

Construction Repair and Maintenance Storm Water Compliance Training



The Five W's

Who: All Hawaii Army National Guard (HIARNG) staff and contractors with construction, repair, or maintenance responsibilities must receive this training.

What: To learn storm water compliance requirements applicable at HIARNG facilities.

Where: Any project on HIARNG property

Why: To learn about federal and State requirements so that NOV and fines can be prevented.

When: Annually for HIARNG personnel and before project start date for contractors.

Clean Water is our Goal

Less Runoff = Less Pollution



Groundcover plants, vegetative debris, and overhead tree canopies soften the impact of falling rain and encourages water to infiltrate rather than running off.

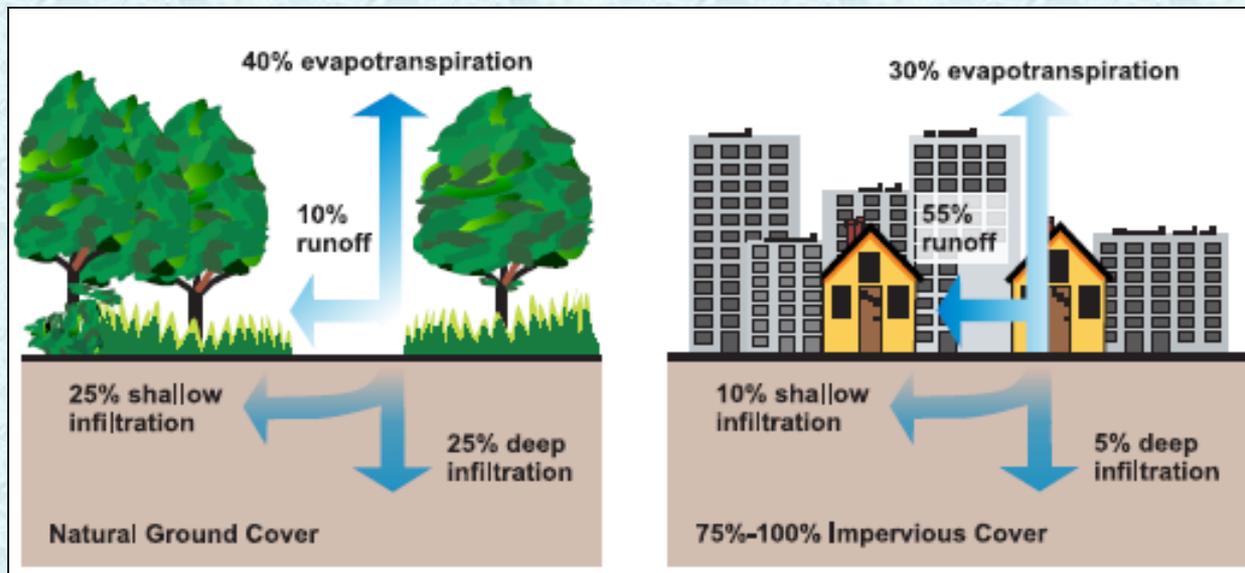
Construction Impacts

Construction Activities.

Increased Impervious Surface.

Increased Storm Water Runoff.

Increased Pollutant Discharge.



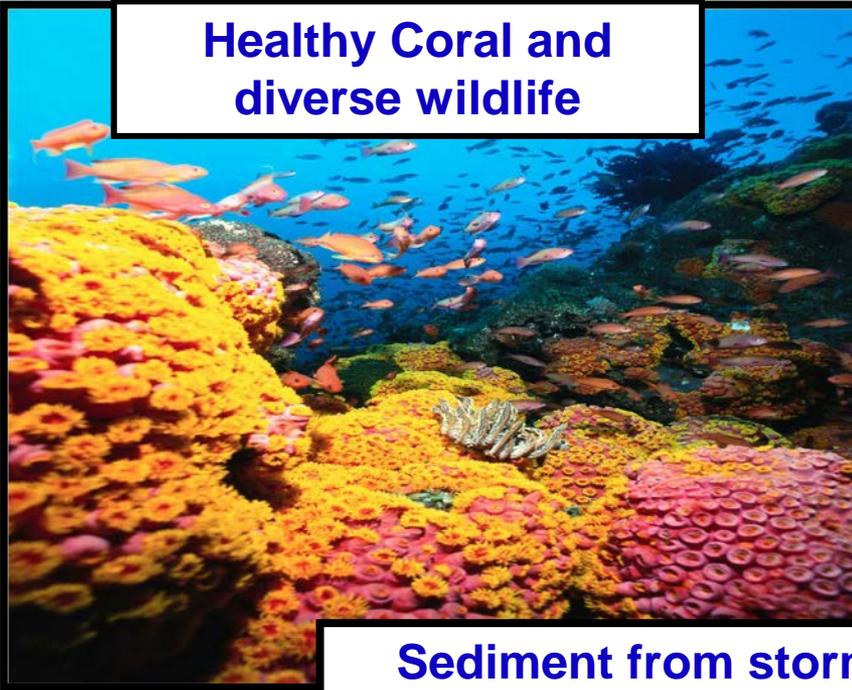
Source: EPA 841-F-03-003

Erosion = Storm Water Pollution



Effects of Stormwater Pollutants on the Environment

Healthy Coral and diverse wildlife



Dead coral covered in algae and no wildlife



Sediment from stormwater blocks sunlight coral needs to survive.

Fertilizers, sewage, and animal wastes cause algae overgrowth which smothers corals.



The Clean Water Act and Hawaii Department of Health



- **Construction projects disturbing 1 acre or more or which are part of a larger common plan totaling 1 acre or more must obtain a National Pollutant Discharge Elimination System (NPDES) Permit.**
- **HIARNG is covered under a Municipal Separate Storm Sewer System (MS4) NPDES permit which regulates the storm drains and conveyances on HIARNG facilities**

Both permits prohibit discharges of anything other than storm water.

Construction, Repair, and Maintenance Best Management Practices Manual

- HIARNG 's *Construction, Repair, and Storm Water Maintenance Best Management Practices (BMP) Manual* is a requirement of Part D.1.d. (1) of our NPDES MS4 permit and is applicable to all HIARNG facilities.
- The purpose of the BMP manual is to provide guidance to all personnel, tenants, employees, and contractors involved in construction, repair or maintenance activities at HIARNG facilities regardless of project size and scope.



Limiting Liability



- **HARNG's BMP manual sets forth project requirements that prevent legal liabilities for HIARNG resulting from a contractor's storm water violations**
- **FMO shall include language in all Scopes of Work (SOW) which contractually requires contractors to comply with storm water regulations.**
- **The HIARNG Environmental Office reviews project documents to ensure all applicable storm water requirements are being met.**

3 Categories of Project Requirements

Qualifying Criteria	Applicable Regulation	Requirements
<p>All Projects</p>	<p>HIARNG NPDES MS4 Permit HIS000052, August 17, 2014 HIARNG SWMP, February 2016, HIARNG Storm Water BMP manual, August, 2016</p>	<ul style="list-style-type: none"> • Minimize storm water pollution to the Maximum Extent Practicable (MEP).
<p>Project footprint 5,000 ft² or greater</p>	<p>Unified Facilities Criteria (UFC) 3-210-10 Low Impact Development (LID)</p>	<ul style="list-style-type: none"> • Maintain or restore pre-development hydrology using Low Impact Development.
<p>Projects disturbing 1 acre or more or which are part of a larger common plan totaling 1 acre or more.</p>	<p>Hawaii Administrative Rule (HAR) 11-55, Water Pollution Control, Appendix C, December 6, 2013</p>	<ul style="list-style-type: none"> • Submit Notice of Intent (NOI) • Prepare a Storm Water Pollution Prevention Plan (SWPPP) • Notify DOH 7 days prior to construction • Submit Notice of Cessation (NOC)

Document Submittal Requirements

DOH requires that NPDES permit holders submit Compliance documents at three (3) major milestones

Milestone	Required Action
30 days before start of construction	Submit NOI via e-Permitting Portal
7 days before the start of construction	Verbal or Written Notification to CWB
7 days after end of construction	Submit NOC via e-Permitting Portal

Storm Water Pollution Prevention Plan (SWPPP)

- For projects that require NPDES permit coverage a SWPPP shall be developed in accordance with HAR 11-55, Appendix C, Section 7 and retained on site throughout the project.
- A draft SWPPP must be reviewed and accepted by FMO and ENV prior to finalization and submittal of the NOI to DOH.





Environmental Emergency Notifications



Contractors and/or the FMO PM must notify HIARNG ENV immediately at the **Emergency Hotline at (808) 672-1013** if any of the following occurs at their project site:

- **A spill** of Petroleum Oil Lubricant (POL), hazardous material, or hazardous waste
- **An illicit discharge** of anything other than pure storm water from a NPDES permitted construction site (i.e. trash, debris, soil, chemicals, petroleum in stormwater)

Low Impact Design (LID)

The Industry Standard for Storm Water Protection

Required by Unified Facilities Criteria (UFC) 3-210-10 for projects disturbing 5,000 ft² or more

Bio Retention Swales



Rain Barrels



Pervious Pavement



LID is an innovative stormwater management approach to model stormwater management after nature. LID's goal is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Techniques are based on the premise that stormwater should be seen as a resource and not something to dispose.



Project Planning

Contractors, engineers, and consultants are encouraged to visit the project site prior to preparation of their bid proposals, SWPPP, and Sediment and Erosion Control design drawings to assess site conditions, storm water flow patterns, project discharge points, soil types, measure project foot prints, plan for staging areas, and determine the appropriate BMP's for erosion and sediment control.

Preventing Illicit Discharges



**Illicit Discharge Violations can result in fines up to
\$25,000 per day!**

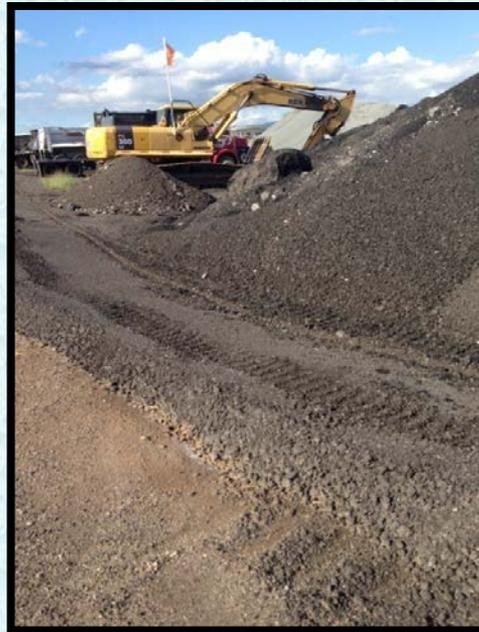


Construction Pollutants

Vehicle Fluids



Aggregate



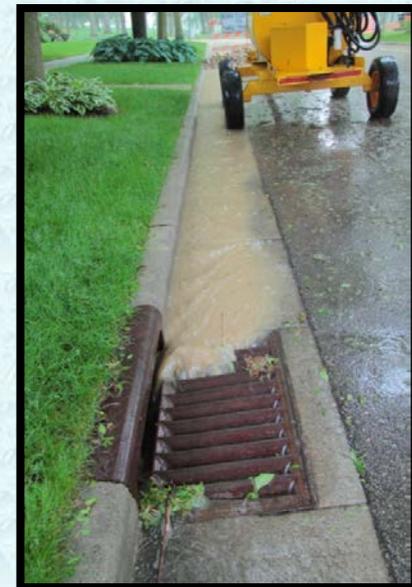
Trash



Chemicals



Sediment



Lavatory



Washouts



The solution to pollution = BMP's

A BMP is a practice or device used to prevent and minimize the discharge of pollutants

Examples of work activities that require BMPs

- Concrete
- Dry Wall
- Pressure Washing
- Cleaning
- Painting and Paint Removal
- Waste Water Pumping
- Landscaping
- Earth Work
- Equipment Maintenance
- Refueling Equipment
- Vehicle Washing
- Paving
- Dewatering
- Stockpiling



BMP Selection

Contractors must select the most appropriate and effective BMPs for their project based on site-specific conditions and work practices. Some items to be taken into consideration when evaluating a site for BMP selection include:

- Storm water flow patterns
- Existing storm water infrastructure
- Soil types
- Annual precipitation
- Seasonal rainfall intensity
- Grade and slope
- Impervious and pervious surface types
- Nearby surface waters and impairment classifications
- Chemical use
- Hazardous material storage



BMPs can be summarized into two categories:

1. Sediment and Erosion Control
2. Waste and Hazardous Materials Management



**Stabilized Entrance
(sediment control)**



**Concrete Washout
(waste management)**

Sediment and Erosion Control

Wind and water are responsible for the majority of erosion typically found at construction and maintenance sites.

Erosion can be prevented by minimizing disturbed areas and preserving existing vegetation on site.

Categories of sediment and erosion control include

1. Perimeter Control
2. Inlet Protection
3. Dust Control
4. Stockpile Management
5. Tracking Control



Perimeter Control – Silt Fence

- Silt fences contain storm water causing ponding which allows deposition of sediments.
- Silt fences should not be used where concentrated flows occur.
- Silt fences should be installed with the posts on the downstream side of the flow
- The silt fence tail should be trenched six inches down and six inches out then backfilled with soil.



Perimeter Control – Compost Sock

Compost socks should not be used as the primary form of protection where concentrated flows of runoff are anticipated such as drainage ditches, around inlets, or above/below culvert discharge. Compost socks should be staked into the ground or anchored and must overlap by at least six (6) inches.



Perimeter Control - Vegetated Buffer Strip

Vegetation surrounding a site may be used as a form of perimeter control as long as the vegetated buffer strip is effective at removing sediment. The vegetated buffer must be distinguished by flagging or other identifier to prevent disturbance from vehicles, machines, and use as a storage area.



Inlet Protection

Storm water inlets such as storm drains, catch basins, underground injection control (UIC) wells, curb inlets, and culverts should all be protected to prevent a discharge of sediment into the MS4. Contractors are free to choose which inlet protection BMP will work best for their site as long as it effectively prevents illicit discharges.



Dust Control

Application of water to minimize wind erosion shall be used on all exposed soils or any construction, repair, or maintenance activity generating dust.



Stockpile Management

Stockpiles of soil that are not being actively used shall be protected from erosion.



Soil Stabilization – Rolled Erosion Control Products

Turf Reinforcement Matting (TRM) and Erosion Control Blankets (ECBs) are most appropriately used on sloped areas after seeding. Before installing, all rills and gullies need to be smoothed and rocks need to be removed. When installing RECP on a hillside, the uphill edge of the material needs to be secured by trenching and/or anchoring and secured to the slope with an adequate amount of anchors.



Soil Stabilization – Seeding

When seeding an area to be stabilized, ensure success by preparing an appropriate seed bed, by incorporating fertilizer into the top soil, and irrigate until seed is established. In accordance Army National Guard General Facilities Information Design Guide 415-5 projects shall only use vegetation that is native, low maintenance, and drought tolerant.



Soil Stabilization – Mulch

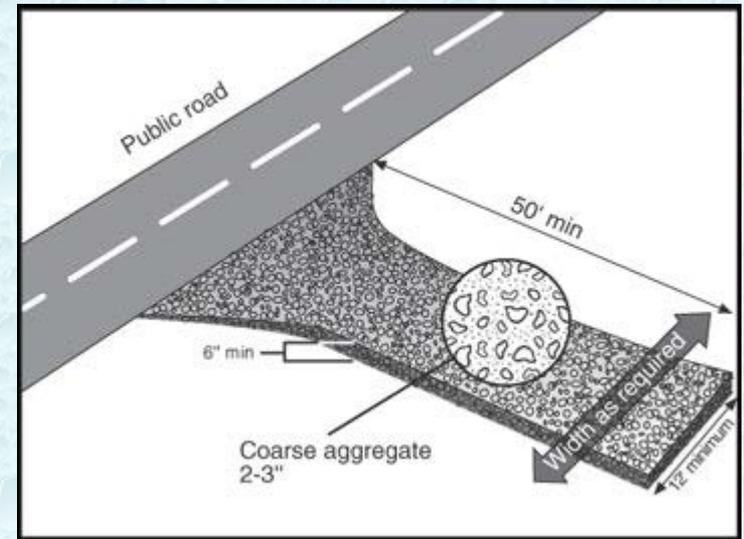
Hydraulic mulch, straw, or hay can all be used to reduce soil erosion and to provide temporary cover of newly planted seed until established. Mulch must be applied at a density to cover 80%-100% of the ground



Tracking Control

Contractors must minimize the track out of sediment onto off site by restricting vehicles to a designated egress designed to remove sediment from vehicles.

1. 50 ft. long and 30 ft. wide
2. Use geotextile fabric used under Aggregate
3. Aggregate size must be 2-4 inches
4. Depth of aggregate must be 12 inches thick



Waste and Hazardous Materials Management

Contractors must manage waste and hazardous materials at their site to minimize pollutants to storm water.

- Housekeeping
- Portable Toilets
- Concrete Waste
- Hazardous Materials and POL
- Hazardous Waste
- Painting and Paint Removal
- Equipment Storage



Housekeeping

General good housekeeping is required at all project sites. Contractors should keep their site free of trash and debris that could be swept away by storm water. Contractors are encouraged to consolidate equipment storage and staging areas to one location.



Portable Toilets

All portable toilets must be located away from storm water drainage features and vehicle traffic and secured to the ground when practicable.



Concrete Waste

Concrete dust and rinse water must be managed to minimize contact with storm water.

Concrete pump trucks shall capture wash water in a designated wash out. Concrete dust from cutting must be vacuumed up.



Hazardous Wastes and Materials

All hazardous wastes and hazardous materials including petroleum oils and lubricants (POL) must be stored in leak-proof containers and either have secondary containment or be stored under cover to prevent contact with rain water. Spill response supplies should always be available.



Report Spills to 672-1013

Painting and Paint Removal

Contractors shall consider paint to be a hazardous material and store accordingly. Contractors shall not rinse paint brushes or painting equipment outside. When removing paint, contractors must capture all paint chips and debris, characterize the waste, and dispose of properly.



Equipment Storage

Heavy equipment that is not being actively used must be stored on an impervious surface when possible and must use a drip pan to capture all POL leaks.



Site Inspections

- Contractors whose project sites are covered under a NPDES permit must perform site inspections at least every seven (7) days and within twenty-four (24) hours of a storm event of 0.25 inches.
- HIARNG Environmental performs site inspections of NPDES permitted sites prior to ground disturbing activities and monthly.
- Projects that are not covered by a NPDES permit will be inspected periodically by HIARNG Environmental.





HIARNG's Corrective Action Policy



HIARNG Environmental inspects NPDES permitted construction sites and categorize deficiencies as either critical or non-critical.

Critical deficiency is any issue that poses an immediate threat of contamination to storm water and/or surface water. All critical deficiencies **must be corrected within the same business day.**

Non-critical deficiency is any issue that does not pose an immediate threat of contamination to storm water and/or surface water. All non-critical deficiencies **must be corrected within five (5) business days.**

Recordkeeping

- **All projects covered under a NPDES permit shall keep the permit, SWPPP, and contractor weekly inspections readily available on site.**
- **The sediment and erosion control plan must be updated to reflect current site conditions.**
- **All records pertaining to NPDES permit coverage shall be retained for a minimum of five (5) years after the NOC.**



Common Inspection Findings

Silt fence needs maintenance



Common Inspection Findings

Compost socks need maintenance



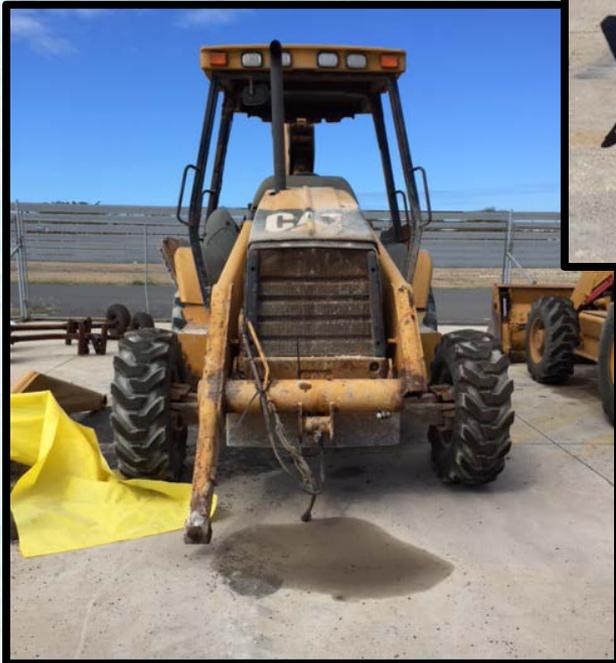
Common Inspection Findings

Improper storage of hazardous materials and wastes



Common Inspection Findings

Spills not cleaned up



Common Inspection Findings

Poor housekeeping



Common Inspection Findings

Improper management of concrete wastes

Vacuuming fines
without a filter.

