility to the receiving State water named the Pacific Ocean, a Class A, Marine Water, at the coordinates 21°00'04"N and 158°07'35"W.

The General Permit requires storm water monitoring to support the evaluation of best management practice (BMP) effectiveness. This Storm Water Monitoring and Reporting Program Plan (SWMRPP) specifies the procedures for collecting storm water runoff samples and associated field data at the WGSL and is a component of the Storm Water Pollution Control Plan (SWPCP) for the site.

This SWMRPP is designed for use by the site Storm Water Sampling Coordinator and sampling team personnel.

2.0 PROJECT ORGANIZATION

The WGSL Environmental Compliance Specialist will identify the Storm Water Sampling Coordinator, who is responsible for activities at the landfill including storm water sample collection and flow measurement. During the rainy season, the Storm Water Sampling Coordinator will monitor precipitation measurements at the onsite weather monitoring station to evaluate the approximate amount of rainfall that occurs in the 72 hours prior to an anticipated sampling event.

Chemical analyses and analytical data reporting will be performed by a certified analytical laboratory. The Storm Water Sampling Coordinator will alert the analytical laboratory when the sampling team has entered into Mobilize mode (which is discussed in Section 4.2.1.2) and inform them of the expected time of sample delivery.

3.0 STORM WATER MONITORING STATION

Storm water regulations require that storm water samples be collected from outfalls that drain industrial sites. Outfalls that drain only non-industrial areas (e.g., personnel parking lots or administrative buildings) need not be sampled, as long as there is no potential for storm water to come in contact with industrial processes or significant materials. The General Permit states that where two or more outfalls are expected to convey substantially similar storm water effluent, the facility may choose to monitor as few as one of those outfalls, provided that the outfall(s) monitored are representative of the overall storm water discharges from the facility.

The site inspection at the WGSL identified only one storm water collection point: the detention pond, which is designated as WGSL-DB01, located on the west perimeter of the site. This pond is the location of the final disposition of all surface/storm water generated at the WGSL (see Figure 2-4 of the SWPCP). Therefore, it has been selected as the storm water monitoring station for the WGSL. The detention pond includes two outfall pipes, WGSL-DB01W and WGSL-DB01E, where W denotes the western outfall and E the eastern outfall, as presented on Figure 2-5 of the SWPCP. The outfall pipes are 42-inch diameter corrugated metal pipe (CMP) connected to two vertical, 48-inch reinforced concrete pipe risers located in the detention pond at a reinforced concrete vault. The risers are reinforced concrete pipes with sloped trash racks at the pipe entrances. If storm water were to discharge from the site, a storm water sample would be collected from one of the detention pond outfalls.

In addition to the detention pond discharge sample, WMH has selected to also collect a sample of the storm water entering the site up canyon prior to it entering the concrete-lined channel. A rip-rap retention berm is located within the detention pond and detains initial storm water run-off entering the pond in a pre-holding area. Collection of an up canyon sample (WGSL-UPCANYON01) should be attempted once the water level within the pre-holding area reaches the level indicated on Photo B-1. Once storm water reaches this level in the pre-holding area it will enter the detention basin and subsequently discharge from the outfall. The presence of storm water discharge at the outfall and the presence of storm water at the up canyon sample location are not necessarily correlated. Therefore, the up canyon sample location will need to be monitored simultaneously with the storm water outfall(s). An up canyon sample should be collected whenever there is a sufficient volume of storm water to sample, but should not be collected at the expense of collecting a storm water sample from the storm water outfall(s) WGSL-DB01W and WGSL-DB01E. **The critical sample to collect for compliance with the General Permit is the storm water sample from one of the storm water outfall(s): WGSL-DB01W or WGSL-DB01E.**

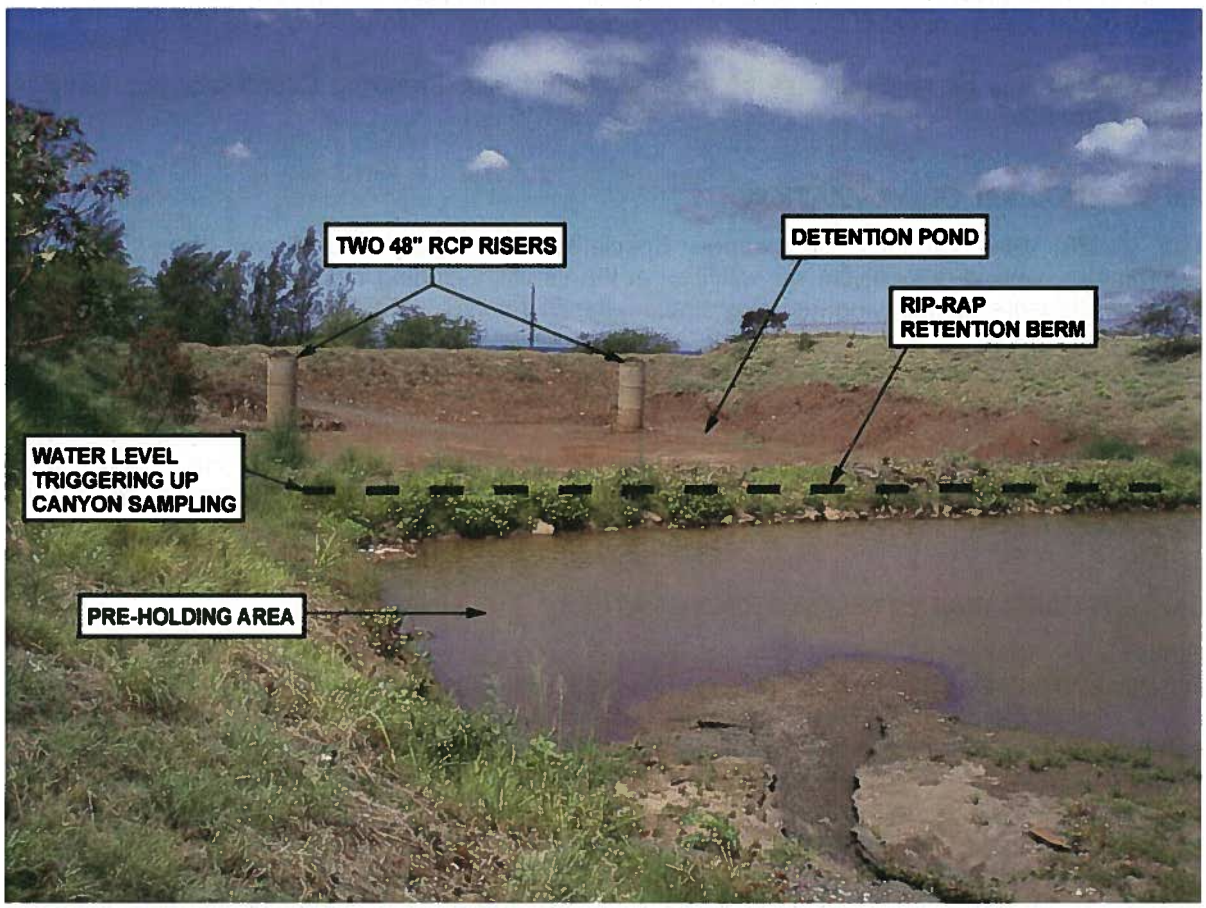

Photo B-1: When storm water in the pre-holding area reaches the level indicated above, collection of an up canyon sample should be attempted.

4.0 STORM EVENT SELECTION

The General Permit requires annual monitoring of a storm event that yields at least 0.1 inch of precipitation, preceded by at least 72 hours with no precipitation greater than 0.1 inch. This section describes the process for determining when to sample and the procedures for the sampling team to mobilize.

4.1 STORM SELECTION

The Storm Water Sampling Coordinator will determine when to sample by using the following criteria:

- *Pre-sampling precipitation.* There must be no more than 0.1 inch of precipitation during the 72 hours preceding the storm event to be sampled.
- *Weather forecasting.* The predicted precipitation of the storm event should be at least 0.1 inch.

The Storm Water Sampling Coordinator will obtain pre-sampling precipitation data from the rain gauge at the onsite weather monitoring station.

The Storm Water Sampling Coordinator will monitor the daily National Weather Service (NWS) forecasts and/or the Weather Underground website (http://www.wunderground.com) to evaluate if an approaching storm may be acceptable for sampling. As a potentially acceptable storm approaches, the Storm Water Sampling Coordinator will establish a weather watch and obtain forecast updates via telephone or the Internet.

4.2 STORM WATER MONITORING READINESS

4.2.1 Team Mobilization

The Storm Water Sampling Coordinator will work with the analytical laboratory to prepare storm water monitoring kits (one kit for each sampling team), which will contain all of the materials needed for storm water monitoring, including sample bottles, field equipment, forms, and other materials. The storm water monitoring kits will be stored at the landfill offices or a designated alternate location that is readily accessible to the Storm Water Sampling Coordinator, 24 hours per day.

The Storm Water Sampling Coordinator and sampling team will review this plan and conduct a "dry run" to clarify monitoring methods and team responsibilities, and to familiarize the team with access routes. The sampling team will have three modes of operation: Alert, Standby, and Mobilize. These stages are discussed below.

4.2.1.1 ALERT

The Storm Water Sampling Coordinator will place the sampling team on alert when the following conditions are met:

- The weather forecast predicts a storm greater than 0.1 inch.
- Weather forecasts and precipitation data indicate that the 72-hour dry period criterion (less than or equal to 0.1 inch of precipitation) is likely to be met.

The Alert would be initiated within 24 to 48 hours prior to the predicted start of the storm event. The Storm Water Sampling Coordinator will notify the sampling team of the predicted start of the sampling event, and arrange for alternates if any team members will be unavailable.

4.2.1.2 STANDBY

If within 12 to 24 hours prior to the start of the anticipated storm event the storm still appears to be acceptable, the Storm Water Sampling Coordinator will initiate Standby mode. The Standby mode requires that the team be available for sampling and ready for rapid mobilization on a 3-hour notice. The sampling team will collect all necessary monitoring equipment and materials and store them in the vehicles to be used for the storm event monitoring. The sampling team will use the equipment checklist in Table B-4 to ensure that all requisite equipment and materials are assembled. The Storm Water Sampling Coordinator, or designee, will start monitoring the onsite weather monitoring station

for rainfall data. Once the 0.1 inch criterion has been met, a sampling team member will be assigned to perform periodic visual inspections of the detention pond and outfall pipes to determine the discharge capacity.

4.2.1.3 Mobilize

When the Storm Water Sampling Coordinator is informed that the water level within the pre-holding area of the detention pond is approaching the top of the rip-rap retention berm as indicated on Photo B-1, the sampling team will be placed on Mobilize mode and they will travel to the WGSL to monitor the storm water sampling stations WGSL-DB01W, WGSL-DB01E, and WGSL-UPCANYON01. Upon discharge from the outfall, the sampling team will begin flow measurements, as described in Section 5.2.1, and sample collection, as described in Section 5.3. The Storm Water Sampling Coordinator will alert the analytical laboratory when the sampling team has entered into Mobilize mode. An up canyon sample should be collected whenever there is a sufficient volume of storm water to sample, but should not be collected at the expense of collecting a storm water sample from the storm water outfall(s) WGSL-DB01W and WGSL-DB01E. **The critical sample to collect for compliance with the General Permit is the storm water sample from one of the storm water outfall(s): WGSL-DB01W or WGSL-DB01E.**

If (1) discharge from the detention basis does not occur within 3 hours of arrival at the site, or (2) the runoff event stops for more than 1 hour before all the samples can be collected, the Storm Water Sampling Coordinator may contact the NWS to obtain a weather update. If the weather update indicates the storm event no longer appears likely to be acceptable for sampling, the Storm Water Sampling Coordinator will terminate the monitoring run. If enough water has been collected to allow for the requisite chemical analyses, the Storm Water Sampling Coordinator will submit the samples to the analytical laboratory for analysis despite the short duration of the runoff event. If the sample quantity collected is insufficient for analysis, the Storm Water Sampling Coordinator will declare a false start and return the team to Standby mode or demobilize.

5.0 STORM WATER MONITORING PROCEDURES

The following section provides a description of the storm water sampling methodology that will be used at the WGSL. The samples are handled and preserved in accordance with Hawaii Administrative Rules Chapter 11-55 and 40 Code of Federal Regulations Part 136.

5.1 Sampling Location

The detention pond, WGSL-DB01, is the location of the final disposition of all surface/storm water generated at the WGSL, and has been chosen as the storm water monitoring station for the site. If the detention pond were to fill to a level that discharges storm water from the site, grab and composite samples will be collected at either of the two outfalls of the detention pond, WGSL-DB01W and WGSL-DB01E, where W denotes the western outfall and E the eastern outfall. In addition to the detention pond discharge sample, WMH has selected to also collect a sample of the storm water entering the site up canyon prior to it entering the concrete-lined channel. However, the presence of storm water discharge at the outfall and the presence of storm water at the up canyon sample location are not necessarily correlated. Therefore, the up canyon sample location will need to be monitored simultaneously with the storm water outfall(s). An up canyon sample should be collected whenever there is a sufficient volume of storm water to sample, but should not be collected at the expense of collecting a storm water sample from the storm water outfall(s) WGSL-DB01W and WGSL-DB01E. **The critical sample to collect for compliance with the General Permit is the storm water sample from one of the storm water outfall(s): WGSL-DB01W or WGSL-DB01E.**

5.2 FIELD MEASUREMENTS

The discharge flow rate estimate and pH are measured in the field during the time of sampling. This section describes the procedures for taking these measurements. Field personnel will record all measurements on storm water sampling forms, which will be included in the monitoring kits supplied by the Storm Water Sampling Coordinator (forms are also available in Appendix C of the SWPCP). Procedures for flow and pH measurement are discussed below.

5.2.1 Flow Measurements

The estimated flow of discharge at the outfall locations, either WGSL-DB01W or WGSL-DB01E, will be estimated based on depth measurements at the mouth of the outfall. A ruler will be used to measure the depth of water above the lip of the corrugated pipe at the discharge end of the detention pond. The flow rate can then be determined using the depth-flow tables developed for each outfall, as presented in Tables B-1 and B-2. Flow from the up canyon sample location will be estimated.

Table B-1: Volume of Discharge through Outfall WGSL-DB01W

Depth of Water through Outfall (inches)	Flow (cubic feet per second)
0.0	0
2.0	0.2
4.0	0.9
6.0	2.2
8.0	3.9
10.0	6.1
12.0	8.7
14.0	11.8
16.0	15.1
18.0	18.7
20.0	22.5
21.0	24.4
22.0	26.4
24.0	30.5
26.0	34.4
28.0	38.3
30.0	42.0
32.0	45.3
34.0	48.3
36.0	50.6
38.0	52.1

Table B-2: Volume of Discharge through Outfall WGSL-DB01E

Depth of Water through Outfall (inches)	Flow (cubic feet per second)
0.0	0
2.0	0.3
4.0	1.5
6.0	3.4
8.0	6.1
10.0	9.5
12.0	13.7
14.0	18.5
16.0	23.8
18.0	29.4
20.0	35.4
21.0	38.5
22.0	41.6
24.0	47.9
26.0	54.3
28.0	60.3
30.0	66.1
32.0	71.5
34.0	76.0
36.0	79.8
38.0	82.3

5.2.2 pH Measurements

Storm water hydrogen ion concentration (pH) will be measured in the field using hand-held pH meters. As specified in the General Permit, pH will be measured in the field within 15 minutes of collecting the grab samples.

For the field pH measurement, storm water runoff will be collected in a Pyrex beaker or similar container during sampling. Measurements will be taken according to the equipment manufacturer's instructions.

5.3 MONITORING PROCEDURES

This subsection summarizes the sequence of events associated with preparation for storm water sampling activities and defines the sample collection procedures to be used for storm water monitoring.

5.3.1 Pre-sampling Preparations

5.3.1.1 SAMPLE BOTTLES

The Storm Water Sampling Coordinator will obtain from the analytical laboratory all coolers and sample bottles required for the collection of grab and quality assurance/quality control (QA/QC) samples, plus two additional sets for contingencies (e.g., bottle breakage). Table B-3 lists the number and type of required sample containers. The analytical laboratory will also provide 1-liter (L) bottles of distilled water for miscellaneous use during sampling.

Table B-3: Required Sample Containers

Analyses	Field Sample Bottle Type	Number of Bottles to be Filled in Field	Laboratory Holding Time
BOD	1-L polyethylene, cool 4°C	1	48 hours
TSS	1-L polyethylene, cool 4°C	1	7 days
Total Kjeldahl Nitrogen	500-ml amber glass with teflon-lined cap, H_2SO_4, pH less than 2, cool 4°C	2	28 days
NO_3+NO_2–N			
Ammonia			
COD			
Total Phosphorus			
Oil and Grease	1-L amber glass with teflon-lined cap, H_2SO_4, pH less than 2, cool 4°C	2	28 days
pH (in the field only)	N/A	N/A	N/A
Semi-Volatile Organic Compounds (SVOCs)			
Alpha Terpineol	1-L glass bottle with teflon-lined cap, cool 4°C	2	7 days
Benzoic Acid			
p-Cresol			
Phenol			
Total Recoverable Metals			
Total Recoverable Iron	500-ml polyethylene, HNO_3, pH less than 2, cool 4°C	1	6 months
Total Recoverable Zinc			

H_2SO_4	sulfuric acid
HNO_3	nitric acid
NO_3+NO_2–N	nitrate and nitrite nitrogen
N/A	not applicable
L	liter
ml	milliliter
BOD	biochemical oxygen demand
TSS	total suspended solids
COD	chemical oxygen demand
°C	degree Celsius
SVOC	semi-volatile organic compound

The Storm Water Sampling Coordinator will affix a label to each sample bottle. The labels will provide space for the following:

- Project name and project number
- Facility name (i.e., WGSL)
- Sample ID (WGSL-DB01W or WGSL-DB01W, as appropriate)
- Name of sampler
- Parameters to be analyzed
- Date and time of sample collection

The Storm Water Sampling Coordinator will complete the sample bottle labels to the extent possible before affixing the labels to the appropriate bottles. Then the Storm Water Sampling Coordinator will place the sample bottles in one or more coolers, affix custody seals across the front and side hinges of each cooler, and store the coolers in a secured, clean location until needed.

5.3.1.2 Field Equipment

Table B-4 lists the items that are required for the storm water sampling event. Prior to mobilization, the sampling team must use the checklist to re-verify that it has all the necessary supplies, bottles, and equipment. The sampling team must store its field equipment and sample bottles in a clean, secure, readily accessible location until needed.

Table B-4: Storm Water Monitoring Equipment Checklist

	Sample bottles and coolers
	Waterproof indelible pens
	Waterproof field logbook
	Sampling plan with map
	Chain-of-custody forms
	Custody seals
	Latex and nitrile gloves
	pH meter and pH 7 standard
	Squirt bottles with deionized water
	Pyrex beaker (pre-cleaned) or similar container
	6-foot folding ruler or yardstick
	Ice (1–2 bags per cooler)
	Strapping tape
	Resealable plastic freezer bags for ice (1 gallon)
	New, unopened disposable poly bailers
	Rope
	Garbage bags
	Paper towels
	Rain gear
	Waterproof boots
	Clipboard
	Stop watch
	Calculator
	First-aid kit

Prior to the onset of the rainy season, the Storm Water Sampling Coordinator will check to ensure that all of the field equipment and supplies listed on the field equipment checklist have been secured.

5.3.1.3 Site Access

Because of the rapid response required for monitoring storm water runoff, it is essential that the sampling team have ready access to the sampling station. Site access is monitored by security after the normal operating hours of 7:00 a.m. to 4:30 p.m. The Storm Water Sampling Coordinator will coordinate with the Environmental Protection Manager to ensure that security personnel are informed of the required access for the storm water sampling team, if sampling will occur outside normal operating hours.

5.3.2 Team Mobilization and Sampling Sequence

1. The Storm Water Sampling Coordinator reviews daily weather forecasts and periodically contacts the sampling team members to remind them of their monitoring responsibilities and confirm their readiness.
2. When the available information indicates that a predicted storm event is likely to meet the two criteria for monitoring (i.e., a predicted storm greater than 0.1 inch and the preceding 72 hours with less than 0.1 inch of rainfall), the Storm Water Sampling Coordinator places the sampling team on Alert mode.
3. During Alert mode, the Storm Water Sampling Coordinator notifies the team of the predicted start of the sampling event and arranges alternates for unavailable team members.
4. The Storm Water Sampling Coordinator reviews the most recent weather forecast and contacts NWS personnel or website for weather information regarding the expected size and starting time of the storm event. If the predicted storm still appears acceptable for monitoring, the Storm Water Sampling Coordinator instructs the sampling team to mobilize for sampling and travel to the assigned monitoring station in order to arrive at or near the time that the storm runoff is predicted to start.
5. The Storm Water Sampling Coordinator notifies the analytical laboratory that storm water sampling mobilization has begun and indicates expected time of sample delivery. (The analytical laboratory should be given relevant portions of this plan for review prior to the beginning of the monitoring program.)
6. The team members collect a grab sample for Oil and Grease and composite samples for other parameters at the assigned station (WGSL-DB01W or WGSL-DB01E) commencing within 0.5 hour or as soon as possible after runoff begins, in accordance with the procedure specified below:
   a) Put on clean latex or nitrile rubber gloves.
   b) Open the cooler and remove the sample bottles. Just before each bottle is filled at the sampling station, complete the sample label by writing in the date and time of collection and the samplers' names.
   c) Collect grab storm water samples for Oil and Grease as follows:
      1) Remove the lid from the grab sample bottle, and place the lid top-down on a clean surface (so that the inside of the lid does not get dirty).
      2) Avoid touching the inside of the sample bottle or lid during sample collection.
      3) Carefully place the sample container into the flow and fill the container. Extreme care will be taken to ensure that the bottles are not overfilled to prevent the release of the preservatives, as appropriate.
      4) Repeat steps 1 through 3 for the collection of composite samples; however composite sample bottles should be filled in 4 aliquots spaced 15 minutes apart.
      5) Immediately place the filled sample bottles into a cooler along with 1–2 resealable plastic bags full of ice.
   d) Record time of sample collection on the storm water sampling form.
   e) Collect storm water in the Pyrex beaker or other appropriate container, and insert the calibrated pH meter. Measure and record the pH on the storm water sampling form. As specified in the General Permit, pH will be measured in the field within 15 minutes of collecting the grab samples.
   f) Measure flow according to the method specified in Section 5.2.1, above.

7. The team members return to the office, complete the sample labels, and fill out chain-of-custody (COC) forms.
8. The team members ensure that all sample bottle labels, COC forms, and field data forms have been properly completed.
9. The team members pack sample bottles in coolers with resealable plastic bags of ice. Place bubble wrap packing material around glass bottles to minimize breakage. Keep the appropriate copy of the completed COC forms and put the other copies into a resealable plastic bag taped to the inside of the cooler lid. Affix one custody seal across the front hinge and another across the rear hinge of each cooler, so that the cooler cannot be opened without breaking the seals. Note: Complete one COC form for each cooler.
10. The team members ship coolers containing samples to the analytical laboratory as quickly as possible. (If using a Honolulu-based analytical laboratory, hand delivery may be a better option.)
11. The Storm Water Sampling Coordinator contacts the analytical laboratory to confirm receipt and to ensure that the samples have arrived intact and then answers any questions with respect to the samples.

The same sample procedures will be followed for the up canyon sample location (WGSL-UPCANYON01).

6.0 ANALYTICAL PROCEDURES

Chemical analyses will be performed on the storm water samples. These procedures are summarized in this section.

6.1 PARAMETERS

The NGPC requires that the following parameters be analyzed annually:

- Biological Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- Chemical Oxygen Demand (COD)
- Total Phosphorus
- Total Nitrogen (includes Nitrate, Nitrite, ammonia, dissolved organic Nitrogen, and Organic Matter present as particulates)
- Nitrate plus Nitrite Nitrogen (NO_3+NO_2–N)
- Ammonia
- Oil and Grease
- pH (in the field only)
- Alpha Terpineol
- Benzoic Acid
- p-Cresol
- Phenol
- Total Recoverable Iron
- Total Recoverable Zinc

The samples will be collected as grab and composite samples and will be collected during the first 0.5–1 hour of runoff.

6.2 SAMPLE ANALYSIS

The analytical laboratory will analyze the storm water samples using the methods and reporting limits specified in Table B-5. All analyses must be performed in strict accordance with the appropriate United States (U.S.) Environmental Protection Agency (EPA) method. Any modifications of standard test methods must be pre-approved by the Storm Water Sampling Coordinator.

Table B-5: Laboratory Analyses

Analysis	EPA Method Number	Reporting Limit	Unit
BOD	SM5210B	2	mg/L
TSS	SM2540D	4	mg/L
COD	MCAWW 410.4 rev2	10	mg/L
Total Phosphorus	SM4500-PF	0.1	mg/L
Total Nitrogen			
Total Kjeldahl Nitrogen	SM4500-C	0.3	mg/L
NO_3+NO_2–N	MCAWW 353.2 rev2	0.2	mg/L
Ammonia	MCAWW 350.1 rev2	0.2	mg/L
Oil and Grease	EPA 1664A	10	mg/L
pH	Field measurement		
SVOCs			
Alpha Terpineol	SW-846 8270D	10	µg/L
Benzoic Acid		50	µg/L
p-Cresol		50	µg/L
Phenol		10	µg/L
Total Recoverable Metals			
Total Recoverable Zinc	SW-846 6010B	10	µg/L
Total Recoverable Iron		50	µg/L

MCAWW Methods for Chemical Analysis of Water and Waste
mg/L milligram per liter
SM standard method
µg/L microgram per liter

7.0 QUALITY ASSURANCE

This section presents the QA/QC plan that will be implemented in conjunction with storm water sampling and analysis at the WGSL. The QA/QC program is essential to obtaining high-quality and well-documented data.

This QA/QC plan and the analytical procedures described in Section 6.0 will be reviewed by the analytical laboratory prior to storm water sampling. The Storm Water Sampling Coordinator will answer questions that the analytical laboratory may have with regard to this plan and storm water sample collection activities.

7.1 QA/QC PLAN PURPOSE AND OBJECTIVES

The purpose of the QA/QC plan is as follows:

- Direct and control the production of measurement data so that the data meet specific quality criteria, and accurately characterize measured parameters at the sampling station.
- Define the protocols for documenting the production of measurement data so that they are technically defensible.

This QA/QC plan describes the ways in which data are generated and data quality is derived, and defines the data quality and validation criteria that the data must meet.

7.2 DATA QUALITY CONTROL

Analytical QC in the laboratory is achieved, in part, by analysis of control samples run concurrently with field samples, such as matrix spiked samples, laboratory duplicates (including matrix spike duplicates), method blanks, and reagent blanks. Matrix spiked samples, laboratory duplicates (including matrix spike duplicates), and method blanks will be prepared and analyzed at a frequency of 1:20 (5 percent) or one per sample data group.

7.3 LABORATORY DUPLICATES

Duplicates are laboratory splits of samples that are analyzed separately. The data from laboratory duplicates will be used to calculate laboratory precision as relative percent difference (RPD), as described above. The resultant RPDs will be reported in the QC review. The analytical laboratory will assign data qualifiers to data for which duplicate precision (RPD) did not meet their in-house criteria.

7.3.1 Accuracy

Accuracy is a measure of the difference between known and analyzed compound concentrations. Average accuracy defines laboratory analytical bias, or the tendency to report low or high values, and it is reported as a RPD between known and measured concentrations. Accuracy is calculated as percent recovery between matrix spike compound amounts and measured concentrations. The resultant percent recoveries will be compared to the laboratory's in-house criteria and reported in the QC review. If accuracy as percent recovery does not meet their criteria, the data will be qualified with data qualifiers.

7.3.2 Method Blanks

Sample contamination and instrument bias will affect analytical accuracy. Blank laboratory samples will be analyzed at a frequency of 1:20 (5 percent), or one per sample data group. Method blank QC criteria require that no contaminants be found in the blank(s). If a compound(s) is detected, it will be reported in the QC review.

7.3.3 Reagent Blanks

Reagent blank analysis results (including frequency of analysis) are normally used for internal laboratory QC purposes. The laboratory closely monitors reagents for contamination, and no reagent is used that exhibits unusual contamination. The results for reagent blank analyses will not be requested, but the records will be archived at the laboratory and will be available upon request.

7.4 HOLDING TIMES

EPA-established holding times should be met whenever possible. If any holding times are exceeded, the exceedances will be noted in the QC report, and the potential impacts on data validity and usability will be discussed.

8.0 RECORDS MANAGEMENT AND REPORTING REQUIREMENTS

Well-maintained records management and clear reporting formats are necessary for regulatory compliance. They are also useful for an effectiveness assessment of the storm water management program.

8.1 RECORDS MANAGEMENT

The SWPCP and supporting records are considered to be public documents under Section 308(b) of the Clean Water Act. This means that any member of the public may request to review WGSL storm water permit documentation. Additionally, the SWPCP and supporting data will need to be made available upon request of a representative of the State of Hawaii Department of Health (DOH) and/or EPA.

Copies of all reports, monitoring information, and data pertaining to the General Permit must be retained for a minimum period of 5 years, following expiration of the General Permit.

8.2 REPORTING REQUIREMENTS

A Discharge Monitoring Report (DMR) shall be submitted to the DOH, Clean Water Branch no later than 60 days after the end of the annual monitoring period, after the General Permit effective date or March 2nd of each year. Sampling results exceeding the effluent limitations shall be verbally reported to the DOH Director as soon as the results become available. The permittee shall provide a written report within 5 days of the time the permittee or duly authorized representative becomes aware of the circumstances. The storm water monitoring results shall be submitted on a DOH DMR Form every year whether there is a discharge or not. Should there be "no discharge" or an "inability to sample a representative storm event," WMH shall include comments and an explanation of the situation.

In addition to the DMR, the permittee shall also submit the laboratory results including QA/QC data; storm water flow calculations; storm event information; and any additional pollutant control strategies to be implemented based on monitoring results.

8.3 MONITORING PROGRAM EVALUATION

In general, a monitoring program can be evaluated quantitatively, based on its effect on water quality (i.e., long-term trends in chemical concentrations or other measurements), or qualitatively, by keeping track of the extent to which inspections and analytical monitoring are implemented.

The monitoring program should be evaluated at least once a year for consistency with the evolving goals of the storm water monitoring program. As discussed in Section 8.2, submittal of an annual DMR to DOH is required. This report will describe the monitoring tasks performed over the course of the year, as well as any analytical results obtained therein. The annual DMR will also present overall assessment of WGSL monitoring program effectiveness.

Quantifying the effectiveness of the storm water quality monitoring program poses some challenging issues with regard to statistical significance. Since the General Permit requires that grab and/or composite samples be obtained and analyzed for only representative storm events where a discharge occurs, there could be relatively little data to consider depending on how many storm events produce enough rainfall to actually discharge from the WGSL. In addition, since detected chemical concentrations vary considerably during a given storm event and between different storm water monitoring events, it is unclear whether statistically significant data can ever be obtained using this protocol. Consequently, trends observed in water quality data should be viewed as indicators rather than definitive data on chemical loading. As an example, a consistent trend of high pH in storm water discharge from a given outfall might indicate a source area within the drainage of that outfall (e.g., outdoor soda ash storage). The analytical monitoring data can be used as an initial step

in identifying the source of the problem, and a BMP can be selected to minimize storm water contact in that suspected source area. Lower pH results following implementation of the soda ash BMP may indicate that the BMP is working. In many instances, however, consistent water quality trends may not occur, and it may not be possible to identify discrete source areas or observe the improvement in water quality caused by the implementation of a given BMP.

Such trends (or lack thereof) in water quality data, as well as actions implemented to identify source areas and BMPs, will be documented. These records will form a basis for evaluating the effectiveness of the overall monitoring program because they help meet the General Permit objectives of implementing the SWPCP and measuring the effectiveness of BMPs.

Basic record keeping is another method of evaluating the effectiveness of the monitoring program. WMH will carefully track all visual observations and analytical monitoring activities to document compliance with the requirements listed in the General Permit. Types of records that should be kept and reviewed may include:

- Dates when visual and analytical monitoring is performed
- Visual observations and analytical monitoring observations
- Monthly and bi-annual inspections
- Maintenance activities performed
- Incidents (e.g., spills or other releases)

By documenting activities and incidents in this way, WMH may be able to identify problem areas and take action by selecting or modifying BMPs to mitigate the problems. The "measure of effectiveness" will include a description of actions that WMH takes in response to the visual observations or trends identified in its records.

Appendix C
Blank Forms

Appendix C.1
WGSL SWPCP Sampling Form

Storm Water Sampling Form
Waimanalo Gulch Sanitary Landfill
Storm Water Pollution Control Plan

Sampling Location:	Date:
	Project Number: 103274.02
Sampling Personnel:	
Weather Conditions:	
Observations/Comments	

Instrument	Manufacturer	Model	Serial No.	Calibration Date and Time
pH Meter				

Calibration results:	
Comments:	
Time at Start of Rain:	Time of First Run-off:
Sample Collection Method:	
Flow-Measurement Method:	
Describe:	

Sample Appearance:	Odor:	Color:
Floating Debris:	Scum or Foam:	Oil Sheen:

SAMPLE NUMBER	TIME SAMPLED	pH	FLOW MEASUREMENTS

Comments:

Appendix C.2
WGSL SWPCP Non-Storm Water Assessment and Certification

NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION Waimanalo Gulch Sanitary Landfill Storm Water Pollution Control Plan	Completed by:	
	Title:	
	Date:	

Date of Test or Evaluation	Outfall Directly Observed During the Test (Identify as indicated on the site map)	Method Used to Test or Evaluate Discharge	Describe Results from Test for the Presence of Non-Storm Water Discharge	Identify Potential Significant Sources	Name of Person Who Conducted the Test or Evaluation

CERTIFICATION

I, _____ (responsible corporate official), certify under penalty of law that this document and all attachments were prepared under by direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (type or print)	B. Area Code and Telephone Number
C. Signature	D. Date Signed

Appendix C.3
WGSL SWPCP Inspection Form

MONTHLY SITE INSPECTION FORM
WAIMANALO GULCH SANITARY LANDFILL
STORM WATER POLLUTION CONTROL PLAN

Date _____

Inspector _____

Current Weather Conditions _____

Refuse Disposal Area:

Working face as small as possible?	Yes ☐ No ☐
Grading to prevent water run-on into refuse?	Yes ☐ No ☐
Daily cover applied as required?	Yes ☐ No ☐
Is intermediate cover adequate?	Yes ☐ No ☐
Is grading of intermediate cover adequate to prevent ponding of storm water?	Yes ☐ No ☐
Evidence of ponded water?	Yes ☐ No ☐
Evidence of Odors?	Yes ☐ No ☐
Characteristics	_____
Intensity	_____
Source	_____
Distance traveled	_____
Evidence of erosion and/or daylighted refuse?	Yes ☐ No ☐

Storm Water Drainage Controls:

Is site grading adequate to convey storm water to drainage ditches?	Yes ☐ No ☐
Is site grading adequate to impede soil erosion?	Yes ☐ No ☐
Are drainage ditches clear of debris and litter?	Yes ☐ No ☐

 Date _____

Are berms or other diversion structures in place to prevent storm water run-on to refuse fill area? Yes ☐ No ☐

Are culverts free of debris to adequately convey storm water? Yes ☐ No ☐

If the answer to any question is no, please explain in detail and provide a scope and schedule to mitigate the situation.

Maintenance Facility:

Is the grading surrounding the maintenance facility adequate to promote positive drainage? Yes ☐ No ☐

Are all solvents, oils, etc. properly stored? Yes ☐ No ☐

Is the facility and surrounding area in proper order i.e. good housekeeping? Yes ☐ No ☐

Is the diesel fuel facility in good shape? Yes ☐ No ☐

Surface Water Detention Basins:

Do the basins have at least two feet of freeboard? Yes ☐ No ☐

Are the detention basins structurally sound? Yes ☐ No ☐

Is all the piping to transmit surface water free of leaks and structural defects? Yes ☐ No ☐

Perimeter Observations:

Evidence of liquid entering or leaving the waste? Yes ☐ No ☐

Size of affected area _____

Flow rate _____

 Date _____

Evidence of Odors? Yes ☐ No ☐
Characteristics _____
Intensity _____
Source _____
Distance traveled _____

Evidence of erosion and/or daylighted refuse? Yes ☐ No ☐

Receiving Water Observations:
(Surface water discharge points)

Evidence of floating or suspended materials of waste origin? Yes ☐ No ☐
Source _____
Size of affected area _____

Evidence of discoloration and turbidity? Yes ☐ No ☐
Color _____
Source _____
Size of affected area _____

Evidence of Odors? Yes ☐ No ☐
Characteristics _____
Intensity _____
Source _____
Distance traveled _____

Evidence of beneficial use, water associated wildlife present? Yes ☐ No ☐

Flow rate: _____gpm

Weather Conditions:
Wind speed _____
(1= still or 0 mph, 2 = breezy or 1-25 mph, 3 + windy or 25 mph +)

Precipitation:
Today _____ inches
Total 5 previous days _____ inches

If the answer to any question is no, please explain in detail and provide a scope and schedule to mitigate the situation.

 Date _____

Other:

Are there any other conditions at the landfill and surrounding area which potentially could negatively impact the quality of the storm water runoff? Yes ☐ No ☐

If yes, please explain in detail and provide a scope and schedule to mitigate.

Appendix C.4
WGSL SWPCP Inspection Log

BI-ANNUAL INSPECTION LOG
WAIMANALO GULCH SANITARY LANDFILL
STORM WATER POLLUTION CONTROL PLAN

GENERAL INFORMATION

Date:

Personnel:

Weather:

Raining Yes ☐ No ☐

Time Since Last Rainfall Event

Runoff:

Flow observed? Yes ☐ No ☐

Type of Flow Sheet ☐ Rill ☐ Concentrated ☐

VISUAL OBSERVATIONS

Inspection List (Indicate locations on copy of Figure 2-5)	Yes/No/NA	If Yes, Describe Location and Required Follow-up Action (if any)
Active Face / Landfill Cover		
Bare or sparsely vegetated areas		
Settlement or depressions		
Slope Instability		
Gullies caused by erosion		
Illicitly-dumped material		
Stressed or dead vegetation		
Other indicators of leachate seepage		
Drainage swales		
Evidence of erosion		
Sediment deposition		
Detention Pond		
Structure blocked or has obstructions		
Outfall areas eroded		

Inspection List (Indicate locations on copy of Figure 2-5)	Yes/No/NA	If Yes, Describe Location and Required Follow-up Action (if any)
Security Measures		
Landfill access road gate damaged		
Access Roads		
Roads inaccessible		
Roads damaged by erosion or settlement		
Leachate Sumps		
Depth from top of sump less than 3 feet?		
Side Slopes Covered with Geosynthetic Tarps		
Evidence of erosion?		
Geosynthetic tarps intact?		
Geosynthetic tarp condition?		

Appendix C.5
WGSL SWPCP Training Log

EMPLOYEE TRAINING LOG
Storm Water Sampling Form
Waimanalo Gulch Sanitary Landfill
Storm Water Pollution Control Plan

Completed by:

Position/Title:

Training Topics	Brief Description of Training (i.e., program and materials used)	Schedule for Training (list dates)	Attendees
Storm Water Pollution Prevention			
Best Management Practices			
Spill Prevention and Response			
Inspection Procedures and Recordkeeping			
Reporting Procedures			
Other Topics (Specify)			

Signature:

Date:

Appendix D
WGSL SWPCP Update Log

Update Log
Waimanalo Gulch Sanitary Landfill
Storm Water Pollution Control Plan

Date	Description of Update	Name/Signature of Responsible Official