Action Plan for Retrofitting Structural BMPs

HAWAII ARMY NATIONAL GUARD

NPDES PERMIT NO. HIS000052

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HAWAII ARMY NATIONAL GUARD
ENVIRONMENTAL OFFICE
3949 DIAMOND HEAD ROAD
HONOLULU, HI 96816

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AASF1	Army Aviation Support Facility No. 1 HHI
BMP	Best Management Practice
CWA	Clean Water Act
DoD	Department of Defense
DOT	Department of Transportation
ENV	HIARNG Environmental Office
FMS2	Field Maintenance Shop No. 2
HIARNG	Hawaii Army National Guard
LEPC	Local Emergency Planning Committee
MEP	Maximum Extent Practicable
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PBMP	Permanent Best Management Practice
SMF	State Maintenance Facility
STMP	State Motor Pool
SWMP	Stormwater Management Plan
TMDL	Total Maximum Daily Load
USAG	U.S. Army Garrison
USCG	United States Coast Guard
WAAF	Wheeler Army Airfield
WLA	Waste Load Allocation
WQC	Water Quality Criteria

RECORD OF REVISION

Revision No.	Revision Date	Description	Sections Affected
Original Document	May 2021	Original	N/A

1.0 INTRODUCTION

This Action Plan for Retrofitting Structural BMPs (Action Plan) was prepared as required under Part D.1.f.(1)(iv) of the Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit No. HIS000052 (Permit). The Permit states:

"The Permittee shall provide the DOH with an Action Plan for Retrofitting Structural BMPs within one (1) year from the effective date of this permit, which shall identify retrofits to be implemented, and include an explanation of the basis for their selection and implementation schedule. The implementation schedule shall cover a five (5) year period and be updated annually to include additional retrofit projects with water quality protection measures. The annual updates to the implementation schedule shall be included in the Annual Report with a description of the project's status. The Action Plan may include, but not be limited to projects in compliance with any TMDL implementation and monitoring plan."

The four sites listed in Table 1 are covered under the Permit and are included in this Action Plan. Appendix C of the Hawaii Army National Guard Stormwater Management Plan (SWMP) includes maps for each of the four sites covered under the Permit.

TABLE 1: SITE SELECTION

Facility	Address	Discharge System	Receiving Water Body
Fort Ruger	3949 Diamond Head Rd. Honolulu, HI 96816	City and County of Honolulu MS4	Pacific Ocean (Kahala Beach)
Waiawa Unit Training and Equipment Site (UTES)	96-1176 Waihona Street Pearl City, HI 96782	City and County of Honolulu MS4	Waiawa Stream
Wahiawa Readiness Center and Field Maintenance Shop No. 2 (FMS2)	77-230 Kamehameha Hwy. Wahiawa, HI 96854	DOT-HWYs MS4	Waikele Stream
Army Aviation Support Facility (AASF1)	1935 Santos Dumont Rd. Buildings 825, 829, and 832 Wahiawa, HI 96854	U.S. Army Garrison Hawaii MS4	Waikele Stream

1.1 PURPOSE

Structural Best Management Practices (BMPs) are engineered and constructed systems that improve the quality and/or control the quantity of stormwater runoff. Retrofitting involves the redesign and installation of stormwater BMPs in areas of existing development to meet a retrofit goal which includes:

- Protecting water quality;
- Conserving or recycling water;
- Infiltrating stormwater on-site;
- Pollutant removal;
- Trapping trash and floatables; and,

- Improving the quality of stormwater discharges.

HIARNG has developed this Action Plan to retrofit areas within its MS4 when redevelopment and new development occurs to address identified sources of pollutants, such as TMDLs, that may contribute to water quality conditions. HIARNG will identify those areas of existing development that are candidates for retrofitting where feasible. These candidates may be used to reduce pollutants that contribute to focused water quality conditions. If retrofitting projects are deemed infeasible to address the focused water quality conditions, HIARNG may collaborate and cooperate with other affected parties to identify, develop, and implement watershed retrofitting projects adjacent to and/or downstream from HIARNG's area of existing development.

2.0 STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS)

Structural BMPs are engineered systems designed to control or store runoff; or, remove pollutants from stormwater runoff via a chemical or physically based treatment system. These systems can improve the water quality of stormwater runoff by addressing issues of erosion and trash. Examples include:

- Stabilization of Erodible Surfaces;
- Detention/Infiltration Basins;
- Retention Basins;
- Sand Filters;
- Infiltration Trenches;
- Porous/Permeable Pavement;
- Vegetated Swales;
- Vegetated Buffers/Biofilters;
- Bioretention Cells;
- Stormwater Inlet Water Quality Inserts; and,
- Hydrodynamic Separation (HDS)/Continuous Deflection CDS) Systems.

3.0 SELECTION OF RETROFITS

Potential retrofit sites have been selected through the review of data collected during routine MS4 monitoring and maintenance activities. The following criteria will be used to determine final site selections for the Action Plan's five-year implementation schedule:

- Verified as a structure or feature of HIARNG's MS4;
- Most immediate threat to public safety or potential to cause property damage;
- Impact to operational readiness (i.e., heavy equipment usage and/or airfield operations such as wildlife attractance); and,
- Areas with consistent soil exposure and areas with increased maintenance type activities.
- Proximity to and potential impact on a Total Maximum Daily Load (TMDL) or Clean Water Act (CWA) Section 303d listed waters.

4.0 DOCUMENTED AREAS OF CONCERN

The Waikele watershed is located in Hawaii, on the island of Oahu, and covers a 45 square-mile drainage area. Please refer to: *Turbidity, Sediment and Nutrient TMDL for the Waikele Watershed, Oahu, Hawaii*, 2019 for additional information. The watershed includes Waikele Stream and its main tributaries, Waikakalaua and Kipapa streams. Waikele Stream flows approximately 17 miles from its source to its mouth where it empties into Pearl Harbor and has been included on Hawaii's section 303(d) list due to non-attainment of nutrient and turbidity water quality criteria (WQC) since 2002. The waterbody is specifically listed for turbidity, total nitrogen, and nitrite-nitrate impairments.

A TMDL has been established for the Waikele watershed which includes Waikele Stream and its main tributaries. The AASF1, Wahiawa Readiness Center, and FMS2 are located within this TMDL watershed, although neither facility was assigned a waste load allocation (WLA) in the TMDL. The TMDL states "Other NPDES permits that reside within the U.S. Army Garrison Hawaii's area footprint include Hawaii Army National Guard, the Schofield Barracks Wastewater Treatment Plant, and the Schofield Generating Station." As such, the facilities whose receiving water is the Waikele Stream may be required to meet the requirements of an Implementation and Monitoring Plan developed by the U.S. Army Garrison Hawaii and Hawaii Department of Transportation, Highways Division, which were both assigned a WLA for the Waikele Stream receiving water.

TABLE 2: RECEIVING WATER WASTE LOAD ALLOCATION

Facility Location	Outfall Discharge Point	Receiving Water	Waste Load Allocation
Wahiawa	DOT HWYS MS4	Waikele Stream	Nitrogen, Nitrate + Nitrite, Turbidity
AASF1	USAG-HI MS4	Waikele Stream	Nitrogen, Nitrate + Nitrite, Turbidity
Waiawa	Waiawa Stream	Waiawa Stream	Nitrogen, Phosphorus, Nitrate + Nitrite, Trash Turbidity
Fort Ruger	C&C Honolulu MS4	Kahala Beach	Turbidity

5.0 PROPOSED RETROFITS

HIARNG has identified one location for implementation of a Permanent BMP (PBMP) retrofit at the AASF1 site. HIARNG will select other proposed retrofits in subsequent years of the Permit, on a case-by-case basis. HIARNG will continue to identify and implement BMPs and evaluate any new proposed retrofits as necessary.

TABLE 3: PROPOSED RETROFITS

Proposed Retrofit	
1. Re-establishment of vegetation for the swale in isolated areas, notably along the northern perimeter of the site. The area in question is sloped, sparsely vegetated area. ENV to monitor and implement strategies to protect the stormwater inlet.	

6.0 POTENTIAL RETROFITS

6.1 POTENTIAL RETROFIT SITE 1: AASF1

Address:	1935 Santos Dumont Road. Schofield Barracks, Wheeler Army Airfield Wahiawa, HI 96854
Description:	AASF1 consists of impervious surfaces such as asphalt, concrete pavement, and roof surfaces of buildings. There are three buildings, an airfield tarmac, wash rack, two outdoor material storage areas, and a motor pool.
Discharge To:	U.S. Army Garrison Hawaii MS4
Receiving Water:	Waikele Gulch

Figure 1: AASF1 Site Map

TABLE 4: AASF1 POTENTIAL RETROFIT

Potential Retrofit	
1. Replacement for the metal screen currently installed within the drain inlet at the north side of the facility building with alternative measures. Metal screening currently applied is rusted and partially missing.	

6.2 POTENTIAL RETROFIT SITE 2: FORT RUGER

Address:	3949 Diamond Head Road. Honolulu, HI 96816
Description:	The State Maintenance Facility (SMF) provides storage and repair facilities for State Maintenance personnel. The State Motor Pool (STMP) provides maintenance for approximately fifty HIARNG vehicles.
Discharge To:	City and County of Honolulu's MS4
Receiving Water:	Pacific Ocean at Kahala Beach

Figure 2: Fort Ruger Site Map

TABLE 5: FORT RUGER PROPOSED RETROFIT

Potential Retrofit	
1. Diversion control measures for the maintenance area within the Fort Ruger, SMF site. Area may receive a large amount of stormwater runoff from the adjacent higher-sloped neighboring sites on the East and South perimeter. Diversion for the stormwater in this area can minimize the potential for contact with potential pollutant sources.	
2. Re-establishment of vegetation for the material storage area at the SMF, next to the open canal. The area currently has sparse vegetation, with a large amount of soil exposed. The reestablishment of vegetation would decrease potential erosion from the exposed soil areas, as well as provide additional infiltration to stormwater flowing over the area. This area is directly next to a stormwater drainage area at a higher elevation, which presents increased flow velocity.	

6.3 POTENTIAL RETROFIT SITE 3: WAHIAWA READINESS CENTER AND FMS2

Address:	77-230 Kamehameha Highway Mililani, HI 96789
Description:	Unit armory, HIARNG vehicle (military) maintenance facility, and motor pool
Discharge To:	State Department of Transportation's MS4
Receiving Water:	Waikele Stream

Figure 3: Wahiawa Site Map

TABLE 6: WAHIAWA PROPOSED RETROFIT

Potential Retrofit	
1. Stabilization measures for the vehicle pathway within the Field Maintenance Shop No. 2 site. The pathway is currently exposed dirt and is impacted by stormwater runoff potentially coming from Kahelu Ave. Stabilization measures can include pervious paving, stormwater velocity reduction strategies, or minimizing vehicles traversing in these areas.	   

POTENTIAL RETROFIT SITE 4: WAIAWA UNIT TRAINING AND EQUIPMENT SITE

Address:	96-1176 Waihona Street Pearl City, HI 96782
Description:	One administrative building, two vehicle maintenance garages, and material/storage areas.
Discharge To:	City and County of Honolulu's MS4
Receiving Water:	Waiawa Stream

Figure 4: Waiawa Site Map

There are currently no potential retrofits required for the Waiawa Unit Training and Equipment Site. In the event that potential retrofits are necessary, this Action Plan for Retrofitting Structural BMPs will be amended, as needed.

7.0 IMPLEMENTATION SCHEDULE

Table 7 provides a summary of potential retrofit projects along with a proposed five-year implementation schedule, based on selected PBMPs. The implementation schedule is subject to change due to funding availability, permitting delays, or other unforeseen circumstances. Changes to the implementation schedule will be provided in the Annual Report.

TABLE 7: PROPOSED AND POTENTIAL RETROFIT SITES IMPLEMENTATION SCHEDULE

Facility Location	Retrofit Type	Basis for Selection	Description	CWA Section 303(d) Listed	Implementation Year
AASF1	Drain Inlet Protection	Rusted metal from the current drain inlet protection measures may pose a pollutant discharge risk to the MS4 system. Sections of the current screen need repair.	Replace and/or repair the metal screening currently in place at the drain inlet at the North side of the facility building.	Waikele Stream TMDL: Turbidity, Sediment and Nutrients	2022
Wahiawa	Source Control	Exposed soil areas are a high risk for erosion.	Install stabilization measures for the vehicle pathway within the Field Maintenance Shop No. 2 site.	Waikele Stream TMDL: Turbidity, Sediment and Nutrients	2023
Ft Ruger	Flow Control	Steep slopes at the East and South perimeter. Site is at a low point and may receive an increased velocities and amount of stormwater runoff from these areas. The area presents a potential for increased velocity and associated potential pollutant discharge.	Install diversion measures for stormwater from the higher-sloped neighboring areas, as not to come into contact with the spaces with hazardous pollutant sources in the baseyard.		2024
Ft Ruger	Source Control	Exposed dirt areas are a high risk for erosion. Area is directly next to the open drainage canal.	Re-establish vegetation for the material storage area at the SMF.		2024