SECTION 6
Pollution Prevention / Good Housekeeping
I. Introduction

Removing debris from roads and storm drainage structures minimizes the amount of pollutant material present in storm water runoff that enters receiving water bodies. The Debris Control BMP Program (DCBP) implements a series of BMPs to reduce the discharge of pollutants to and from US Army Garrison Hawaii (USAG-HI) Municipal Separate Storm Sewer System (MS4) to the Maximum Extent Practicable (MEP). The DCBP consists of the following BMPs and sub-programs:

- Use a database to maintain an inventory of roads, permanent BMPs, and MS4 structures; track system maintenance and debris removal activities; create schedules; and evaluate inspection and cleaning priorities.
- Implement a Street Sweeping Program with priority-based schedules.
- Implement a Storm Drain System Inspection and Cleaning Program with priority-based schedules.
- Install and maintain storm drain placards at storm drain inlets for the purpose of educating the public.
- Create and submit to Hawaii Department of Health (HDOH) an Action Plan for Retrofitting Structural BMPs.
- Implement a Trash Reduction Program to reduce trash loads to and from the MS4.

II. Legal Authority

All personnel, tenants, contractors, and residents on the USAG-HI property are prohibited from illegally discharging pollutants to its MS4 through USAG-HI Enforcement Policies, permits, lease agreements, contract language and Military Law Enforcement. These mechanisms allow the USAG-HI to pursue enforcement actions against entities in non-compliance with the requirements of the USAG-HI MS4 permit. Each mechanism is discussed in section IV, Procedures and Best Management Practices of this document.
III. Roles and Responsibilities

The USAG-HI is the overseeing command for the Directorate of Public Works (DPW) as well as multiple other directorates. DPW is responsible for managing and implementing the NPDES MS4 permit. DPW is composed of several divisions: Business Operations Division (BOD), Engineering (ENG) which comprise of Construction and Utilities branches, Environmental (ENV) which comprise of Compliance and Conservation branches, Master Planning (MP), Operations and Maintenance Division (OMD), and Housing (HD). The chart below is a simplified organizational chart of DPW where the color and departmental codes are used to identify the responsible divisions for executing specific responsibilities detailed in section IV, Procedures and Best Management Practices. A complete detailed organizational chart can be found in the INTRO Appendix C.

![Organizational Chart]

IV. Procedures and Best Management Practices

DPW has identified and selected the following BMPs to achieve the goals of the program to prevent or minimize the discharge of pollutants of concern into the garrison’s MS4.

**BMP# DCBP – 1:** Asset Management System  
*Permit Part D.1.f.(1)(i)*

Divisions responsible:

- **OMD**

In 2014, DPW ENV contracted a study to provide a condition assessment and inventory of all features, infrastructure, and facilities of the garrison’s MS4. The study also developed an asset management database system that would support the storm water infrastructure maintenance and management program.
The study’s main objectives were:

- To locate, identify, and assess existing storm water infrastructure across USAG-HI’s MS4 which includes Wheeler Army Airfield (WAAF), Schofield Barracks (SB), Fort Shafter (FS), Tripler Medical Center (TAMC), Helemano Military Reservation (HMR), and Aliamanu Military Reservation (AMR).

- To develop a storm water asset management system that facilitates storm water asset reporting and maintenance.

A comprehensive storm water asset management system was developed from the condition assessment data and consists of Access databases and map books. Storm water assets have condition assessment information and are tied to a specific map grid for reference with the map books. Field images are embedded within the databases and can be changed/updated within the image folders.

The navigation panel of the database has three columns: All Data, Minor Obstructions, and Major Obstructions. An example of the main page is shown in Figure 1:
Major and minor obstructions to storm water assets can be queried from the database per each feature type: manholes, inlets, discharge points, and conduits.

Data have a unique identifier that is maintained in the Access database and in the GIS data. GIS users are able to join data from the database using the unique identifier to update changes to the storm water asset condition assessment. For instance, when maintenance is performed on a conduit with a major obstruction, the date and maintenance activity will be logged in the database, and the obstruction will be changed from “Major_Obstruction” to “No_Obstruction”. This data can then be joined to the GIS data table so storm water GIS and maintenance personnel are working with the same information.
DPW OMD is responsible for the update and upkeep of the storm water asset management database system.

**BMP# DCBP – 2: Street Sweeping**  
*Permit Part D.1.f.(1)(ii)*

Divisions responsible:

- **OMD**
- **BOD**

Street sweeping has proven to be an effective method of removing sediment and debris from roadways before it reaches the drainage system. USAG-HI has a street sweeping program that addresses all roads within its MS4. DPW OMD is responsible for this operations. Street sweeping are done on day-to-day rotation schedules. Only AMR is done on a case by case basis. See **DCBP Appendix A** for detailed maps and schedules. For non-scheduled sweeping, tenants can call the Customer Service desk (DMO Phone # 656-6741) for immediate action.

All street sweeping debris is disposed of via contract. DPW BOD is the Contracting Officer Representative (COR) for this contract. Disposal waste quantities are tracked within this contract. DPW BOD shall provide waste quantity loads at the end of each fiscal year to DPW ENV. DPW ENV shall report quantity loads in each year’s Storm Water Annual Report.

**BMP# DCBP – 3: Storm Drain System Inspection and Cleaning**  
*Permit Part D.1.f.(1)(ii)*

Divisions responsible:

- **OMD**
- **BOD**
- **ENV**

It is necessary to remove debris from the drainage system in order to reduce the amount of pollutants discharged to receiving waters to the MEP. The Debris Control BMP Program inspects the MS4 for the purpose of determining if cleaning or maintenance is needed. Storm drainage system infrastructure inspected and cleaned under this program includes storm water pipes, manholes, catch basins, gutters, and open channels. DPW OMD is responsible for the inspection and cleaning of all storm drainage system infrastructure.
DPW BOD is in the process of completing a one-time service contract to clean out the entire MS4 storm drain system infrastructure. Focus will be on the “Major Obstruction” type discrepancies as found in the assessment reports (see DCBP #1).

DPW OMD also has the use of a VacTruck for storm drain line cleaning operations. It is primarily used to help maintain the storm drain lines and respond to clogged lines as required.

Structures that may require more frequent cleaning due to high material accumulation rates or a potential threat to water quality are inspected semi-annually. All other structures are inspected at least once per permit period. The priority-based schedules are annually reviewed and adjusted as necessary. Any changes made to the schedule, along with explanations of the changes, will be submitted to DPW ENV to incorporate in the Storm Water Annual Report due to HDOH.

Storm drainage structures are cleaned when a one-third debris accumulation threshold is reached or exceeded. If the depth of deposited sediment and debris is at least one-third the depth from the invert of the structure to the invert of the lowest pipe or opening into or out of the structure, cleaning is required.

The storm water asset management system is used to establish priorities and to schedule and track efforts of appropriate system maintenance and debris removal activities.

<table>
<thead>
<tr>
<th>BMP# DCBP – 4:</th>
<th>Storm Drain Placards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit Part D.1.f.(1)(iii)</td>
<td></td>
</tr>
</tbody>
</table>

Divisions responsible:

- ENV
- ENG
- OMD

The ocean has meaningful significance to the majority of people living in Hawaii. A large portion of the public directly depends on a healthy ocean for their livelihoods, immediate subsistence, and/or recreational needs. Many people also appreciate the ocean for its aesthetic beauty, economic value, and cultural significance to the community. For these reasons, establishing a mental connection between storm drains and the ocean, much like the physical connection itself, has the potential to have far reaching effects on public behavior. The intent of the storm drain placards is to raise public awareness about this direct connection and ultimately affect public behavior.

Figure 2: USAG-HI Storm Drain Placard
public behavior by reducing the amount of pollutants that are intentionally or negligibly dumped into storm drains.

DPW ENV installs a minimum of 50 new storm drain placards (Figure 2) every year, primarily in areas with heavy pedestrian traffic or a high concentration of commercial and industrial facilities. Once placards are installed in all high priority areas (i.e., heavy pedestrian traffic and/or high concentration of commercial and industrial facilities) within the garrison, focus will shift toward efforts on placard inspection, repair, and maintenance, in lieu of continued installation.

For all new construction after 2010, each new drain inlet is permanently stamped “Dump No Waste, Goes To Ocean” (Figure 3) into the concrete as part of the construction plans and specifications. DPW ENG is responsible for construction plan and specification review.

![Figure 3: Permanent Stamp Design](image)

Each drain inlet is assigned a unique number in the storm water database management system. Each inlet is tracked for storm drain placard in Access database by DPW ENV. The Access database track placard placement and link images and locations of each inlet. Storm drain placards are assessed for maintenance or replacement during DPW OMD storm system inspections. Any storm drain placard that spotted for replacement by other tenants and personnel is instructed to call the Customer Service desk (DMO 656-6741) or DPW Environmental Division Clean Water Branch (656-3105).
BMP# DCBP – 5: 
Action Plan for Retrofitting Structural BMPs 
Permit Part D.1.f.(1)(iv)

Divisions responsible:

Part D.1.f.(1)(iv) of the MS4 Permit requires USAG-HI to provide DOH with an Action Plan for Retrofitting Structural BMPs, which includes identification of the retrofits to be implemented, an explanation on the basis of their selection, and a five-year implementation schedule. The purpose of the Action Plan for Retrofitting Structural BMPs is to reduce storm water pollution by designing and constructing/installing appropriate and cost-effective BMPs (retrofits) in strategic locations and structures within the existing MS4. Potential retrofit sites were selected through the review of previous MS4 studies and from data collected during routine MS4 monitoring and maintenance activities. A total of 12 sites were selected for retrofits throughout the MS4 during the five-year implementation period. Refer to DCBP Appendix B for the complete Action Plan report. Table 1 shows a summary of the sites selected:

Table 1: Structural BMP Retrofit

<table>
<thead>
<tr>
<th>Retrofit #</th>
<th>Base</th>
<th>Location</th>
<th>Proposed BMPs</th>
<th>Implementation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>SB</td>
<td>The drainage and grass covered area located in Lyman Gate</td>
<td>Bioretention Vegetated Swale</td>
<td>2019</td>
</tr>
<tr>
<td>S-3A</td>
<td>SB</td>
<td>A ditch along Lyman Road</td>
<td>Geotextile</td>
<td>2016</td>
</tr>
<tr>
<td>S-3B</td>
<td>SB</td>
<td>A ditch along Lyman Road</td>
<td>Geotextile</td>
<td>2016</td>
</tr>
<tr>
<td>S-3C</td>
<td>SB</td>
<td>A ditch along Lyman Road</td>
<td>Geotextile</td>
<td>2016</td>
</tr>
<tr>
<td>S-3D</td>
<td>SB</td>
<td>Ditch on Lyman Rd</td>
<td>Bioretention Vegetated Swale Gravel Trench</td>
<td>2017</td>
</tr>
<tr>
<td>S-6</td>
<td>SB</td>
<td>The eroded channel along Humphries Road</td>
<td>Vegetated Swale</td>
<td>2015</td>
</tr>
<tr>
<td>S-7</td>
<td>SB</td>
<td>A vegetated swale along Trimble Road</td>
<td>Vegetated Swale</td>
<td>2015</td>
</tr>
<tr>
<td>S-12</td>
<td>SB</td>
<td>The eroded culvert along McMahon Road</td>
<td>Vegetated Swale</td>
<td>2017</td>
</tr>
</tbody>
</table>
### Retrofit # Base | Location | Proposed BMPs | Implementation Schedule
--- | --- | --- | ---
S-13 | SB | The parking lot along North side of the Menoher Road | Bioretention Gravel Trench | 2018
S-14 | SB | A badly eroded culvert on the intersection area between McMAHON Rd and Capron Avenue | Vegetated Swale | 2017
S-21 | SB | The parking lot of Bldg 580 (25 Infantry Division Headquarters) | Bioretention Gravel Trench | 2018
S-22 | SB | Solomon Elementary School parking lot | Bioretention Gravel Trench | 2019

All branches of DPW are accountable for this section’s BMPs:

- DPW MP, ENG, and BOD evaluates the projects, prioritize, and execute based on schedule and cost.
- DPW ENG overseas projects that are executed through contract.
- DPW OMD executes any in-house projects. DPW OMD is also responsible to maintain all BMPs installed (by contract or in-house) through service contract or in-house.

**BMP# DCBP – 6: Trash Reduction Permit Part D.1.f.(1)(v)**

Divisions responsible:

- ENG
- OMD
- ENV
- BOD
- MP

DPW is developing a Trash Reduction Plan that will be submitted to HDOH for review and acceptance within three years of the effective date of the MS4 Permit. The Trash Reduction Plan will be designed to assess and reduce trash loads from the MS4. The Trash Reduction Plan will contain the elements required in *Part D.1.f.(1)(v)* of the MS4 Permit:
• 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 of permit.

• 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.

V. Measurable Goals

The measureable goals listed in the table below will be used to monitor the BMP’s progress and evaluate the DCBP success:
<table>
<thead>
<tr>
<th>BMP#</th>
<th>BMP Description</th>
<th>Measurable Goal</th>
<th>Area of Responsibility</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCBP – 1</td>
<td>Asset Management System</td>
<td>1. Utilize asset management system to establish priorities and schedule and track efforts of debris removal program activities.</td>
<td>OMD</td>
<td>1. Begin 1st year of permit period.</td>
</tr>
<tr>
<td>DCBP – 2</td>
<td>Street Sweeping</td>
<td>1. Sweep 100% of segments in accordance with the priority based schedules.</td>
<td>OMD</td>
<td>1. Begin 1st year of permit period.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Monitor and report waste quantity loads to DPW ENV.</td>
<td>BOD</td>
<td>1. Annually.</td>
</tr>
<tr>
<td>DCBP – 3</td>
<td>Storm Drain System Inspection and Cleaning</td>
<td>1. Inspect and/or clean 100% of drainage structures within MS4 permit period in accordance with the priority-based schedules.</td>
<td>OMD</td>
<td>1. Begin 1st year of permit period.</td>
</tr>
<tr>
<td>DCBP – 4</td>
<td>Storm Drain Placards</td>
<td>1. Install 50 storm drain placards each year on pedestrian-accessible storm drain inlets.</td>
<td>ENV</td>
<td>1. 100% annually. 2. 100% annually.</td>
</tr>
</tbody>
</table>
VI. Reporting

A summary of activities, surveys and projects will be presented in the annual SWMP report that will be submitted to the HDOH CWB and EPA CWB. The information will be compiled in a table that illustrates the effectiveness of the BMP’s as related to each measurable goal.
SECTION 6
Pollution Prevention / Good Housekeeping
Chemical Applications BMP Program

I. Introduction

The Chemical Applications BMPs Program (CABP) is responsible for implementing BMPs, including a training program, to reduce the contribution of pollutants to the MS4 associated with the application, storage, and disposal of chemicals (i.e., pesticides, herbicides, and fertilizers). Chemical applications typically occur during landscape maintenance activities conducted by USAG-HI DPW OMD personnel and landscape maintenance service contractors. The BMPs required by the CABP pertain to all USAG-HI DPW OMD personnel and service contractors that use chemicals within USAG-HI municipal industrial facilities.

The Chemical Applications BMP Program includes the following control measures:

- Develop an Authorized Use List of the chemicals USAG-HI uses and implement a specific training program for all potential applicers on the proper application of these chemicals.
- Implement BMPs for the application, storage, and disposal of chemicals.

II. Legal Authority

All personnel and contractors on the USAG-HI property are prohibited from illegally discharging pollutants to its MS4 through USAG-HI Enforcement Policies, permits, contract language and Military Law Enforcement. These mechanisms allow the USAG-HI to pursue enforcement actions against entities in non-compliance with the requirements of the USAG-HI MS4 permit. Each mechanism is discussed in section IV, Procedures and Best Management Practices of this document.

III. Roles and Responsibilities

The USAG-HI is the overseeing command for the Directorate of Public Works (DPW) as well as multiple other directorates. DPW is responsible for managing and implementing the NPDES MS4 permit. DPW is composed of several divisions: Business Operations Division (BOD), Engineering (ENG) which comprise of Construction and Utilities branches, Environmental (ENV) which comprise of Compliance and
Conservation branches, Master Planning (MP), Operations and Maintenance Division (OMD), and Housing (HD). The chart below is a simplified organizational chart of DPW where the color and departmental codes are used to identify the responsible divisions for executing specific responsibilities detailed in section IV, Procedures and Best Management Practices. A complete detailed organizational chart can be found in the INTRO Appendix C.

**IV. Procedures and Best Management Practices**

DPW has identified and selected the following BMPs to achieve the goals of the program to prevent or minimize the discharge of pollutants of concern into the garrison’s MS4.

**BMP# CABP – 1:**
**Chemical Applications Training**
*Permit Part D.1.f.(2)(i)*

Divisions responsible:

- ENV
- OMD

**BMP# CABP – 2:**
**Chemical Applications BMPs**
*Permit Part D.1.f.(2)(ii)*

Divisions responsible:

- OMD

DPW ENV Entomologist is responsible for the Pest Management Program for USAG-HI. The Integrated Pest Management Plan (IPMP) describes the Pest Management Program for USAG-HI and is based on...
Integrated Pest Management (IPM) techniques. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

The IPMP provides guidance for operating and maintaining an effective pest management program and is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of IPM. It reflects current DoD/Army policies, procedures and standards and incorporates the requirements of the EPA and the State of Hawaii.

Integrated pest management (IPM) consists of the judicious use of both chemical and non-chemical control techniques to achieve effective pest management with minimal environmental contamination.

Adherence to the IPMP will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations and will enable the Garrison to continue to meet the pest management objectives of DoD and the Army.

Refer to USAG-HI’s IPMP in CABP Appendix A for the following:

- Authorized Use List of chemicals used
- Specific training program for all potential appliers (bulk and hand-held) of the chemicals on the proper application of the chemicals
- Educational activities, permits, certifications and other measures for applicators
- Integrated pest management measures that rely on non-chemical solutions
- The use of native vegetation
- Chemical application, as needed
- The collection and proper disposal of unused pesticides, herbicides, and fertilizers

DPW OMD and contractors are responsible to comply with the IPMP in all chemical application activities.

V. Measurable Goals

The measureable goals listed in the table below will be used to monitor the BMP’s progress and evaluate the CABP success:
### VI. Reporting

A summary of activities, surveys and projects will be presented in the annual SWMP report that will be submitted to the HDOH CWB and EPA CWB. The information will be compiled in a table that illustrates the effectiveness of the BMP’s as related to each measurable goal.
SECTION 6
Pollution Prevention / Good Housekeeping
Erosion Control BMP Program

FINAL

SECTION 6
Pollution Prevention / Good Housekeeping

Erosion Control BMP Program
(Permit Part D.1.f.(3))

I. Introduction

The purpose of the Erosion Control BMP Program (ECBP) is to prioritize permanent erosion control improvements at erosion prone areas with the potential for significant water quality impacts, in addition to erosion prone areas that pose public safety concerns.

The ECBP is responsible for executing the following:

- Identifying erosion prone areas with the potential for significant water quality impact for the purpose of implementing erosion control improvements.
- Submitting to HDOH a list of projects with an implementation schedule for constructing permanent erosion control improvements.
- Implementing temporary erosion control measures on erosion prone areas with the potential for significant water quality impact, if a permanent solution is not immediately possible.
- Providing HDOH with an action plan to address erosion at USAG-HI’s storm drain system outlets with significant potential for water quality impacts.
- Developing a maintenance plan for vegetated portions of the drainage system used for erosion and sediment control.

II. Legal Authority

All personnel, tenants, and contractors on the USAG-HI property are prohibited from illegally discharging pollutants to its MS4 through USAG-HI Enforcement Policies, permits, contract language and Military Law Enforcement. These mechanisms allow the USAG-HI to pursue enforcement actions against entities in non-compliance with the requirements of the USAG-HI MS4 permit. Each mechanism is discussed in section IV, Procedures and Best Management Practices of this document.
III. Roles and Responsibilities

The USAG-HI is the overseeing command for the Directorate of Public Works (DPW) as well as multiple other directorates. DPW is responsible for managing and implementing the NPDES MS4 permit. DPW is composed of several divisions: Business Operations Division (BOD), Engineering (ENG) which comprise of Construction and Utilities branches, Environmental (ENV) which comprise of Compliance and Conservation branches, Master Planning (MP), Operations and Maintenance Division (OMD), and Housing (HD). The chart below is a simplified organizational chart of DPW where the color and departmental codes are used to identify the responsible divisions for executing specific responsibilities detailed in section IV, Procedures and Best Management Practices. A complete detailed organizational chart can be found in the INTRO Appendix C.

IV. Procedures and Best Management Practices

DPW has identified and selected the following BMPs to achieve the goals of the program to prevent or minimize the discharge of pollutants of concern into the garrison’s MS4.

**BMP# ECBP – 1:**
Identify Erosional Areas
*Permit Part D.1.f.(3)(i)*

Divisions responsible:

<table>
<thead>
<tr>
<th>Division</th>
<th>Chief</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A for the details on the site evaluation processes. A summary of the selected sites are listed in Table 1. The implementation year is the year in which the proposed retrofit is scheduled to be completed. However, this schedule is subject to change due to funding availability, permitting delays, or other unforeseen circumstances. Future erosion control improvement areas shall be identified as potential projects by evaluating previous studies and from the review of data collected during ongoing inspections of the MS4. New projects and/or any changes to the implementation schedule will be provided in the Annual Report.

### BMP# ECBP – 2:
**Permanent Erosion Control BMPs**  
*Permit Part D.1.f.(3)(i)*

Divisions responsible:

<table>
<thead>
<tr>
<th>ENV</th>
<th>ENG</th>
<th>MP</th>
<th>BOD</th>
<th>OMD</th>
</tr>
</thead>
</table>

A list was submitted by DPW ENV to HDOH with an implementation schedule for constructing permanent erosion control improvements. See Table 1 below:

**Table 1: Permanent Erosion Control BMPs Sites Summary**

<table>
<thead>
<tr>
<th>Site #</th>
<th>Base</th>
<th>Location</th>
<th>Implementation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SB</td>
<td>Leadership Development Course Bldg# 1700</td>
<td>2017</td>
</tr>
<tr>
<td>2</td>
<td>AMR</td>
<td>Near Pump Station #1</td>
<td>2017</td>
</tr>
<tr>
<td>3</td>
<td>HMR</td>
<td>Vegetated Detention Basin-Paalaa Uka Pupukea Road</td>
<td>2017</td>
</tr>
<tr>
<td>4</td>
<td>TAMC</td>
<td>Access road to Bldg 137-Krukowski Rd (both sides)</td>
<td>2018</td>
</tr>
<tr>
<td>6</td>
<td>SB</td>
<td>Mellicamp and Trimble</td>
<td>2018</td>
</tr>
<tr>
<td>7</td>
<td>SB</td>
<td>Area X-Molokini and Beaver</td>
<td>2018</td>
</tr>
<tr>
<td>8</td>
<td>SB</td>
<td>Area X-Kauai and Maui</td>
<td>2018</td>
</tr>
<tr>
<td>9</td>
<td>SB</td>
<td>Area X-Beaver</td>
<td>2018</td>
</tr>
<tr>
<td>10</td>
<td>SB</td>
<td>Water Tank-Trimble road</td>
<td>2018</td>
</tr>
</tbody>
</table>
### Erosion Control BMP Program

#### Site 

<table>
<thead>
<tr>
<th>Site #</th>
<th>Base</th>
<th>Location</th>
<th>Implementation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>SB</td>
<td>Hale Kula Elementary</td>
<td>2018</td>
</tr>
<tr>
<td>12</td>
<td>SB</td>
<td>SB Bldg 1709-Trimble Road</td>
<td>2018</td>
</tr>
<tr>
<td>13</td>
<td>SB</td>
<td>Grenade Range</td>
<td>2019</td>
</tr>
<tr>
<td>14</td>
<td>SB</td>
<td>Skeet Range</td>
<td>2019</td>
</tr>
<tr>
<td>15</td>
<td>SB</td>
<td>KR-1</td>
<td>2019</td>
</tr>
<tr>
<td>16</td>
<td>SB</td>
<td>KR-5</td>
<td>2019</td>
</tr>
<tr>
<td>17</td>
<td>SB</td>
<td>Engineer Training Area</td>
<td>2019</td>
</tr>
<tr>
<td>18</td>
<td>SBER</td>
<td>Access Road to Range-Behind Bldg 6027 Higgins Road</td>
<td>2019</td>
</tr>
</tbody>
</table>

See **ECBP Appendix A** for report.

All branches of DPW are accountable for this section’s BMP:

- DPW ENV identified areas on USAG-HI requiring permanent erosion control BMPs. Developed Action Plan (see **ECBP Appendix A**). Projects submitted based on Action Plan’s Implementation Schedule to DPW MP, ENG, and BOD for consideration/prioritization.
- DPW MP, ENG, and BOD evaluates the projects, prioritize, and execute based on schedule and cost.
- DPW ENG overseas projects that are executed through contract.
- DPW OMD executes any in-house projects. DPW OMD is also responsible to maintain all BMPs installed (by contract or in-house) through service contract or in-house.

#### BMP# ECPB – 3:

**Temporary Erosion Control BMPs**

*Permit Part D.1.f.(3)(ii)*

Divisions responsible:

- **OMD**
- **ENV**
- **ENG**
Part D.1.f.(3)(ii) of the MS4 Permit requires USAG-HI to implement temporary erosion control improvements within 18 months of the effective date of the MS4 Permit, on erosion prone areas with the potential for significant water quality impact for which a permanent solution is not immediately possible. Of the 18 sites identified by DPW ENV, none have temporary BMPs in place. Temporary BMPs shall be installed in-house via DPW OMD or contract via DPW-ENG within 18 months of the effective date of the MS4 Permit.

### BMP# ECBP – 4: Action Plan to Address Erosional Outfalls

**Permit Part D.1.f.(3)(iv)**

DPW Divisions responsible:

- ENV
- ENG
- MP
- BOD
- OMD

Part D.1.f.(3)(iv) of the MS4 Permit requires USAG-HI to provide DOH with an action plan to address erosion at its storm drain system outfalls that have significant potential for water quality impacts, along with a five-year implementation schedule. DPW developed an Action Plan to Address Erosional Outfalls. See ECBP Appendix B for Action Plan report. The Action Plan’s purpose is to reduce erosion at USAG-HI’s MS4 outfalls that have the significant potential for water quality impacts, by implementing appropriate and cost-effective outfall repairs. Outfall repair sites were selected through the review of previous MS4 studies and from data collected during routine MS4 monitoring and maintenance activities.

The following criteria were used to determine final site selections for the five-year implementation schedule:

- Developed initial list of potential erosion prone outfall repair sites with data from the Illicit Discharge Detection and Elimination Survey.
- Cross referenced initial list with data from the Storm Water Asset Assessment reports to add or remove potential outfall repair sites.
- Narrowed list down to focus only on major outfalls. Major outfalls are defined by USAG-HI’s Storm Water Management Plan (SWMP):

  IDE#2- Field Screening of Outfalls Part D.1.c.(2):
  “Major Outfall: Point where storm water discharges off installation boundary, or ultimately to stream or gulch. Major Outfalls do not include points within open
conveyances connecting segments of the same MS4 or stream (e.g. culverts under roads or highways). All Major Outfalls are High Priority and will be inspected annually.”

- Implementation sites were determined by the outfall’s construction and maintenance accessibility.

Below is a summary of the selected sites:

<table>
<thead>
<tr>
<th>Table 2. Proposed Erosional Outfall Repair Sites and Implementation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosional Outfall Site</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Wheeler Army Airfield (WAFF)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Schofield Barracks (SB)</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10</td>
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<td>11</td>
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<td>12</td>
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<tr>
<td>13</td>
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<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
</tr>
</tbody>
</table>
## Table 2. Proposed Erosional Outfall Repair Sites and Implementation Schedule

<table>
<thead>
<tr>
<th>Erosional Outfall Site</th>
<th>Outfall PID</th>
<th>Outfall Type</th>
<th>Receiving Waterbody</th>
<th>Watershed</th>
<th>Implementation Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>DP-SB-452</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>19</td>
<td>DP-SB-543</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>20</td>
<td>DP-SB-545</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>21</td>
<td>DP-SB-550</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>22</td>
<td>DP-SB-551</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>23</td>
<td>DP-SB-552</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>24</td>
<td>DP-SB-560</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2016</td>
</tr>
<tr>
<td>25</td>
<td>DP-SB-104</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>26</td>
<td>DP-SB-448</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>27</td>
<td>DP-SB-464</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>28</td>
<td>DP-SB-454</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>29</td>
<td>DP-SB-465</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>30</td>
<td>DP-SB-469</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2017</td>
</tr>
<tr>
<td>31</td>
<td>DP-SB-450</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>32</td>
<td>DP-SB-353</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>33</td>
<td>DP-SB-428</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>34</td>
<td>DP-SB-352</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>35</td>
<td>DP-SB-367</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>36</td>
<td>DP-SB-512</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>37</td>
<td>DP-SB-565</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2018</td>
</tr>
<tr>
<td>38</td>
<td>DP-SB-547</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2019</td>
</tr>
<tr>
<td>39</td>
<td>DP-SB-489</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2019</td>
</tr>
<tr>
<td>40</td>
<td>DP-SB-467</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2019</td>
</tr>
<tr>
<td>41</td>
<td>DP-SB-635</td>
<td>Unknown</td>
<td>Waiekele Stream</td>
<td>Waiekele</td>
<td>2019</td>
</tr>
</tbody>
</table>
All branches of DPW are accountable for this section’s BMP:

- DPW ENV identified areas on USAG-HI requiring erosional outfall repair sites. Developed Action Plan (see ECBP Appendix B). Projects submitted based on Action Plan’s Implementation Schedule to DPW MP, ENG, and BOD for consideration/prioritization.
- DPW MP, ENG, BOD evaluates the projects, prioritize and execute based on schedule and cost.
- DPW ENG oversees projects that are executed through contract.
- DPW OMD executes any in-house projects. They also is responsible to maintain all BMPs installed.

<table>
<thead>
<tr>
<th>BMP#</th>
<th>ECBP – 5: Maintenance Plan for Vegetation Outfalls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permit Part D.1.f.(3)(iii)</td>
</tr>
</tbody>
</table>

DPW Divisions responsible:

- OMD
- ENV
- ENG

Vegetated portions of the MS4 can effectively filter out sediment collected by storm water runoff, before it is discharged into receiving water bodies.

Part D.1.f.(3)(iii) of the MS4 Permit requires USAG-HI to develop a maintenance plan for vegetated portions of the drainage systems used for the erosion and sediment control. Refer to the Integrated Pest Management Plan in CABP Appendix A for USAG-HI's overall vegetation maintenance plan.

V. Measurable Goals

The measureable goals listed in the table below will be used to monitor the BMP’s progress and evaluate the ECBP success:
### Erosion Control BMP Program

<table>
<thead>
<tr>
<th>BMP#</th>
<th>BMP Description</th>
<th>Measurable Goal</th>
<th>Area of Responsibility</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECBP – 1</td>
<td>Identify Erosion Prone Areas</td>
<td>1. Identify and maintain a database of erosion prone areas with the potential for significant water quality impacts.</td>
<td>ENV</td>
<td>1. Complete. 18 sites identified on 04 Apr 2015.</td>
</tr>
<tr>
<td>ECBP – 2</td>
<td>Permanent Erosion Control BMPs</td>
<td>1. Submit a list of areas selected for permanent erosion control projects, along with an implementation schedule, to DOH within one year of the EDOP.</td>
<td>ENV</td>
<td>1. Complete. List submitted to DOH 04 Apr 2015.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Construct eighteen (18) permanent erosion control projects within the five year implementation period.</td>
<td>OMD, ENG, MP, BOD</td>
<td>1. Begin 2nd year of permit period.</td>
</tr>
<tr>
<td>ECBP – 3</td>
<td>Temporary Erosion Control BMPs</td>
<td>1. Implement temporary erosion control BMP on 18 identified sites listed in ECBP-2 when permanent BMP controls are not immediately possible. Temporary controls shall be executed in-house or via contract.</td>
<td>OMD, ENG</td>
<td>1. 100% complete by Oct 2015.</td>
</tr>
</tbody>
</table>
### VI. Reporting

A summary of activities, surveys and projects will be presented in the annual SWMP report that will be submitted to the HDOH CWB and EPA CWB. The information will be compiled in a table that illustrates the effectiveness of the BMP’s as related to each measurable goal.
SECTION 6
Pollution Prevention / Good Housekeeping

Maintenance Activities BMP Program
(Permit Part D.1.f.(4))

I. Introduction

The Maintenance Activities BMP Program (MABP) establishes pollution prevention strategies for maintenance activities, including routine maintenance projects, administered by USAG-HI. Ensuring the implementation of proper source control measures and spill response procedures can effectively reduce the discharge of pollutants associated with maintenance activities. Appropriate implementation of BMPs is required for all maintenance activities.

The Maintenance Activities Program includes the following control measures:

- Develop and implement a Maintenance Activities BMPs Field Manual within three years from the effective date (April 7, 2014) of USAG-HI MS4 Permit.
- Train staff on proper BMP implementation and pollution prevention strategies.

II. Legal Authority

All personnel and contractors on the USAG-HI property are prohibited from illegally discharging pollutants to its MS4 through USAG-HI Enforcement Policies, permits, contract language and Military Law Enforcement. These mechanisms allow the USAG-HI to pursue enforcement actions against entities in non-compliance with the requirements of the USAG-HI MS4 permit. Each mechanism is discussed in section IV, Procedures and Best Management Practices of this document.

III. Roles and Responsibilities

The USAG-HI is the overseering command for the Directorate of Public Works (DPW) as well as multiple other directorates. DPW is responsible for managing and implementing the NPDES MS4 permit. DPW is composed of several divisions: Business Operations Division (BOD), Engineering (ENG) which comprise of Construction and Utilities branches, Environmental (ENV) which comprise of Compliance and Conservation branches, Master Planning (MP), Operations and Maintenance Division (OMD), and
Housing (HD). The chart below is a simplified organizational chart of DPW where the color and departmental codes are used to identify the responsible divisions for executing specific responsibilities detailed in section IV, Procedures and Best Management Practices. A complete detailed organizational chart can be found in the INTRO Appendix C.

### IV. Procedures and Best Management Practices

DPW has identified and selected the following BMPs to achieve the goals of the program to prevent or minimize the discharge of pollutants of concern into the garrison’s MS4.

| BMP# MABP – 1: Maintenance Activities BMPs Permit Part D.1.f.(4)(i) |
|---|---|
| Divisions responsible: | OMD |

DPW OMD is developing a Maintenance Activities BMPs Field Manual that will be implemented within three years of the effective date of the MS4 Permit. The field manual will contain the elements required in Part D.1.f.(4)(i) of the MS4 Permit:

*Examples of such activities include, but are not limited to: paving and road repairs, street cleaning, saw cutting, concrete work, curb and gutter replacement, buried utility repairs and installation, vegetation removal, painting and paving, debris and trash removal, spill cleanup, etc.*
DPW will work in accordance with manuals and guidelines found in MABP Appendix A and PC Appendices as interim SOPs until a permanent field manual is complete.

### BMP# MCBP – 2:
Training
*Permit Part D.1.f.(4)(ii)*

**Divisions responsible:**

- **OMD**

DPW OMD will provide an annual storm water maintenance training for their personnel who have responsibilities associated with maintenance activities and/or base operations. The training addresses proper BMP implementation for general maintenance activities and for activities specific to each crew’s responsibilities.

The storm water maintenance training will address the following topics:

- Content and application of the Maintenance Activities BMPs Field Manual
- Identification of potential sources of pollutants
- BMP selection and implementation
- Trainees’ roles in protecting water quality
- SWMP general awareness
- Environmental policy and MS4 Permit requirements
- Environmental Management System (EMS) overview
- Vehicle washing
- Fuel handling
- Vehicle maintenance
- Material storage
- Erosion and sediment control
- Debris control
- Chemical applications

DPW OMD personnel that regularly conduct operations at maintenance will be trained on the implementation of their respective facility’s Storm Water Pollution Control Plan (SWPCP).
Currently, each DPW OMD maintenance shop function has an Environmental Compliance Officer (ECO) who is in charge of environmental related issues. The ECO conducts inspections and training related to BMPs and compliance.

V. Measurable Goals

The measureable goals listed in the table below will be used to monitor the BMP’s progress and evaluate the ECBP success

<table>
<thead>
<tr>
<th>BMP#</th>
<th>BMP Description</th>
<th>Measurable Goal</th>
<th>Area of Responsibility</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABP – 2</td>
<td>Training</td>
<td>1. DPW OMD personnel who have responsibilities associated with maintenance activities will attend on an annual basis. Maintain training records.</td>
<td>OMD</td>
<td>1. 100% complete.</td>
</tr>
</tbody>
</table>

VI. Reporting

A summary of activities, surveys and projects will be presented in the annual SWMP report that will be submitted to the HDOH CWB and EPA CWB. The information will be compiled in a table that illustrates the effectiveness of the BMP’s as related to each measurable goal.