

Draft

# TRASH REDUCTION PLAN

Storm Water Management Plan

Marine Corps Base Hawaii

NPDES Permit No. HI 000007

Prepared by:

Marine Corps Base Hawaii

August 2015



## Table of Contents

1	Introduction .....	3
2	Trash Defined .....	4
3	Marine Corps Solid Waste Policy and Program .....	5
3.1	Marine Corps Solid Waste Policy .....	5
3.2	Marine Corps Base Hawaii Integrated Solid Waste Management Plan .....	5
4	Existing Control Measures and BMPs .....	7
4.1	Public Education and Outreach .....	7
4.2	Litter Clean Up .....	7
4.3	Street Sweeping .....	7
4.4	Trash Pickup .....	7
4.5	Structural BMPs .....	7
4.6	Inspections .....	7
5	Estimation of Baseline Discharge Load .....	8
6	Short Term Plan .....	9
6.1	Establish the Baseline Load .....	9
6.2	Data Analysis and Development of Reduction Actions .....	9
6.3	Implementation of Short Term Actions .....	9
7	Long Term Plan .....	10
7.1	Long Term Reduction Implementation and Monitoring Strategy .....	10
7.2	Long Term Reduction Implementation and Monitoring .....	10
8	Geographical Targets .....	11
9	Trash Reduction Related Education Activities .....	12
10	Measuring Program Success .....	13
11	Implementation Schedule .....	14
12	References .....	15

## Tables

Table 1: Implementation Schedule .....	14
--	----

## List of Acronyms and Abbreviations

BMP	Best Management Practice
C&D	Construction and Demolition
CWA	Clean Water Act
DoD	Department of Defense
DOH	State of Hawaii Department of Health
ENV	Marine Corps Base Hawaii Environmental Department
EO	Executive Order
HRS	Hawaii Revised Statutes
ISWMP	Integrated Solid Waste Management Program
MCB Hawaii	Marine Corps Base Hawaii
MCD	Facilities Maintenance Control Division
MCDC	Mokapu Central Drainage Channel
MS4	Municipal Separate Storm Sewer System
MS4 Permit	Marine Corps Base Hawaii's NPDES Permit No. HI S000007
NAVFAC	Naval Facilities Engineering Command
NPDES	National Pollutant Discharge Elimination System
OPNAVINST	Chief of Naval Instruction
QRP	Qualified Recycling Program

# 1 Introduction

As of the effective date, October 15, 2014, the Marine Corps Base Hawaii (MCB Hawaii) is required to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. HIS000007 (referred to hereinafter as the “MS4 Permit”). The MS4 Permit includes authorized storm water and specified non-storm water discharges into Kaneohe Bay, Nuupia Ponds, Kailua Bay, and the Mokapu Central Drainage Channel (MCDC). Per the MS4 Permit, Part D.1.f.(1).(v), MCB Hawaii is required to provide a Trash Reduction Plan. The MS4 Permit states:

*Pollution Prevention/Good Housekeeping, Part D.1.f.(1).(v)*

*“Trash Reduction Plan - Within three (3) years from the effective date of this permit, the Permittee shall develop and submit to the DOH for review and acceptance, a trash reduction plan which assesses the issue, identifies and implements control measures, and monitors the control measures to reduce trash loads from the MS4. The plan shall include, at a minimum and be formatted consistent with the following:*

- *Quantitative estimate of the debris currently being discharged (baseline load) from the MS4, including methodology used to determine the load.*
- *Description of control measures currently being implemented as well as those needed to reduce debris discharges from the MS4 consistent with short-term and long-term reduction targets.*
- *A short-term plan and proposed compliance deadline for reducing debris discharges from the MS4 by 50% from the baseline load.*
- *A long-term plan and proposed compliance deadline for reducing debris discharges from the MS4 to zero.*
- *Geographical targets for trash reduction activities with priority on waterbodies listed as impaired for trash on the State’s CWA Section 303(d) list.*
- *Trash reduction-related education activities as a component of Part D.1.a. [Public Education and Outreach].*
- *Integration of control measures, education and monitoring to measure progress toward reducing trash discharges.*
- *An implementation schedule.*
- *Monitoring plan to aid with source identification and loading patterns as well as measuring progress in reducing the debris discharges from the MS4.*
- *The Annual Report shall include a summary of its trash load reduction actions (control measures and best management practices) including the types of actions and levels of implementation, the total trash loads and dominant types of trash removed by its actions, and the total trash loads and dominant types of trash for each type of action.*

*The plan shall provide for compliance with the above short-term and long-term discharge limits in the shortest practicable timeframe.”*

## 2 Trash Defined

For the purposes of this plan, “trash” will be considered analogous to “litter” as defined below by the Hawaii Revised Statutes (HRS) §391-1.

*“Litter” means rubbish, refuse, waste material, garbage, trash, offal, or any debris of whatever kind or description, whether or not it is of value, and includes improperly discarded paper, metal, plastic, glass, or solid waste.*

A distinction is made that trash is not inclusive of non-man made materials, such as branches, leaves, and other vegetation, that is deposited into waterbodies naturally.

### 3 Marine Corps Solid Waste Policy and Program

#### 3.1 Marine Corps Solid Waste Policy

The Marine Corps Solid Waste policies are guided by Executive Orders (EO) and the Department of Defense (DoD) strategic plans.

EO 13514 requires the head of each Federal agency to promote pollution prevention and eliminate waste by:

- (1) minimizing the generation of waste and pollutants through source reduction;
- (2) diverting at least 50 percent of non-hazardous solid waste, excluding construction and demolition (C&D) debris by the end of fiscal year 2015;
- (3) diverting at least 50 percent of C&D materials and debris by the end of fiscal year 2015;
- (4) increasing diversion of compostable and organic material from the waste; and
- (5) reducing printing paper use and acquiring uncoated printing and writing paper containing at least 30 percent postconsumer fiber.

Based on this EO, the DoD developed a *Strategic Sustainability Performance Plan* (DoD, 2012). This plan established a policy goal for all DoD component installations to achieve diversion rates of 60 percent for C&D waste, and 50 percent for all other wastes, by fiscal year 2015 and thereafter through fiscal year 2020.

Implementation of these goals is achieved through the development of an Integrated Solid Waste Management Plan (ISWMP) as described in the following section.

Two other key MCB Hawaii base orders that apply to the management of solid waste are:

**MCB Hawaii Base Order 5500.15B:** MCB Hawaii Base Order 5500.15B Chapter 3, Litter and Trash Disposal, prohibits the disposal of hazardous wastes and recyclables in dumpsters. The order also outlines the landfill pass system and dumpster management system.

**MCB Hawaii Base Order 4500.2:** MCB Hawaii Base Order 4500.2 Solid Waste Reduction Qualified Recycling Program (QRP), provides policy, describes procedures, and assigns responsibilities to conduct resource conservation and recovery. This order establishes MCB Hawaii's recycling program as a QRP.

#### 3.2 Marine Corps Base Hawaii Integrated Solid Waste Management Plan

The Marine Corps in conjunction with the Navy has adopted Chief of Naval Instruction (OPNAVINST) 5090.1D entitled *Environmental Readiness Program*. Chapter 28 of OPNAVINST 5090.1D is entitled *Solid Waste Management and Resource Recovery Ashore*, and is applicable to all Navy installations worldwide that generate one or more tons of solid waste per day. These installations must follow the solid waste reporting, solid waste management planning, recycling requirements, and affirmative procurement requirements outlined in this chapter. Chapter 28 specifically requires that an ISWMP and QRP (where economically feasible) be developed and implemented.

MCB Hawaii's updated ISWMP was completed in 2012 (NAVFAC 2012). The ISWMP established historic and existing solid waste generation and recycling quantities. In fiscal year 2010, MCB Hawaii generated 7,812 tons of non-hazardous solid waste without C&D debris and diverted 4,896 tons from the landfill

resulting in a diversion rate of 62.66%. In fiscal year 2010, MCB Hawaii generated 941 tons of C&D waste debris of which 125 tons were diverted through recycling efforts by contractors. With C&D wastes the overall facility's solid waste diversion rate in fiscal year 2010 was 57.36%. In 2010, MCB Hawaii recycled 5,021 tons of non-hazardous solid waste, including 1,201 tons that were recycled through the facility's Qualified Recycling Program (QRP). Also in 2010, 806 tons of green wastes from landscaping operations were sent off-site to commercial composting facilities. The soil generated from C&D operations was beneficially used as landfill cover material at the MCB Hawaii Kaneohe Bay Landfill. It was not included as solid waste in the diversion calculations, but should be deemed as an additional diversion.

The ISWMP presented a framework for MCB Hawaii to increase their solid waste diversion through the following means:

- Source reduction – includes recommendations for administration, custodians, dining facilities, barracks, shops, Exchange and Commissary, and Supply Department.
- Recycling – includes recommendations for increasing recycling.
- Green waste management – includes alternatives for green waste management.
- C&D demolition debris management – includes recommendations for source reduction and recycling of building materials.
- Sustainable acquisition – includes recommendations for acquisition of environmentally friendly products.
- Education – includes recommendations for public awareness outreach to workers and residents.

Additional information about the ongoing base initiatives to reduce solid waste are presented in the ISWMP.

## 4 Existing Control Measures and BMPs

MCB Hawaii has already implemented the following control measures to reduce trash.

### 4.1 Public Education and Outreach

Trash reduction and recycling initiatives are presented to workers and residents through the following means:

- Informational brochures in the orientation packet presented to new arrivals.
- BMP training as part of the “Environmental Standard Operating Procedures” class that is conducted every other month.

### 4.2 Litter Clean Up

A small team of base inspectors is responsible for daily base-wide monitoring and beautification, and pick up litter they encounter during their rounds.

Additionally, the MCB Hawaii Environmental Department (ENV) organizes community litter clean up events. These litter clean up events are currently held annually and encourage participation by workers and residents. ENV has also solicited the assistance of students and faculty of Mokapu Elementary School with stenciling of storm drain inlets.

### 4.3 Street Sweeping

The Facilities Maintenance Control Division (MCD) conducts routine street sweeping throughout the Base. The street sweeping is completed on a priority basis with industrial and commercial areas of the Base being swept at least twice a month.

### 4.4 Trash Pickup

Regular trash pickup is provided to assure proper disposal of solid wastes. Trash pickup in residential areas is performed by contractors twice per week. Trash pickup in industrial and commercial areas of the Base is performed by the MCD twice per week.

### 4.5 Structural BMPs

Structural BMPs for trash collection have been installed in a few select locations as follows.

- A concrete debris collector has been installed at the inlet to the sediment basin installed along the restored portion of the MCDC.
- Two debris/sediment collectors have been installed at discharge points into the HDPE lined drainage channel starting at Uli Street along Daly Road.

In addition, the MCD inspects and maintains the storm drain lines, manholes, and inlets/catch basins in accordance with a priority based schedule.

### 4.6 Inspections

MCB Hawaii Base Inspectors conduct daily patrols of the residential, industrial, and commercial areas of the Base. The inspectors will document and report any illicit dumping, including litter. Any illicit dumping observed by the inspectors will be reported to ENV for follow-up corrective actions. All litter is collected and properly disposed.

## 5 Estimation of Baseline Discharge Load

A Baseline Load Study will be initiated on April 11, 2016 (effective date of the Storm Water Management Plan) to quantitatively determine the Baseline Load discharging to the MS4. The study is expected to last eighteen (18) months.

The study will include a visual survey of representative sites and existing debris/sediment collectors. As a minimum, the outlets to the following debris/sediment collectors will be surveyed.

- Concrete debris collector installed at the inlet to the sediment basin installed along the restored portion of the MCDC
- Two debris/sediment collectors installed at discharge points into the HDPE lined drainage channel starting at Uli Street along Daly Road

In addition, four representative sites will be selected for monitoring, two representing housing areas and two representing industrial/commercial areas. The four representative sites will be selected based on an initial visual survey of the entire system for trash collection points and personal interviews with maintenance staff.

Monitoring will be conducted quarterly for eighteen (18) months to accurately determine seasonal variability. The survey will include documentation of the nature, type, and quantity (e.g., volume) of debris, and potential upstream sources. A survey inspection form, that details the data to be collected, is included as an Attachment.

During each quarterly survey event, trash will be removed from each observation point and quantified. In addition, records of trash removed during routine maintenance by the MCD, the Base Inspectors, and during special clean-up events will be collected for the corresponding quarter. The quantity of trash removed through routine maintenance and special clean-up events will be added to the observation point data to determine the Baseline Load.

The exact data collection methods will be refined after the first two quarterly survey events and may be subject to change throughout the eighteen (18) month survey period.

Following the completion of the survey, a technical report will be prepared to present the methodology, results, and the calculated annual Baseline Load. The survey results will be used to develop short term and long plans to meet the trash reduction objectives of the MS4 Permit.

## 6 Short Term Plan

The goal of the Short Term Plan is to reduce the debris discharges from the MS4 by 50% from the Baseline Load. The Short Term Plan consists of three steps: (1) establish the Baseline Load; (2) identify source and problem areas and determine preventative and corrective actions; and (3) implementation of actions.

### 6.1 Establish the Baseline Load

The first step will be to establish the Baseline Load. This will be accomplished by completing a Baseline Load Survey, as described in Section 5. One of the outcomes of the survey will be the identification of problem areas and potential sources. The data collected will help determine target areas of improvement to achieve the 50% reduction goal.

### 6.2 Data Analysis and Development of Reduction Actions

The Baseline Load Survey data will be analyzed to determine the location of trash accumulation areas and potential sources related to the accumulation areas. Based on the nature of the problem, alternative actions will be developed and prioritized for implementation. Alternative actions may be both preventative (i.e., eliminate the source of trash) and corrective (i.e., collection and disposal of trash). A Reduction Action Plan will be written detailing the selected alternatives.

### 6.3 Implementation of Short Term Actions

The Reduction Action Plan will present the short term actions to be taken to achieve the 50% reduction goal. Several actions that could be considered include:

- Public Education and Outreach – pamphlets and educational materials specific to trash reduction distributed to residents, workers, and schools.
- Implementation of Pollution Prevention BMPs – implement BMPs to reduce trash generation at the source.
- Implementation of Structural BMPS – construction of structural BMPs to capture trash and debris prior to discharge.
- Storm Drain System Maintenance – routine maintenance of the storm drain system that includes trash collection and disposal.
- Special Clean-up Events – continue litter clean-up events that involve residents and workers.
- Adopt-a-Neighborhood Program – engage residents, workers, and schools in an adopt-a-neighborhood program to foster public awareness and facilitate litter clean-up.

## **7 Long Term Plan**

The goal of the Long Term Plan is to reduce debris discharges from the MS4 by 100% from the Baseline Load. The Long Term Plan consists of two steps: (1) develop a Long Term Implementation and Monitoring Strategy; and (2) implement Long Term Reduction Actions and Monitoring.

### **7.1 Long Term Reduction Implementation and Monitoring Strategy**

The Long Term Reduction Implementation and Monitoring Strategy will specify how MCB Hawaii will achieve the 100% Baseline Load reduction goal. The strategy will consist of two components:

- (1) Implementation Plan – will identify specific actions that will be implemented to achieve the 100% reduction goal. The actions will include public education and outreach, implementation of BMPs, and trash collection. It is envisioned that this will be an extension of the actions implemented during the Short Term Plan.
- (2) Monitoring Plan – will present the monitoring and tracking required to demonstrate the efforts to meet the reduction requirements and to assess the effectiveness of the reduction actions.

The Implementation and Monitoring Plans will be developed following the Short Term Plan.

### **7.2 Long Term Reduction Implementation and Monitoring**

The long term actions and monitoring will be implemented to achieve the 100% Baseline Load reduction goal. Progress towards meeting the goal will be evaluated annually and will be revised as necessary.

## 8 Geographical Targets

Priority target areas for trash reduction have been identified for initial survey in Section 5. These priority target areas may be subject to change based on the results of the initial survey, maintenance activity observations, and complaints from the public. At this time, none of the waterbodies that receive discharges from the MCB Hawaii MS4 are listed as impaired for trash on the State's Clean Water Act Section 303(d) list.

## 9 Trash Reduction Related Education Activities

Public education and outreach is an important component in achieving the Short Term and Long Term goals of this Trash Reduction Plan. As a component of Part D.1.a of the Permit and as outlined in Section 6.3, trash reduction education activities may include:

- Education Materials;
- Special Clean-up Events;
- School Outreach; and
- Adopt-a-Neighborhood Projects.

## 10 Measuring Program Success

Program success will be measured both quantitatively and qualitatively. Quantitative measures will include measurements of trash collected and monitoring for trash reduction. Qualitative measures will include number of educational materials distributed and increase in public participation in special clean-up events and projects. As previously mentioned, a Long Term Monitoring Plan will be developed to track the success of the program in meeting the reduction requirements and to assess the effectiveness of the trash reduction actions.

## 11 Implementation Schedule

The proposed implementation schedule is presented in Table 1 below.

**Table 1: Implementation Schedule**

<b>Task</b>	<b>Completion Date</b>
Short Term Plan	
Baseline Load Survey	October 15, 2017
Data Analysis and Reduction Action Development	April 11, 2019
Short Term Reduction Action Implementation	April 11, 2023
Long Term Plan	
Implementation and Monitoring Strategy	April 11, 2024
Long Term Reduction Action Implementation	April 11, 2034

## 12 References

1. *Integrated Solid Waste Management Plan, Marine Corps Base Hawaii*. Prepared for MCB Hawaii, by the Naval Facilities Engineering Command, Engineering Service Center. April 2012.
2. *Strategic Sustainability Performance Plan*. Department of Defense. 2012.
3. *Environmental Readiness Program, OPNAVINST 5090.1D*. Department of the Navy. January 10, 2014.

*This page intentionally left blank.*

# Attachment

Trash Survey Inspection Checklist



### Trash Survey Inspection Checklist

Inspection Date:		Name and phone # of those present during inspection:	
Time:			
Site Information			
Site name:		Inlet/Outlet ID No. (if available):	
Location/Type of Structure:			
Date of Last Inspection:		Weather during inspection:	Amount of Rainfall in past 24 hrs (inches): _____
Site Drainage Description:			
<b>General Observations/Notes:</b>			
_____			
_____			
_____			
<b>Describe Type of Trash Observed (if any):</b>			
<input type="checkbox"/> Plastic		<input type="checkbox"/> Clothing	
<input type="checkbox"/> Metal		<input type="checkbox"/> Other (describe):	
<input type="checkbox"/> Wood		_____	
<input type="checkbox"/> Rubber		_____	
<input type="checkbox"/> Disposable Food Containers/Wrappers		_____	
<b>Estimate Quantity</b> (approximate volume, or no. of each item if feasible):			
<b>Potential Source:</b>			
<b>Photos Taken:</b> Yes <input type="checkbox"/> No <input type="checkbox"/>			
Photo Reference IDs:			
<b>Recommendations/Additional Notes:</b>			
_____			
_____			
_____			
_____			
Inspector Information			
Inspector Name:		Inspector Title:	
Signature:		Date:	