



Storm Water Management Program Plan

Honolulu International Airport

Section C: Construction Site Runoff Control Program



**PROTECT
OUR WATER**
MĀLAMA I KA WAI
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

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NPDES Permit No. HIS000005



June 2015

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- Attachment C.1: Construction Process Flow Chart
- Attachment C.2: Design Review Checklist
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- Attachment C.4: Construction Discharge Permit
- Attachment C.5: Plan Review Comment Sheet and SOP
- Attachment C.6: Construction Inspection Checklist
- Attachment C.7: Construction Activities BMP Field Manual

1.0 INTRODUCTION

The Department of Transportation, Airports Division (DOTA) has developed this Construction Site Runoff Control Program (Construction Program) to address potential pollutants to the maximum extent practicable (MEP) that may be generated as a result of construction activities. Specifically, soil exposed by construction activities is considered a significant source of storm water pollution. It has been found that runoff from an unstabilized construction site can result in the loss of approximately 35 to 45 tons of sediment per acre each year versus less than one ton from forested land (EPA 2007); therefore, the Construction Program includes Best Management Practices (BMPs) to limit the impact of construction activities. Additionally, construction activities may add impervious surfaces such as buildings, roads, and parking lots, which can alter the natural hydrology of the land by increasing the volume and velocity of storm water runoff and by decreasing its infiltration capacity. The additional storm water runoff may carry more pollutants to the MS4 and receiving waters; therefore, post-construction control and/or treatment of storm water and associated pollutants is included in the DOTA's Permanent BMP Program (SWMP Section D) and this Construction Program includes a plan review to ensure that designs also address this concern.

DEFINITION:

Construction - Any activities which result in the **disturbance of land**:

- Clearing
- Grading
- Excavating

Additionally, any supporting activities or staging areas:

- Stockpiles
- Borrow Areas
- Concrete Washout
- Fueling Areas
- Washing / Maintenance
- Material / Waste Storage
- Equipment Storage

1.1 Construction Project Management Types

All construction projects are required to comply with this Construction Program since they all have the same potential environmental impacts; however, these projects can be broken down into three different types based on their management.

DOTA construction projects are those that are developed with state funding to improve facilities managed by the DOTA. These projects are typically assigned to an AIR-E Project Manager or District Engineer, who will be referred to herein as the State Project Manager (SPM) to oversee the construction work performed by general contractors and subcontractors.

Tenant improvement projects (TIP) are those that are developed by tenants on airport property for facilities which the tenant operates. These projects are typically managed by the tenant with approval from the airport District Manager.

Off-site construction projects that discharge to the HNL MS4. These projects are typically managed by an off-site entity and environmental oversight is provided by AIR-EE.

1.1.1 Exempted Projects

The following projects are exempt from oversight under the Construction Program, but may still be observed by DOTA as a part of the IDDE Program (Section B). In order to qualify for the exemption, projects must prevent disturbed soil or other potential pollutants from entering the MS4 or receiving water.

- Interior renovations, provided the staging area is under 1 acre.
- Minor land disturbance activities (maximum 1/4 acre disturbed) performed on a single lot (such as minor landscaping activities).
- Milling and replacing pavement surfaces of runways, taxiways, or other paved areas that does not expose the underlying base course or subgrade material.
- Parking lot and driveway repair (maximum 1/4 acre disturbed).
- Post or pole installation.
- Utility repair work.
- Maintenance and repair activities.

1.2 Roles and Responsibilities

Those parties with specific roles in regards to the Construction Program are included in Table 1.

TABLE 1: CONSTRUCTION PROGRAM ROLES AND RESPONSIBILITIES

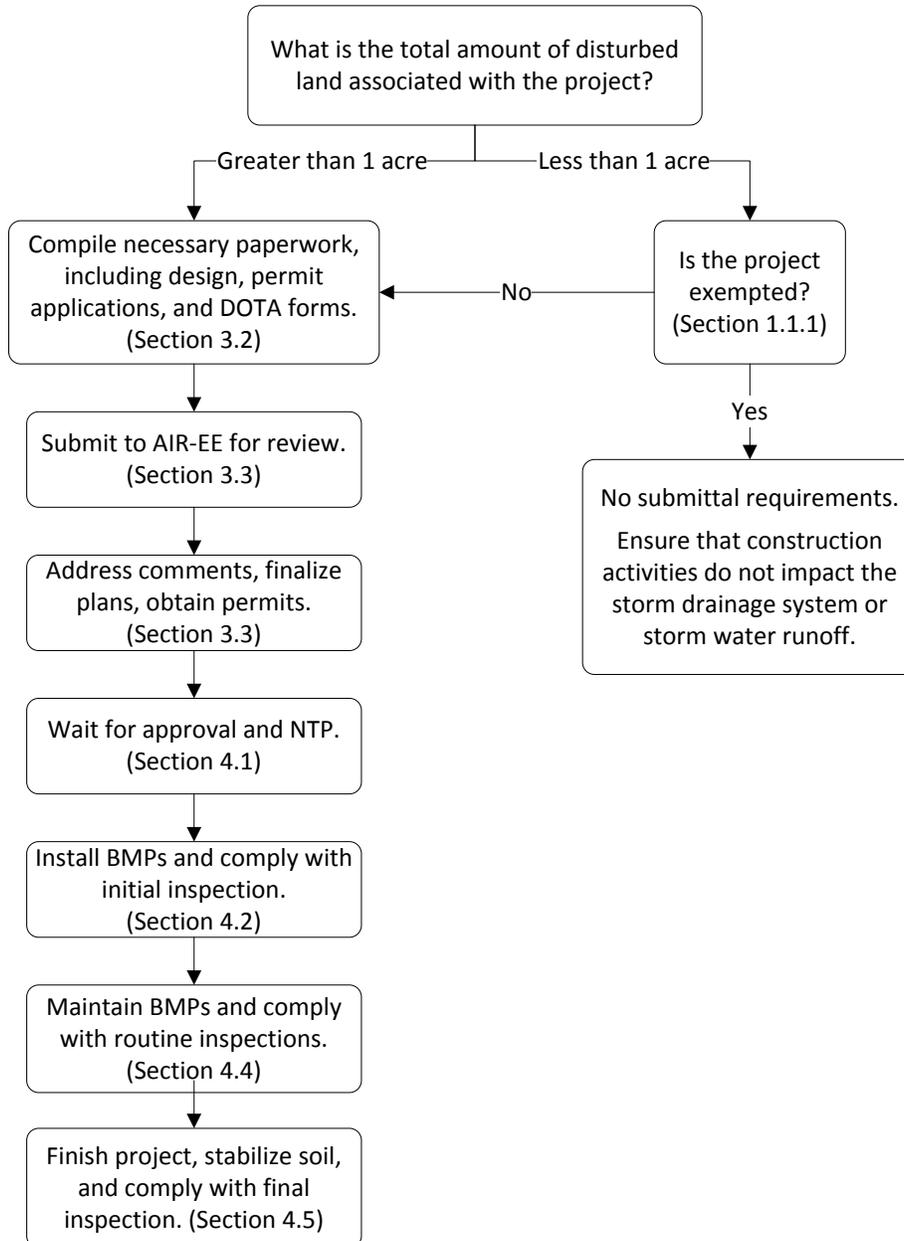
Section	Title	Responsibilities
DOT	Director	<ul style="list-style-type: none"> • Approves DOTA Projects • Signs NPDES Applications and Other Permit Submittals • Approves Construction Enforcement
AIR-EE	Supervisor	<ul style="list-style-type: none"> • Provides Program Oversight • Approves Construction Discharge Permits • Provides Notifications to DOH, when necessary • Tracks and Analyzes Program Data
AIR-EE	Environmental Engineer*	<ul style="list-style-type: none"> • Conducts Plan Reviews • Coordinates with Involved Parties (Regulatory Agency, SPM, CM, Designer, Contractor) • Researches Applicable Permits and Regulations • Conducts Construction Site Inspections (Initial, Routine, Final) • Conducts Enforcement Actions • Updates Database and Maintains Inventories of Construction Projects and BMP Inspections. • Provides Information and Training
AIR-EE	Environmental Health Specialists*	<ul style="list-style-type: none"> • Conducts Construction Site Inspections (Initial, Routine, Final) • Conducts Enforcement Actions • Updates Database • Provides Information and Training
AIR-OO	Ramp Control / Code 22	<ul style="list-style-type: none"> • Issues Field Citations (when directed by AIR-EE Supervisor)

Section	Title	Responsibilities
AIR-E	Engineering Program Manager	<ul style="list-style-type: none"> Oversees DOTA Projects Supports Construction Enforcement
AIR-E	State Project Managers (SPM)	<ul style="list-style-type: none"> Manages DOTA Projects Oversees Project Consultants and Contractors Facilitates NPDES and other Permit Application Facilitates Plan Review with AIR-EE Issues NTP Facilitates Project Conformance with SWMPP / BMPs / Applicable Permits Coordinates Enforcement with AIR-EE, including Withholding Payment and Stop Work Orders
Oahu District	Airport Manager	<ul style="list-style-type: none"> Oversees for TIP and DOTA Projects Provides Final Approval for TIP Supports Construction Enforcement
AIR-OME	State Project Managers (SPM)	<ul style="list-style-type: none"> Oversees TIP Facilitates Project Conformance with SWMPP / BMPs / Applicable Permits Facilitates Plan Review with AIR-EE Issues NTP Coordinates Enforcement with AIR-EE (Stop Work Orders)
	Tenants	<ul style="list-style-type: none"> Submits Construction Plans for Approval Facilitates Project Conformance with SWMPP / BMPs Facilitates NPDES and other Permit Application Addresses Comments from Plan Review
	Designers	<ul style="list-style-type: none"> Obtains NPDES and Other Permits Drafts Construction Plans and SWPPP in Conformance with SWMPP / BMPs / HAR 11-55 Submits Plan Review Documents and Addresses Comments
	Construction Managers (CM)	<ul style="list-style-type: none"> Conducts Weekly Inspection of DOTA Projects Submits Inspection Report to SPM and AIR-EE
	Contractors	<ul style="list-style-type: none"> Installs and Maintains BMPs Updates SWPPP, as necessary Conducts Self Inspections Ensures Representative Receives DOTA Training Ensures Staff are Trained on Site BMPs Maintains Documentation (SWPPP, NPDES, Connection Permit, Inspection Reports, Training Records) Ensures Representative Available During Inspections Promptly Addresses Findings from DOTA Inspections Stabilizes All Exposed Land upon Project Completion

*Note: Consultants may be used to fill roles where necessary.

2.0 CONSTRUCTION PROJECT REQUIREMENTS

The flow chart below details each component of the Construction Program and the associated requirements for quick reference. A supplementary flow chart is included in Attachment C.1.



2.1 Training

DOTA requires that staff with Construction Program responsibilities (e.g. SPMs, CMs, Inspectors, Plan Reviewers) to be trained annually. The training is specific to DOTA activities, including the proper installation and maintenance of accepted BMPs, rules, and procedures. The training is further described in SWMPP Section A, 2.1.3 and the pertinent training video is available on the DOTA website:

<http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program/>.

2.2 Education

DOTA's public education program is fully described in SWMPP Section A; however, all of the DOTA Environmental Engineer's tasks such as plan review and inspection are coupled with an outreach component that seeks to educate consultants, contractors, tenants, and staff on the storm water requirements.

3.0 PLAN REVIEW AND APPROVAL

As a part of the design process, Designers will consider requirements of this Construction Program, Permanent BMP Program (Section D), NPDES permits, and any other applicable permits. DOTA will perform a review of plans developed in order to ensure applicable requirements are met.

3.1 Construction Design

For DOTA projects, the DOTA Environmental Engineer or their representative will be present during a design project meeting. Designers must ensure that project designs include both site-specific temporary BMPs and other pollution prevention measures for implementation during construction activities and permanent post-construction BMPs, where applicable. Refer to Attachment C.7 for a listing of construction activity BMPs and Attachment D.1 for a listing of permanent BMPs.

The SPM or tenant must submit the completed Design Review Checklist (Attachment C.2) or Notification Form for Sites Less Than One Acre (Attachment C.3) to AIR-EE for review and approval. Comments and/or changes presented by the DOTA Environmental Engineer must be considered in the project design. The DOTA Environmental Engineer must approve the Design Review Checklist or Notification Form for Sites Less Than One Acre prior to commencement of any construction activities on DOTA property. Therefore, it is recommended that designers coordinate with the DOTA Environmental Engineer early on, and throughout the design process.

3.2 Paperwork

All plan review packets must include the proper paperwork before they may be approved by the DOTA Environmental Engineer and/or AIR-EE Supervisor.

3.2.1 Projects Less Than One Acre

The following is a summary of submittal requirements for non-exempt projects that disturb less than one (1) acre on any property owned, operated, or controlled by the DOTA:

1. Completed Notification Form (Attachment C.3) signed by the appropriate party. For DOTA projects, the SPM must sign and for TIP, the tenant must sign.
2. A sketched plan outlining the anticipated activities and the location of all BMPs. A sample Sediment and Erosion Control BMP Plan Drawing is available in Attachment C.3.
 - a. The sketched plan is not required to be prepared by an engineer, surveyor, or architect.
 - b. The sketched plan should include:
 - i. Location drawing of the proposed project, including project boundaries, nearby landmarks/roads, canals, and coastline;

- ii. Storm drains or other drainage ways present in the area and their flow path (Refer to Attachment B.1 or the DOTA website: <http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/hnl-storm-water-program/>); and
 - iii. The location of temporary and/or permanent vegetative and structural storm water management and sediment control measures (BMPs).
3. A narrative description of the BMPs to be used during land-disturbing activities and maintenance requirements.
4. For TIP, submit DOTA Construction Discharge Permit application (Attachment C.4) (Refer to 3.2.3).

3.2.2 Projects Greater Than One Acre

The Designer or Authorized Representative shall submit the Design Review Checklist (Attachment C.2) with each design submittal phase. For DOTA projects also refer to the Honolulu International Airport “Design Submittal Requirements,” which can be downloaded at <http://hidot.hawaii.gov/airports/doing-business/engineering/engineering-policies-procedures/>.

The Designer or Authorized Representative shall include plan sheets specifically titled “Site-Specific BMPs” and “Post-Construction BMPs” (as applicable) in their design. Refer to SWMPP Section D to determine whether the project is required to have Post-Construction BMPs.

For projects that disturb one acre or more, the following documents must be submitted:

- Project location information.
- Project schedule.
- Completed Design Review Checklist.
- Site-Specific Construction BMPs and Post-Construction BMPs design plans.
- Storm Water Pollution Prevention Plan (SWPPP), including a narrative description of the BMPs to be used during land-disturbing activities and maintenance requirements.
- Proof of filing NPDES NOI Form C (Construction), Form F (Hydrotesting), Form G (Dewatering), or any other applicable permits. For more information on applicable NPDES permits refer to HAR 11-55 and the DOH, Clean Water Branch.
- Contact information to allow the reviewer to obtain additional information.
- For TIP, submit DOTA Construction Discharge Permit application (Attachment C.4) (Refer to 3.2.3).

3.2.3 Construction Discharge Permit

TIP and off-site projects are required to obtain a Construction Discharge Permit (Attachment C.4) when construction plans include any of the following:

- Site topography indicates that storm water discharges from the site may enter the HNL MS4.
- Hydrotesting or dewatering will occur in accordance with appropriate NPDES permits that results in a discharge to the MS4.
- Construction designs include a storm drain utility connection to the HNL MS4.

The permit must be filled out and signed by the tenant owner or project authorized representative and is not effective until the DOTA Environmental Engineer has reviewed and approved site paperwork as described above. Authorization will be contingent upon compliance with the SWMPP including the installation of adequate temporary BMPs and plans for the inclusion of permanent BMPs, where applicable.

3.2.4 Paperwork Submittal

For DOTA projects, Designers will submit their plan review packets to the project SPM who will distribute to the appropriate parties for review, including the DOTA Environmental Engineer. To expedite the review process, the SPM and the DOTA Environmental Engineer may conduct their reviews concurrently.

For TIP, tenants must submit their plan review packets to the Airport Manager who will distribute to the appropriate parties for review, including the DOTA Environmental Engineer.

For off-site projects, the Authorized Representative will contact AIR-EE to obtain a Construction Discharge Permit and plan review will be conducted by AIR-EE at that time.

The DOTA Environmental Engineer's comments will be routed back through the SPM or the Airport Manager to the Designer. Designers must consider, reply to, and where necessary revise submitted documents in accordance with the DOTA Environmental Engineer's comments.

3.3 Project Review

The DOTA Environmental Engineer will review the project plans and document comments in accordance with the plan review comment sheet (Attachment C.5). Specifically, the reviewer will ensure the following conditions are met:

- Conformance with the Construction BMP Field Manual (Attachment C.7).
- Conformance with the Permanent Post-Construction BMP Manual (Attachment D.1).
- Plans and BMPs reduce the discharge of potential pollutants to the MEP using the Best Available Technology (BAT) / Best Conventional Pollutant Control Technology (BCT) and will not cause or contribute to an exceedance of water quality standards.
- Conformance with applicable NPDES permit requirements, such as HAR 11-55, App C for construction sites disturbing one acre or more and other applicable permits.

If it is determined that the environmental impacts of the construction have not been adequately addressed or do not meet the requirements in the standard specifications section 1560, the Designer shall revise and resubmit the project review package until approval is received from the DOTA Environmental Engineer.

4.0 PROJECT OVERSIGHT

A critical part of the oversight process is the requirement for inspection of the construction site. Several different types of inspections are performed as a part of the Construction Program: initial, third party, final, and contractor self-inspections. Construction Inspection Checklists (Attachment C.6) will be completed for the initial, third party, and final inspections and will be recorded in Enviance or a similar database. Photographs supporting inspector findings will be attached to the checklist.

4.1 Notice to Proceed

Although this process may vary for individual projects, in general, once the plans have been approved, the SPM will issue a first Notice to Proceed (NTP) to the Construction Contractor or Tenant indicating the following:

- The Contractor, as the first order of work, shall install all Site-Specific BMPs within a designated number of calendar days, to be determined by the SPM.
- An initial inspection of the BMPs on site must be satisfactorily completed before the Contractor will be provided with a second NTP to proceed with construction activities.

4.2 Initial Inspection

Prior to the initiation of construction activities, the DOTA Environmental Engineer or another designated erosion and sediment control inspector will conduct an initial site inspection. Prior to this inspection, a contractor may only disturb the soil to the extent that is required to install BMPs.

As a part of the initial inspection, the inspector will review the site's BMP plan and applicable permits and verify that BMPs have been installed as required. Specifically, the inspector will review erosion and sediment controls, good housekeeping practices, and compliance with site plans and this Construction Program. If the inspector identifies any site conditions that have the potential to result in the discharge of pollutants, corrective actions and re-inspection will be required prior to the commencement of construction activities.

4.3 Contractor Self-Inspection

Contractors are required to conduct self-inspections of their sites to ensure that BMPs are effective and activities are not causing a polluted discharge. Although the frequency of this inspection may vary, in general, it is suggested that this inspection be conducted and recorded weekly when a site is in operation. Findings from this inspection may trigger corrective actions such as SWPPP updates or BMP maintenance.

Specific frequencies for this inspection may be required by the NGPCs per HAR 11-55 or by the third party inspector. Contractors must retain documentation of this inspection on-site and present them to third party inspectors at the time of their inspection for review.

4.4 Routine Inspections

Third party inspectors are independent parties, defined as anyone not involved in the day-to-day planning, design, or implementation. The DOTA Environmental Engineer, CMs, or any other qualified inspector not involved with the Contractor meets the definition of an independent party. Third party inspectors will perform routine site inspections monthly.

As a part of the inspection, all the documentation for the site must be produced by a project representative (e.g. SWPPP or BMP plan, applicable permits, site inspections, and training records). Inspectors will then verify that site conditions match those required in site documents. Further, the inspector will ensure that BMPs are properly maintained and effective in containing potential pollutants. Any deficiencies noted during these inspections must be promptly corrected by the contractor according to the timelines in Table 2. The inspector will inform the contractor of the method for conveying corrective actions, which may include emailing photos with corrections or conducting re-inspection. Once corrected, the inspector will include the email date or re-inspection date as the corrective action date in Enviance or a similar database to signify that enforcement is closed.

TABLE 2: CONSTRUCTION DEFICIENCY TYPES

Deficiency Type	Definition	Timeline for Correction
Critical	Poses an immediate threat for the discharge of pollutants to the MS4 or receiving water. Examples include: illicit discharge, absence of perimeter controls in an area with signs of sediment transport off-site, spills that have not been cleaned near a drain or waterway.	Same day
Major	Poses a significant threat for the discharge of pollutants to a storm drain or receiving water. Examples include: lack of NPDES permit (if required), lack of BMP plan, perimeter BMPs are not functional, dewatering without BMPs, tracking more than 50' from ingress/egress.	5 calendar days or before next forecasted rain event, whichever is sooner
Minor	Deficiencies that do NOT pose a treat for discharge of untreated storm water or pollutants to the storm drain system, surface waters, or State waters, but are not in strict conformance with the SWPPP or BMP Plan. Examples include: BMP is not updated, contractor self-inspections are not conducted, BMPs are implemented but require maintenance, tracking less than 50' from ingress/egress.	As directed by inspector

4.5 Final Inspection

The third party inspector will conduct a final inspection / post-construction BMP initial inspection once the Contractor has completed construction, including installing permanent BMPs and stabilizing exposed soil. Note that the final environmental inspection may occur prior to the completion of work provided disturbed soil has been stabilized and planned activities would have a negligible impact to the MS4 or receiving water. All deficiencies noted must be addressed before the Contractor can remove temporary BMPs and close the site. For DOTA projects, any deficiencies noted during the final inspection must be corrected before the SPM will issue the project final acceptance and make final payment.

The DOTA Environmental Engineer will approve the final inspection of a site if the inspector finds that the final site conditions are similar to pre-construction conditions and will not affect the storm water runoff. In particular, this contingency may be required in the movement areas where the installation of vegetation would cause a hazard due to bird strike.

5.0 ENFORCEMENT RESPONSE PLAN

DOTA has found that the majority of deficiencies identified are readily corrected and do not require escalating enforcement; however, the following enforcement response plan details the procedures that will be used when necessary.

5.1 Legal Requirements

5.1.1 DOTA Project Specifications

The specifications for DOTA projects will be written to include a requirement for compliance with the SWMPP. The specifications will also include a description of the enforcement actions that can be taken for non-compliance items. The specifications will also contain a statement that indicates that any environmental fines levied against the State by the DOH or EPA will be passed onto the offending party.

5.1.2 Tenant Lease Agreement / Revocable Permit

The lease agreements / revocable permits made with tenants on airport property include a clause that requires compliance with environmental laws. Therefore, tenants will be expected to comply with this SWMPP when conducting construction activities. Failure to do so may result in the termination of the lease.

5.2 Escalating Enforcement

Once a non-compliant item is discovered on a construction site, enforcement will be applied until compliance is achieved on an escalating scale as described in the DOTA's Inspection and Enforcement Manual and as below. Data on enforcement for particular projects will be retained within Enviance or a similar database.

An exception to the escalating enforcement scale may be applied if the non-compliant item(s) is an illicit discharge or if the noted item is a repeated violation. In these cases, enforcement may commence at the Withholding Payment / Stop Work Order step and the Airport Manager may levy a fine of up to \$1,500 per violation per day. These fines will not be levied if the DOH is also planning to levy fines.

5.2.1 Inspection Checklist

The Inspection Checklist will serve as written warning to the Contractor of items observed during inspection to be in non-compliance. The Contractor will have a designated time period to correct the deficiencies or to request additional time.

5.2.2 Warning Letter / Notice of Apparent Violation

If the Contractor has not responded to the SPM or the DOTA Environmental Engineer within the designated time period, then the DOTA Environmental Engineer will issue a formal letter documenting the discrepancies and requiring response within a designated period of time. Minor or first offense deficiencies may result in a warning letter while major, critical, or repeated deficiencies may result in a Notice of Apparent Violation (NAV).

5.2.3 Withhold Payment / Stop Work Order

Once the time period described in the letter has passed, a re-inspection of the site will be conducted by the third party inspector.

For DOTA projects, if the non-compliant items have not been corrected, the DOTA Environmental Engineer will work in association with the SPM to withhold the BMP pay item of the Contractor's payment. Once the non-compliant item(s) have been corrected, the Contractor will receive the withheld payment.

For TIP, the DOTA Environmental Engineer will work in association with the Airport District Manager to issue a Stop Work Order. Once the non-compliant item(s) have been corrected, the Stop Work Order will be lifted.

5.3 DOH Notifications

In the event that DOTA has exhausted all the enforcement procedures and cannot bring the contractor's or developer's construction site or construction operations into compliance or otherwise deems the construction site to pose an immediate and significant threat to water quality, human or environmental health, then the DOTA Environmental Engineer will notify the DOH.

- Within one (1) week of determination - Email a summary of the situation to the cleanwaterbranch@doh.hawaii.gov, Attn: Enforcement Section Supervisor.
- Within two (2) weeks of determination - Submit inspection checklists, notes, and related correspondence to DOH via the e-permitting system using the *CWB Compliance Submittal Form for Individual NPDES Permits and Notice of General Permit Coverages (NGPCs)*. A hard copy, signed, certification statement and CD will be mailed to DOH.

In the event that DOTA identifies a construction site that is subject to coverage under the State's NPDES General Construction Activities Permit and has not applied for permit coverage, the DOTA Environmental Engineer will notify the DOH.

- Within two (2) weeks of discovery - Submit inspection checklists, notes, and related correspondence to DOH via the e-permitting system using the *CWB Compliance Submittal Form for Individual NPDES Permits and Notice of General Permit Coverages (NGPCs)*. A hard copy, signed, certification statement and CD will be mailed to DOH.

6.0 EVALUATION METHODS

The Construction Program will be evaluated based on specific metrics included below to determine its effectiveness. Specifically, measurable standards, milestones, and monitoring parameters are included in Table 3 from the MS4 NPDES permit. All final tallies of progress on Construction Program metrics will be included in the annual report to the DOH and EPA.

TABLE 3: CONSTRUCTION PROGRAM MEASURABLE STANDARDS, MILESTONES, AND MONITORING

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section C, 5.1 & Attach C.7	Construction BMP Field Manual	Require construction projects to implement BMPs per the construction BMP field manual. <ul style="list-style-type: none"> Conduct an annual review of the BMP manual. Modify BMP manual, where necessary. 	Confirmation: <ul style="list-style-type: none"> Requirement established. 	4/14/16
			Tabulation: <ul style="list-style-type: none"> # of project starts required to implement BMPs. 	Annual
			Confirmation: <ul style="list-style-type: none"> Review conducted. 	Annual
			Tabulation: <ul style="list-style-type: none"> # of new, modified, or revised BMPs based on review. 	Annual, As Needed
Section C, 3.3 & Attach C.5	Plan Review	Conduct and document a review of BMP documents and NOI applications for planned construction activities.	Confirmation: <ul style="list-style-type: none"> Plan review checklist submitted to DOH. 	7/13/14
			Tabulation: <ul style="list-style-type: none"> # of projects reviewed. 	Annual
Section C, 3.2.3	Construction Discharge Permits	Require TIP to obtain a Construction Discharge Permits and track approvals.	Confirmation: <ul style="list-style-type: none"> Requirement established. 	4/14/15
			Tabulation: <ul style="list-style-type: none"> # of permits. 	Annual

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section C, 4.0 & Attach C.6	Inspections	Conduct construction site inspections. <ul style="list-style-type: none"> • Implement an inspection form and submit to DOH. • Inspect BMPs prior to commencement of construction activities. • Conduct routine inspections. • Track inspections. 	Confirmation: <ul style="list-style-type: none"> • Plan review checklist submitted to DOH. 	7/13/14
			Tabulation: <ul style="list-style-type: none"> • # of initial inspections. 	Annual
			Tabulation: <ul style="list-style-type: none"> • # of routine inspections. 	Annual
Section C, 5.0	Construction Enforcement	Where necessary, conduct enforcement to stop illicit discharges and illegal connections. <ul style="list-style-type: none"> • Establish rules and penalties. • Develop an Enforcement Response Plan. • Track enforcement actions. 	Confirmation: <ul style="list-style-type: none"> • Rules and penalties established. 	4/14/16
			Confirmation: <ul style="list-style-type: none"> • Enforcement Response Plan developed. 	4/14/16
			Tabulation: <ul style="list-style-type: none"> • # of enforcement actions. 	Annual
Section A, 2.1.3 & Section C, 2.1	Training	Provide annual training to targeted groups in accordance with SWMPP Section A, 2.1.3.	Tabulation: <ul style="list-style-type: none"> • # of parties trained on construction. 	Annual
Section A, 2.0 & Section C, 2.2	Education	Include construction related educational material as a part of the Public Education Plan, SWMPP Section A.	Confirmation: <ul style="list-style-type: none"> • Public Education Plan implemented. 	Annual

In Table 4, the DOTA has set goals for the Construction Program above the minimum control measures listed in Table 3. These goals provide a more complete evaluation of the effectiveness of program activities and will be used to make changes to the program where necessary. These goals will be reported separately in the annual report and may or may not be met depending upon several variables, including available manpower and funding for a particular year.

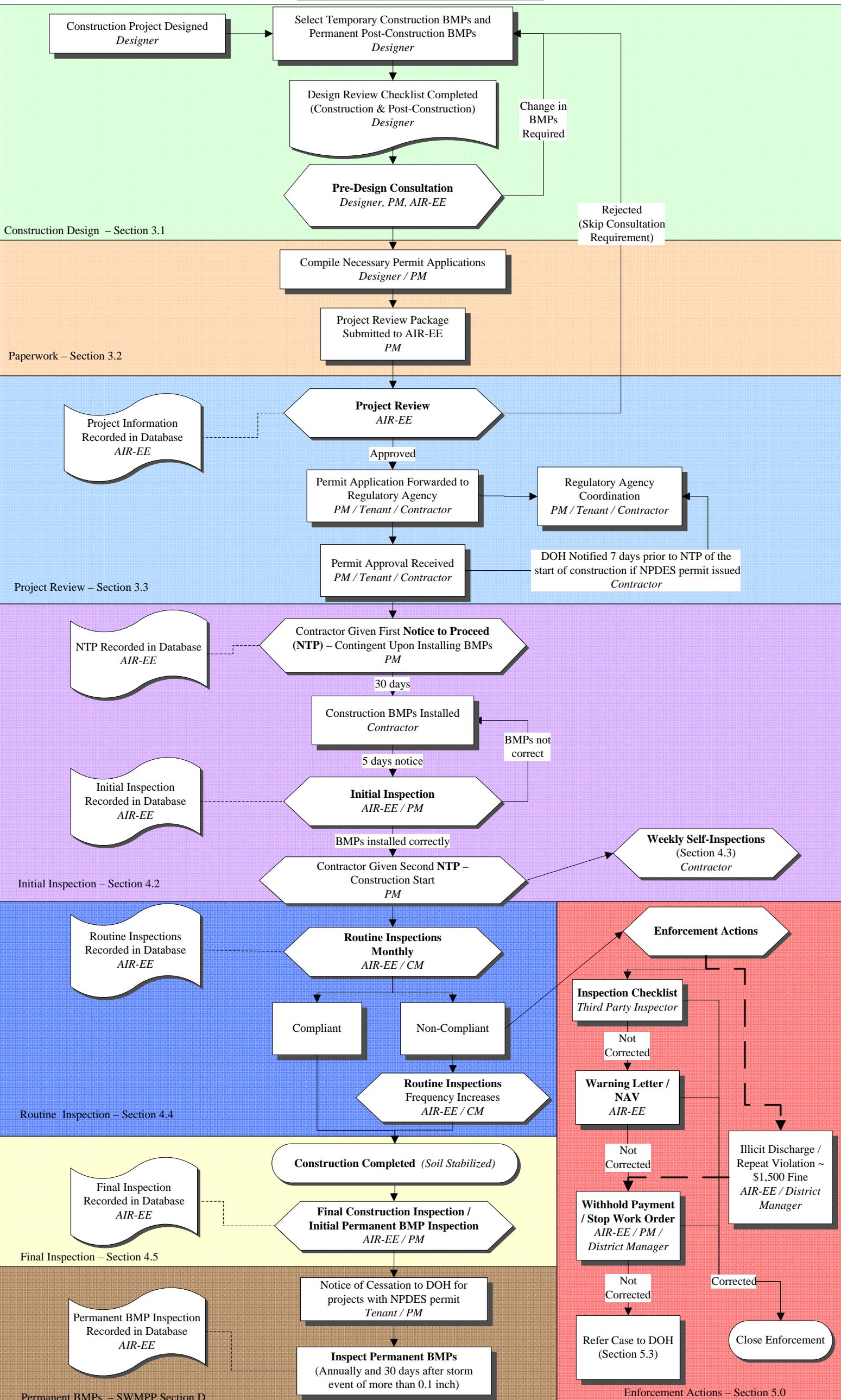
TABLE 4: CONSTRUCTION PROGRAM GOALS AND EVALUATION METHODS

SWMP Reference	Activity	Outcomes / Goals	Evaluation Method	Outcome Category	Timeframe
Section C, 3.3 & Attach C.5	Plan Review	Conduct and document a review of BMP documents and NOI applications for planned construction activities. <ul style="list-style-type: none"> • 5% decrease in review cycles required for each project until all the DOTA Environmental Engineer’s comments are adequately addressed. 	Tabulation: <ul style="list-style-type: none"> • Baseline Establishment: # of review cycles for each project. 	1	6/30/16
			Tabulation: <ul style="list-style-type: none"> • % decrease in # of review cycles for each project. 	2-3	3/13/19
Section C, 4.0 & Attach C.6	Inspections	Conduct inspections to verify that project sites are in compliance. <ul style="list-style-type: none"> • 5% increase in project sites with updated and final version of necessary site plans and permits available during the initial inspection. • Reduction in the total number of deficiencies identified during routine inspections for the year as compared to the 2014 baseline. • 5% reduction in the number of repeated BMP deficiencies as compared to the 2014 baseline. 	Initial Inspection: <ul style="list-style-type: none"> • Baseline Establishment: # of project sites with completed paperwork. 	3	6/30/16
			Initial Inspection: <ul style="list-style-type: none"> • % increase in project sites with completed paperwork. 	3	3/13/19
			Routine Inspection: <ul style="list-style-type: none"> • Reduction in the # of deficiencies. 	3	Annual
			Routine Inspection: <ul style="list-style-type: none"> • % reduction in repeated deficiencies. 	2-3	3/13/19

Attachment C.1

Construction Process Flow Chart

DOTA Construction Process



Attachment C.2

Design Review Checklist

DESIGN REVIEW CHECKLIST

Project Name: _____ Date: _____

Designer Name: _____ Airport: _____

Email: _____ Phone: _____

Site Location: _____

Design Submittal (check one):

Conceptual Design Schematic Design Design Development Construction Document

CONSTRUCTION ACTIVITY BMPs

DESIGNER'S CONSTRUCTION REQUIREMENTS YES NO N/A

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 1. Have construction documents and SWPPP been prepared to meet the requirements of HAR 11-55, App C, SWMPP Section C, and prevent violations of water quality standards? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The following site features should be included on the plans: | | | |
| a. Preliminary location, size in square feet, and limits of disturbance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Location of storm drainage features (e.g. drains, ditches, ocean, etc.) and storm water runoff flow paths | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Location of construction activity BMPs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Locations of activities that may generate pollutants (e.g. staging area, stockpiles, concrete washout, etc.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Location of other potential storm water pollutants | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have the following permits been applied for (if required): | | | |
| a. NPDES Application (Construction ≥ 1 acre)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Other NPDES Application (Dewatering, Hydrotesting, etc.)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. MS4 Connection Permit (for tenant projects)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 401 Water Quality Certification (WQC)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 404 Department of the Army (DA) Permit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Coastal Zone Management (CZM) Permit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Special Management Area (SMA) Permit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONTRACTOR'S CONSTRUCTION REQUIREMENTS YES NO N/A

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 4. Have construction documents and SWPPP been updated to meet the requirements of HAR 11-55, App C, SWMPP Section C, and prevent violations of water quality standards? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Does schedule include planning elements such as minimizing disturbed areas and working in the dry season? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Do plans address the following practices and situations: | | | |
| a. Party responsible for inspections identified? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Schedule and/or triggers for inspection of BMP measures? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| c. <u>Operation and maintenance for BMPs identified?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. <u>Record keeping?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. <u>Rain gauge monitoring at site or using HNL weather data?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. <u>Incident reporting?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

CONSTRUCTION ACTIVITY BMPs NARRATIVE (DESIGNERS AND CONTRACTORS)

Select all applicable BMPs proposed to be incorporated into the project from SWMPP Section C.

- | | | | |
|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> C.1 | <input type="checkbox"/> C.9 | <input type="checkbox"/> C.17 | <input type="checkbox"/> C.25 |
| <input type="checkbox"/> C.2 | <input type="checkbox"/> C.10 | <input type="checkbox"/> C.18 | <input type="checkbox"/> C.26 |
| <input type="checkbox"/> C.3 | <input type="checkbox"/> C.11 | <input type="checkbox"/> C.19 | <input type="checkbox"/> C.27 |
| <input type="checkbox"/> C.4 | <input type="checkbox"/> C.12 | <input type="checkbox"/> C.20 | <input type="checkbox"/> C.28 |
| <input type="checkbox"/> C.5 | <input type="checkbox"/> C.13 | <input type="checkbox"/> C.21 | <input type="checkbox"/> C.29 |
| <input type="checkbox"/> C.6 | <input type="checkbox"/> C.14 | <input type="checkbox"/> C.22 | <input type="checkbox"/> C.30 |
| <input type="checkbox"/> C.7 | <input type="checkbox"/> C.15 | <input type="checkbox"/> C.23 | <input type="checkbox"/> C.31 |
| <input type="checkbox"/> C.8 | <input type="checkbox"/> C.16 | <input type="checkbox"/> C.24 | <input type="checkbox"/> C.32 |

Other:

.....

PERMANENT POST-CONSTRUCTION BMPs (DESIGNERS TO COMPLETE)

EXEMPTIONS FROM POST-CONSTRUCTION REQUIREMENTS

YES NO N/A

If any of the exemptions are answered in the affirmative, the designer may skip the remainder of the Post-Construction BMP section. However, the Sustainable High Performance Guidelines may apply.

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| ➤ <u>Trenching and resurfacing associated with utility work.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Resurfacing or replacement of damaged pavement.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Discontinuous sites.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Sites where runoff does not ultimately discharge to a receiving water.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Projects which return the area to pre-development conditions.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Sites where permanent BMPs may be prohibited due to aircraft safety.</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ <u>Other (provide explanation for proposed exemption). <i>Note that all exemptions are contingent upon approval from DOTA.</i></u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

POST-CONSTRUCTION PERFORMANCE REQUIREMENTS

YES NO N/A

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 1. <u>Have Low Impact Development (LID) designs been considered first?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. <u>Have the minimum pollutants of concern been considered (Section C, 3.1.1)?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. <u>Do the proposed permanent BMPs limit targeted pollutants to the MEP using the BAT or BCT?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

4. Is the maintenance requirement for proposed BMPs feasible to conduct?
5. Has the Retrofit Action Plan been reviewed to determine whether an identified retrofit may be appropriate at the site?

OTHER REQUIREMENTS	YES	NO	N/A
13. <u>Are additional BMPs needed for the project to meet performance standards?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. <u>Will the project cause prohibited discharges of non-storm water?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. <u>Is a shared structural treatment BMP proposed or appropriate?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. <u>For tenants, does this project ensure ongoing BMP maintenance?</u> (Attach Operations and Maintenance Agreement or similar)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERMANENT POST-CONSTRUCTION BMP NARRATIVE

Describe LID designs included:

Select all applicable permanent BMPs proposed to be incorporated into the project design from SWMPP Section D.

- | | | | |
|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> PC1 | <input type="checkbox"/> PC9 | <input type="checkbox"/> PC17 | <input type="checkbox"/> PC25 |
| <input type="checkbox"/> PC2 | <input type="checkbox"/> PC10 | <input type="checkbox"/> PC18 | <input type="checkbox"/> PC26 |
| <input type="checkbox"/> PC3 | <input type="checkbox"/> PC11 | <input type="checkbox"/> PC19 | <input type="checkbox"/> PC27 |
| <input type="checkbox"/> PC4 | <input type="checkbox"/> PC12 | <input type="checkbox"/> PC20 | <input type="checkbox"/> PC28 |
| <input type="checkbox"/> PC5 | <input type="checkbox"/> PC13 | <input type="checkbox"/> PC21 | <input type="checkbox"/> PC29 |
| <input type="checkbox"/> PC6 | <input type="checkbox"/> PC14 | <input type="checkbox"/> PC22 | <input type="checkbox"/> PC30 |
| <input type="checkbox"/> PC7 | <input type="checkbox"/> PC15 | <input type="checkbox"/> PC23 | <input type="checkbox"/> PC31 |
| <input type="checkbox"/> PC8 | <input type="checkbox"/> PC16 | <input type="checkbox"/> PC24 | |

Other: _____

Designer / Contractor: I certify that the design is complete, accurate, and addresses the requirements of SWMPP Section C and D to the best of my knowledge.

Print Name: _____

Signature: _____

Date: _____

Review:

DOTA PM Signature: _____

Date: _____

DOTA AIR-EE Signature: _____

Date: _____

Attachment C.3

Notification Form for Sites Less Than One Acre



Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

PROJECT DESCRIPTION			
Date:			
Airport District:			
Project/Site Name:			
Projected Start Date (MM/DD/YYYY):		Projected Completion Date (MM/DD/YYYY):	
Describe the project:			
Yes	No	Does the project include the installation of any of the following (refer to SWMPP Section D, 1.1)?	
<input type="checkbox"/>	<input type="checkbox"/>	Steep slopes (i.e. grade of 20% or more).	
<input type="checkbox"/>	<input type="checkbox"/>	Parking lot or building adding 10,000 square feet or more of impervious area within 50' of surface water.	
<input type="checkbox"/>	<input type="checkbox"/>	Uncontained aircraft, vehicle, or equipment washing area.	
<input type="checkbox"/>	<input type="checkbox"/>	Fueling or petroleum storage area that exceeds requirement for SPCC (i.e. 1,320 gal).	
<input type="checkbox"/>	<input type="checkbox"/>	Modifying, replacing, or installing new MS4 drainage structures.	
If yes to any of the above, describe the permanent BMP to be implemented or provide explanation for exemption.			

PROJECT INFORMATION	
TENANT OWNER / DOTA PROJECT MANAGER	
Name:	
Project Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	
ENGINEERING / DESIGN COMPANY	
Name:	
Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	
CONTRACTOR	
<i>Information may be provided at a later date if Contractor has not been selected at the time of plan review.</i>	
Name:	
Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	



Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

SITE INFORMATION			
Construction Site Location: (Street Address, Nearest Intersection, Etc.)			
Latitude:		Longitude:	
Tax Map ID:			
Disturbed Area (to nearest tenth of an acre):		Total Project Area (to nearest tenth of an acre):	
Existing Percentage of Impervious Area:		Percentage of Impervious Area After Project Completion:	

WATER BODY INFORMATION			
Nearest Receiving Water Body(s) [RWB]:		Distance to Nearest RWB (feet):	
Any New or Modified Storm Drain Connections:			
Location or ID # of Storm Drains On/Adjacent To Project Area:			
Has the site-specific BMP plan (SSBMP) been attached?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Do site BMPs control potential pollutants to the maximum extent practicable?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Does the project include permanent BMPs? (If not, provide justification)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

SIGNATURES AND CERTIFICATIONS		
<p>Per my signature below, I hereby certify that this project is not part of a Larger Common Plan (LCP) for Development. I understand that additional construction activities at this site may require permit coverage and I am responsible for obtaining any federal, state, or local permits that may be required for this project.</p> <p>I certify that all land-disturbing construction and associated activity pertaining to this site shall be accomplished pursuant to and in keeping with the terms and conditions of all relevant regulations including, but not limited to, the Federal Clean Water Act (33 USC 1251), Hawaii Revised Statutes 342D, Hawaii Administrative Rules (HAR) §11-55 and §11-55, Honolulu International Airport's Small Municipal Storm Water Sewer System (Small MS4) National Pollutant Discharge Elimination System (NPDES) Permit (Permit No. HI S000005), and Storm Water Management Program Plan. Failure to do so may result in penalties. I hereby acknowledge that personnel from the Hawaii Department of Transportation's Airports Division or Hawaii Department of Health has the right of access to the site at all times for the purpose of on site inspections during the course of construction and to perform inspections following the project completion. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</p>		
_____ Printed Name of Project Designer	_____ Signature of Project Designer	_____ Date
_____ Printed Name of Tenant Owner (if applicable)	_____ Signature of Tenant Owner (if applicable)	_____ Date



Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

Reviewed by: _____ Date: _____

Notes:

1. This form is for the use on projects that will disturb less than 1 acre and are **not** a part of Larger Common Plan (LCP) for development. **If this project is part of a LCP for sale or development this form may not be used.**
2. You must type or print legibly. You must include the original, signed notification form and two (2) copies of a sketched plan outlining the anticipated activities and the location of all proposed sediment and erosion control devices.



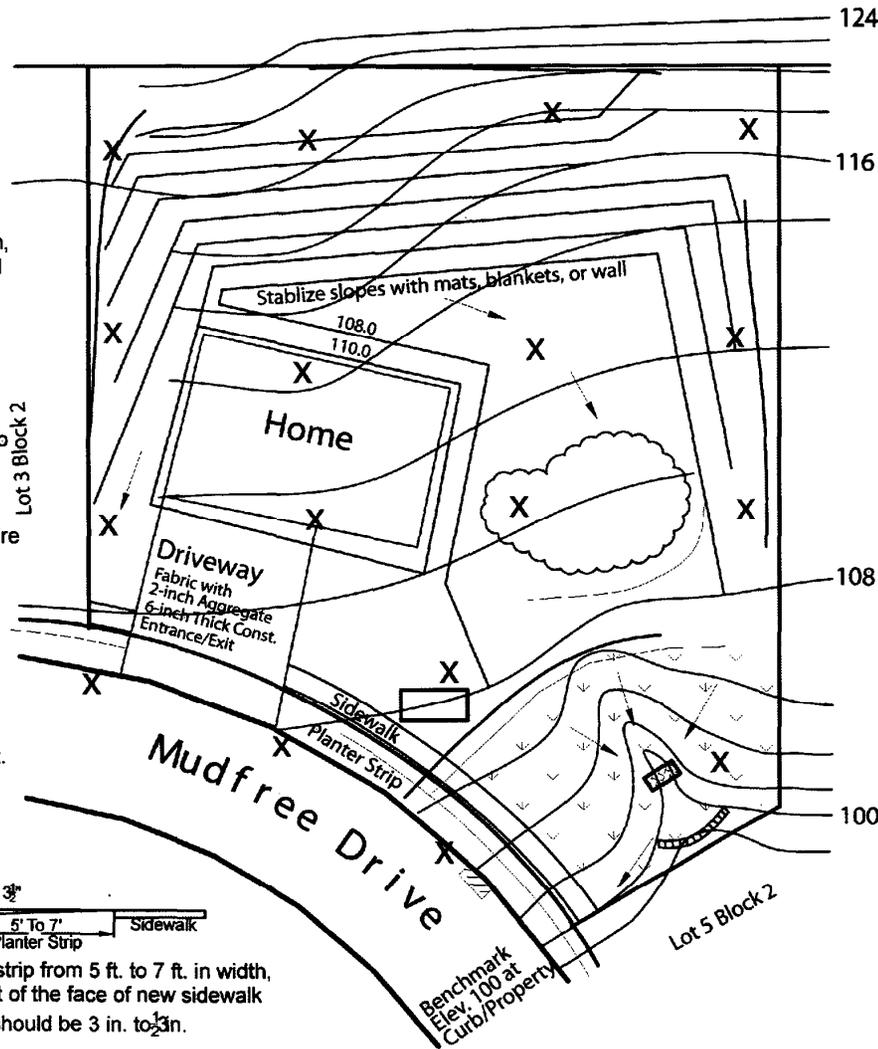
Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

Figure 1: Sample Small Project Erosion and Sediment Control Plan Drawing

N
Scale 1" = 30'

Notes:

To establish a finish floor elevation, collect ground elevations on a grid over the area of the lot.
 Finish floor elevation should make a smooth transition to the public sidewalk and planter strip.
 Maintain positive drainage away from all structures.
 Maximum slope 2 feet horizontal to 1 foot vertical 2:1.
 Erosion control matting on slopes greater the 3:1.
 Any wall over 4 foot high will require separate permit.
 Aggregate entrance/exit should extend from the roadway a min of 50 feet or to the house foundation (which ever is less).
 Failure to adequately maintain erosion and sediment control measures constitute a violation of the issued building or other permit.
 Wind erosion control measures shall be in place.



If there is a planter strip from 5 ft. to 7 ft. in width, the standard height of the face of new sidewalk above top of curb should be 3 in. to 3 1/2 in.

- Legend & Symbols -

Property (Boundary) Line	—————
Limits of Grading	—————
Fiber Roll Barrier	~~~~~
Sediment Barrier	—————
Natural Contour	————— 112
Finished Grade	—————
Stock Pile	☁
Natural ground elevation shots	X
Concrete Washout Area	□
Check Dam or Rip Rap	▨
Final Drainage Path (grade to drain)	→
Undisturbed Vegetative Cover	∨ ∨
Storm Water Inlet Protection	▨

- Required Information -

City of Pocatello Erosion and Sediment Control Certified Person: _____
 Certification # _____ Exp. Date: _____
 Company: _____
 Address: _____
 Telephone Number: _____
 Signature: _____

Attachment C.4

Construction Discharge Permit

PERMIT TO DISCHARGE INTO THE STATE AIRPORT DRAINAGE SYSTEM

Pursuant to Hawaii Administrative Rules, Chapter 11-55, application is hereby made to discharge into the Airport drainage system at the location (s) specified below and at no other place.

- 1. Name of Airport: _____
- 2. Name of Tenant: _____
- 3. Name of Project: _____
- 4. PMID/TMK: _____
- 5. Basin ID: _____
- 6. Location: _____
- 7. Type of Discharge:

<input type="checkbox"/> Storm water from industrial site	<input type="checkbox"/> Construction dewatering
<input type="checkbox"/> Storm water from construction site	<input type="checkbox"/> Hydrotesting
<input type="checkbox"/> Other	

Licensee*, the undersigned, hereby agree to the following:

- 1. That the Licensee shall indemnify and hold the State free and harmless from all suits and actions resulting from the licensee’s discharge operations.
- 2. That the Licensee shall provide appropriate best management practices and/or treatment devices for the removal of soil particles, and/or other pollutant(s) in the discharge, and such discharge shall meet the basic water quality criteria applicable to all waters, as identified in Section 11-54-04, and any other applicable sections in Chapter 11-54, Hawaii Administrative Rules; at the point of discharge into State waters.
- 3. That the Licensee shall obtain National Pollutant Discharge Elimination System (NPDES) permit/permit coverage as required by the State Department of Health (DOH) and submit a copy to the State Department of Transportation, Airport Division (DOTA).
- 4. That a copy of any effluent monitoring required by the NPDES permit shall be furnished to DOTA.
- 5. That the Licensee shall make all restoration to any State Airport or Airport tenant property damaged during the Licensee’s discharge operations in accordance with DOTA.
- 6. That the Licensee shall discontinue the discharge should DOH determine that the receiving waters are being polluted, or the discharge does not meet the effluent requirements of the NPDES permit, or the Licensee’s operations are not in the best interest of the general public. In addition, the Licensee shall be liable for any and all penalties as a result of discharges from the Licensee’s operation.
- 7. That if DOTA determines that any materials or substances from the Licensee’s discharge operations have settled into any storm sewer, the Licensee shall immediately remove and clear any material and substance to the satisfaction of DOTA.
- 8. That the Licensee shall inspect and clean the inlets to the State Airport drainage system prior to discharging.
- 9. That the Licensee shall notify the DOTA Engineering Branch, Environmental Section (AIR-EE) of dewatering operations at least 24 hours before commencing discharge.
- 10. The Licensee shall require this permit to be a part of the contract with the contractor.
- 11. The permit shall expire within 5 years of issuance date.

Discharge Permit No.:

Issuance Date:

Signature of Licensee

Date

Print Name and Title

Company Name

Company Address

City, State, Zip Code

Telephone Number

Fax Number

Approved:

Engineering Program Manager

Date

Environmental Section Supervisor

Date

*Licensee shall be the owner or authorized representative of the tenant's company.
Attach: Drain Connection Plans, if applicable.

<i>DRAIN CONNECTION WORKSHEET</i>		
If any item is listed as “no,” explain the reason for its exclusion from this submittal		
	IS INFO PROVIDED?	
ITEM	Yes	No
1) Project Location and Project Site Map showing subject discharge points to Airport drainage system.	<input type="checkbox"/>	<input type="checkbox"/>
2) Provide discharge location to each drainage feature in NAD 83 Geographic coordinates (latitude, longitude).	<input type="checkbox"/>	<input type="checkbox"/>
3) Runoff Flow Chart.	<input type="checkbox"/>	<input type="checkbox"/>
4) Quantity of storm water and site process water entering drain system.	<input type="checkbox"/>	<input type="checkbox"/>
5) Site Specific Construction Best Management Practices Plan or detailed summary of Erosion Control BMPs, location map, and construction schedule.	<input type="checkbox"/>	<input type="checkbox"/>
6) NPDES Permit Application, where applicable.	<input type="checkbox"/>	<input type="checkbox"/>

Attachment C.5

Construction Plan Review Comment Sheet and SOP

State of Hawaii
Department of Transportation – Airports Division
Standard Operating Procedures
Construction Plan Review

1.0 Purpose

This procedure establishes a standard for conducting construction plan review as described in the Storm Water Management Program Plan (SWMPP), Section C and D.

2.0 Definitions

BMP – Best Management Practices are items that will be implemented to mitigate impacts to the environment from industrial and construction activities.

Enviance – Database system used by the DOTA’s Environmental Section (AIR-EE) to track pertinent environmental data.

Letter Log – Program in Lotus Notes that allows DOTA to track correspondence.

MS4 – Municipal Separate Storm Sewer System is the drainage system used to convey storm water runoff and may consist of drains, canals, ditches, and other conveyances.

SWMPP – DOTA’s plan for ensuring compliance with storm water regulations.

X: Drive – DOTA computer storage drive.

3.0 Procedure

Step 1: Compile Project Review Package

A meeting will be held with Project Designers, Project Manager, and an AIR-EE representative during the design review phase to discuss the inclusion of post-construction BMPs in proposed construction projects.

Project Designers will develop construction plans as required by the DOTA or airport tenants. Designers will complete all necessary paperwork, including:

1. SWMPP Section C, Design Review Form *or* Notification Form for Less Than One Acre
2. MS4 Connection Permit, as applicable
3. NPDES permit application or other permit applications, as applicable
4. Construction plans with site-specific BMPs

Designers will route the construction project review package to their Project Manager (Division Engineer for DOTA projects and District Engineer for tenant projects). The Project Manager will then route the construction project review package to the environmental section (AIR-EE).

Step 2: Assign Incoming Letter Log Number

Upon receipt of the construction project review package, assign an incoming letter log number. Write the letter log number on the green routing sheet and scan along with the first page of the construction plans (Item 4 from Step 1) into the X: Drive under *Correspondence Received* and save as the letter log number and project name (i.e. 12.0146 CONRAC).

Step 3: Enter into Enviance

Enter the project into the Enviance database. Note: Do not enter projects that involve interior work or are exempt. Begin by running the report for *Environmental IDs Assigned*, which is located in the *Miscellaneous Reports* folder. Run the report by right clicking on the report name and select *Run Report*. Select the next sequential number based on the District in which the project is occurring (50000s for Oahu; 60000s for Maui; 70000s for Hawaii; and 80000s for Kauai).

Navigate in Enviance to the appropriate airport under the tab for *Construction* and *Construction Sites*. Right click on *_Construction Site Template* and select *Copy*. Right click on *_Construction Sites* and select *Paste*. Rename the project using the EID number found in the above report and beginning with a *B* for plan review (i.e. B.500001). (Note: Project will be renamed with an *A* once construction starts and then a *C* once the project is completed). Ensure that the box for *Include Children* is checked and select *Copy*. Right click on the construction site and select *Properties* and *Edit*. Enter the pertinent information and select *Save* and

State of Hawaii
Department of Transportation – Airports Division
Standard Operating Procedures

Construction Plan Review

Confirm. (Note: Required pertinent information includes Environmental ID, Project Type, and Location. It is also recommended to include in the *Description* block the letter log number used.)

Step 4: Review the Project

Ensure that the project has all the necessary paperwork properly completed from Step 1. Review the temporary and permanent BMPs to ensure that they are adequate to prevent illicit discharge during construction and to meet DOTA goals after construction. Complete the *Airport Environmental Compliance Review* checklist and route to the AIR-EE Supervisor for signature.

Note: If the project requires an MS4 connection permit, assign the permit number based on the EID (i.e. MS4.50001) and route to the AIR-EE Supervisor and Engineering Program Manager for signature. If there is more than one permit required for a single project, then end the permit number with “a,b,c,” etc as needed (i.e. MS4.50001a, MS4.50001b).

Step 5: Record Review Data

Once review is complete, go to the project in Enviance, right click, and select *Requirements*. Right click on the log *Construction Site SW Runoff Plans* and select *Data* and *Enter/Edit*. Select *Add* and enter the pertinent data and select *Save*.

Scan items 1-4 listed of the package from Step 1 in their entirety and the signed *Airport Environmental Compliance Review* checklist. (Note: if construction plans are lengthy, only the title page must be scanned). Save the documents using EID number assigned in Step 3 to the X: Drive under *Construction* and *Construction Plan Review*.

Step 6: Continue Routing

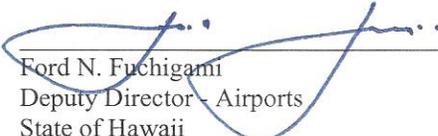
Once the review is complete, assign an outgoing letter log number. Write the letter log number on the green routing sheet and scan along with the first page of the construction plans (Item 4 from Step 1) into the X: Drive under *Correspondence Sent* and name with the letter log number and project name (i.e. 12.0146 CONRAC).

Step 7: Follow-up

If the project was not approved for any reason, the project review package may need to be revised by the Designer until it is acceptable. If this is the case, complete steps 1, 2, 4, 5, and 6 as described above with the following exceptions.

In step 5, indicate in the *Name* field of the log that it is the second, third, etc. review. When saving documents to the X: Drive under *Construction* and *Construction Plan Review* ensure that when naming the file, in addition to the EID number, include that it is the second, third, etc. review (i.e. 50001.Second Review).

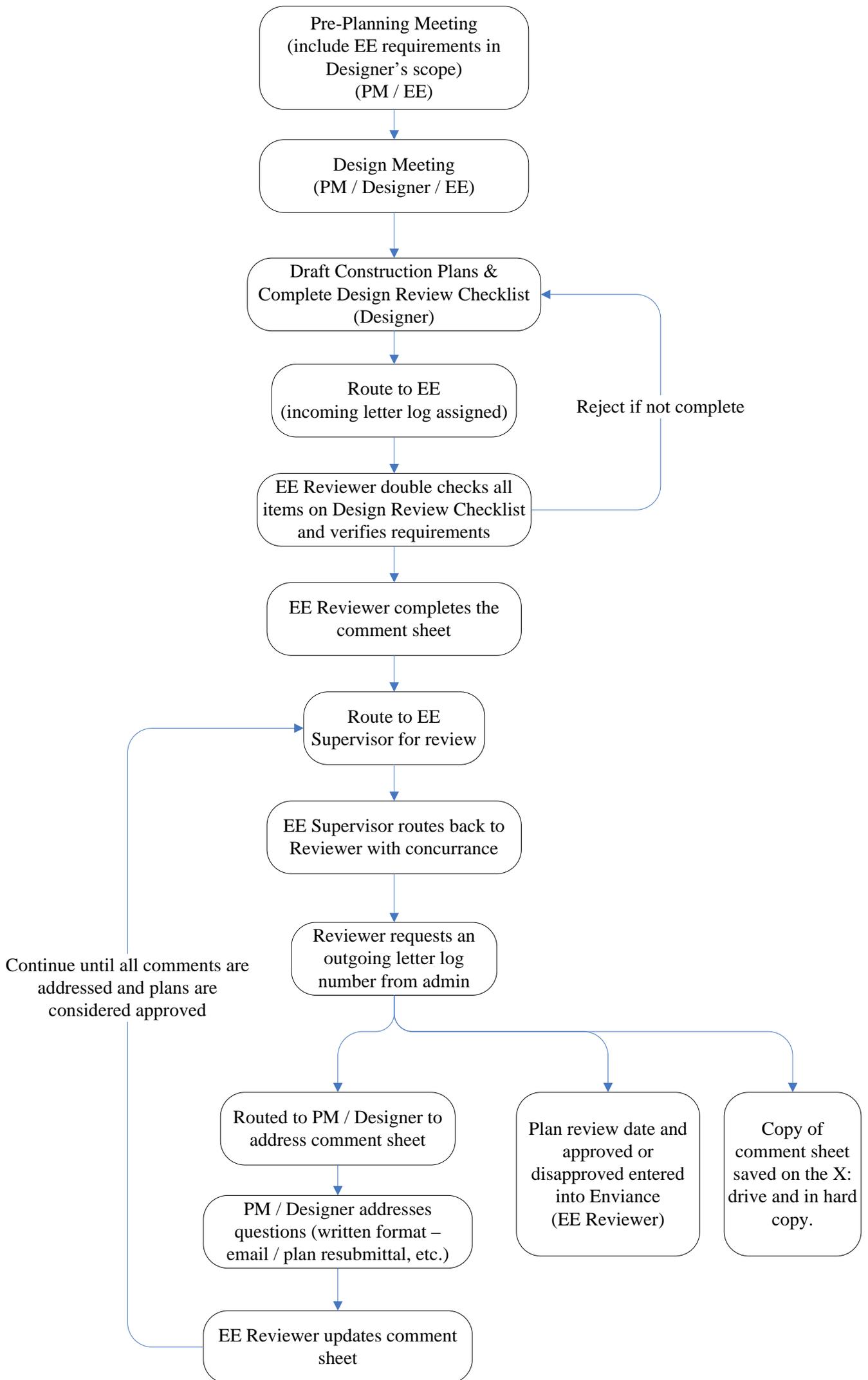
4.0 Standard Operating Practice Approval



Ford N. Fuchigami
Deputy Director - Airports
State of Hawaii
Department of Transportation

4.30.13

Date



Attachment C.6

Construction Inspection Checklist

Construction Inspection Checklist

Project Name: _____	
Date: _____	Start / End Time: _____
Project No.: _____	NPDES Permit # (if any): _____
Name of Inspector's Firm: _____	
Name of Inspector: _____	Phone Number: _____
On-site Representative: _____	Phone Number: _____
Weather Conditions: _____	
Type of Inspection (check one): <input type="checkbox"/> Initial <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Final <input type="checkbox"/> Follow-up <input type="checkbox"/> Other:	

Inspection Items	Yes	No	N/A	Comments
1. Are previously noted deficiencies corrected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Is there approval to connect to the MS4 and/or make changes to the storm drain system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Are the applicable regulatory permits and updated SWPPP available on-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Are personnel at the site aware of applicable BMPs and the location of the BMP Plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Are contractor self-inspections performed as required in HAR 11-55, App C or at least every 7 days?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Are spill kits available on-site and spills promptly removed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Are discharge points and receiving waters free of any sediment deposits or other signs of illicit discharge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Are storm drain inlets and waterways properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Is the construction exit preventing sediment from being tracked into the street?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Are proper washout facilities (i.e. paint, concrete) available, clearly marked, and maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Are materials that are potential storm water contaminants stored inside or under cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or other deleterious material?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Are non-storm water discharges (i.e. wash water, dewatering) properly controlled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Was herbicide, pesticide, or fertilizer used at the site since the previous inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17b . If so, keep the usage log on-site and in the comments section of this form record date, quantity used, location, and BMPs used (refer to SWMPP Section E).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

List BMPs from the SWPPP and whether they are properly implemented and maintained.

BMP		Implemented		Maintained		Comments
		Yes	No	Yes	No	
1.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Comments:						

*Use additional paper if the number of BMPs exceeds the space allotted.

Description of Potential Non-Compliance:

NOTE: Per HNL's Small MS4 Permit, HIS000005 and SWMP Section C.
Critical Deficiencies. Must be corrected by the **close of business on the day of the inspection**. Defined as those that pose an immediate threat for discharge of pollutants to a storm drain or receiving water. Examples include: non-storm water discharge, absence of perimeter controls, spills that have not been cleaned near a drain or waterway.
Major Deficiencies. Must be corrected as soon as possible, but no later than **5 calendar days following the inspection**. Defined as those that pose a significant threat for discharge of pollutants to a storm drain or receiving water. Examples include: lack of NPDES permit (if required), lack of BMP plan, perimeter BMPs are not functional, dewatering without BMPs, tracking more than 50' from ingress/egress.
Minor Deficiencies. Must be corrected by date specified by inspector. Defined as those that do not pose a threat for the discharge of pollutants; however still violate regulations or procedures.

Check box if:

- No incidents of potential non-compliance were found, and I certify that this inspection found this site to be in full compliance with both the HNL Storm Water Management Program Plan and applicable permits. All items must be checked "Yes" to be considered in full compliance.
- Incidents of potential non-compliance were found and discussed with Site Manager. If any items were checked "No" then this box must be checked. Document any incidences of non-compliance with photograph(s) and description of the non-compliance(s).

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

Print Name: _____

Signature: _____

Date: _____

Attachment C.7

Construction Activities BMP Field Manual



Construction Activities

Best Management Practices Field Manual



**PROTECT
OUR WATER**
MĀLAMA I KA WAI
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

STATE OF HAWAII, DEPARTMENT OF
TRANSPORTATION, AIRPORTS DIVISION
400 Rodgers Boulevard, Suite 700
Honolulu, Hawaii 96819-1880



June 2015

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Construction Activities Best Management Practices Scheduling

Description

Proper scheduling of construction activities can reduce the area and duration of soil exposure to erosion by wind, rain, runoff, and vehicle tracking.

Limitations

None.

Practice		
<input type="checkbox"/>	C1.1	Avoid rainy periods as much as possible. Schedule major grading operations during dry months (April through October).
<input type="checkbox"/>	C1.2	Monitor the weather forecast for rainfall. Allow sufficient time before rainfall begins to stabilize the soil with vegetation or physical means or to install temporary sediment trapping devices.
<input type="checkbox"/>	C1.3	Minimize area of soil exposed at any one time. Schedule projects to disturb only small portions of the site at a time. Complete grading as soon as possible.
<input type="checkbox"/>	C1.4	Stabilize the finished graded area within seven (7) calendar days or non-active exposed areas within three (3) calendar days from the end of soil-disturbing activities or one (1) calendar day before an anticipated rainfall event.
<input type="checkbox"/>	C1.5	Backfill open trenches as soon as possible. Sequence trenching projects so open portions of the trench are backfilled before excavating the next trench section.

Maintenance and Inspection		
<input type="checkbox"/>	M1.1	Verify that the work is in accordance with the construction schedule. If the work deviates from the schedule, take corrective actions.
<input type="checkbox"/>	M1.2	Update the construction schedule as specified in the contract or as needed for unforeseen changes.

Construction Activities Best Management Practices Preservation of Existing Vegetation

Description

Carefully planned preservation and protection of existing vegetation at construction sites minimizes the potential of harming or needlessly destroying existing trees, vines, shrubs and/or grasses that stabilize soil and control erosion. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. Vegetation also helps to keep soil from drying out and becoming susceptible to erosional wind sweeps. Identifying the type of vegetation desirable or ideal for the area to preserve can also contribute to the aesthetics of the post-construction site.

Limitations

- Topography, sub-surface geological characteristics, soil quality and a restrictive land development area are just a few site conditions that can make it difficult and expensive to preserve existing vegetation at a development site.
- Federal Aviation Administration rules regarding aircraft clearances and lines of site may require the removal of existing vegetation. Reduced root systems equate to diminished anchoring of soil and a proportional increase in erosion via traffic (foot or vehicular/machinery).

Practice		
<input type="checkbox"/>	C2.1	Preservation of existing vegetation shall be practiced in the following locations: <ul style="list-style-type: none"> • Areas within the project site where construction activities are not required. • Sensitive areas where natural vegetation exists and should be preserved, such as on steep slopes (e.g., steeper than 3:1), areas near watercourses, and wooded areas. • Areas where local, state, or federal governments require preservation, such as delineated wetlands, marshes, shorelines, conservation land, etc.
<input type="checkbox"/>	C2.2	The following criteria may be used for deciding which vegetation will remain on the site: <ul style="list-style-type: none"> • Aesthetic values: Consideration should be given to foliage, flowering habits, bark and crown characteristics (for trees). • Freedom from disease and rot. • Life span of trees: Short-lived trees need not be preserved. • Environmental values: Habitat; screening; and buffers. • Sudden exposure: Save vegetation that grows in direct sunlight and is able to withstand radiated heat from proposed structures and pavement. • Space needed: Sufficient space must be provided between the vegetation and any structures, electric and telephone lines, water and sewer lines, driveways and roadways.
<input type="checkbox"/>	C2.3	Do not include plant species that compete with the existing vegetation in landscaping plans.
METHODS FOR PROTECTING EXISTING VEGETATION AND TREES INCLUDE:		
<input type="checkbox"/>	C2.4	Protect trees and their root systems during construction by prohibiting soil disturbance within a specified distance identified in the project plans, which also helps prevent soil erosion.
<input type="checkbox"/>	C2.5	Clearly mark, flag or fence areas where vegetation is to be preserved and trees to remain.
<input type="checkbox"/>	C2.6	Stake off root system limits (drip line of tree).
<input type="checkbox"/>	C2.7	Tree wells and retaining walls (permanent) help preserve existing vegetation, but must be large enough to protect the root system.
<input type="checkbox"/>	C2.8	When grading under trees is necessary, excavation and fill is to be limited to one foot within the tree drip lines.

Construction Activities Best Management Practices
Preservation of Existing Vegetation
 (continued)

<input type="checkbox"/>	C2.9	Do no locate construction traffic route, spoil stockpile, etc., in areas where significant adverse impact on existing vegetation may occur.
<input type="checkbox"/>	C2.10	Prepare landscaping plans, which preserve as much existing vegetation as possible and ensures the required care for this vegetation to thrive during and after construction.
<input type="checkbox"/>	C2.11	Define and protect with berms, fencing, signs, etc., a setback area from vegetation to be preserved. Setback distance is to be based on the location, species, size, and age of the vegetation to be preserved and on the potential impact of adjacent construction activities or permanent improvement. No disturbance of any kind is to be allowed within the setback area around the vegetation to be preserved.

Maintenance and Inspection		
<input type="checkbox"/>	M2.1	Ensure that the limits of disturbance are clearly marked at all times. If damage to existing vegetation still occurs, consult with an arborist.
<input type="checkbox"/>	M2.2	Provide training for personnel regarding which vegetation will be preserved and the methods of preservation.

Construction Activities Best Management Practices Location of Potential Sources of Sediment

Description

Proper location of potential sources of sediment can reduce erosion and the discharge of sediment from construction sites.

Limitations

- Prevention of sediment-laden runoff must be supplemented with mulching, planting, and structural controls such as berms, silt fences, and silt basins.
- Contaminated soil may need to be managed separately.

Practice		
<input type="checkbox"/>	C3.1	Lay out the work site so that haul roads and stockpiles are buffered with vegetated areas to remove suspended sediment and other pollutants from runoff prior to discharging off site. Vegetation along the perimeter of the site, especially on the downhill side for sloped sites, provides an effective buffer against sediment leaving the construction site.
<input type="checkbox"/>	C3.2	Locate stockpiles away from waterways or low spots.
<input type="checkbox"/>	C3.3	Redirect off-site runoff, where possible, so that it flows through or around the work site without contacting areas where the surface has been disturbed.
<input type="checkbox"/>	C3.4	Properly maintain vegetation at swales and natural drainageways.
<input type="checkbox"/>	C3.5	If available, use naturally level areas for parking and equipment staging during construction.

Maintenance and Inspection		
<input type="checkbox"/>	M3.1	Verify that the work site lay out is in accordance with the project phasing plan. Update the layout per phase of work. An updated lay out plan should be submitted to the Construction Manager prior to the start of work for that phase.
<input type="checkbox"/>	M3.2	Inspect swales and natural drainage ways prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M3.3	Educate personnel about proper locations of potential sources of sediment at the site.

Construction Activities Best Management Practices Earth Dike

Description

The temporary earth dike is a temporary berm or ridge of compacted soil, used to divert runoff or channel water to a desired location.

Earth dikes are typically used to divert concentrated runoff through disturbed areas into another BMP (e.g. sediment basins), to divert runoff away from disturbed or unstable slopes, to divert runoff from off-site and undisturbed areas around disturbed areas, and as containment for construction materials and wastes.

Limitations

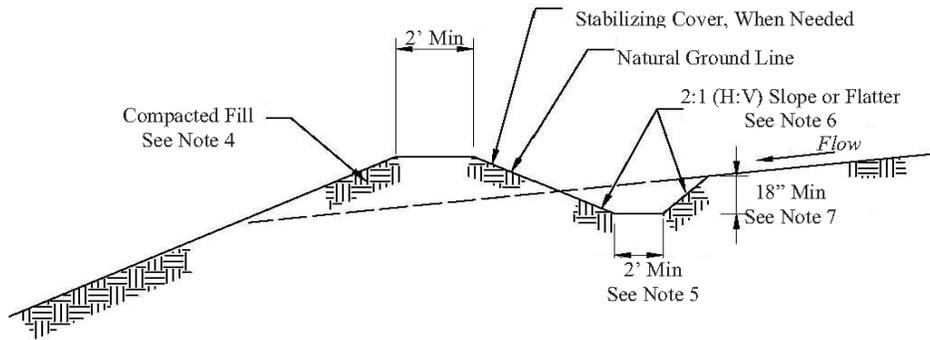
Temporary dikes shall not be used for drainage areas greater than 10 acres, or along slopes greater than 10 percent. For larger areas more permanent drainage structures shall be built. Additional limitations include the following:

- Earth dikes may create more disturbed area.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted storm water may cause downstream damage.
- Dikes are not to be constructed of soils that erode easily.
- Regarding the site to remove the dike may add additional cost.

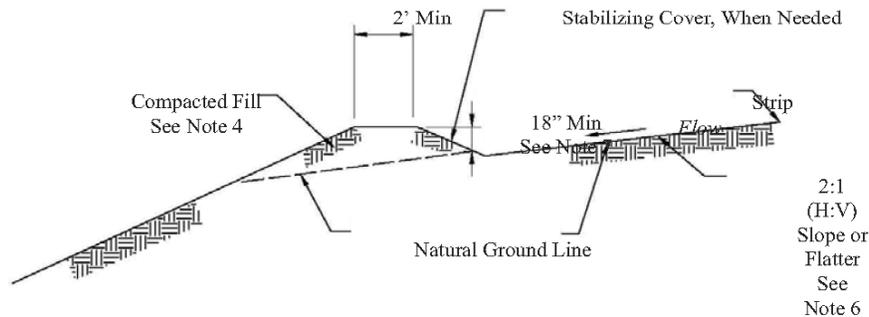
Practice		
<input type="checkbox"/>	C4.1	Dikes are to be well compacted during construction.
<input type="checkbox"/>	C4.2	All dikes are to have positive drainage to a stabilized outlet.
<input type="checkbox"/>	C4.3	Dikes should have 2:1 or flatter side slopes, 18 in. minimum height, and a minimum top width of 24 inc. Top width may be wider and side slopes may be flatter at crossing for construction traffic.
<input type="checkbox"/>	C4.4	Dikes are to direct sediment-laden runoff into a sediment-trapping device.
<input type="checkbox"/>	C4.5	Dikes surfaces are to be stabilized with vegetation, chemicals, or physical devices within one (1) calendar day after construction of the dikes have been completed.
<input type="checkbox"/>	C4.6	Dikes are to remain in place until the disturbed areas are permanently stabilized.
<input type="checkbox"/>	C4.7	Dikes must be on-site and must safely convey anticipated flood flows.

Note: Example schematics are included herein for reference.

Maintenance and Inspection		
<input type="checkbox"/>	M4.1	Inspect dikes prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M4.2	Repair damage sustained to the dike within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M4.3	Provide training for personnel detailing the location and BMP requirements for any earth dikes the site.



Drainage Swale Section “A”



Earth Dike Section “B”

Notes:

1. Place drainage swales above or below, not on, a cut or fill slope.
2. Drainage or swales should be laid at a grade of at least 1 percent, but not more than 15 percent.
3. Remove all trees, stumps, obstructions, and other objectionable material from the swale.
4. Fill material along the path of the swale should be compacted to at least 90% compaction.
5. Swale top and bottom width should be at least 2 ft.
6. Side slopes should be 2:1 or flatter.
7. Depth of the swale should be at least 18 in.
8. Construct the drainage swale with a positive grade to a stabilized outlet.
9. Use a lined ditch for high flow velocities.
10. Temporary stabilization may be achieved using seed and mulching for slopes less than 5% and either rip-rap or sod for slopes in excess of 5%.
11. If rip-rap is used to stabilize the channel formed along the toe of the dike, the following typical specifications apply:

Channel Grade	Riprap Stabilization
0.5-1.0%	4 in. Rock
1.1-2.0%	6 in. Rock
2.1-4.0%	8 in. Rock
4.1-5.0%	8 in. – 12 in. Rock

Drainage Swale and Earth Dike

Source: City and County of Honolulu BMP Manual, November 2011.

Construction Activities Best Management Practices Temporary Drains and Swales

Description

Temporary drains and swales are used to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff into sediment basins or traps.

Limitations

- Temporary drains and swales, or any other diversion of runoff, shall not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local flood plain management requirements.
- A permanent drainage channel must be designed by a licensed, qualified engineer.

Practice		
<input type="checkbox"/>	C5.1	At a minimum, the drain/swale shall conform to predevelopment drainage patterns and capacities.
<input type="checkbox"/>	C5.2	Construct the drain/swale with an uninterrupted, positive grade to a stabilized outlet.
<input type="checkbox"/>	C5.3	Provide erosion protection or energy dissipation measures if the flow out of the drain or swale can reach an erosive velocity.
<input type="checkbox"/>	C5.4	Size temporary drainage swales using local drainage design criteria.
<input type="checkbox"/>	C5.5	Use a lined ditch for high flow velocities.

Maintenance and Inspection		
<input type="checkbox"/>	M5.1	Inspect temporary drains and swales prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M5.2	Repair damage sustained to the swales within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M5.3	Ensure required personnel are trained on maintenance and operation of temporary drains and swales.

Construction Activities Best Management Practices Dust Control

Description

Dust control measures are used to stabilize soil from wind erosion, and reduce dust generated by construction activities.

Limitations

- Watering prevents dust only for a short period and must be applied daily (or more often) to be effective.
- Excessive irrigation may cause erosion.
- Oil is not to be used for dust control because the oil may migrate into a drainage way and/or seep into the soil.
- Certain dust suppression chemicals may make soil water repellent, increasing runoff.

Practice		
<input type="checkbox"/>	C6.1	Schedule construction activities to minimize exposed areas.
<input type="checkbox"/>	C6.2	Stabilize exposed soils until permanent BMPs are installed. If stabilizing by water, water continuously throughout the work day, and avoid over saturation to prevent excessive runoff.
<input type="checkbox"/>	C6.3	Identify and stabilize key access points prior to commencement of construction.
<input type="checkbox"/>	C6.4	Minimizing the impact of dust by anticipating the direction of prevailing winds.
<input type="checkbox"/>	C6.5	Direct most construction traffic to stabilized roadways within the project site.
<input type="checkbox"/>	C6.6	Comply with State DOH requirements for dust control.

Maintenance and Inspection		
<input type="checkbox"/>	M6.1	Inspect all areas that have been sprayed to ensure coverage. Ensure that excessive runoff is not generated.
<input type="checkbox"/>	M6.2	Reapply water when soil becomes dry.
<input type="checkbox"/>	M6.3	Provide personnel responsible for dust control with adequate training.

Construction Activities Best Management Practices Topsoil Management

Description

The salvaging, stockpiling and reapplication of topsoil or other selected material to be used as growth medium in the reclamation of surface disturbances.

Limitations

None.

Practice		
<input type="checkbox"/>	C7.1	Conduct a site-specific survey of the project area as a part of baseline investigations. The soil survey will identify the soils suitable for salvaging and their depth prior to disturbance.
<input type="checkbox"/>	C7.2	All suitable topsoil and suitable material to be utilized in reclamation of the surface disturbance is to be salvaged wherever feasible and stockpiled for reapplication.
<input type="checkbox"/>	C7.3	If conditions permit, topsoil or growth medium is to be applied directly to disturbed areas.
<input type="checkbox"/>	C7.4	Soil replacement depths are determined by several factors including: <ul style="list-style-type: none"> • Pre-disturbance soil depths, • Vegetation types, and • The physical and chemical properties of the material being covered. Generally speaking, the poorer the physical and chemical properties of the spoil or waste material the greater the required depth of replacement soil.
<input type="checkbox"/>	C7.5	Soil testing (nutrients, pH and toxicity factors), of the replacement soils and the materials to be covered is to be completed prior to reapplication of topsoil.
<input type="checkbox"/>	C7.6	Maintenance and Upkeep: Topsoil stockpiles require periodic maintenance to prevent erosion. Based upon the anticipated length of time the soils will be stockpiled, the piles shall be covered with plastic or another substrate, or revegetated, to protect from wind, rain, and erosion.
CONSIDERATIONS FOR DEVELOPING A TOPSOIL MANAGEMENT PLAN:		
<input type="checkbox"/>	C7.7	The amount and quality of existing topsoil or growth medium.
<input type="checkbox"/>	C7.8	The amount of surface disturbance (area), which will receive topsoil or growth medium and the required depth of application.
<input type="checkbox"/>	C7.9	Methodology to be utilized for topsoil or growth medium salvage.
<input type="checkbox"/>	C7.10	Storage location, the duration of storage of salvaged soils, and the protection of stockpiled soils to prevent erosion.
<input type="checkbox"/>	C7.11	The feasibility of direct replacement of the salvaged soils.
<input type="checkbox"/>	C7.12	Availability of additional growth media to supplement topsoil replacement.

Maintenance and Inspection		
<input type="checkbox"/>	M7.1	Review and Update the topsoil management plan at the beginning of each work week until all grading operations are completed.

Construction Activities Best Management Practices Geotextiles and Mats

Description

Coverings made of natural or synthetic material are used to temporarily or permanently stabilize soil.

Limitations

- Matting is more costly than other BMP practices, therefore, it may be used in areas where other BMPs are ineffective (e.g., channels, steep slopes).
- Matting is not suitable for rocky sites or areas that will have vegetation that requires mowing (the matting and staple anchors can get caught in the mower).
- May delay seed germination due to reduction in soil temperature.
- Installation requires an experienced maintenance engineer to ensure soil stabilization and erosion protection.

Practice		
<input type="checkbox"/>	C8.1	Applicable use for temporary stabilization of highly erosive soils such as channels, streams, and steep slopes.
<input type="checkbox"/>	C8.2	Apply jute or straw matting to disturbed soils and where existing vegetation has been removed.
<input type="checkbox"/>	C8.3	The following are examples of synthetic soil covers may be used for either temporary or post-construction stabilization, both with and without vegetation: <ul style="list-style-type: none"> • Excelsior matting • Glass fiber matting • Staples • Mulch netting
<input type="checkbox"/>	C8.4	Anchor to the top of the slope in a 6in deep trench and backfill.
<input type="checkbox"/>	C8.5	Overlap the edges of the blankets approximately 2 to 3 inches and staple every 3 feet. Ensure close contact with the soil.

Maintenance and Inspection		
<input type="checkbox"/>	M8.1	Inspect matting prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week
<input type="checkbox"/>	M8.2	Repair damage sustained to the matting within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M8.3	If washout or breakage occurs, reconstruct the slope or channel within seven (7) calendar days after the incident and immediately reinstall the matting.
<input type="checkbox"/>	M8.4	Train required personnel about proper installation and maintenance of geotextile mats as well as the importance of preventing sediment discharge.

Construction Activities Best Management Practices Seeding and Planting

Description

Seeding of grasses and planting of trees, shrubs, vines, and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

Limitations

- Permanent and temporary vegetation may not be appropriate in dry periods without irrigation.
- Fertilizer requirements may have potential to create storm water pollution if improperly applied.
- Federal Aviation Administration (FAA) regulations may prohibit the implementation of vegetation due to concerns over creating bird habitats and possible bird strikes with aircraft in movement areas of the airport. Consult with the Environmental Unit for exemptions in these cases.

Practice		
		GRASSES:
<input type="checkbox"/>	C9.1	Ground preparation: fertilize and mechanically stabilize the soil.
<input type="checkbox"/>	C9.2	Tolerant of short-term temperature extremes and waterlogged soil conditions.
<input type="checkbox"/>	C9.3	Appropriate soil conditions: shallow soil base, good drainage, slope of 2:1 or flatter.
<input type="checkbox"/>	C9.4	Develops quickly from seeds.
<input type="checkbox"/>	C9.5	Mowing, irrigating, and fertilizing are vital for promoting vigorous grass growth.
		TREES AND SHRUBS:
<input type="checkbox"/>	C9.6	Selection Criteria: vigor, species, size, shape, and wildlife food source.
<input type="checkbox"/>	C9.7	Other Factors: wind/exposure and irrigation needs.
		VINES AND GROUND COVERS:
<input type="checkbox"/>	C9.8	Ground preparation: lime and fertilizer preparation.
<input type="checkbox"/>	C9.9	Use proper seeding rates.
<input type="checkbox"/>	C9.10	Appropriate soil conditions: drainage, acidity, and slopes.
<input type="checkbox"/>	C9.11	Generally avoid species requiring irrigation.

Maintenance and Inspection		
<input type="checkbox"/>	M9.1	Inspect seeded areas for failures and re-fertilize and re-seed at not less than half the original application rate.
<input type="checkbox"/>	M9.2	Inspect immediately after any rainfall event to ensure seeds have not washed away.
<input type="checkbox"/>	M9.3	Maintain a log of fertilizer application.

Construction Activities Management Practices Sand Bag Barrier

Description

Stacking sand bags along a level contour creates a barrier which detains sediment-laden water by causing the water to pond upstream of the barrier and for sedimentation to occur in that area.

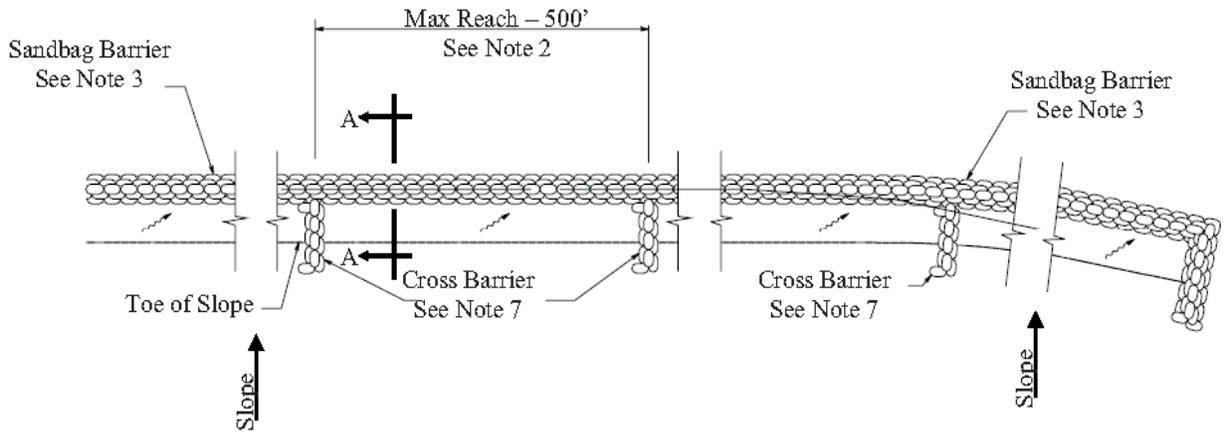
Limitations

- Do not install sand bag barrier at locations that could compromise traffic safety.
- Sand bags are more expensive than other barriers, but also more durable.
- Do not use burlap for sand bags.

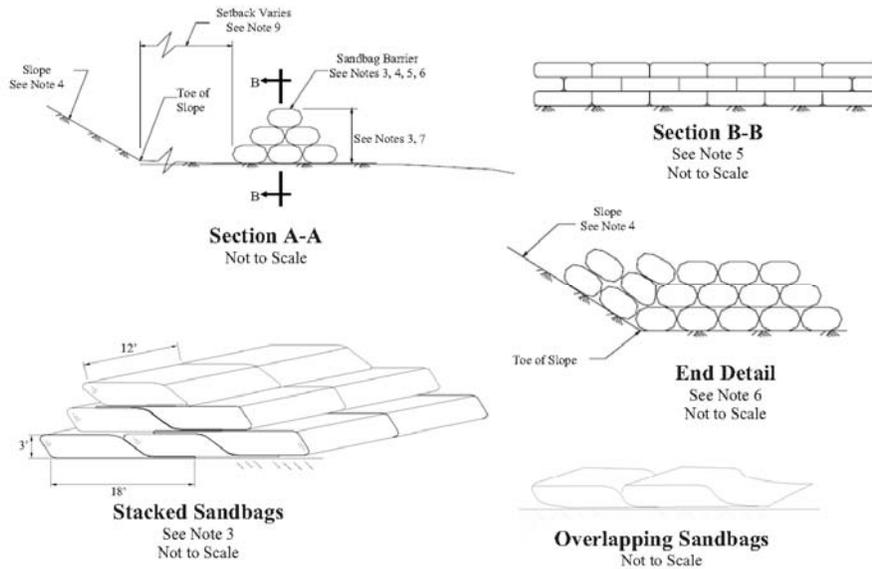
Practice		
<input type="checkbox"/>	C10.1	Sand bag barriers may be used in drainage areas up to 5 acres.
<input type="checkbox"/>	C10.2	Install along a level contour.
<input type="checkbox"/>	C10.3	Base of sand bag barrier shall be at least 48 inches wide.
<input type="checkbox"/>	C10.4	Height of sand bag barrier shall be at least 18 inches.
<input type="checkbox"/>	C10.5	Four-inch PVC pipe may be installed between the top layers of sand bags to drain large flood flows.
<input type="checkbox"/>	C10.6	Provide area behind barrier for runoff to pond and sediment to settle; size barrier according to sediment trap BMP criteria.
<input type="checkbox"/>	C10.7	Place below the toe of a slope.
<input type="checkbox"/>	C10.8	Use sand bags large enough and sturdy enough to withstand major flooding.

Note: Example schematics are included herein for reference.

Maintenance and Inspection		
<input type="checkbox"/>	M10.1	Inspect sand bags prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M10.2	Repair damage sustained to the sand bags within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M10.3	Remove sediment when accumulation reaches one-third the barrier height.
<input type="checkbox"/>	M10.4	Provide education for required personnel about proper sand bag placement and maintenance. Ensure that the importance of preventing sediment discharge is including in the training curriculum.



Detail "A"
Not to Scale



Notes:

1. Drainage area should not exceed 5 acres.
2. Construct the length of each reach so that the change in base elevation along the reach does not exceed $\frac{1}{2}$ the height of the linear barrier. In no case shall the reach length exceed 500'.
3. Stack sandbags at least three bags high with proper side slopes using a pyramid approach.
4. Locate sandbag barriers on a level contour.
 - a. Slopes between 20:1 and 2:1 (H:V): Sandbags should be placed at a maximum interval of 50 ft. (a closer spacing is more effective), with the first row near the slope toe.
 - b. Slopes 2:1 (H:V) or steeper: Sandbags should be placed at a maximum interval of 25 ft. (a closer spacing is more effective), with the first row placed near the slope toe.
5. Overlap butt joints of row beneath with each successive row.
6. The end of the barrier shall be turned up slope.
7. Cross barriers shall be a min of $\frac{1}{2}$ and a max of $\frac{2}{3}$ of the height of the linear barrier.
8. Sandbag material must conform to ASTM designation D3786 and ASTM designation D4355.
9. Dimensions may vary to fit field condition.
10. For Sandbag and Fill Material Specifications see SE-8 Sandbag Barrier, Materials.

Source: City and County of Honolulu BMP Manual, November 2011.

Sandbag Barrier

Construction Activities Best Management Practices Compost Filter Berm

Description

A compost filter berm is a dike or compost product that is placed perpendicular to sheet flow runoff to retain sediment on-site. These are generally placed along the perimeter of a site and work to retain large volumes of water, and retain larger amounts of pollutants as water passes through the berm. The berm may either be vegetated or unvegetated.

Limitations

- Only applicable where flow does not exceed 1 cfs.
- Compost quality shall comply with all local, state, and Federal requirements.

Practice		
<input type="checkbox"/>	C11.1	Select the appropriate sized berm based on rainfall amount and slope.
<input type="checkbox"/>	C11.2	Fill a mesh tube with composted material and tie knots at both ends of the sock. Ensure that the berm is at least 10" in diameter.
<input type="checkbox"/>	C11.3	Place perpendicular to flow along the base or slopes or site perimeter. Ensure that the berm has good contact with the ground. Overlap the ends of berms when placed end-to-end.
<input type="checkbox"/>	C11.4	Place stakes on the downstream side of berms that are located on slopes.
<input type="checkbox"/>	C11.5	When complete, compost may be added to the site as a soil amendment.

Maintenance and Inspection		
<input type="checkbox"/>	M11.1	Inspect berms prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M11.2	Repair damage sustained to the berms, such as ripped mesh, within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M11.3	Remove sediment when accumulation reaches one-third the barrier height.
<input type="checkbox"/>	M11.4	Provide education for required personnel about proper berm installation and maintenance. Ensure that the importance of preventing sediment discharge is including in the training curriculum.

Construction Activities Best Management Practices Storm Drain Inlet Protection

Description

Devices of various designs which detain sediment-laden runoff and allow the sediment to settle out of the water prior to discharge into a storm drain inlet or catch basin.

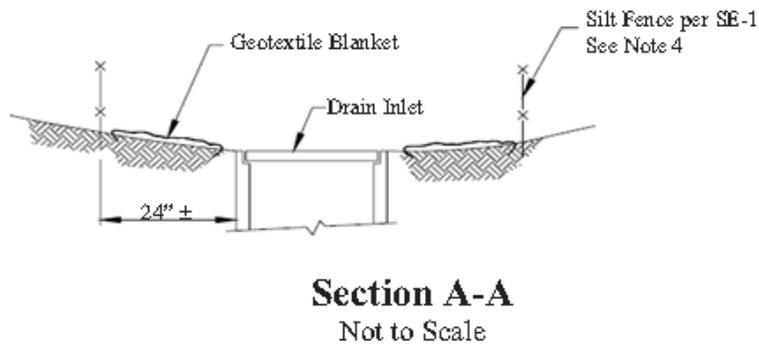
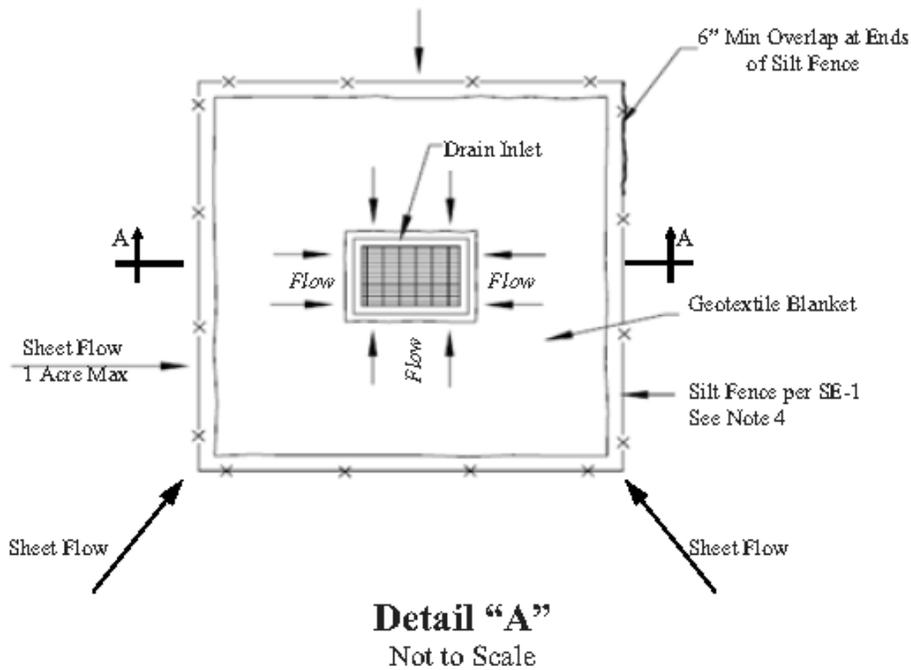
Limitations

- Inlet protection must not create a potential hazard to traffic.
- Drainage area should not exceed 1 acre.
- Runoff may bypass protected inlets on slopes.
- Ponding will occur at a protected inlet, with possible short term flooding.
- Straw bales are NOT effective for inlet protection.

Practice		
<input type="checkbox"/>	C12.1	Every storm drain inlet potentially receiving sediment-laden runoff shall be protected, either by covering the inlet or promoting sedimentation upstream of the inlet.
<input type="checkbox"/>	C12.2	Five types of inlet protection are presented below; however, other effective methods and proprietary devices exist and may be selected: <ul style="list-style-type: none"> • Filter Fabric Fence: Appropriate for drainage basins less than one acre with less than a 5 percent slope. • Block and Gravel Filter: Appropriate for flows greater than 0.5 cubic feet per second (cfs). • Gravel and Wire Mesh Filter: Used on curb or drop inlets where construction equipment may drive over the inlet. • Sand Bag Barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. • Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment.
<input type="checkbox"/>	C12.3	Select the appropriate type of inlet protection as identified in C12.2 above and design as referred to or as described herein. <ul style="list-style-type: none"> • Filter Fabric: Must be of sufficient strength and permeability to allow storm water to pass through and retain sediment. Must be anchored such that the fabric will not fall into the drain when the grate is removed for maintenance.
<input type="checkbox"/>	C12.4	Use only for drainage areas smaller than one acre unless a sediment trap intercepts the runoff.
<input type="checkbox"/>	C12.5	Provide area around the inlet for water to pond without flooding structures and property.

Note: Example schematics for inlet protection are included herein for reference.

Maintenance and Inspection		
<input type="checkbox"/>	M12.1	Inspect inlet protection devices prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week. During extended rainfall events inspect inlet protection devices daily.
<input type="checkbox"/>	M12.2	Repair damage sustained to the inlet protection devices within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M12.3	Remove sediment after each rainfall event and once the containment device is ½ full of sediment.
<input type="checkbox"/>	M12.4	Provide education for required personnel about storm drain protection from sediment discharge and other construction site contaminants.

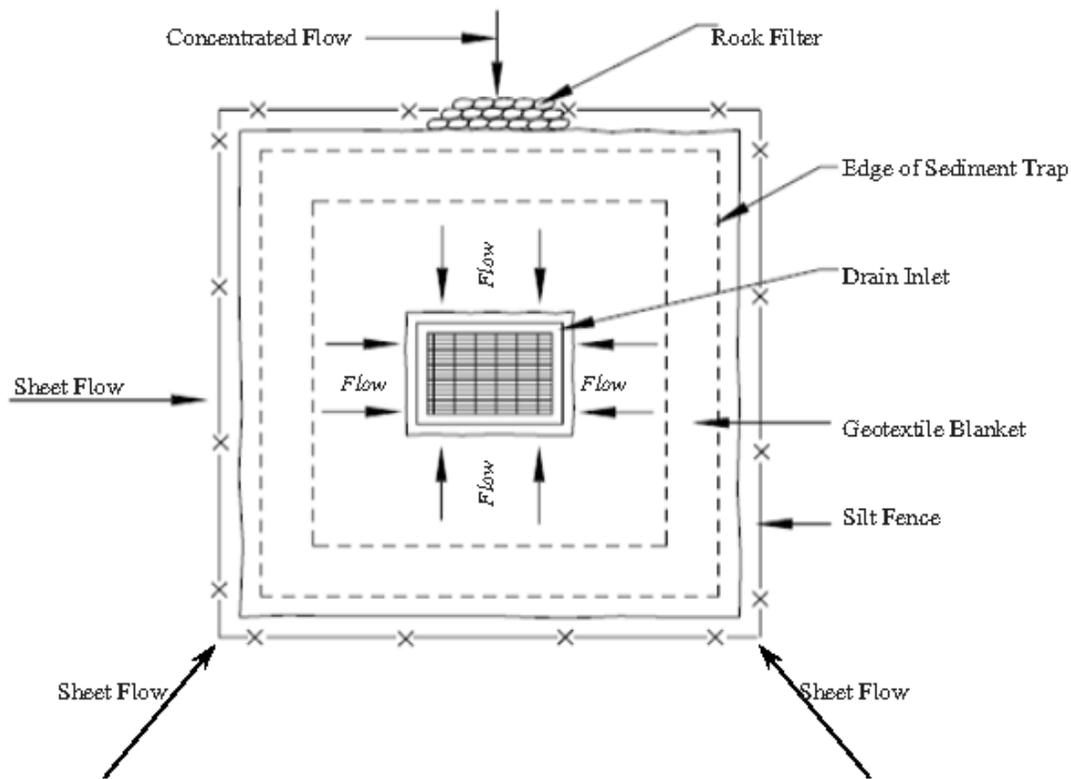


Notes:

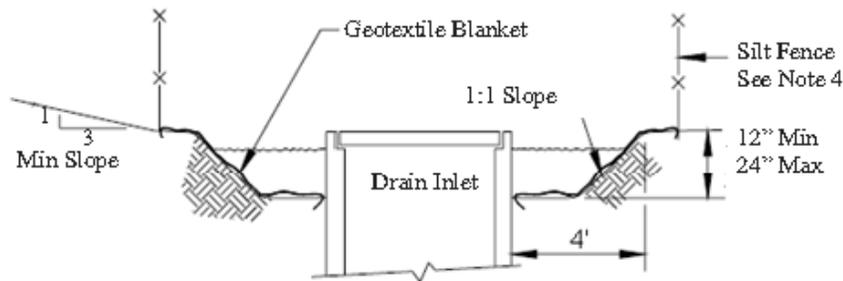
1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable in concentrated flows.
4. Refer to BMP SE-1, Silt Fence for construction.

Source: City and County of Honolulu BMP Manual, November 2011.

DI Protection Type 1, Filter Fabric Fence



Detail "B"
Not to Scale

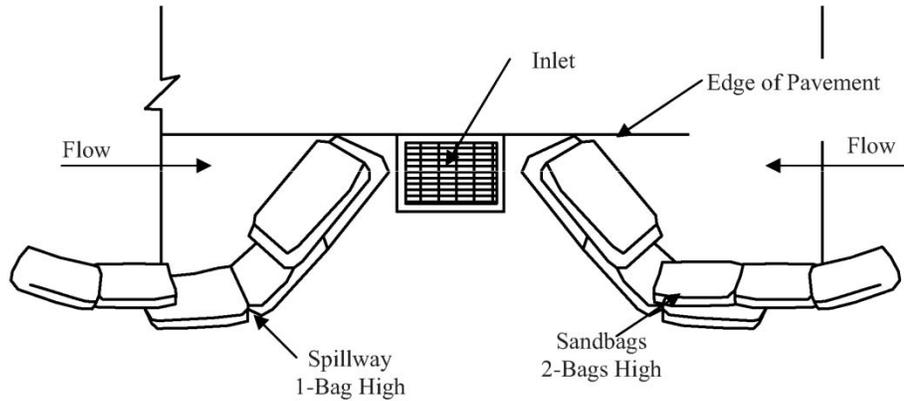


Notes:

1. For use in cleared and grubbed and in graded areas.
2. For concentrated flows, shape basin in 2:1 (L:W) ratio with length oriented towards direction of flow.
3. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd³/acre of drainage area.
4. Refer to BMP SE-1, Silt Fence for construction.

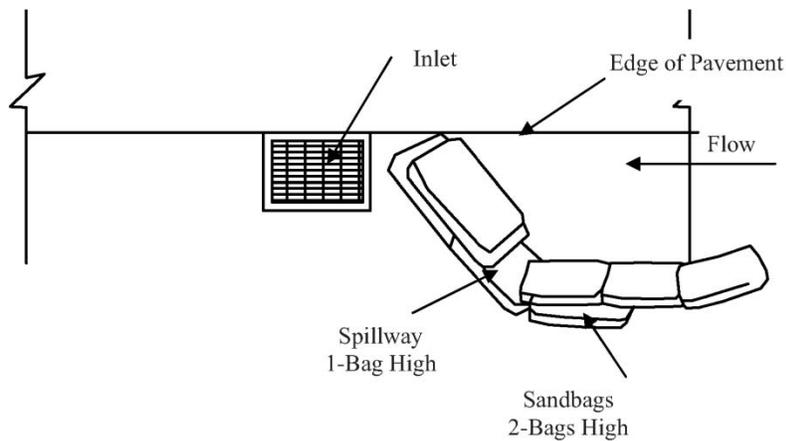
DI Protection Type 2, Excavated Drop Inlet Sediment Trap

Source: City and County of Honolulu BMP Manual, November 2011.



Typical Protection for Inlet on Sump, Detail “C”

Not to Scale



Typical Protection for Inlet on Grade, Detail “D”

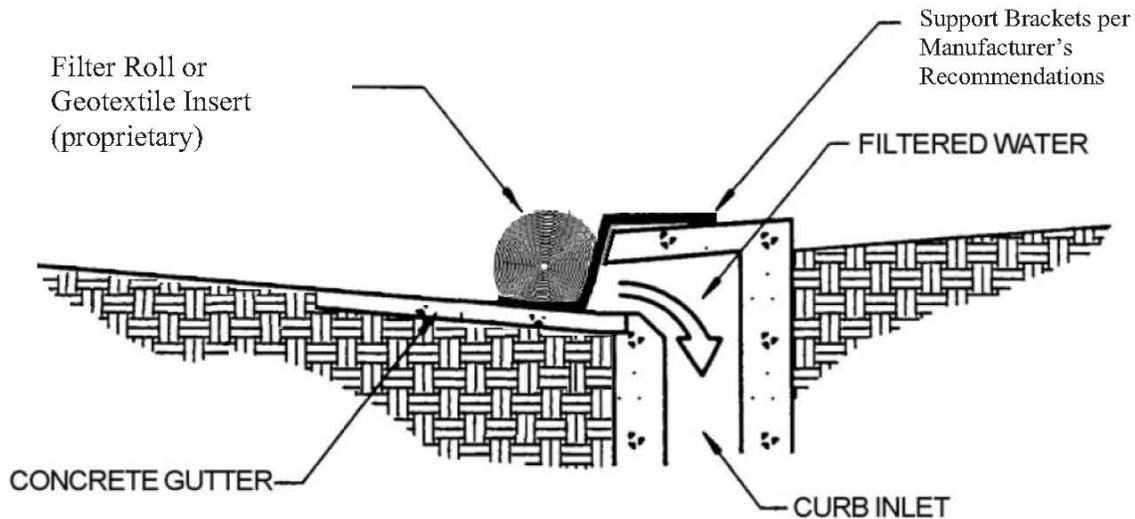
Not to Scale

Notes:

1. Intended for short-term use. Not suitable for roads open to traffic.
2. Used to inhibit non-storm water flow.
3. Bags **should** be removed after adjacent operation is completed.
4. Not applicable in areas with high silts and clays without filter fabric.
5. Use sand bag made of geotextile fabric (not burlap) and fill with 0.75 in. rock or 0.25 in. pea gravel.
6. Construct on gently sloping street.
7. Leave room upstream of barrier for water to pond and sediment to settle.
8. Place several layers of sand bags - overlapping the bags and packing them tightly together.
9. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.
10. Do not use sandbags for roadways subject to traffic.
11. For traffic area, insert geotextile filter inserts instead of sandbags.

DI Protection Type 3, Gravel Bag

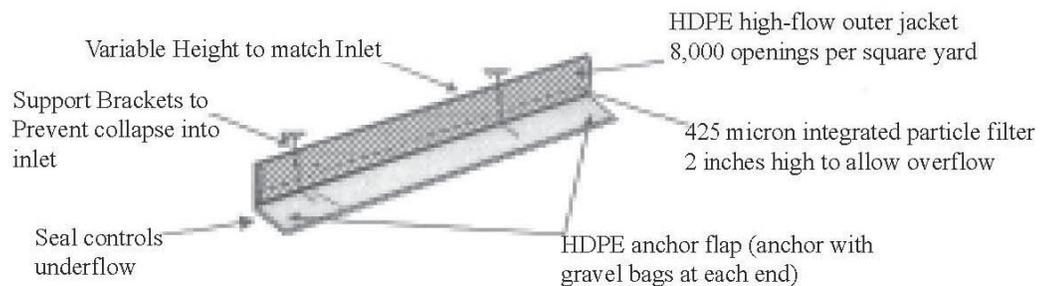
Source: City and County of Honolulu BMP Manual, November 2011.



Detail "F"

Not to Scale and May Use Various Types of Geotextile Inserts

DI Protection Type 5, Filter Roll or Geotextile Insert with Supports for Curb Inlet



Detail "G"

Not to Scale and May Use Various Types and Styles of Geotextile Inserts

DI Protection Type 5, Geotextile Insert with Supports for Curb Inlet

Source: City and County of Honolulu BMP Manual, November 2011.

Construction Activities Best Management Practices Sediment Trap

Description

A sediment trap is a small, excavated or bermed area where runoff from small drainage areas is detained and sediment can settle.

Limitations

- Only use for drainage areas up to 5 acres.
- Sediment traps only remove coarse sediment (medium silt size and larger) unless sized like a sediment basin.

Practice		
<input type="checkbox"/>	C13.1	Sediment traps are applicable for any disturbed area less than 5 acres.
<input type="checkbox"/>	C13.2	Install along the perimeter of the site at locations where sediment-laden runoff is discharged off site.
<input type="checkbox"/>	C13.3	Install around and/or up slope from the storm drain inlet protection measures.
<input type="checkbox"/>	C13.4	Install at any point within the site where sediment-laden runoff can enter stabilized or natural areas or waterways.
<input type="checkbox"/>	C13.5	Build outside the area to be graded before clearing, grubbing, and grading begin.
<input type="checkbox"/>	C13.6	Locate where the trap is easily cleared of sediment.
<input type="checkbox"/>	C13.7	Trap size depends on the type of soil, size of the drainage area, and desired sediment removal efficiency.
<input type="checkbox"/>	C13.8	The larger the trap, the less frequently sediment must be removed.
<input type="checkbox"/>	C13.9	The outlet of the trap must be stabilized with rock, vegetation, or another suitable material.
<input type="checkbox"/>	C13.10	A stable emergency spillway must be installed to safely convey major floods.
<input type="checkbox"/>	C13.11	Fencing shall be provided to prevent unauthorized entry.

Maintenance and Inspection		
<input type="checkbox"/>	M13.1	Inspect sediment trap and fencing prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week. During extended rainfall events inspect daily.
<input type="checkbox"/>	M13.2	Dewater sediment trap if infiltration has not completed within 72 hours.
<input type="checkbox"/>	M13.3	Remove sediment when accumulation reaches one-third the sediment trap height and manage according to applicable federal, state, and local regulations.
<input type="checkbox"/>	M13.4	Provide education for required personnel about proper sediment trap installation and maintenance. Ensure that the importance of preventing sediment discharge is including in the training curriculum.

Construction Activities Best Management Practices Silt Fence

Description

A silt fence is made of a semi-impermeable fabric which has been entrenched, attached to supporting poles, and sometimes backed by a wire fence for support. The silt fence detains sediment laden water, promoting sedimentation behind the fence.

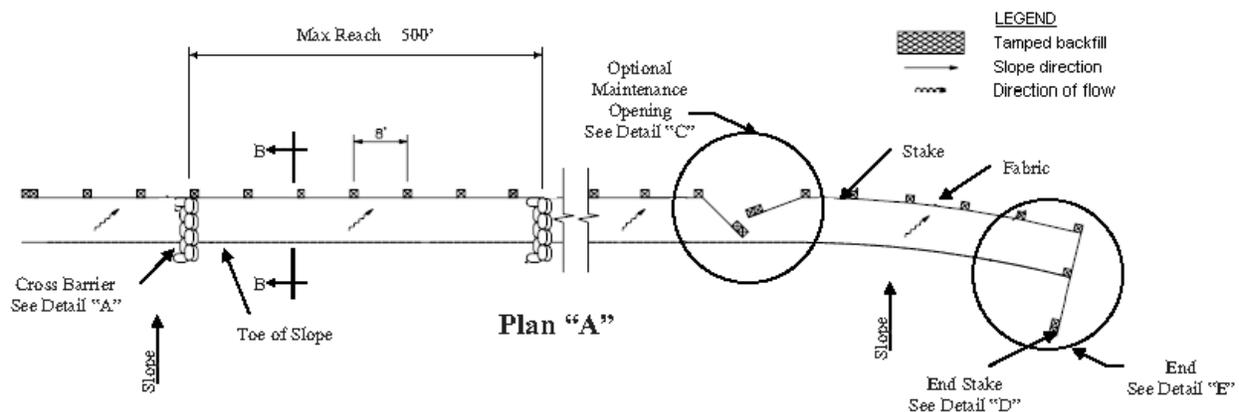
Limitations

- Do not place fence on a slope, or across any contour line.
- Do not use in streams, channels or anywhere flow has concentrated.
- Do not use in locations where ponded water may cause flooding.

Practice		
<input type="checkbox"/>	C14.1	Use principally in areas where sheet flow occurs.
<input type="checkbox"/>	C14.2	Install along a level contour so water does not pond more than 1.5 feet at any point.
<input type="checkbox"/>	C14.3	No more than 1 acre, 100 ft, or 0.5 cfs of concentrated flow should drain to any point along the silt fence.
<input type="checkbox"/>	C14.4	Turn ends of fence uphill.
<input type="checkbox"/>	C14.5	Provide area behind the fence for runoff to pond and sediment to settle (approx. 1200 sq. ft. per acre draining to the silt fence).
<input type="checkbox"/>	C14.6	Select a fabric which retains 85% of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.
<input type="checkbox"/>	C14.7	Install appropriately by stretching silt fence tightly between posts spaced a maximum of 6 feet apart; key into the ground a minimum of 12 inches; overlap section a minimum of 6 inches or wrap sections to create a strong bond.

Note: Example schematics are included herein for reference.

Maintenance and Inspection		
<input type="checkbox"/>	M14.1	Inspect silt fence and posts prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each work week.
<input type="checkbox"/>	M14.2	Repair damage sustained to the silt fence or posts within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
<input type="checkbox"/>	M14.3	Remove sediment when accumulation reaches one-third the fence height.
<input type="checkbox"/>	M14.4	Provide education for required personnel about proper silt fence installation and maintenance. Ensure that the importance of preventing sediment discharge is including in the training curriculum.



Notes:

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 500'.
2. Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
3. Sandbag rows and layers shall be offset to eliminate gaps.
4. Setback dimension may vary to fit field condition. Typical 3' setback from top of slope.
5. Stakes shall be spaced at 8' maximum and shall be positioned on downstream side of fence, or as specified by the engineer.
6. Stake dimensions are nominal. Material as specified by engineer.
7. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples or wire.
8. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
9. For end stake, fence fabric shall be folded around two stakes one full turn and secured with 4 staples or wire.
10. Minimum 4 staples or wire per stake. Dimensions shown are typical.
11. Joining sections shall not be placed at sump locations.
12. Maintenance openings shall be constructed in a manner to ensure sediment remains behind silt fence.
13. The last 8' of fence shall be turned up slope to reduce breakthrough of sediment.

Silt Fence

Source: City and County of Honolulu BMP Manual, November 2011.

Construction Activities Best Management Practices Stabilized Construction Entrance

Description

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located where vehicles and/or equipment leave or enter a construction site to or from a paved surface. The purpose of a stabilized construction entrance is to reduce the amount of sediment tracked off-site. The effectiveness of a stabilized construction entrance is greatly increased if a wash rack is included for removing caked-on sediment from vehicles and equipment before they leave the site.

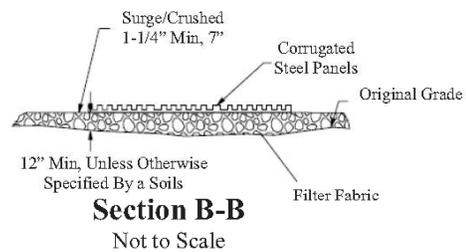
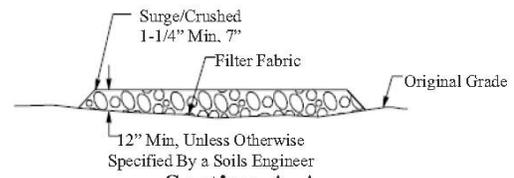
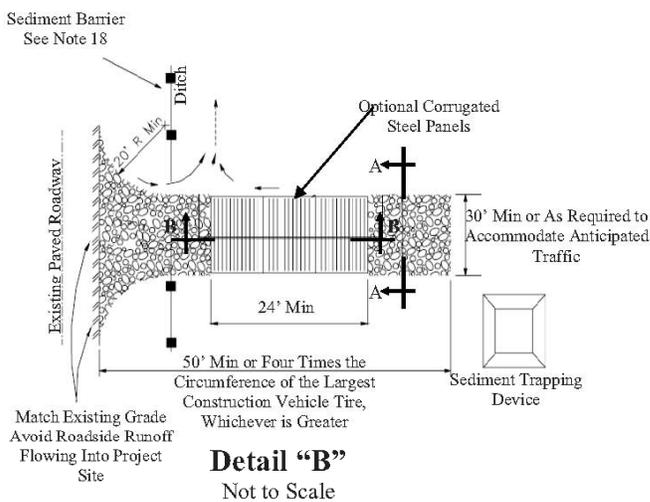
Limitations

- Periodic replenishment of surface aggregate is required.
- Additional street sweeping of adjacent roadways or other paved areas may also be required during the work. Ensure that storm drains and waterways are protected from discharges of street sweeping wastes.
- Stabilized construction entrances are to be constructed on level ground, if possible.
- If a wash rack is included, a sediment trap must be provided to collect wash water runoff.
- A wash rack and sediment trap can significantly increase the cost of a stabilized construction entrance.
- The effectiveness of a stabilized construction entrance is limited by the type and moisture content of construction site soils, by whether or not a wash rack is included, and by the level of care taken to remove sediment from vehicles and equipment if a wash rack is used.

Practice		
<input type="checkbox"/>	C15.1	Construct stabilized construction entrances on level ground where possible.
<input type="checkbox"/>	C15.2	Grade the entrance to prevent runoff from leaving the construction site.
<input type="checkbox"/>	C15.3	Aggregate shall be 3- to 6- inch diameter coarse aggregate.
<input type="checkbox"/>	C15.4	Minimum depth of aggregate is to be 12 inches or as recommended by the soils engineer.
<input type="checkbox"/>	C15.5	Stabilized construction entrances are to be a minimum of 50 feet long and 30 feet wide.
<input type="checkbox"/>	C15.6	Provide ample turning radii as part of the stabilized entrance.
<input type="checkbox"/>	C15.7	If a wash rack is provided, washing is to be done on paved or crushed stone pad that drains into a properly constructed sediment trap or basin.

Note: Example schematics are included herein for reference.

Maintenance and Inspection		
<input type="checkbox"/>	M15.1	Inspect the stabilized construction entrance and wash rack ditches at the end of each work week. If the stabilized construction entrance is clogged with sediment remove the aggregate and separate and dispose of the sediment. Reconstruct the stabilized construction entrance within two (2) calendar days.
<input type="checkbox"/>	M15.2	Inspect roadways and ensure that any tracking is swept and disposed properly. Ensure storm drains and waterways are protected from tracking discharges.
<input type="checkbox"/>	M15.3	Provide education for required personnel about proper stabilized construction entrance installation, use, and maintenance. Ensure that the importance of preventing sediment tracking is including in the training curriculum.



Notes:

1. Construct on level ground where possible.
2. Select 3 to 6 in. diameter stones.
3. Use minimum depth of stones of 12 in. or as recommended by soils engineer.
4. Construct length of 50 ft. minimum, and 30 ft. minimum width.
5. Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
6. Provide ample turning radii as part of the entrance.
7. Limit the points of entrance/exit to the construction site.
8. Limit speed of vehicles to control dust.
9. Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
10. Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
11. Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.
12. Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
13. Place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but not exceeding 6 in. should be used.
14. Designate combination or single purpose entrances and exits to the construction site.
15. Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
16. Implement SE-7, Street Sweeping and Vacuuming, as needed.
17. All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.
18. Construct sediment Barrier and channel runoff to sediment trapping device as appropriate.

Source: City and County of Honolulu BMP Manual, November 2011.

Construction Activities Best Management Practices Construction Road Stabilization

Description

Access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes should be stabilized immediately after grading and frequently maintained to prevent erosion and control dust. Efficient construction road stabilization not only reduces on-site erosion but can significantly speed on-site work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

Limitations

- The roadway must be removed or paved when construction is complete.
- Certain chemical stabilization methods may cause storm water or soil pollution and should not be used (see Dust Control BMP).
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.

Practice		
<input type="checkbox"/>	C16.1	Road should follow topographic contours to reduce erosion of the roadway.
<input type="checkbox"/>	C16.2	The roadway slope should not exceed 15 percent.
<input type="checkbox"/>	C16.3	Gravel roads should be a minimum 4-inch thick, 2-3 inch coarse aggregate base applied immediately after grading, or as recommended by soils engineer.
<input type="checkbox"/>	C16.4	Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust. See Dust Control BMPs in this manual).
<input type="checkbox"/>	C16.5	When evidence of erosion is noted, apply additional aggregate on gravel roads.
<input type="checkbox"/>	C16.6	Water dirt construction roads three or more times per day during the dry season.

Maintenance and Inspection		
<input type="checkbox"/>	M16.1	Inspect the stabilized construction roads at the end of each work week and repair as needed before the start of the next work day.
<input type="checkbox"/>	M16.2	Provide education for required personnel about proper construction road installation and maintenance. Ensure that the importance of preventing sediment discharge is including in the training curriculum.

Construction Activities Best Management Practices Dewatering Operations

Description

Prevent or reduce the discharge of pollutants to storm water from dewatering operations by using sediment controls and by testing the groundwater for pollution.

There are two general classes of pollutants that may result from dewatering operations: sediment, and toxics and petroleum products. High sediment content in dewatering discharges is common because of the nature of the operation. On the other hand, toxics and petroleum products are not commonly found in dewatering discharges unless the surrounding area has been used for light or heavy industrial activities, or the area has a history of groundwater contamination.

Limitations

The presence of contaminated water may indicate contaminated soil as well.

Practice		
<input type="checkbox"/>	C17.1	Use sediment controls to remove sediment from water generated by dewatering (see Sediment Trap BMP)
<input type="checkbox"/>	C17.2	Use filtration to remove sediment from a sediment trap. Filtration can be achieved by either of the following methods: <ul style="list-style-type: none"> • Use a sump pit and a perforated or slit standpipe with holes and wrapped in filter fabric. The standpipe is surrounded by stones, which filter the water as it collects in the pit before being pumped out. Wrapping the standpipe in filter fabric may require an increased suction inlet area to avoid clogging and unacceptable pump operation. • Use a floating suction hose to allow cleaner surface water to be pumped out.
<input type="checkbox"/>	C17.3	A weir tank may be used to filter the water through using multiple compartments to allow pollutants to settle out.
<input type="checkbox"/>	C17.4	A gravity filter bag is a square or rectangular bag of geotextile fabric that will remove sediment from the water prior to discharge. Refer to manufacturer's instructions regarding flow rate and frequency of maintenance.
<input type="checkbox"/>	C17.5	In areas suspected of having groundwater pollution, sample the groundwater near the excavation site and have the water tested for known or suspected pollutants. The testing laboratory shall use methods listed in 40 CFR Part 136, and have a quality assurance/quality control measures program. Check with the State Department of Health (DOH) for testing requirements and disposal options.
<input type="checkbox"/>	C17.6	If discharge to a sanitary sewer is considered, check with the DOH and with the owner of the wastewater system for additional testing requirements and disposal options. With permits from the State DOH and the owner of the wastewater system, it may be possible to treat pumped groundwater and discharge the treated effluent to the sanitary sewer.

Maintenance and Inspection		
<input type="checkbox"/>	M17.1	Follow the maintenance and inspection guidelines for the temporary BMPs that have been chosen for the dewatering operations.
<input type="checkbox"/>	M17.2	Check filtering devices frequently to ensure they are unclogged and operating correctly. Adjustments may be needed depending on the amount of sediment in the water being pumped.
<input type="checkbox"/>	M17.3	Systems should be filled in or otherwise removed when permanent dewatering controls are in place and connected to an approved treatment and receiving system.
<input type="checkbox"/>	M17.4	Provide education for required personnel about proper dewatering operations.

Construction Activities Best Management Practices Paving Operations

Description

Prevent or reduce the discharge of pollutants from paving operations by using measures to prevent storm water pollution, properly disposing of wastes, and providing employee training.

Limitations

None.

Practice		
<input type="checkbox"/>	C18.1	Avoid paving during wet weather.
<input type="checkbox"/>	C18.2	Use asphalt emulsions as prime coat where possible.
<input type="checkbox"/>	C18.3	Store materials away from drainage courses to minimize contact with storm water runoff.
<input type="checkbox"/>	C18.4	Protect drainage course, particularly in sloped areas, by employing BMPs to divert runoff or trap/filter sediment.
<input type="checkbox"/>	C18.5	Leaks and spills from paving equipment can contain toxic levels of heavy metal, oil, and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials rather than burying.
<input type="checkbox"/>	C18.6	Block/protect catch basins and cover manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
<input type="checkbox"/>	C18.7	Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry. Slurry residue may be placed in a temporary pit (as described in the concrete waste management BMP) to promote evaporation. Solids must be disposed in accordance with the solid waste management BMP.
<input type="checkbox"/>	C18.8	If paving involves Portland cement concrete, see Concrete Waste Management BMPs in this manual.
<input type="checkbox"/>	C18.9	If paving involves asphaltic concrete, follow these steps: <ul style="list-style-type: none"> • Sweep excess sand or gravel placed over new asphalt to prevent it from washing into storm drains, channels, or surface waters. Properly dispose of these wastes by referring to the Solid Waste Management BMP in this manual. • Old asphalt must be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible. • If paving involves an on-site mixing plant, follow the storm water permitting requirements for industrial activities.

Maintenance and Inspection		
<input type="checkbox"/>	M18.1	Inspect and maintain paving equipment daily to minimize leaks and drips.
<input type="checkbox"/>	M18.2	Provide education for required personnel about proper paving operations.

Construction Activities Best Management Practices Structure Construction and Painting

Description

Prevent or reduce the discharge of pollutants to storm water from structure repair/ construction and painting by enclosing, covering or providing secondary containment around material storage areas, using good housekeeping practices, using less hazardous alternative products, and training employees.

Limitations

- Less hazardous alternative products may not be available, suitable, or effective in every case.
- A licensed hazardous waste transporter must dispose of hazardous waste that cannot be reused or recycled.
- Be certain that actions to protect storm water quality are consistent with State and Federal safety (OSHA) and air quality regulations.

Practice		
<input type="checkbox"/>	C19.1	Keep the work site clean and orderly.
<input type="checkbox"/>	C19.2	Buy recycled or less hazardous products to the maximum extent practicable.
<input type="checkbox"/>	C19.3	Conduct painting operations consistent with local air quality and OSHA regulations.
<input type="checkbox"/>	C19.4	Properly store paints, epoxy compounds, and solvents.
<input type="checkbox"/>	C19.5	Properly store and dispose waste materials generated from the activity. See Solid Waste Management BMPs in this manual.
<input type="checkbox"/>	C19.6	Enclose or cover painting operations to avoid drift.
<input type="checkbox"/>	C19.7	Use application equipment that minimizes overspray.
<input type="checkbox"/>	C19.8	Clean up spills immediately.
<input type="checkbox"/>	C19.9	Use a drop cloth to collect residue from scraping or sand blasting operations and dispose of the residue properly.
<input type="checkbox"/>	C19.10	Paint chips containing lead or tributyl tin are considered a hazardous waste. See Solid Waste Management BMPs in this manual.
<input type="checkbox"/>	C19.11	Clean painting equipment in a sink that is connected to the sanitary sewer.
<input type="checkbox"/>	C19.12	Mix paints in a covered, contained area whenever possible, in case of a spill
<input type="checkbox"/>	C19.13	Recycle/dispose according to applicable laws and regulations residual paints, solvent, lumber and other materials to the maximum extent practicable.
<input type="checkbox"/>	C19.14	Make sure that nearby storm drains are well marked to minimize the chance of inadvertent disposal of residual paints and other liquids.
<input type="checkbox"/>	C19.15	Ensure that employees doing the work are properly trained.
<input type="checkbox"/>	C19.16	Dispose of sand blasted material properly. Chips and dust from marine paints or paints containing lead are to be disposed of as hazardous waste. Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up and disposed of as trash.

Maintenance and Inspection		
<input type="checkbox"/>	M19.1	At the beginning of each work day inspect and make sure materials are properly stored or covered.
<input type="checkbox"/>	M19.2	Inspect the storm drain system in the immediate work area upon completion of the daily activity, and remove any dirt or debris collected.

Construction Activities Best Management Practices Vehicle and Equipment Cleaning

Description

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning by using off-site facilities, washing in designated and contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades.

Practice		
<input type="checkbox"/>	C20.1	Use off-site vehicle wash racks or commercial washing facilities as much as possible. These facilities are more adequately equipped to handle and dispose of the wash waters properly. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water.
<input type="checkbox"/>	C20.2	If washing must occur on-site, use designated bermed wash areas to prevent wash water contact with storm water, streams, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground. Location of wash area shall be approved by the DOTA Environmental Unit and the Airport Manager.
<input type="checkbox"/>	C20.3	Use as little water as possible to avoid having to install erosion and sediment controls for the wash area.
<input type="checkbox"/>	C20.4	Use phosphate-free, biodegradable soaps.
<input type="checkbox"/>	C20.5	Educate employees on pollution prevention measures.
<input type="checkbox"/>	C20.6	Avoid steam cleaning in uncontained areas. Steam cleaning can generate significant pollutant concentrations.

Maintenance and Inspection		
<input type="checkbox"/>	M20.1	Inspect on-site wash areas at the end of each work week.
<input type="checkbox"/>	M20.2	Monitor employees and subcontractors throughout the duration of the construction project to ensure good housekeeping practices are implemented.

Construction Activities Best Management Practices Vehicle and Equipment Refueling

Description

Prevent fuel spills and leaks, and reduce their impacts to storm water by using off-site facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees.

Limitations

None.

Practice		
<input type="checkbox"/>	C21.1	Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. For fueling a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly.
<input type="checkbox"/>	C21.2	If fueling must occur on-site, use designated area located way from drainage courses to prevent storm water contamination. Location of fueling area, including a spill prevention and response plan, shall be approved by DOTA Environmental Unit and the Airport Manager.
<input type="checkbox"/>	C21.3	Discourage "topping-off" of fuel tanks.
<input type="checkbox"/>	C21.4	Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks.
<input type="checkbox"/>	C21.5	Place a stockpile of spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	C21.6	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove and dispose of the adsorbent materials promptly and properly.
<input type="checkbox"/>	C21.7	Comply with all Federal and State requirements regarding stationary above ground storage tanks, including the requirement for secondary containment.
<input type="checkbox"/>	C21.8	Avoid mobile fueling of construction equipment at the site. If possible, transport the equipment to designated fueling areas.
<input type="checkbox"/>	C21.9	Train employees in proper fueling and cleanup procedures.

Maintenance and Inspection		
<input type="checkbox"/>	M21.1	Inspect fueling areas at the end of each work day.
<input type="checkbox"/>	M21.2	Ensure that the spill cleanup materials are fully stocked at the beginning of each work day.
<input type="checkbox"/>	M21.3	Inspect vehicles and equipment for leaks at the beginning and end of each day. Repair leaks immediately.
<input type="checkbox"/>	M21.4	If a spill occurs, clean it up immediately and properly dispose of the contaminated soil and cleanup materials.

Construction Activities Best Management Practices Vehicle and Equipment Maintenance

Description

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment maintenance by using off-site facilities, performing work in designated areas only, providing cover for materials stored outside, checking for leaks and spills, containing and cleaning up spills immediately, and training employees.

Limitations

Outdoor vehicle or equipment maintenance is a potentially significant source of water pollution. Activities that can contaminate storm water include vehicle and equipment repair and service, including changing and filling of fluids, and outdoor equipment storage and parking, which can result in dripping of fluids.

Practice		
<input type="checkbox"/>	C22.1	Keep vehicles and equipment clean; don't allow excessive build-up of oil and grease.
<input type="checkbox"/>	C22.2	Use off-site repair shops as much as possible. Maintaining vehicles and equipment outdoors or in areas where vehicle or equipment fluids may spill or leak onto the ground can pollute storm water. Consider using an off-site repair shop to maintain vehicles and equipment. These businesses are better equipped to handle vehicle fluids and spills properly.
<input type="checkbox"/>	C22.3	If maintenance must occur on site, use designated areas, located away from drainage courses, to prevent the contamination of storm water runoff. Maintenance areas shall be bermed or protected to prevent runoff from entering the area. Location of maintenance area, including a plan on how the area will be cleaned up and the materials disposed, shall be approved by DOTA Environmental Unit and the Airport Manager.
<input type="checkbox"/>	C22.4	Always use secondary containment, such as an anchored drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
<input type="checkbox"/>	C22.5	Place a stock of spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	C22.6	Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
<input type="checkbox"/>	C22.7	Inspect on-site vehicles and equipment daily for leaks, and repair immediately.
<input type="checkbox"/>	C22.8	Regularly inspect incoming vehicles and equipment (including delivery trucks, and employees' vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment on-site.
<input type="checkbox"/>	C22.9	Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
<input type="checkbox"/>	C22.10	Properly dispose of all wastes from vehicle maintenance activities. Recycle waste materials to the extent practicable.
<input type="checkbox"/>	C22.11	Train employees on proper maintenance and spill cleanup.

Construction Activities Best Management Practices
Vehicle and Equipment Maintenance
(continued)

Maintenance and Inspection		
<input type="checkbox"/>	M22.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each work day.
<input type="checkbox"/>	M22.2	Inspect vehicles and equipment for leaks at the beginning and end of each day. Repair leaks immediately or remove them from the project site.
<input type="checkbox"/>	M22.3	If a spill occurs, clean it up immediately and properly dispose of the contaminated soil and cleanup materials.
<input type="checkbox"/>	M22.4	Spills of a certain size (volume of greater than 25 gal of oil not contained within 72 hrs) per HAR 11-451 must be reported to DOH HEER and the National Response Center.
<input type="checkbox"/>	M22.5	Large spills may require a spill response contractor.
<input type="checkbox"/>	M22.6	Maintain waste fluid containers in leak proof condition in secondary containment and in a covered area.

Construction Activities Management Practices Material Delivery and Storage

Description

Prevent or reduce the discharge of pollutants to storm water from material delivery and storage by minimizing the storage of hazardous materials on-site, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees.

Limitations

Storage sheds often must meet building and fire code requirements.

Practice		
<input type="checkbox"/>	C23.1	Designate areas of the construction site for material delivery and storage. <ul style="list-style-type: none"> • Locate storage areas near construction entrances and away from waterways. • Avoid transporting potential pollutants near drainage paths or waterways. • Surround storage areas for potential pollutants with earth berms or other approved containment devices. • Store potential pollutants in a paved area, if available.
<input type="checkbox"/>	C23.2	Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of Honolulu. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA 30.
<input type="checkbox"/>	C23.3	Keep an accurate, up-to-date inventory of materials used at work sites. <ul style="list-style-type: none"> • Minimize on-site inventory. • Minimize storage of hazardous materials. • During the rainy season, store materials in covered area.
<input type="checkbox"/>	C23.4	Handle hazardous materials as infrequently as possible.
<input type="checkbox"/>	C23.5	Maintain a complete set of material safety data sheets at the work site.
<input type="checkbox"/>	C23.6	Do not store chemicals, drums, or bagged materials directly on the ground. Place dry materials on a pallet and, when possible, in secondary containment. Note that all liquid chemicals and waste must be within secondary containment.
<input type="checkbox"/>	C23.7	If drums must be stored in an uncovered area, store them at a slight angle to reduce ponding of rainwater on the lids and reduce corrosion. Additionally, place in secondary containment.
<input type="checkbox"/>	C23.8	Keep chemicals in their original containers and well labeled.
<input type="checkbox"/>	C23.9	Ensure that employees handling potential pollutants have received adequate training regarding the hazards and proper handling procedures for the materials.
<input type="checkbox"/>	C23.10	Employees trained in emergency spill cleanup procedures are to be present when dangerous materials or liquid chemicals are unloaded.
<input type="checkbox"/>	C23.11	If significant residual materials remain on the ground after construction is complete, properly remove materials and any contaminated soil. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Maintenance and Inspection		
<input type="checkbox"/>	M23.1	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
<input type="checkbox"/>	M23.2	Perimeter controls shall be inspected at the end of each work day. Repair any damages immediately.
<input type="checkbox"/>	M23.3	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.

Construction Activities Best Management Practices Material Use

Description

Prevent or reduce the discharge of pollutants to storm water from material use by using alternative products, minimizing hazardous material use on site, and training employees in the proper handling and use of construction materials.

Limitations

Alternative materials may not be available, suitable, or effective in every case.

Practice		
<input type="checkbox"/>	C24.1	Use less hazardous, alternative materials as much as possible.
<input type="checkbox"/>	C24.2	Minimize use of hazardous materials on-site.
<input type="checkbox"/>	C24.3	Use materials only where and when needed to complete the work.
<input type="checkbox"/>	C24.4	Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
<input type="checkbox"/>	C24.5	Personnel who use pesticides are to be trained in their use. The State Department of Agriculture, Pesticides Branch, licenses pesticide dealers, certifies pesticide applicators, and conducts on-site inspections.
<input type="checkbox"/>	C24.6	Do not over-apply fertilizers, herbicides, or pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmental harmful. Except on steep slopes, till fertilizer into the soil rather than surface spreading or spraying it. Apply surface dressings in several smaller applications, as opposed to one large application to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains.
<input type="checkbox"/>	C24.7	Maintain a log of amount, type, and locations where fertilizers, herbicides, or pesticides were applied as well as the BMPs utilized (refer to SWMPP Section E for more detailed chemical usage BMPs). These logs must be available on-site for review by DOTA inspectors.
<input type="checkbox"/>	C24.8	Train employees in proper material use.

Maintenance and Inspection		
<input type="checkbox"/>	M24.1	Spot check employees monthly to ensure proper practices are being performed.
<input type="checkbox"/>	M24.2	Ensure that MSDS are maintained for all chemicals used.

Construction Activities Best Management Practices Protection of Stockpiles

Description

Stockpiles can be a significant source of erosion, sediment, and fugitive dust problems. Measures are to be taken to mitigate the potential for erosion of stockpiles.

Limitations

Stockpiles are for temporary storage of material only. Provisions for permanent removal of stockpiled material must be in place.

Practice		
<input type="checkbox"/>	C25.1	Provide adequate setback from waterways.
<input type="checkbox"/>	C25.2	Avoid sloping ground for locating stockpiles.
<input type="checkbox"/>	C25.3	Minimize stockpile height.
<input type="checkbox"/>	C25.4	Provide earth dikes or other diversion to keep runoff away from stockpiles.
<input type="checkbox"/>	C25.5	Provide silt fences at the toe of the stock pile to mitigate runoff during rain events.
<input type="checkbox"/>	C25.6	Cover, grass, or provide other stabilization measures.
<input type="checkbox"/>	C25.7	Provide adequate setback distance from lot lines.
<input type="checkbox"/>	C25.8	Provide silt basins where required.

Maintenance and Inspection		
<input type="checkbox"/>	M25.1	Maintain and inspect perimeter BMPs according to the type of BMP used.

Construction Activities Best Management Practices Solid Waste Management - Hazardous Waste

Description

Prevent or reduce the discharge of pollutants to storm water and to the land from hazardous waste through proper material use, waste disposal, and training of employees.

Limitations

An approved hazardous waste transporter must dispose of hazardous waste that cannot be reused or recycled.

Practice		
<input type="checkbox"/>	C26.1	Determine if a material or item is a potentially hazardous waste: <ul style="list-style-type: none"> • Check label and shipping papers. • Look for words such as hazardous, danger, caustic, corrosive, flammable, carcinogenic, or toxic. • Check the material safety data sheet (MSDS) from the manufacturer of the product.
MATERIAL USE:		
<input type="checkbox"/>	C26.2	Use the entire product before disposing of the container.
<input type="checkbox"/>	C26.3	Do not remove the original product label; it contains important safety and disposal information.
<input type="checkbox"/>	C26.4	Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Do not apply these chemicals during or just before a rain event. Personnel applying controlled pesticides must be certified in accordance with Federal and State regulations.
<input type="checkbox"/>	C26.5	Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Discharge rinse from water-based paints to the sanitary sewer. Filter and re-use thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.
WASTE RECYCLING/ DISPOSAL:		
<input type="checkbox"/>	C26.6	Select designated hazardous waste collection areas on site.
<input type="checkbox"/>	C26.7	Hazardous materials and wastes are to be stored in covered containers and protected from vandalism.
<input type="checkbox"/>	C26.8	Place hazardous waste containers in secondary containment.
<input type="checkbox"/>	C26.9	Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
<input type="checkbox"/>	C26.10	Recycle any useful material such as used oil or water-based paint.
<input type="checkbox"/>	C26.11	Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
<input type="checkbox"/>	C26.12	Arrange for regular waste collection before containers overflow.
<input type="checkbox"/>	C26.13	Make sure that hazardous waste (e.g. excess oil-based paint and sludge) is collected, removed, and disposed of as required by regulations.
TRAINING:		
<input type="checkbox"/>	C26.14	Train employees in proper hazardous waste management.
<input type="checkbox"/>	C26.15	Place warning signs in areas recently treated with chemicals.
<input type="checkbox"/>	C26.16	Keep spill cleanup materials where they are readily accessible.
<input type="checkbox"/>	C26.17	Clean up any spilled material immediately.

Construction Activities Best Management Practices
Solid Waste Management - Hazardous Waste
 (continued)

Maintenance and Inspection		
<input type="checkbox"/>	M26.1	Monitor on-site hazardous waste storage and disposal on a daily basis.
<input type="checkbox"/>	M26.2	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
<input type="checkbox"/>	M26.3	Perimeter controls shall be inspected at the end of each work day. Repair any damages immediately.
<input type="checkbox"/>	M26.4	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.
<input type="checkbox"/>	M26.5	If a spill occurs, report the incident to the Construction Manager, clean it up immediately and properly dispose of the contaminated soil and cleanup materials according to the material safety data sheet and facility spill response plan. All spills must also be reported to the Airport District Manager, 836-6670.
<input type="checkbox"/>	M26.6	Spills of a certain size (volume of greater than 25 gal of oil not contained within 72 hrs) per HAR 11-451 must be reported to DOH HEER and the National Response Center.
<input type="checkbox"/>	M26.7	Large spills may require a spill response contractor.
<input type="checkbox"/>	M26.8	Supply two copies of the hazardous waste manifest to the Construction Manager.

Construction Activities Best Management Practices Solid Waste Management - Debris

Description

Prevent or reduce discharge of pollutants to the land, groundwater, and in storm water from solid waste or construction demolition waste by providing designated waste collection areas, separate containers for recyclable waste materials, timing collection of waste and recyclable materials with each stage of the work, and properly training employees.

Limitations

None

Practice		
<input type="checkbox"/>	C27.1	Construction and Demolition (C&D) Waste. Clean up materials contaminated with hazardous substances, friable asbestos, waste paint, solvents, sealers, adhesives, or similar materials are not acceptable at C&D disposal sites.
<input type="checkbox"/>	C27.2	Inert Fill Material. Defined as earth, soil, rock, or rock-like material will not decompose or produce leachate. Place inert fill material such that it will not be subject to erosion from runoff.
<input type="checkbox"/>	C27.3	Recycle or reuse C&D waste whenever practical.
<input type="checkbox"/>	C27.4	Select designated waste collection areas on-site.
<input type="checkbox"/>	C27.5	Inform trash-hauling employees that only watertight dumpsters are to be provided. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
<input type="checkbox"/>	C27.6	Locate containers in a covered area and/or in a secondary containment. Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out and to prevent scattering of wastes by wind.
<input type="checkbox"/>	C27.7	Plan for additional containers and more frequent pickup during the demolition phase of a project.
<input type="checkbox"/>	C27.8	Collect site trash daily, especially during rainy and windy conditions.
<input type="checkbox"/>	C27.9	Erosion and sediment control devices tend to collect litter. Remove this solid waste promptly.
<input type="checkbox"/>	C27.10	Make sure that toxic wastes (used oils, solvent, and paints) and chemicals (acids, pesticides, additives, curing compound) are not disposed of in dumpsters designed for refuse or construction debris.
<input type="checkbox"/>	C27.11	Salvage or recycle any useful material. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas.
<input type="checkbox"/>	C27.12	Do not hose out dumpsters on the construction site. Leave dumpster cleaning to trash hauling employees.
<input type="checkbox"/>	C27.13	Arrange for regular waste collection before containers overflow. Containers shall be of good integrity with no holes. Containers shall come with a lid.
<input type="checkbox"/>	C27.14	If a container does spill, clean up immediately.
<input type="checkbox"/>	C27.15	Make sure that construction waste is collected. Remove and dispose of only at authorized disposal area.
<input type="checkbox"/>	C27.16	Train employees in proper solid waste management.

Maintenance and Inspection		
<input type="checkbox"/>	M27.1	Monitor on-site solid waste storage and disposal and police site for litter and debris on a daily basis.

Construction Activities Best Management Practices Contaminated Soil Management

Description

Prevent or reduce the discharge of pollutants to storm water and to the land from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Limitations

- Contaminated soils must be disposed of at DOH-permitted facilities by DOH-approved transporter. Note: If transporting petroleum-contaminated soil (PCS) loads off-site to other than permitted remediation facilities, use transporters approved by the DOH, Office of Solid Waste Management (OSWM). OSWM must be notified 48 hours before any PCS loads are taken to DOH-permitted remediation facilities.
- The presence of contaminated soil may indicate contaminated ground water as well.

Practice		
<input type="checkbox"/>	C28.1	Conduct thorough site planning including pre-construction review of in-house records regarding previous work in the area.
<input type="checkbox"/>	C28.2	Look for contaminated soil as evidence by discoloration, odors, difference in soil properties, abandoned underground tanks or pipes, or buried debris.
<input type="checkbox"/>	C28.3	Prevent leaks and spills to the maximum extent practicable. Contaminated soil can be expensive to treat and/or dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
<input type="checkbox"/>	C28.4	Test suspect soils at certified laboratories.
<input type="checkbox"/>	C28.5	If the soil is contaminated, dispose per all applicable regulations.
<input type="checkbox"/>	C28.6	Secure required State DOH permits.

Maintenance and Inspection		
<input type="checkbox"/>	M28.1	Monitor on-site contaminated soil storage and disposal on a daily basis.
<input type="checkbox"/>	M28.2	Inspect contaminated soil storage areas on a daily basis.

Construction Activities Best Management Practices Concrete Waste Management

Description

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout off-site, performing on-site washout in a designated area, and training employees.

Limitations

Off-site washout of concrete wastes may not always be possible.

Practice		
<input type="checkbox"/>	C29.1	Store dry and wet material under cover, away from drainage area.
<input type="checkbox"/>	C29.2	Avoid mixing excess amounts of fresh concrete or cement on-site.
<input type="checkbox"/>	C29.3	Perform washout of concrete trucks off-site or in designated areas only. Location of wash area, including a plan on how the area will be cleaned up and the waste materials disposed, shall be approved by the DOTA Environmental Unit and the Airport Manager.
<input type="checkbox"/>	C29.4	Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
<input type="checkbox"/>	C29.5	Do not allow excess concrete to be dumped on-site, except in designated areas. Location of dump area, including a plan on how the area will be cleaned up and the waste materials disposed, shall be approved by AIR-EE and the Airport Manager.
<input type="checkbox"/>	C29.6	<p>For on-site washout:</p> <ul style="list-style-type: none"> • Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste. • The washout should be plastic lined with a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material. The seams of multiple sheets should be thoroughly adhered such that liquid wastes are contained. • Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly. • Washout facilities should have a minimum freeboard of 4 inches to account for rain events.
<input type="checkbox"/>	C29.7	When sandblasting, avoid creating runoff by draining the water to a bermed or level area.
<input type="checkbox"/>	C29.8	Do not sweep excess exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
<input type="checkbox"/>	C29.9	Train employees in proper concrete waste management.

Maintenance and Inspection		
<input type="checkbox"/>	M29.1	Inspect concrete washout facilities at the end of each work week. Repair any damages before the next time it is used.
<input type="checkbox"/>	M29.2	Cleanout the facility or construct a new one when it reaches 75% capacity.

Construction Activities Best Management Practices Sanitary/Septic Waste Management

Description

Prevent or reduce the discharge of pollutants to storm water from sanitary/septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Limitations

None.

Practice		
<input type="checkbox"/>	C30.1	Locate sanitary facilities in a convenient location.
<input type="checkbox"/>	C30.2	Untreated raw wastewater is never to be discharged to ground or buried.
<input type="checkbox"/>	C30.3	If using an on-site disposal system (OSDS), such as a septic system, comply with State Department of Health (DOH) requirements.
<input type="checkbox"/>	C30.4	Temporary sanitary facilities that discharge to the sanitary sewer system are to be properly connected to avoid illicit discharges.
<input type="checkbox"/>	C30.5	If discharging to the sanitary sewer, contact the local wastewater treatment plant for their requirements.
<input type="checkbox"/>	C30.6	Sanitary/septic facilities are to be maintained in good working order by a licensed service provider.
<input type="checkbox"/>	C30.7	Arrange for regular waste collection by a licensed transporter before facilities overflow.
<input type="checkbox"/>	C30.8	For DOTA triturator, ensure that triturator training is completed prior to use. Contact the DOTA Environmental Unit for information regarding the training.

Maintenance and Inspection		
<input type="checkbox"/>	M30.1	Inspect sanitary/septic waste storage facility at the end of each work week.
<input type="checkbox"/>	M30.2	Monitor disposal operations for spills.

Construction Activities Best Management Practices Spill Prevention and Control

Description

Prevent or reduce the discharge of pollutants to storm water from leaks and spills by reducing the chance of spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spilled materials, and training employees.

Report all spills to the Airport Duty Manager. Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and which do not threaten ground or surface waters can be cleaned up using adsorbent materials or other acceptable practices. Daily inspections of the facility will identify any small spills, which will be addressed immediately.

In the event of a large or uncontrolled release, the Construction Manager shall act as the Emergency Coordinator (EC) until the Airport Manager or his representative assumes the role of the EC.

Limitations

If necessary, use a private spill cleanup company.

Practice		
<input type="checkbox"/>	C31.1	Hazardous materials and wastes are to be stored in covered containers or in a covered area, in secondary containment and protected from vandalism.
<input type="checkbox"/>	C31.2	Place a stockpile of spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	C31.3	Train employees in spill prevention and cleanup.
<input type="checkbox"/>	C31.4	Designate responsible individuals.
<input type="checkbox"/>	C31.5	Review spill response requirements at each work site.
<input type="checkbox"/>	C31.6	Clean up leaks and spills immediately.
<input type="checkbox"/>	C31.7	On paved surfaces, clean up the spill with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and adsorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous.
<input type="checkbox"/>	C31.8	Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See Solid Waste Management BMPs in this manual.
<input type="checkbox"/>	C31.9	Report significant spills to the U.S. Coast Guard, Hawaii State Hazard Evaluation & Emergency Response (HEER) Office, and City and County of Honolulu agencies, such as the Fire Department; they can assist in cleanup.
<input type="checkbox"/>	C31.10	Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).
<input type="checkbox"/>	C31.11	If repair or maintenance must occur on-site, see Vehicle and Equipment Maintenance BMPs in this manual.

General Best Management Practices
Spill Prevention and Control
(continued)

<input type="checkbox"/>	C31.12	Place drip pans or adsorbent materials under paving equipment when not in use.
<input type="checkbox"/>	C31.13	Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
<input type="checkbox"/>	C31.14	Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
<input type="checkbox"/>	C31.15	Oil filter disposed of in trash cans or dumpsters can leak oil and pollute storm water. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Recycle oil filters if this service is available.
<input type="checkbox"/>	C31.16	Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if all the acid appears to be drained out. If a battery is dropped, treat it as if it is cracked. Put it into the containment area until it is assured not to be leaking.
<input type="checkbox"/>	C31.17	If fueling must occur on-site, see Vehicle and Equipment Refueling BMPs in this manual.

Maintenance and Inspection		
<input type="checkbox"/>	M31.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each work day.
<input type="checkbox"/>	M31.2	Promptly remove oil products collected in drip pans or other secondary containment devices.
<input type="checkbox"/>	M31.3	Implement mandatory monthly Good Housekeeping / BMP refresher classes for employees.

Construction Activities Best Management Practices Spill Response Practices

Description

Proper control and cleanup of spilled hazardous materials reduces the discharge of hazardous materials to MS4. This BMP covers hazardous material spills in the HNL DOTA right-of-way by DOTA and contract personnel. The HNL maintenance baseyard and tenant facility storm water pollution control plans (SWPCP) will contain a BMP for hazardous spills within the HNL maintenance baseyard.

Report all spills to the Airport Duty Manager. Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and which do not threaten ground or surface waters can be cleaned up using adsorbent materials or other acceptable practices. Daily inspections of the facility will identify any small spills, which will be addressed immediately.

In the event of a large or uncontrolled release the Construction Manager shall act as the Emergency Coordinator (EC) until the Airport Manager or his representative assumes the role of the EC.

Limitations

None.

Practice		
<input type="checkbox"/>	C32.1	Stop work.
<input type="checkbox"/>	C32.2	Shut down pumps and equipment and secure valves and work operations.
<input type="checkbox"/>	C32.3	Shut down any nearby propane tanks.
<input type="checkbox"/>	C32.4	Move away from the affected area.
<input type="checkbox"/>	C32.5	Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
<input type="checkbox"/>	C32.6	Keep non-essential employees away from the spill area.
<input type="checkbox"/>	C32.7	Notify the EC.
<input type="checkbox"/>	C32.8	<p>The EC shall evaluate the situation and decide whether to implement a "fight or flight" response by gathering the following information, if it can be done safely:</p> <ul style="list-style-type: none"> Your name, location, and how you may be reached. Location of the release. Type, quantity, and description of the release. Hazards of the release. Type of media affected (soil, asphalt, concrete, etc.). Rate of the release. Migratory direction of the release. Potential for fire or explosion. Potential for human exposure. Potential for migration to surface water (ocean, storm drains, etc.).
<input type="checkbox"/>	C32.9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
<input type="checkbox"/>	C32.10	Remove all injured persons from the immediate area of danger and render first aid. If injuries are severe, call 911 for emergency medical assistance.
<input type="checkbox"/>	C32.11	If the decision is to "fight," spill response personnel are to don the appropriate personal protective equipment (PPE).
<input type="checkbox"/>	C32.12	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.

**General Best Management Practices
Spill Prevention and Response Practices
(continued)**

<input type="checkbox"/>	C32.13	Remove or isolate ignitable and incompatible materials from the area of the release.
<input type="checkbox"/>	C32.14	Locate, stop, and contain the source of the release by: (1) closing, checking, repairing, plugging valves; and/or (2) plugging and patching holes.
<input type="checkbox"/>	C32.15	Confine the release to prevent further migration by: <ol style="list-style-type: none"> 1) Diking and berming using sand, soil, or other inert material; 2) Sealing storm drains with plastic and sandbags; 3) Placing granular sorbent or adsorbent pads and booms; 4) Diverting the chemicals from entering drains, manholes, streams, etc.; or 5) Implementing retention techniques.
<input type="checkbox"/>	C32.16	Implement proper decontamination procedures on vehicles, affected media, PPE, and equipment. This may include placing adsorbent material on oil stained pavement - later sweeping up, removing and disposing of affected media (soil or loose asphalt) that contains contaminant, and/or berming the spill area and scrubbing using detergents – disposing detergent and rinse in accordance with the procedures listed below.
<input type="checkbox"/>	C32.17	All used decontamination solution, disposable PPE and affected media must be properly packaged in U.S. Department of Transportation (U.S. DOT) - specified containers.
<input type="checkbox"/>	C32.18	Labeling, transportation and subsequent disposal of hazardous materials/waste must be in accordance with applicable government regulations.
<input type="checkbox"/>	C32.19	If needed, call the HNL spill response contractor for cleanup and removal of accumulated product resulting from the release. The contractor will remove spilled product and properly dispose of the material in accordance with applicable state and federal regulations.
<input type="checkbox"/>	C32.20	If the release is not readily and easily controlled, evacuation may be necessary.
<input type="checkbox"/>	C32.21	If the EC decides on the "flight" option, the EC is to immediately alert and evacuate all personnel.
<input type="checkbox"/>	C32.22	Call the necessary emergency service providers such as CODE 22, 911 (medical facilities, county police, county fire), U.S. Coast Guard (842-2606), DOH HEER office (586-4249), National Response Center (800-424-8802), Clean Islands Council (536-5814), and/or spill response contractors and vendors. Also notify the DOTA HNL Environmental Health Specialist EHS (838-8002 or 838-8033) in the event of large spills or spills that either enters the storm drain, canal, or ocean.
<input type="checkbox"/>	C32.23	Compliance with the DOH HEER requirements. HEER must be notified as soon as possible and a written report provided within 30 calendar days of a Reportable Quantity (RQ) spill clean up.
<input type="checkbox"/>	C32.24	Maintenance personnel are to proceed along an evacuation route to the nearest unaffected area.

Maintenance and Inspection		
<input type="checkbox"/>	M32.1	Implement spill response drills on a monthly basis specific to each employee's type of work and materials and equipment used.