



## Best Management Practices

### Construction Activities BMP Field Manual



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



August 2019

## Table of Contents

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2.0</b>	<b>EROSION CONTROL BMPS .....</b>	<b>4</b>
2.1	C.1 SCHEDULING .....	4
2.2	C.2 PRESERVATION OF EXISTING VEGETATION .....	5
2.3	C.3 LOCATION OF POTENTIAL SOURCES OF SEDIMENT .....	7
2.4	C.4 EARTH DIKE.....	8
2.5	C.5 TEMPORARY DRAINS AND SWALES.....	10
2.6	C.6 DUST CONTROL .....	11
2.7	C.7 TOPSOIL MANAGEMENT .....	12
2.8	C.8 GEOTEXTILES AND MATS.....	14
2.9	C.9 GRASS AND PLANTING.....	15
<b>3.0</b>	<b>SEDIMENT CONTROL BMPS .....</b>	<b>17</b>
3.1	C.10 SAND BAG BARRIER.....	17
3.2	C.11 COMPOST FILTER BERM OR SOCK .....	19
3.3	C.12 STORM DRAIN INLET PROTECTION .....	20
3.4	C.13 SEDIMENT TRAP.....	26
3.5	C.14 SILT FENCE .....	27
<b>4.0</b>	<b>TRACKING CONTROL BMPS .....</b>	<b>29</b>
4.1	C.15 STABILIZED CONSTRUCTION ENTRANCE/EXIT .....	29
4.2	C.16 CONSTRUCTION ROAD STABILIZATION.....	32
<b>5.0</b>	<b>SITE ACTIVITIES POTENTIAL POLLUTANT CONTROL BMPS .....</b>	<b>33</b>
5.1	C.17 DEWATERING OPERATIONS.....	33
5.2	C.18 PAVING OPERATIONS AND WASTE MANAGEMENT.....	35
5.3	C.19 STRUCTURE CONSTRUCTION AND PAINTING .....	36
5.4	C.20 VEHICLE AND EQUIPMENT CLEANING .....	38
5.5	C.21 VEHICLE AND EQUIPMENT REFUELING.....	39
5.6	C.22 VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE.....	41
5.7	C.23 CONCRETE CURING WATER AND COMPOUNDS MANAGEMENT.....	43
5.8	C.24 HYDROTESTING EFFLUENT MANAGEMENT .....	44
5.9	C.25 WATER-JET WASH AND HYDRO-DEMOLITION WATER MANAGEMENT .....	45
<b>6.0</b>	<b>MATERIAL AND WASTE MANAGEMENT POLLUTION CONTROL BMPS .....</b>	<b>46</b>
6.1	C.26 MATERIAL DELIVERY AND STORAGE .....	46
6.2	C.27 MATERIAL USE .....	48
6.3	C.28 PROTECTION OF STOCKPILES.....	49
6.4	C.29 SOLID WASTE MANAGEMENT - HAZARDOUS WASTE .....	50
6.5	C.30 SOLID WASTE MANAGEMENT - DEBRIS.....	52
6.6	C.31 CONTAMINATED SOIL MANAGEMENT .....	54
6.7	C.32 CONCRETE OPERATION AND WASTE MANAGEMENT .....	56

<b>6.8</b>	<b>C.33 SANITARY/SEPTIC WASTE MANAGEMENT .....</b>	<b>58</b>
<b>6.9</b>	<b>C.34 SPILL PREVENTION AND CONTROL.....</b>	<b>59</b>
<b>6.10</b>	<b>C.35 SPILL RESPONSE PRACTICES.....</b>	<b>61</b>
<b>6.11</b>	<b>C.36 MANAGEMENT OF MATERIALS ASSOCIATED WITH PAINT .....</b>	<b>64</b>

## **ACRONYMS**

AIR-EE	State of Hawaii Department of Transportation, Airports Division, Environmental Engineering Section
AOA	Airport Operations Area
AST	Aboveground Storage Tank
BMP	Best Management Practice
C&D	Construction and Demolition
CIH	Certified Industrial Hygienist
CWB	Clean Water Branch
DOH	State of Hawaii, Department of Health
DOT	State of Hawaii, Department of Transportation
DOTA	State of Hawaii, Department of Transportation, Airports Division
EC	Emergency Coordinator
FAA	Federal Aviation Administration
FOD	Foreign Object Debris
HAR	Hawaii Administrative Rules
HEER	Health Hazard Evaluation and Emergency Response
HNL	Daniel K. Inouye International Airport
MS4	Municipal Separate Storm Sewer System
SDS	Safety Data Sheet
NRC	National Response Center
OGG	Kahului Airport
SPCC	Spill Prevention, Control, and Countermeasure
SWMPP	Stormwater Management Program Plan
SWPPP	Stormwater Pollution Prevention Plan
PCS	Petroleum-Contaminated Soil
PPE	Personal Protective Equipment
U.S.	United States of America

## 1.0 INTRODUCTION

---

The purpose of this *Construction Activities Best Management Practices (BMP) Field Manual* is to provide guidance on BMP selection, installation, and maintenance procedures for construction activities. Implementation of these BMPs is intended to prevent or reduce the discharge of pollutants to the State of Hawaii, Department of Transportation, Airports Division (DOTA) municipal separate storm sewer system (MS4) thereby protecting State waters from pollutant discharges. This manual does not constitute an exhaustive list of all BMPs available for use. Designers and contractors may use other BMPs than those listed in this manual provided they are approved by DOTA.

This manual is intended for use by DOTA staff, consultants, and contractors involved in projects that require construction work within DOT Airports' properties. The BMPs included in this manual focus on the areas of erosion control, sediment control, tracking control, potential pollutant control, and materials and waste management control. Erosion control BMPs are devices installed or constructed by the contractor on disturbed soil to protect the ground surface from erosion due to wind, rain, or runoff. Sediment control BMPs are measures that intercept and detain sediment-laden runoff prior to discharge offsite or to the storm sewer system. These devices detain runoff to promote infiltration and/or sedimentation. Tracking control BMPs are devices or procedures that minimize the amount of sediment and debris that is tracked offsite by vehicles and equipment. BMPs that control potential pollutants from site activities or materials and waste handling control and are established practices and procedures to control potential pollutants at their source.

BMP selection should be determined by an evaluation of the existing conditions, requirements of the project area, and potential pollutants. It is advised to install multiple BMPs to effectively prevent pollution from entering the MS4. For example, drain inlet protection is considered the last defense and should be combined with other BMPs that are designed to prevent pollution at the source.

Each BMP measure provided in this manual consists of the following sections:

- Description
- Limitations
- Practice
- Maintenance and Inspection

The BMP measures should be maintained and only removed after the potential source of the discharge of pollutants is eliminated, removed and stabilized, or the area is restored to pre-construction conditions. These are not Permanent BMP measures.

For Permanent BMP measures, please refer to the following sources.

- Stormwater Permanent BMP Manual located at
  - Daniel K. Inouye Airport previously known as Honolulu International Airport (HNL) Stormwater Management Program Plan (SWMPP), Section D Permanent BMP Program, Attachment D.1.

- Kahului Airport (OGG) Construction and Post-Construction Stormwater Management Plan, Section 2 and Appendix G
- Permanent BMP Operations & Maintenance Manual
  - HNL SWMPP Section D Permanent BMP Program, Attachment D.4.
  - OGG Construction and Post-Construction Stormwater Management Plan, Section 2 and Appendix I
- HNL SWMPP Section D Permanent BMP Program, Attachment D.2 Post-Construction BMP Handout.

## **Disclaimer**

The information presented in this Construction Activities BMP Field Manual was taken from available and most recent sources deemed to be representative of the acceptable BMPs and stormwater runoff control measures. This manual has been prepared as a reference guideline, however, due to site-specific conditions, the selection of the BMPs must be used in conjunction with the best professional judgment and sound engineering principles to assure proper function and performance of the BMPs contained herein. The author does not guarantee the accuracy or completeness of this document and will not assume any liability or responsibility for the use of, or for any damages resulting from the use of any information contained herein. The detail and the wording in this manual will not necessarily result in compliance with the Standard Specifications. Application of BMPs should comply with applicable federal, state, and county regulations.

## 2.0 EROSION CONTROL BMPS

### 2.1 C.1 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	Avoid creation of open-water areas or features that can attract wildlife that are hazardous to airport operations.
<input type="checkbox"/>	C1.5	Stabilize the finished graded area within seven (7) calendar days after completion of grading or one (1) calendar day before an anticipated rainfall event. Initiation of stabilization must commence within one (1) calendar day from the end of soil-disturbing activities.
<input type="checkbox"/>	C1.6	Stabilize non-active exposed areas, where activity will not resume for a period of 14 or more calendar days, within seven (7) calendar days from the end of soil-disturbing activities or one (1) calendar day before an anticipated rainfall event. Initiation of stabilization must commence within one (1) calendar day from the end of soil-disturbing activities.
<input type="checkbox"/>	C1.7	Backfill open trenches as soon as possible. Sequence trenching projects so open portions of the trench are backfilled before excavating the next trench section.
<input type="checkbox"/>	C1.8	Minimize disturbance on steep slopes (greater than 15 percent in grade). If disturbance of steep slopes is unavoidable, phase disturbance and use stabilization techniques.

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.

## 2.2 C.2 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 (FAA) rules regarding aircraft clearances and lines of sight 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"> <li>• Areas within the project site where construction activities are not required.</li> <li>• 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.</li> <li>• Areas where local, state, or federal governments require preservation, such as delineated wetlands, marshes, shorelines, conservation land, etc.</li> <li>• Swales and natural drainage ways and paths.</li> </ul>
<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"> <li>• Aesthetic values: Consideration should be given to foliage, flowering habits, bark and crown characteristics (for trees).</li> <li>• Freedom from disease and rot.</li> <li>• Life span of trees: Short-lived trees need not be preserved.</li> <li>• Environmental values: Habitat; screening; and buffers.</li> <li>• Sudden exposure: Save vegetation that grows in direct sunlight and is able to withstand radiated heat from proposed structures and pavement.</li> <li>• Space needed: Sufficient space must be provided between the vegetation and any structures, electric and telephone lines, water and sewer lines, driveways and roadways.</li> </ul>
<input type="checkbox"/>	C2.3	Do not include plant species that compete with the existing vegetation in landscaping plans.
<input type="checkbox"/>	C2.4	Minimize disturbed areas or phase work to preserve pre-existing vegetation whenever feasible and for as long as possible.
<input type="checkbox"/>	C2.5	Inspect swales and natural drainage ways prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
<input type="checkbox"/>	C2.6	Preserve native topsoil where practicable.
<i>METHODS FOR PROTECTING EXISTING VEGETATION AND TREES INCLUDE:</i>		
<input type="checkbox"/>	C2.7	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.



## C.2 Preservation of Existing Vegetation (continued)

Practice		
<input type="checkbox"/>	C2.8	Clearly mark, flag or fence areas where vegetation is to be preserved and trees to remain.
<input type="checkbox"/>	C2.9	Stake off root system limits (dripline of tree).
<input type="checkbox"/>	C2.10	Tree wells and retaining walls (permanent) help preserve existing vegetation, but must be large enough to protect the root system.
<input type="checkbox"/>	C2.11	When grading under trees is necessary, excavation and fill is to be limited to one foot within the tree driplines
<input type="checkbox"/>	C2.12	Do not locate construction traffic route, spoil stockpile, etc., in areas where significant adverse impact on existing vegetation may occur.
<input type="checkbox"/>	C2.13	Prepare landscaping plans that preserve as much existing vegetation as possible and ensures the required care for this vegetation to thrive during and after construction.
<input type="checkbox"/>	C2.14	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.

## 2.3 C.3 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 offsite 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 drainage ways.
<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 workweek.
<input type="checkbox"/>	M3.3	Educate personnel about proper locations of potential sources of sediment at the site.

## 2.4 C.4 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 offsite 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:

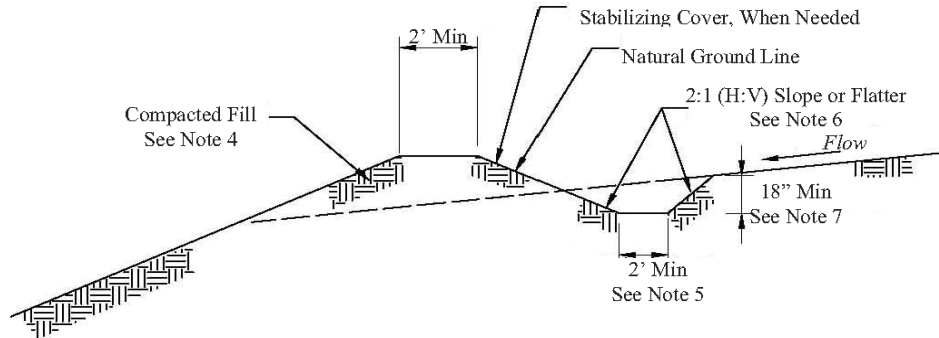
- Earth dikes may create more disturbed area.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted stormwater may cause downstream damage.
- Dikes are not to be constructed of soils that erode easily.
- Regarding the site to remove the dike may add additional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

Practice		
<input type="checkbox"/>	C4.1	The locations and size of temporary earth dikes should be reviewed and approved by the Airport Manager to prevent possible hazards and adverse impacts to aircraft and airport operations.
<input type="checkbox"/>	C4.2	Dikes are to be well-compacted during construction.
<input type="checkbox"/>	C4.3	All dikes are to divert runoff to an off-site area or sediment trapping device.
<input type="checkbox"/>	C4.4	Dikes should have 2:1 or flatter side slopes, 18 inches minimum height, and a minimum top width of 24 inches. Top width may be wider and side slopes may be flatter at crossing for construction traffic.
<input type="checkbox"/>	C4.5	When used to divert runoff through a disturbed area, dikes are to direct sediment-laden runoff into a sediment-trapping device.
<input type="checkbox"/>	C4.6	Dikes surfaces are to be stabilized with vegetation, chemicals, or physical devices within one (1) calendar day after construction of the dikes has been completed.
<input type="checkbox"/>	C4.7	Dikes are to remain in place until the disturbed areas are permanently stabilized.
<input type="checkbox"/>	C4.8	Dikes must be onsite and must safely convey anticipated flood flows.

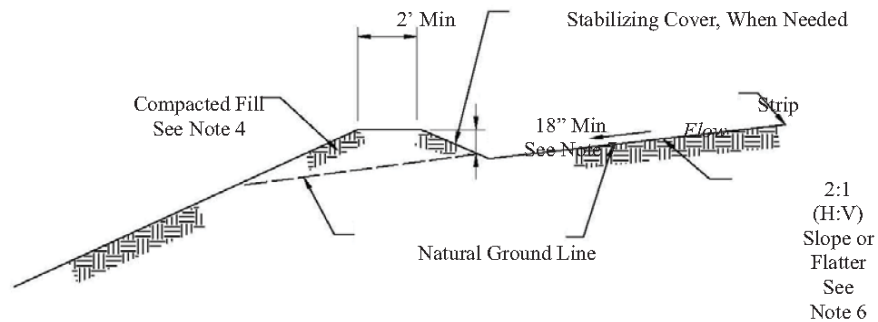
Note: Example schematics are included herein for reference.

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 workweek.
<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.

## C.4 Earth Dike (continued)



### 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.

## 2.5 C.5 Temporary Drains and Swales

### Description

Temporary drains and swales are used to divert offsite 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 licensed, qualified engineer must design a permanent drainage channel.

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.
<input type="checkbox"/>	C5.6	Use velocity dissipation devices at the outlet to minimize erosive flow velocities.

Note: Refer to schematics provided in the earth dike BMP.

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 workweek.
<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.

## 2.6 C.6 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 water usage for dust control 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 repellant, increasing runoff. Chemical treatment of the soil shall not be allowed without the approval of the Engineer.

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 workday, 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	Minimize 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 of Hawaii, Department of Health (DOH) requirements for dust control.
<input type="checkbox"/>	C6.7	Chemical treatment of the soil shall not be allowed without the approval of the Engineer.
<input type="checkbox"/>	C6.8	If using water or chemical treatment, maintain daily records of the date and time of application and number of gallons or loads of product applied. Provide records upon request by the Engineer. When using water, only potable water shall be used. Oil is not to be used for dust control.
<input type="checkbox"/>	C6.9	If dust screen or fence is used in conjunction with other dust control measures, the Airport Manager or Code 22 must approve the location. Screens located on or adjacent to the Airport Operations Area (AOA) fence line may not be allowed due to airport security concerns.
<input type="checkbox"/>	C6.10	Dust screen and fence must be of proper size and height to contain airborne dust particles. It shall be of continuous length without gaps and firmly secured to posts and other supporting devices.
<input type="checkbox"/>	C6.11	Locations for dust screen shall consider aircraft operations that can create localized high velocity wind gust.

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	Inspect dust screens regularly. Repair any damage, such as rips and tears, within two (2) calendar days. Remove any accumulated dust at base of screen.
<input type="checkbox"/>	M6.4	Provide personnel responsible for dust control with adequate training.

## 2.7 C.7 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

- Avoid installation and placement of topsoil during windy and rainy weather events.

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	Salvage all suitable topsoil and suitable material to be utilized in reclamation of the surface disturbance wherever feasible and stockpile for reapplication.
<input type="checkbox"/>	C7.3	If conditions permit, apply topsoil or growth medium directly to disturbed areas.
<input type="checkbox"/>	C7.4	Soil replacement depths are determined by several factors including: <ul style="list-style-type: none"><li>• Pre-disturbance soil depths;</li><li>• Vegetation types; and</li><li>• The physical and chemical properties of the material being covered.</li></ul> 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	Conduct soil testing (nutrients, pH and toxicity factors) of the replacement soils and the materials to be covered prior to application of topsoil.
<input type="checkbox"/>	C7.6	Dust control measures, perimeter sediment controls, and storm drain inlet protection measures must be in place prior to and during placement of topsoil.
<input type="checkbox"/>	C7.7	Stabilize exposed topsoil areas within three (3) calendar days after installation is complete.
<i>CONSIDERATIONS FOR DEVELOPING A TOPSOIL MANAGEMENT PLAN:</i>		
<input type="checkbox"/>	C7.8	The amount and quality of existing topsoil or growth medium.
<input type="checkbox"/>	C7.9	The amount of surface disturbance (area), which will receive topsoil or growth medium and the required depth of application.
<input type="checkbox"/>	C7.10	Methodology to be utilized for topsoil or growth medium salvage.
<input type="checkbox"/>	C7.11	Storage location, the duration of storage of salvaged soils, and the protection of stockpiled soils to prevent erosion.
<input type="checkbox"/>	C7.12	The feasibility of direct replacement of the salvaged soils.
<input type="checkbox"/>	C7.13	Availability of additional growth media to supplement topsoil replacement.

## C.7 Topsoil Management

(continued)

Maintenance and Inspection		
<input type="checkbox"/>	M7.1	Review and update the topsoil management plan at the beginning of each workweek until all grading operations are completed.
<input type="checkbox"/>	M7.3	Conduct periodic maintenance of topsoil stockpiles to prevent erosion. Cover the topsoil stockpiles with plastic or another substrate, or re-vegetated, to protect from wind, rain, and erosion.
<input type="checkbox"/>	M7.2	Regularly inspect, maintain, and immediately repair dust control, perimeter sediment controls, and storm drain inlet protection measures until planting is fully established.



## 2.8 C.8 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 (i.e., 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 that may be used for either temporary or post-construction stabilization, both with and without vegetation: <ul style="list-style-type: none"><li>• Excelsior matting</li><li>• Glass fiber matting</li><li>• Mulch netting</li></ul>
<input type="checkbox"/>	C8.4	When used on slopes, anchor geotextile or matting to the top of the slope in a 6-inch-deep trench and backfill, or per manufacturer's recommended procedures, whichever is more stringent.
<input type="checkbox"/>	C8.5	Overlap the edges of the blankets approximately 2 to 3 inches and staple every 3 feet, or per manufacturer's recommended procedures, whichever is more stringent. Ensure close and continuous 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 workweek.
<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.

## 2.9 C.9 Grass and Planting

### Description

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 stormwater pollution if improperly applied.
- 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 DOTA Environmental Section (AIR-EE) for exemptions in these cases.
- Per FAA Regulations, seeds are not to be scattered or applied through hydroseeding.
- If vegetation is necessary, consult with the AIR-EE for recommended grasses and plants that are non-seeding.
- Fertilizers and soil conditioners shall not be applied during or prior to inclement weather or rain events.
- Do not over-apply fertilizers, herbicides, or pesticides. Over-application is expensive and environmentally harmful.
- Do not apply to stormwater conveyance channels with flowing water or within 6-feet of a water body.
- Excessive irrigation may cause erosion.

Practice		
<i>GRASSES:</i>		
<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	Use grass plugs, sod or other methods that do not attract birds and other wildlife.
<input type="checkbox"/>	C9.5	Mow, irrigate, and fertilize to promote vigorous grass growth.
<i>TREES AND SHRUBS:</i>		
<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.
<i>VINES AND GROUND COVERS:</i>		
<input type="checkbox"/>	C9.8	Ground preparation: lime and fertilizer preparation.
<input type="checkbox"/>	C9.9	Appropriate soil conditions: drainage, acidity, and slopes.
<input type="checkbox"/>	C9.10	Generally, avoid species requiring irrigation.
<i>FERTILIZERS AND SOIL CONDITIONERS:</i>		
<input type="checkbox"/>	C9.11	Prepare only the amount needed for fertilizer, herbicide, or pesticide application. Follow the recommended usage instructions.

## C.9 Grass and Planting (continued)

Practice		
<i>FERTILIZERS AND SOIL CONDITIONERS:</i>		
<input type="checkbox"/>	C9.12	Except on steep slopes, if possible, 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 offsite by runoff.
<input type="checkbox"/>	C9.13	Choose plants that minimize or eliminate the use of fertilizers or pesticides to sustain growth.
<input type="checkbox"/>	C9.14	Follow federal, state, and local laws regarding fertilizer application.
<input type="checkbox"/>	C9.15	Provide cover and dunnage when storing fertilizer to prevent contact with rainwater and runoff.
<input type="checkbox"/>	C9.16	Store all hazardous pesticides with secondary containment and under cover. Review the Safety Data Sheet (SDS) to identify the chemical composition and hazard category.
<i>IRRIGATION SYSTEMS:</i>		
<input type="checkbox"/>	C9.17	Where possible, group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with no or low irrigation requirements. Native plant species are preferred.
<input type="checkbox"/>	C9.18	Design timing and application methods of irrigation water to eliminate the runoff of excess irrigation water into the stormwater drainage system.
<input type="checkbox"/>	C9.19	Employ rain-triggered shutoff devices to prevent irrigation during and after precipitation.
<input type="checkbox"/>	C9.20	Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
Maintenance and Inspection		
<input type="checkbox"/>	M9.1	Inspect planted areas for failures and re-fertilize. Re-plant areas of failed plant establishment or unhealthy plant growth.
<input type="checkbox"/>	M9.2	Inspect immediately after any rainfall event to ensure plants were not displaced and soil has not eroded.
<input type="checkbox"/>	M9.3	Maintain a log of fertilizer, herbicide, and pesticide applications.
<input type="checkbox"/>	M9.4	Clean any spills from fertilizer, herbicide, and pesticide mixing or application.
<input type="checkbox"/>	M9.5	Inspect fertilizer, herbicide, and pesticide storage areas regularly.
<input type="checkbox"/>	M9.6	Repair broken sprinkler heads and lines immediately.

## 3.0 SEDIMENT CONTROL BMPS

### 3.1 C.10 Sand Bag Barrier

#### Description

Stacking sand bags along a level contour creates a barrier that detains sediment-laden water, ponding water upstream of the barrier and promoting sedimentation.

#### Limitations

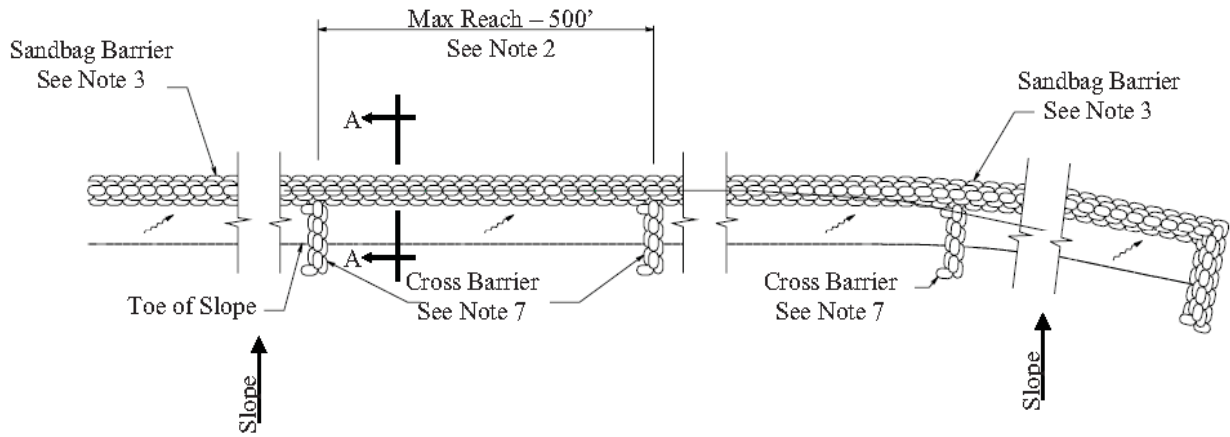
- Do not install sand bag barrier at locations that could compromise traffic safety.
- Sand bags are more expensive than other barriers, but also more durable.
- Do not use burlap for sand bags.

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 Polyvinyl Chloride (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.

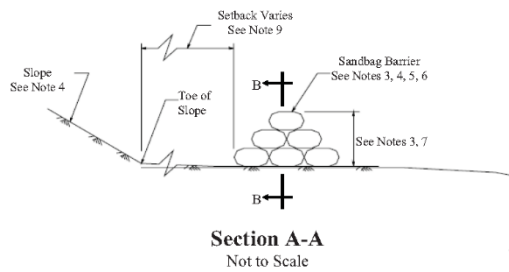
Note: Example schematics are included herein for reference.

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 workweek.
<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. Train on the importance of preventing sediment discharge.

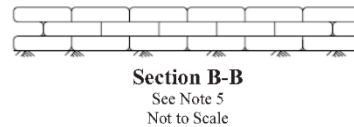
## C.10 Sand Bag Barrier (continued)



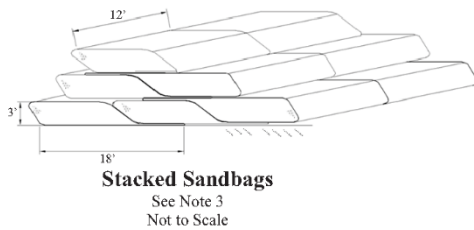
### Detail "A" Not to Scale



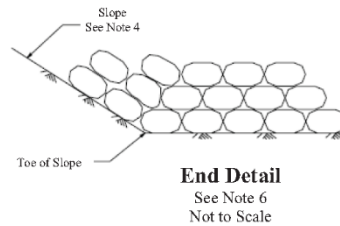
**Section A-A**  
Not to Scale



**Section B-B**  
See Note 5  
Not to Scale



**Stacked Sandbags**  
See Note 3  
Not to Scale



**Overlapping Sandbags**  
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.

### Sandbag Barrier

## 3.2 C.11 Compost Filter Berm or Sock

### Description

A compost filter berm is a dike or compost product that is placed perpendicular to sheet flow runoff to retain sediment onsite. 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 cubic foot per second (cfs).
- Compost quality shall comply with all local, state, and federal requirements.
- Do not overlap berms by placing on top of each other.

Practice		
<input type="checkbox"/>	C11.1	Select the appropriately 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 inches in diameter.
<input type="checkbox"/>	C11.3	Install berm per manufacturers' recommended procedures and instructions.
<input type="checkbox"/>	C11.4	Place perpendicular to flow along the base or slopes or site perimeter. Ensure that the berm has good contact with the ground.
<input type="checkbox"/>	C11.5	When encountering a difference in elevation or "step" along the ground, such as curbs or wall, turn the end of the berm towards the flow along the face of the curb or wall. Extend the berm a minimum of 3-feet against the face of the curb or wall. Similarly, if the berm continues on the top of the curb or wall, turn the berm towards the flow for a minimum of 3-feet. Do not "bridge" the elevation difference, unless allowed per the manufacturer's recommended procedures and uses.
<input type="checkbox"/>	C11.6	Overlap the berms a minimum of 6 inches and place them side-by-side.
<input type="checkbox"/>	C11.7	Place stakes on the downstream side of berms that are located on slopes.
<input type="checkbox"/>	C11.8	Berms and socks shall be accessible and visible for inspection and monitoring. No materials and equipment shall be stored on top of or immediately abutting the berm or sock.
<input type="checkbox"/>	C11.9	When complete, compost may be added to the site as a soil amendment with approval from the Airport Manager or AIR-EE.

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 workweek.
<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. Train on the importance of preventing sediment discharge.

### 3.3 C.12 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 and pedestrians.
- Drainage area shall 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	Protect every storm drain inlet potentially receiving sediment-laden runoff, either by covering the inlet or promoting sedimentation upstream of the inlet.
<input type="checkbox"/>	C12.2	<p>Five types of inlet protection are presented below; however, other effective methods and proprietary devices exist and may be selected:</p> <ul style="list-style-type: none"> <li>• Filter Fabric Fence: Appropriate for drainage basins less than one acre with less than a 5 percent slope.</li> <li>• Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.</li> <li>• Gravel and Wire Mesh Filter: Used on curb or drop inlets where construction equipment may drive over the inlet.</li> <li>• Sand Bag Barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets.</li> <li>• Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment.</li> </ul> <p>Use only for drainage areas smaller than one acre unless a sediment trap first intercepts the runoff.</p>
<input type="checkbox"/>	C12.3	<p>Select the appropriate type of inlet protection as identified in C12.2 above and design as referred to or as described herein.</p> <ul style="list-style-type: none"> <li>• Filter Fabric: Must be of sufficient strength and permeability to allow stormwater 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.</li> </ul>
<input type="checkbox"/>	C12.4	Install inlet protection per manufacturers' recommended procedures and instructions.
<input type="checkbox"/>	C12.5	Provide area around the inlet for water to pond without flooding structures and property.
<input type="checkbox"/>	C12.6	Remove inlet protection as directed by Airport Manager, Code 22 or other DOTA entity in anticipation of rain events or if they are creating an immediate safety impact to traffic or pedestrians at the Airport. Restore inlet protection devices immediately upon termination of rain event or notice from Airport.

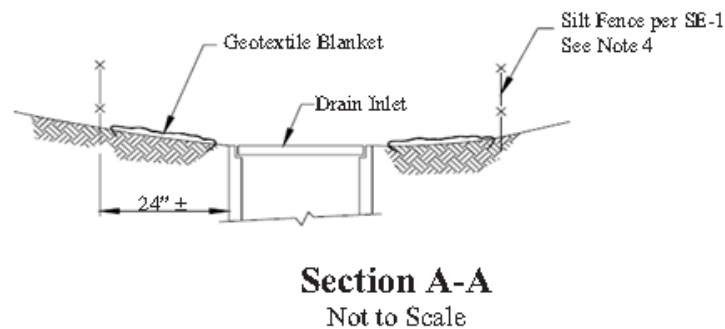
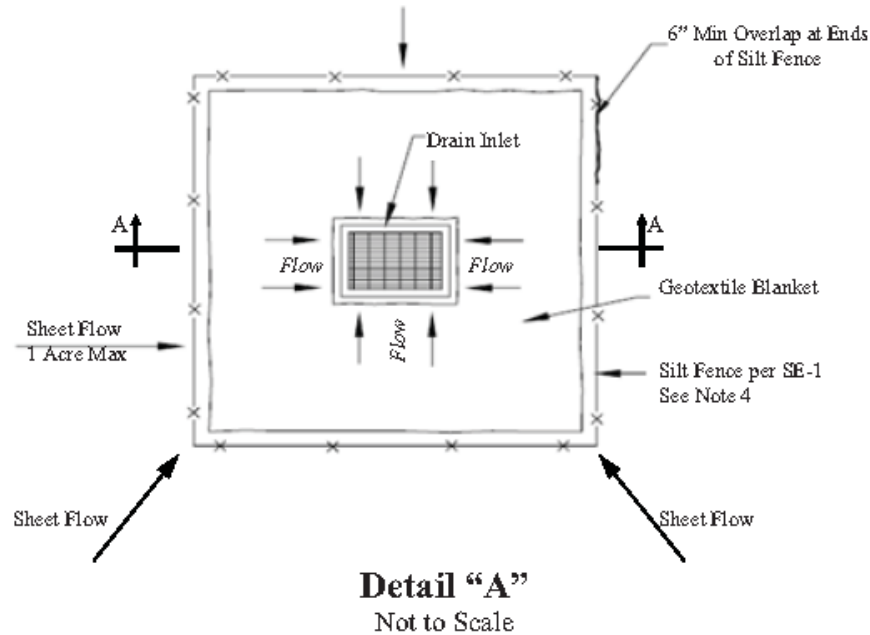
Note: Example schematics for inlet protection are included herein for reference.

## C.12 Storm Drain Inlet Protection (continued)

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 workweek. 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 or once the containment device is ½ full of sediment.
<input type="checkbox"/>	M12.4	Where there is evidence of sediment accumulation adjacent to the inlet protection measure or along the runoff flow pattern toward the inlet, such as a concrete gutter or swale, remove the deposited sediment by the end of the same day in which it is found or by the end of the following work day if removal by the same day is not feasible.
<input type="checkbox"/>	M12.5	Report any inlet protection failures and pollutant discharges (including sediment) into the storm drains to AIR-EE.
<input type="checkbox"/>	M12.6	Train required personnel about storm drain protection from sediment discharge and construction site contaminants.



## C.12 Storm Drain Inlet Protection (continued)



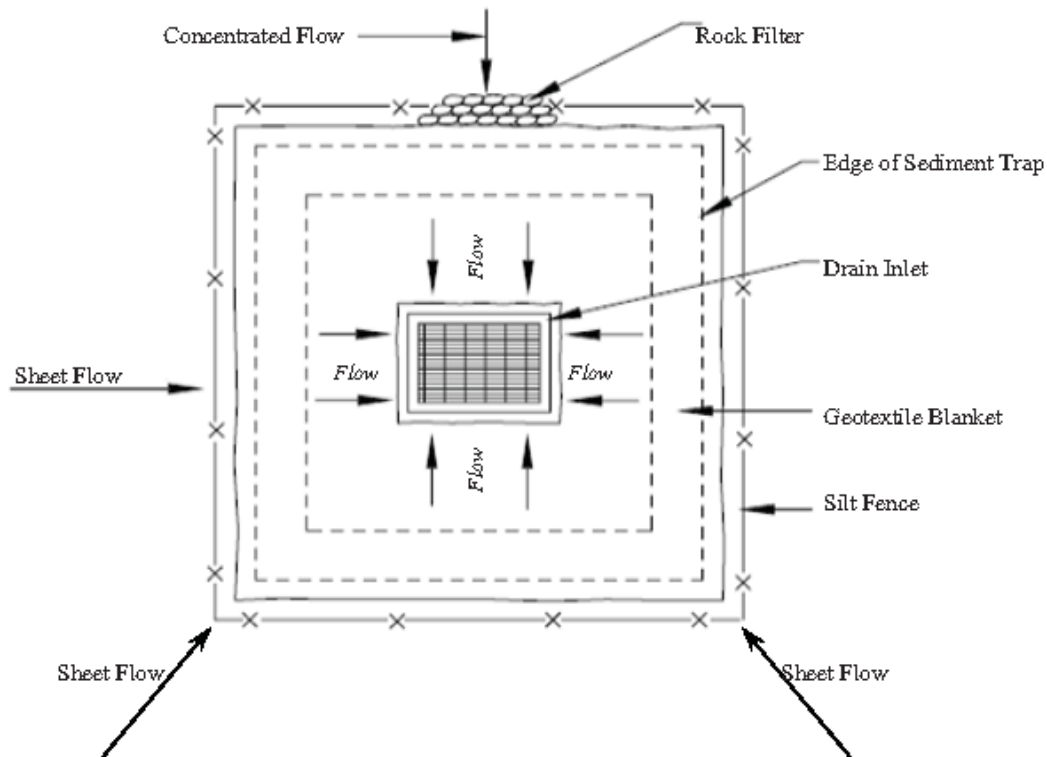
### Notes:

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.

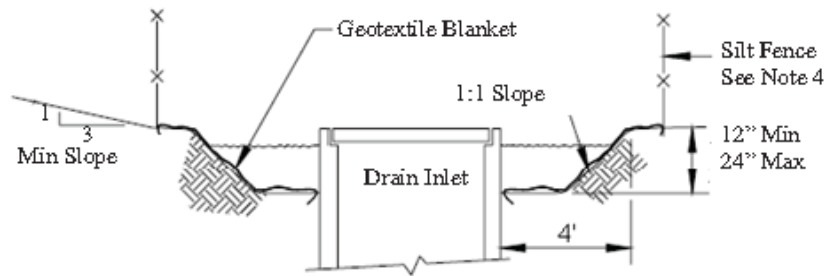
## DI Protection Type 1, Filter Fabric Fence

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

## C.12 Storm Drain Inlet Protection (continued)



**Detail "B"**  
Not to Scale



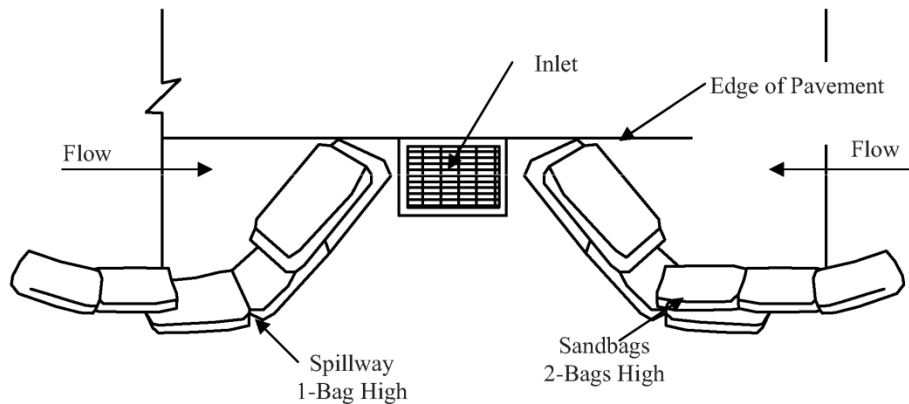
**Notes:**

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 yd<sup>3</sup>/acre of drainage area.
4. Refer to BMP SE-1, Silt Fence for construction.

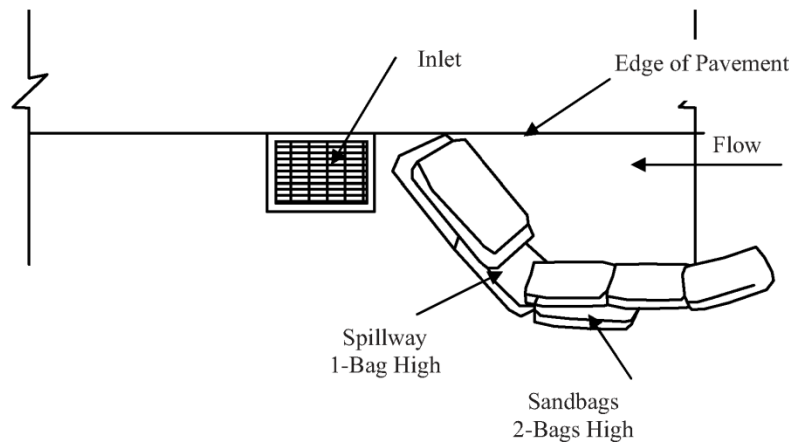
### **DI Protection Type 2, Excavated Drop Inlet Sediment Trap**

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

## C.12 Storm Drain Inlet Protection (continued)



**Typical Protection for Inlet on Sump, Detail "C"**  
Not to Scale



**Typical Protection for Inlet on Grade, Detail "D"**  
Not to Scale

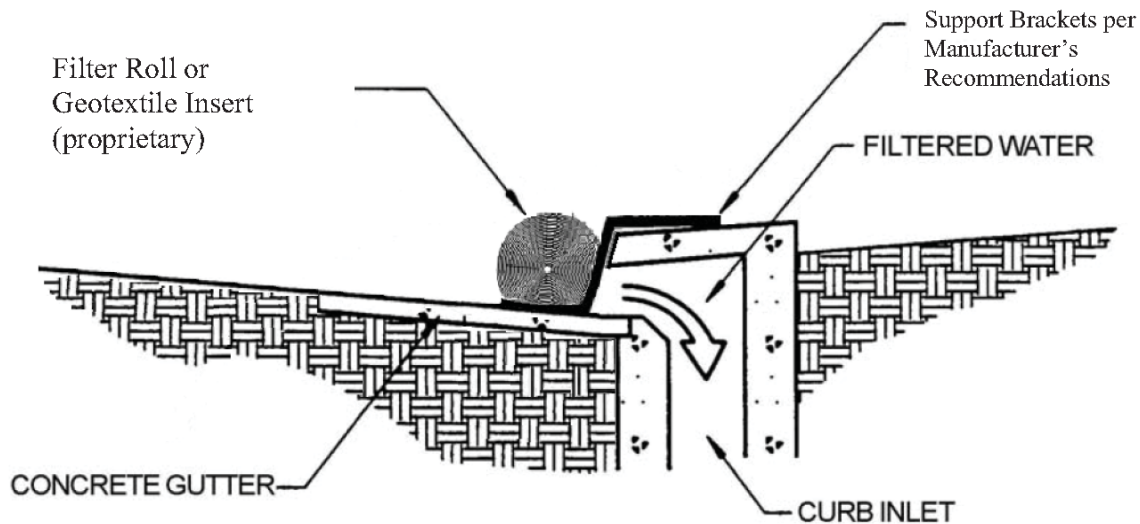
### Notes:

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.

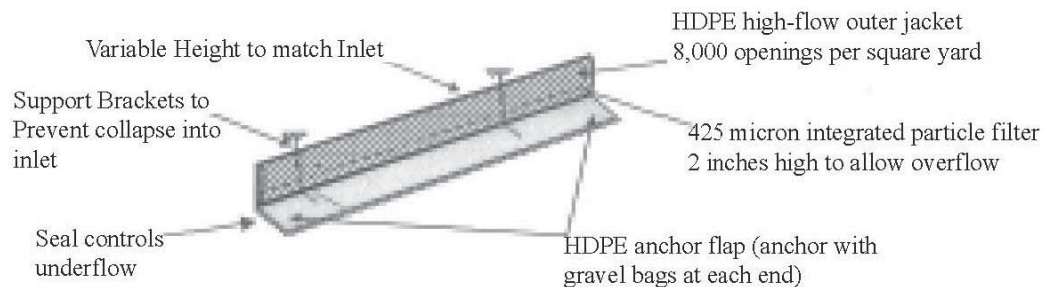
## C.12 Storm Drain Inlet Protection (continued)



### 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.

### 3.4 C.13 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	The locations and size of temporary sediment trap should be reviewed and approved by the Airport Manager to prevent possible hazards and adverse impacts to aircraft and airport operations. The trap may create wetlands that may attract wildlife that is hazardous to aircraft.
<input type="checkbox"/>	C13.2	Sediment traps are applicable for any disturbed area less than 5 acres.
<input type="checkbox"/>	C13.3	Install along the perimeter of the site at locations where sediment-laden runoff is discharged off-site.
<input type="checkbox"/>	C13.4	Install around and/or up slope from the storm drain inlet protection measures.
<input type="checkbox"/>	C13.5	Install at any point within the site where sediment-laden runoff can enter stabilized or natural areas or waterways.
<input type="checkbox"/>	C13.6	Build outside the area to be graded before clearing, grubbing, and grading begin.
<input type="checkbox"/>	C13.7	Locate where the trap is easily cleared of sediment.
<input type="checkbox"/>	C13.8	Trap size depends on the type of soil, size of the drainage area, and desired sediment removal efficiency.
<input type="checkbox"/>	C13.9	The larger the trap, the less frequently sediment must be removed.
<input type="checkbox"/>	C13.10	The outlet or spillway of the trap must be stabilized with rock, vegetation, or another suitable material.
<input type="checkbox"/>	C13.11	A stable emergency spillway must be installed to safely convey major floods.
<input type="checkbox"/>	C13.12	Provide fencing to prevent unauthorized entry.
<input type="checkbox"/>	C13.13	Design freeboard to accommodate the rainfall in accordance with local regulations. Incorporate a minimum of 1-foot into the sediment trap design. DOTA Engineer may require additional freeboard depending on site conditions.
<input type="checkbox"/>	C13.14	Stabilize the bermed and exposed sloped surfaces of the sediment trap with vegetation, chemicals, or physical devices within one (1) calendar day after construction of the berm has been completed.

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 workweek. 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. Train on the importance of preventing sediment discharge.

### 3.5 C.14 Silt Fence

#### Description

A silt fence is made of a semi-impermeable fabric that 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

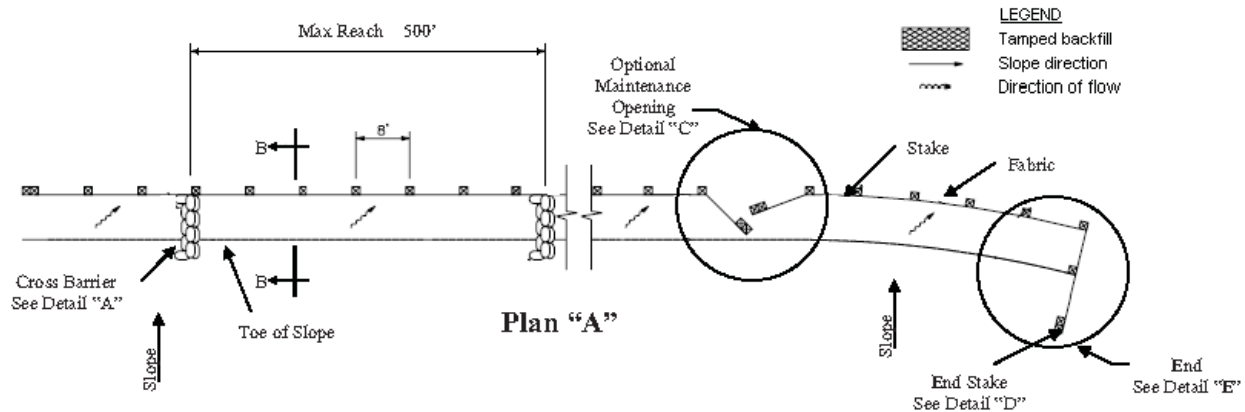
- Do not place fence on a slope, or across any contour line.
- Do not use in streams, channels or anywhere flow has concentrated.
- Do not use in locations where ponded water may cause flooding.
- No more than 1 acre, 100 feet, or 0.5 cfs of concentrated flow should drain to any point along the silt fence.

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	Turn ends of the fence uphill.
<input type="checkbox"/>	C14.4	Provide area behind the fence for runoff to pond and sediment to settle (approx. 1200 square feet per acre draining to the silt fence).
<input type="checkbox"/>	C14.5	Select a fabric that retains 85 percent of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.
<input type="checkbox"/>	C14.6	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.
<input type="checkbox"/>	C14.7	Reinforce the perimeter silt fence with chain link fence or concrete barriers, if needed.

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 workweek.
<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. Train on the importance of preventing sediment discharge.

## C.14 Silt Fence (continued)



### Notes:

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed  $\frac{1}{3}$  the height of the linear barrier, in no case shall the reach length exceed 500'.
2. Cross barriers shall be a minimum of  $\frac{1}{3}$  and a maximum of  $\frac{1}{2}$  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.

## 4.0 TRACKING CONTROL BMPs

### 4.1 C.15 Stabilized Construction Entrance/Exit

#### Description

A stabilized construction entrance/exit 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/exit is to reduce the amount of sediment tracked offsite. The effectiveness of a stabilized construction entrance/exit 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.
- 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, 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/exits on level ground where possible.
<input type="checkbox"/>	C15.2	Grade the entrance/exit 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/exits 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/exit.
<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. Refer to C.13 Sediment Trap for the design, installation and maintenance of the sediment trap.
<input type="checkbox"/>	C15.8	Include additional BMPs that remove sediment prior to exit when the minimum dimensions cannot be met.
<input type="checkbox"/>	C15.9	The pavement shall not be cleaned by washing down the street.
<input type="checkbox"/>	C15.10	Restrict vehicle use to properly designated exit points.
<input type="checkbox"/>	C15.11	Provide drain inlet protection devices and/or perimeter sediment controls, as applicable.
<input type="checkbox"/>	C15.12	Construct stabilized construction entrance/exits at all points that exit onto paved roads, other paved areas, and sidewalks.

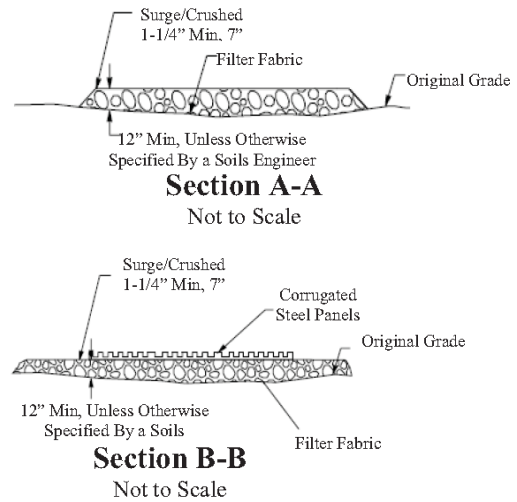
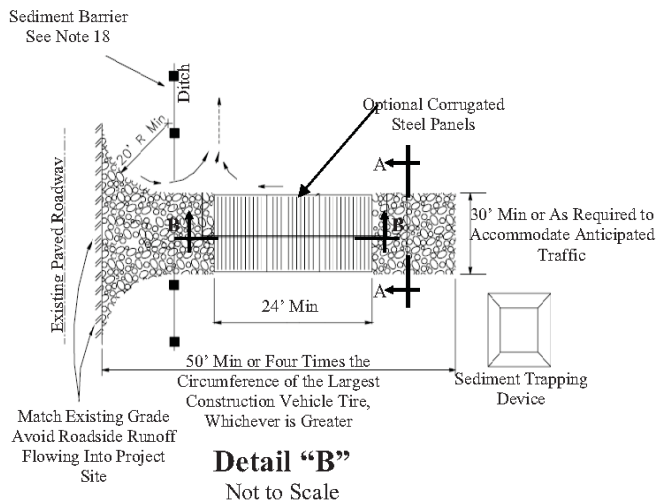
Note: Example schematics are included herein for reference.



**C.15 Stabilized Construction Entrance/Exit**  
(continued)

<b>Maintenance and Inspection</b>		
<input type="checkbox"/>	M15.1	Inspect the stabilized construction entrance/exit and wash rack ditches at the end of each workweek. If the stabilized construction entrance/exit is clogged with sediment remove the aggregate and separate and dispose of the sediment. Reconstruct or repair 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	Remove sediment tracked onto the roads, paved areas, and sidewalk, at a minimum, by the end of the day in which the track-out occurs.
<input type="checkbox"/>	M15.4	If tracking is excessive or sediment is being transported farther along the pavement or sidewalk by other vehicles traveling outside of the construction site, then, conduct sweeping immediately.
<input type="checkbox"/>	M15.5	However, if sweeping is ineffective or it is necessary to wash the streets, wash water must be contained either by construction of a sump, diverting the water to an acceptable disposal area away from drainage facilities, or vacuuming the wash water.
<input type="checkbox"/>	M15.6	Provide education for required personnel about proper stabilized construction entrance installation, use, and maintenance. Train on the importance of preventing sediment tracking.

## C.15 Stabilized Construction Entrance/Exit (continued)



**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.

## 4.2 C.16 Construction Road Stabilization

### Description

Access roads, subdivision roads, parking areas, and other onsite 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 onsite erosion but can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

### Limitations

- The roadway slope should not exceed 15 percent.
- The roadway must be removed or paved when construction is complete.
- Certain chemical stabilization methods may cause stormwater or soil pollution and should not be used (refer to C.6 Dust Control BMPs).
- 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	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"/>	C16.3	Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust (refer to C.6 Dust Control BMPs).
<input type="checkbox"/>	C16.4	When evidence of erosion is noted, apply additional aggregate on gravel roads.
<input type="checkbox"/>	C16.5	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 workweek and repair as needed before the start of the next workday.
<input type="checkbox"/>	M16.2	Provide education for required personnel about proper construction road installation and maintenance. Train on the importance of preventing sediment discharge.

## 5.0 SITE ACTIVITIES POTENTIAL POLLUTANT CONTROL BMPS

### 5.1 C.17 Dewatering Operations

#### Description

Prevent or reduce the discharge of pollutants to stormwater 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. Petroleum contamination may be identified through discoloration, odors, or sheen on the groundwater. The presence of contaminated groundwater may indicate contaminated soil as well.

#### Limitations

None.

Practice		
<input type="checkbox"/>	C17.1	Use sediment controls to remove sediment from water generated by dewatering (refer to C.13 Sediment Trap)
<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"><li>• 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.</li><li>• Use a floating suction hose to allow cleaner surface water to be pumped out.</li></ul>
<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 DOH for testing requirements and disposal options.
<input type="checkbox"/>	C17.6	Notify the DOTA Engineer and AIR-EE when contaminated media is identified.
<input type="checkbox"/>	C17.7	Notify the DOH Clean Water Branch (CWB) (808) 586-7309 at least 90 days prior to dewatering from known areas of contamination.
<input type="checkbox"/>	C17.8	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 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.

## C.17 Dewatering Operations (continued)

Practice		
<input type="checkbox"/>	C17.9	If the contractor elects to discharge dewatering effluent into State waters or existing drainage systems, the contractor shall prepare and obtain DOTA acceptance of a NOI/NPDES Permit Form G application for dewatering to DOTA and then to DOH CWB at least 30 calendar days prior to the start of Dewatering Activities. Follow all regulations on the Dewatering Permit as required by DOH CWB.
<input type="checkbox"/>	C17.10	Submit and obtain a Permit to Discharge into the State Airport Drainage System Relating to Construction Projects from the DOTA, at least 30 calendar days prior to the start of Dewatering Activities.

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.
<input type="checkbox"/>	M17.5	Report any overflows, upsets or discharges to the storm drain system to DOH and AIR-EE.

## 5.2 C.18 Paving Operations and Waste Management

### Description

Prevent or reduce the discharge of pollutants from paving operations by using measures to prevent stormwater 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 stormwater runoff.
<input type="checkbox"/>	C18.4	Protect drainage course, particularly in sloped areas, by employing BMPs to divert runoff or trap/filter sediment. This includes, but not limited to, prior to application of tack coat, seal coat, slurry seal, and fog seal.
<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.
<input type="checkbox"/>	C18.6	Clean up spills promptly with absorbent materials.
<input type="checkbox"/>	C18.7	Block/protect catch basins and cover manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
<input type="checkbox"/>	C18.8	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 C.32 Concrete Operation and Waste Management BMP to promote evaporation). Dispose solid waste in accordance with the C.29 Solid Waste Management - Hazardous Waste and C.30 Solid Waste Management - Debris BMPs.
<input type="checkbox"/>	C18.9	When removing existing asphalt pavement, properly dispose of removed material.
<input type="checkbox"/>	C18.10	When stockpiling new asphalt pavement material or removed existing asphalt pavement, follow requirements for C.28 Protection of Stockpiles, as applicable.
<input type="checkbox"/>	C18.11	If paving involves Portland Cement Concrete, refer to C.32 Concrete Operation and Waste Management BMPs.
<input type="checkbox"/>	C18.12	If paving involves asphaltic concrete, follow these steps: <ul style="list-style-type: none"> <li>• 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.</li> <li>• Old asphalt must be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.</li> <li>• If paving involves an onsite mixing plant, follow the stormwater permitting requirements for industrial activities.</li> </ul>

Maintenance and Inspection		
<input type="checkbox"/>	M18.1	Inspect and maintain paving equipment daily to minimize leaks and drips. Follow requirements for C.20 Vehicle and Equipment Cleaning, C.21 Vehicle and Equipment Refueling, and C.22 Vehicle and Equipment Operation and Maintenance, as applicable.
<input type="checkbox"/>	M18.2	Inspect drip pans daily. Clean, remove and properly dispose of the contents and rain accumulation.
<input type="checkbox"/>	M18.3	Inspect drain inlet protection devices and maintain as necessary.

## 5.3 C.19 Structure Construction and Painting

### Description

Prevent or reduce the discharge of pollutants to stormwater 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.

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 the state and federal safety (Occupational Safety and Health Administration) and air quality regulations.
<input type="checkbox"/>	C19.4	Properly store paints, epoxy compounds, solvents, and other liquid chemicals in water-tight containers with closed lids or covers. All liquids, except for water, must be stored under cover and in proper secondary containment. Containers must be well-labeled. It is recommended to store materials in their original containers.
<input type="checkbox"/>	C19.5	Properly store powder chemicals and materials, such as cement, in sealed container or bags that are well-labeled. Cover and immediately repair or replace damaged containers. It is recommended to store materials in their original containers.
<input type="checkbox"/>	C19.6	Properly store and dispose waste materials generated from the activity. Refer to C.29 Solid Waste Management – Hazardous Waste, C.30 Solid Waste Management - Debris, and C.32 Concrete Operation and Waste Management BMPs.
<input type="checkbox"/>	C19.7	Enclose or cover painting operations to avoid drift.
<input type="checkbox"/>	C19.8	Use application equipment that minimizes overspray.
<input type="checkbox"/>	C19.9	Clean up spills immediately. Keep ample supply of cleanup material onsite at designated locations. Do not clean surfaces or spill by hosing the area down. Eliminate the source of the spill to prevent discharge or a furtherance of an ongoing discharge.
<input type="checkbox"/>	C19.10	Use a drop cloth to collect residue from scraping or sand blasting operations and dispose of the residue properly.
<input type="checkbox"/>	C19.11	Paint chips containing lead or tributyltin are considered a hazardous waste. Refer to C.29 Solid Waste Management - Hazardous Waste BMPs.
<input type="checkbox"/>	C19.12	Remove as much paint from the brushes on painted surface. Clean painting equipment in a sink that is connected to the sanitary sewer, if possible. If not, direct all wash water into a leak-proof container or leak-pit pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation. Properly dispose of wash water.
<input type="checkbox"/>	C19.13	Designate and locate onsite wash area a minimum of 50 feet away, or as far as practicable, from storm drain inlets, open drainage facilities, or water bodies.
<input type="checkbox"/>	C19.14	Mix paints in a covered, contained area whenever possible, in case of a spill.
<input type="checkbox"/>	C19.15	Recycle/dispose according to applicable laws and regulations residual paints, solvent, lumber and other materials to the maximum extent practicable.
<input type="checkbox"/>	C19.16	Dispose containers only after all of the product has been used.
<input type="checkbox"/>	C19.17	Make sure that nearby storm drains are well marked to minimize the chance of inadvertent disposal of residual paints and other liquids.

### C.19 Structure Construction and Painting (continued)

Practice		
<input type="checkbox"/>	C19.18	Ensure that employees doing the work are properly trained.
<input type="checkbox"/>	C19.19	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.
<input type="checkbox"/>	C19.20	Retain a complete set of SDS onsite at a designed location for easy access.

Maintenance and Inspection		
<input type="checkbox"/>	M19.1	At the beginning and ending of each workday 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.
<input type="checkbox"/>	M19.3	Inspect and clean work areas at the end of each working day.



## 5.4 C.20 Vehicle and Equipment Cleaning

### Description

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning by using offsite 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 offsite 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 stormwater.
<input type="checkbox"/>	C20.2	If washing must occur onsite, use designated, bermed and lined wash areas to prevent wash water contact with stormwater, streams, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent proper disposal offsite. The Airport Manager and AIR-EE shall approve the location of wash area.
<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	Prior to cleaning, check for leaks on the equipment and repair immediately. Repair all known leaks before cleaning.
<input type="checkbox"/>	C20.6	Educate employees on pollution prevention measures.
<input type="checkbox"/>	C20.7	Avoid steam cleaning in uncontained areas. Steam cleaning can generate significant pollutant concentrations.
<input type="checkbox"/>	C20.8	Washing of personal vehicles at DOTA property is prohibited.

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

## 5.5 C.21 Vehicle and Equipment Refueling

### Description

Prevent fuel spills and leaks, and reduce their impacts to stormwater by using offsite 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 offsite 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 stormwater. For fueling a large number of vehicles or pieces of equipment, consider using an offsite fueling station. These businesses are better equipped to handle fuel and spills properly.
<input type="checkbox"/>	C21.2	If fueling must occur onsite, use designated area located way from drainage courses to prevent stormwater contamination. The Airport Manager and AIR-EE shall approve the location of fueling area and associated Spill Prevention, Control, and Countermeasure (SPCC) Plan (if applicable).
<input type="checkbox"/>	C21.3	Prepare and maintain an SPCC Plan onsite if the total oil capacity is greater than 1,320 gallons for all above-ground storage tanks (ASTs), with individual capacities equal to or greater than 55 gallons.
<input type="checkbox"/>	C21.4	Discourage “topping-off” of fuel tanks.
<input type="checkbox"/>	C21.5	Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Clean up spills immediately.
<input type="checkbox"/>	C21.6	Place a stockpile of spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	C21.7	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove and dispose of the absorbent materials promptly and properly.
<input type="checkbox"/>	C21.8	Comply with all federal and state requirements regarding ASTs, including the requirement for secondary containment.
<input type="checkbox"/>	C21.9	Avoid mobile fueling of construction equipment at the site. If possible, transport the equipment to designated fueling areas.
<input type="checkbox"/>	C21.10	Train employees in proper fueling and cleanup procedures.
<input type="checkbox"/>	C21.11	Store gasoline, diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in watertight containers, covered, and provide secondary containment. Containers are to be well-labeled. Dispose of containers only after all the product has been used. Dispose or recycle according to federal, state, and local requirements.

**C.21 Vehicle and Equipment Refueling**  
(continued)

Maintenance and Inspection		
<input type="checkbox"/>	M21.1	Inspect fueling areas and facilities at the end of each workday.
<input type="checkbox"/>	M21.2	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
<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.
<input type="checkbox"/>	M21.5	Report all spills in accordance with the SPCC Plan or C.35 Spill Response Practices, whichever is stricter.

## 5.6 C.22 Vehicle and Equipment Operation and Maintenance

### Description

Outdoor vehicle or equipment maintenance is a potentially significant source of water pollution. Activities that can contaminate stormwater 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.

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment operation and maintenance by using offsite 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

None.

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 offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Maintaining vehicles and equipment outdoors or in areas where vehicle or equipment fluids may spill or leak onto the ground can pollute stormwater.
<input type="checkbox"/>	C22.3	If maintenance must occur onsite, use designated areas, located away from drainage courses, to prevent the contamination of stormwater runoff. Berm or protect maintenance areas to prevent runoff from entering the area. The Airport Manager and AIR-EE shall approve the location of the maintenance area, including a plan on how the area will be cleaned up and the materials disposed.
<input type="checkbox"/>	C22.4	Always use secondary containment, such as an anchored drip pan or drop cloth, to capture 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 absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
<input type="checkbox"/>	C22.7	Inspect onsite vehicles and equipment daily for leaks, and repair immediately.
<input type="checkbox"/>	C22.8	Inspect incoming vehicles and equipment (including delivery trucks, and employees' vehicles) regularly for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
<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	Dispose of all wastes from vehicle maintenance activities properly. Recycle waste materials to the extent practicable.
<input type="checkbox"/>	C22.11	Train employees on proper maintenance and spill cleanup. Ensure employees are knowledgeable to the locations of the spill kits and SDS.
<input type="checkbox"/>	C22.12	Place drip pans or similar containment device under vehicles or equipment when not in use or operating in a stationary position, such as light plants and trailer-mounted generators, to capture/absorb any potential leaks and prevent spills.
<input type="checkbox"/>	C22.13	Do not allow accumulation of contents and rainwater to overflow from drip pans or containment device.

## C.22 Vehicle and Equipment Operation and Maintenance (continued)

Practice		
<input type="checkbox"/>	C22.14	If excess grease/oil is applied to equipment or evidence of a leak is observed on the equipment, prevent area from contact with rainwater or contain rainwater which contact grease/oil or leaked fluid with drip pans or similar containment device.
<input type="checkbox"/>	C22.15	Do not clean surfaces or spills by hosing the area down.
<input type="checkbox"/>	C22.16	Store diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in watertight containers, provide cover, and secondary containment. Do not remove original product labels. Have SDS located onsite and ensure employees are knowledgeable of the location. Follow BMPs in C.26 Material Delivery and Storage for storage of other materials.
<input type="checkbox"/>	C22.17	Oil filter disposed in trash cans or dumpsters can leak oil and pollute stormwater. 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"/>	C22.18	Dispose of containers only after all the product has been used. Deliver and store only sufficient quantity of products that is needed. Do not store excessive quantity of products.
<input type="checkbox"/>	C22.19	Dispose of or recycle oil or oily wastes according to federal, state, and local requirements.
<input type="checkbox"/>	C22.20	Comply with all federal and state requirements regarding AST, including the requirement for secondary containment if the facility operations qualify for an SPCC Plan. Maintain an SPCC Plan onsite.
<input type="checkbox"/>	C22.21	Operation and use of equipment and vehicles that show excessive emissions of exhaust gases shall not be allowed until corrective repairs or adjustments are made.
<input type="checkbox"/>	C22.22	Furnish construction equipment with suitable mufflers to maintain noise levels complying with applicable regulations.

Maintenance and Inspection		
<input type="checkbox"/>	M22.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
<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	Inspect drip pans or drop cloths daily. Clean, remove and properly dispose of the contents and any rainwater accumulation.
<input type="checkbox"/>	M22.4	If a spill occurs, clean it up immediately and properly dispose of the contaminated soil and cleanup materials.
<input type="checkbox"/>	M22.5	Report spills of a certain size (volume of greater than 25 gallons of oil not contained within 72 hours) per Hawaii Administrative Rules (HAR) 11-451 to DOH Hazard Evaluation and Emergency Response (HEER) and the National Response Center (NRC). Refer to C.35 Spill Response Practices.
<input type="checkbox"/>	M22.6	Procure a spill response contractor for any large spills that cannot be contained.
<input type="checkbox"/>	M22.7	Maintain waste fluid containers in leak proof condition in secondary containment and in a covered area.
<input type="checkbox"/>	M22.8	Inspect equipment maintenance areas regularly.
<input type="checkbox"/>	M22.9	Train employees on proper maintenance of the equipment and spill procedures.

## 5.7 C.23 Concrete Curing Water and Compounds Management

### Description

Concrete curing is used in the construction of structure such as bridges, walls, columns, beams, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. Proper procedures reduce or eliminate the contamination of stormwater runoff during concrete curing.

### Limitations

None.

Practice		
<input type="checkbox"/>	C23.1	Use proper storage and handling techniques for concrete curing compounds. Refer to C.26 Material Delivery and Storage BMPs.
<input type="checkbox"/>	C23.2	Protect drain inlets prior to the application of curing compounds.
<input type="checkbox"/>	C23.3	Refer to C.34 Spill Prevention and Control BMPs.
<input type="checkbox"/>	C23.4	Direct cure water away from inlets and watercourses to collection areas for infiltration or other means of removal in accordance with all applicable permits.
<input type="checkbox"/>	C23.5	Collect cure water at the top of slopes and transport or dispose of water in a non-erodible manner. Refer to C.4 Earth Dike and C.5 Temporary Drains and Swales BMPs.
<input type="checkbox"/>	C23.6	Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.
<input type="checkbox"/>	C23.7	Avoid overspray of the curing compound. Apply curing compound per manufacturer's recommended application rate and coverage.
<input type="checkbox"/>	C23.8	Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.
<input type="checkbox"/>	C23.9	Avoid or minimize applying curing compound in windy conditions. Maintain proper distance between sprayer tip and concrete surface to minimize dissipation of the curing compound due to wind.

Maintenance and Inspection		
<input type="checkbox"/>	M23.1	Inspect and verify that activity-based BMPs are in-place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
<input type="checkbox"/>	M23.2	Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
<input type="checkbox"/>	M23.3	Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
<input type="checkbox"/>	M23.4	Inspect cure containers and spraying equipment for leaks.

## 5.8 C.24 Hydrotesting Effluent Management

### Description

Construction of new water lines may require hydrotesting and water-flushing of the pipes to clear it of all debris, sediment, and other pollutant that may have entered the pipe during manufacture, transport, and installation. In addition, new potable water systems require chlorination of the pipes to eliminate harmful bacteria in the pipes. The chlorinated waters are also harmful to aquatic life and plants.

Proper procedures reduce or eliminate the contamination of surface waters during hydrotesting, flushing and chlorination.

### Limitations

- High levels of chlorine in water used to disinfect water pipe can kill aquatic life and plants.
- Flushing waters can contain sediment, chemical and residual oils that enter the pipe prior to and during installation.
- The volume of water during flushing and chlorination is depended upon the diameter of the pipe, length of pipe, rate of discharge and time. This volume of water must be considered when determining the size of the collection area and discharge. Flooding caused by the release of the water shall be prevented.

Practice		
<input type="checkbox"/>	C24.1	Direct chlorinated water away from inlets and watercourses to collection areas for infiltration or other means of removal in accordance with all applicable permits. Do not direct chlorinated water to vegetated areas.
<input type="checkbox"/>	C24.2	Collect and dechlorinate-treat chlorinated waters prior to it reaching any surface water and drainage system.
<input type="checkbox"/>	C24.3	Properly deliver and store chemicals. Refer to C.26 Material Delivery and Storage BMPs.
<input type="checkbox"/>	C24.4	Properly handle chemicals per the manufacturer's procedures and precautions. Refer to C.27 Material Use BMPs.
<input type="checkbox"/>	C24.5	Prior to flushing the water line, provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls, as applicable.
<input type="checkbox"/>	C24.6	While flushing, treat, trap or collect sediment, particles, and any residual oils from the waters.
<input type="checkbox"/>	C24.7	If the contractor elects to flush waterline or discharge effluent into State waters or drainage system, the contractor shall prepare and obtain DOTA's acceptance of a NOI/NPDES Permit Form F application and DOTA Discharge Permit for Construction Activities for DOTA submittal to DOH CWB at least 30 calendar days prior to the start of Hydrotesting Activities, if necessary. Site-specific BMPs must be included in the NOI/NPDES Permit Form F submittal. Refer to BMPs listed in C.17 Dewatering Operations.

Maintenance and Inspection		
<input type="checkbox"/>	M24.1	Inspect stored material and chemicals for leaks and damage, daily.

## 5.9 C.25 Water-Jet Wash and Hydro-Demolition Water Management

### Description

Prevent the discharge of contaminants released from concrete or impervious surfaces during cleaning and demolition into the drainage system and surface water.

### Limitations

- Water-jet washing may reduce or eliminate the contamination of stormwater runoff during rain events when used to clean impervious surfaces, potentially containing residue oil, chemicals, and fines. Jetting transfers these contaminants to the jetting wash waters. Proper procedures during water-jet washing will prevent contaminants from entering the storm drainage system and surface waters.
- Hydro-demolition wastewater, similar to concrete wash water, may have a high pH and contain metals, chemicals and fines.

Practice		
<input type="checkbox"/>	C25.1	For Water-Jet Wash Water used to clean vehicles and equipment, use off-site wash racks or commercial washing facilities, when practical.
<input type="checkbox"/>	C25.2	Refer to C.20 Vehicle and Equipment Cleaning BMPs.
<input type="checkbox"/>	C25.3	For Water-Jet wash water used to clean impervious surfaces and Hydro-demolition wastewater, the runoff shall not be allowed to flow into storm drainage structures or surface waters.
<input type="checkbox"/>	C25.4	Prior to water-jetting and hydro-demolition, clean surfaces by other means, if practicable, such as sweep or vacuuming.
<input type="checkbox"/>	C25.5	Prior to operation, check area for any spills. Clean spill prior to water-jetting.
<input type="checkbox"/>	C25.6	Collect or contain wastewater and properly dispose or allow to evaporate. Properly dispose of all sediment and residual solids.
<input type="checkbox"/>	C25.7	For Hydro-Demolition, properly collect, stockpile, and dispose of solid waste. Refer to C.28 Protection of Stockpiles, C.30 Solid Waste Management - Debris, and C.32 Concrete Operation and Waste Management BMPs.

Maintenance and Inspection		
<input type="checkbox"/>	M25.1	Check storage and containment of wastewater collection facilities daily for leaks and damage. Repair immediately.



## 6.0 MATERIAL AND WASTE MANAGEMENT POLLUTION CONTROL BMPS

### 6.1 C.26 Material Delivery and Storage

#### Description

Prevent or reduce the discharge of pollutants to stormwater from material delivery and storage by minimizing the storage of hazardous materials onsite, 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"/>	C26.1	Designate areas of the construction site for material delivery and storage. <ul style="list-style-type: none"><li>• Locate storage areas near construction entrances, and away from storm drains and waterways.</li><li>• Avoid transporting potential pollutants near drainage paths or waterways.</li><li>• Surround storage areas for potential pollutants with earth berms or other approved containment devices.</li><li>• Store potential pollutants in a paved area, if available.</li></ul>
<input type="checkbox"/>	C26.2	Store reactive, ignitable, or flammable liquids in compliance with the local fire codes. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. Refer to the Flammable and Combustible Liquid Code, National Fire Protection Association, NFPA 30.
<input type="checkbox"/>	C26.3	Keep an accurate, up-to-date inventory of materials used at work sites. <ul style="list-style-type: none"><li>• Minimize onsite inventory.</li><li>• Minimize storage of hazardous materials.</li><li>• Store materials in covered area or under covering.</li></ul>
<input type="checkbox"/>	C26.4	Handle hazardous materials as infrequently as possible.
<input type="checkbox"/>	C26.5	Maintain SDS at the work site. Keep SDS at a designated location and ensure employees are knowledgeable of the location.
<input type="checkbox"/>	C26.6	Do not store material directly on the ground. Place materials on a pallet or dunnage, and when possible, in secondary containment.
<input type="checkbox"/>	C26.7	Store all liquid materials within secondary containment. Cover or store under cover.
<input type="checkbox"/>	C26.8	Provide secondary containment with adequate containment volume able to capture 100 percent of the capacity of the single largest container, if stored indoors, or 100 percent of the capacity of the single largest container plus the freeboard from the precipitation of a 25-year storm event, if stored outdoors.
<input type="checkbox"/>	C26.9	Ensure the secondary containment is free of accumulation of rainwater and spills, and covered or stored under cover. In the event of spills or leaks, accumulated rainwater and spill shall be collected and placed in appropriate containers. These liquids shall be considered hazardous waste unless testing determines them to be non-hazardous. Properly dispose or recycle all liquids according to federal, state, and local requirements.
<input type="checkbox"/>	C26.10	Store bagged and boxed materials on pallets or dunnage. Provide protection from wind, rain, and runoff. Store under cover or covered.
<input type="checkbox"/>	C26.11	Prevent contact with wind, rain, and runoff for powder-form materials such as cement. Check packaging and containers for damage, and immediately repair, replace, or remove from site.

## C.26 Material Delivery and Storage (continued)

Practice		
<input type="checkbox"/>	C26.12	Store metal materials, such as reinforcing steel and dowels, on pallets or dunnage, and under cover, covered, or in containers to prevent contact with rain and runoff.
<input type="checkbox"/>	C26.13	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 within secondary containment.
<input type="checkbox"/>	C26.14	Keep chemicals in their original containers and well labeled. Labels shall be clearly and easily legible. Position container with label for easy access and viewing. Containers that are empty shall be labeled as "EMPTY." Containers with non-potable water shall be labeled as "Non-Potable Water."
<input type="checkbox"/>	C26.15	Provide sufficient separation between stored materials to allow for spill monitoring, spill cleanup, and emergency response access.
<input type="checkbox"/>	C26.16	Ensure that employees handling potential pollutants have received adequate training regarding the hazards and proper handling procedures for the materials.
<input type="checkbox"/>	C26.17	Train employees in emergency spill cleanup procedures are to be present when dangerous materials or liquid chemicals are unloaded.
<input type="checkbox"/>	C26.18	Ensure spill kits are to be readily available onsite at designated locations.
<input type="checkbox"/>	C26.19	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.
<input type="checkbox"/>	C26.20	Materials are to be covered, enclosed, or in their sealed containers while being transported to and from the site, and on the site. Loads are to be properly secured to prevent tipping, shifting, or movement of the material during transport.
<input type="checkbox"/>	C26.21	Do not store material immediately abutting or on top of BMP measures and devices which could affect or prevent the performance and inspection of the BMP measure or device.

Maintenance and Inspection		
<input type="checkbox"/>	M26.1	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
<input type="checkbox"/>	M26.2	Inspect perimeter controls at the end of each workday. Repair any damages immediately.
<input type="checkbox"/>	M26.3	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.

## 6.2 C.27 Material Use

### Description

Prevent or reduce the discharge of pollutants to stormwater from material use by using alternative products, minimizing hazardous material use onsite, 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"/>	C27.1	Use less hazardous, alternative materials as much as possible.
<input type="checkbox"/>	C27.2	Minimize use of hazardous materials onsite. Buy recycled or less hazardous products to the maximum extent practicable.
<input type="checkbox"/>	C27.3	Use materials only where and when needed to complete the work.
<input type="checkbox"/>	C27.4	Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals. Keep SDS at a designated location and ensure employees are knowledgeable of the location.
<input type="checkbox"/>	C27.5	Train personnel applying pesticides on their usage. The State Department of Agriculture, Pesticides Branch, licenses pesticide dealers, certifies pesticide applicators, and conducts onsite inspections.
<input type="checkbox"/>	C27.6	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 offsite by runoff. Do not apply these chemicals just before it rains.
<input type="checkbox"/>	C27.7	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 onsite for review by DOTA inspectors.
<input type="checkbox"/>	C27.8	Train employees in proper material use.

Maintenance and Inspection		
<input type="checkbox"/>	M27.1	Spot check employees monthly to ensure proper practices are being performed.
<input type="checkbox"/>	M27.2	Ensure that the SDS are maintained for all chemicals used.

## 6.3 C.28 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"/>	C28.1	Locate stockpiles a minimum of 50 feet, or as far as practicable, from waterways, drainage facilities, concentrated runoff, and outside of any natural buffers identified on the Stormwater Pollution Prevention Plan (SWPPP).
<input type="checkbox"/>	C28.2	Avoid sloping ground for locating stockpiles.
<input type="checkbox"/>	C28.3	Minimize stockpile height.
<input type="checkbox"/>	C28.4	Provide earth dikes or other physical diversion to protect stockpiles from runoff and run-on.
<input type="checkbox"/>	C28.5	Provide silt fences or other sediment control measures at the toe of the stock pile to mitigate runoff during rain events.
<input type="checkbox"/>	C28.6	Cover stockpiles with plastic, mulch, or provide other stabilization measures to protect from wind and prevent erosion during rain events.
<input type="checkbox"/>	C28.7	Provide adequate setback distance from lot lines.
<input type="checkbox"/>	C28.8	Provide sediment basins where required.
<input type="checkbox"/>	C28.9	Contain and securely protect stockpiles from the wind.
<input type="checkbox"/>	C28.10	Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or State waters.
<input type="checkbox"/>	C28.11	Provide drain inlet protection devices and/or perimeter sediment controls, as applicable.
<input type="checkbox"/>	C28.12	All measures (i.e., cover, sediment control measures) shall be in-place immediately upon creation of the stockpile and at all times that the stockpile is inactive. Inactive is defined as all times other than when addition to or removal of material to the stockpile is actively occurring. All measures shall be in-place by the end of each day or work shift.
<input type="checkbox"/>	C28.13	Physically separate the stockpiles and their stormwater controls from other stormwater controls that are implemented on the site.
<input type="checkbox"/>	C28.14	Ensure stockpiles, at any time and manner, shall not endanger traffic or shall not in any other way be detrimental to the completed work, health, or the operation of the airport.

Maintenance and Inspection		
<input type="checkbox"/>	M28.1	Maintain and inspect BMP measures according to the type(s) being used.

## 6.4 C.29 Solid Waste Management - Hazardous Waste

### Description

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

### Limitations

None.

Practice		
<input type="checkbox"/>	C29.1	Determine if a material or item is a potentially hazardous waste: <ul style="list-style-type: none"> <li>• Check label and shipping papers.</li> <li>• Look for words such as hazardous, danger, caustic, corrosive, flammable, carcinogenic, or toxic.</li> <li>• Check the SDS from the manufacturer of the product. The SDS shall kept be onsite at a designated location and readily available.</li> </ul>
<b>MATERIAL USE:</b>		
<input type="checkbox"/>	C29.2	Use the entire product before disposing of the container.
<input type="checkbox"/>	C29.3	Do not remove the original product label; it contains important safety and disposal information.
<input type="checkbox"/>	C29.4	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 the federal and state regulations.
<input type="checkbox"/>	C29.5	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.
<b>WASTE RECYCLING / DISPOSAL:</b>		
<input type="checkbox"/>	C29.6	Separate contaminated clean up materials from construction and demolition (C&D) wastes.
<input type="checkbox"/>	C29.7	Select designated hazardous waste collection areas onsite.
<input type="checkbox"/>	C29.8	Store hazardous materials and wastes in covered containers and protected from vandalism.
<input type="checkbox"/>	C29.9	Place hazardous waste containers in secondary containment.
<input type="checkbox"/>	C29.10	Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
<input type="checkbox"/>	C29.11	Recycle any useful material such as used oil or e-waste.
<input type="checkbox"/>	C29.12	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"/>	C29.13	Arrange for regular waste collection before containers overflow.
<input type="checkbox"/>	C29.14	Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of as required by regulations. A licensed hazardous waste transporter must dispose of hazardous waste that cannot be reused or recycled.

**C.29 Solid Waste Management - Hazardous Waste**  
(continued)

Practice		
<b>TRAINING:</b>		
<input type="checkbox"/>	C29.15	Train employees in proper hazardous waste management.
<input type="checkbox"/>	C29.16	Place warning signs in areas recently treated with chemicals.
<input type="checkbox"/>	C29.17	Keep spill cleanup materials where they are readily accessible.
<input type="checkbox"/>	C29.18	Clean up any spilled material immediately.

Maintenance and Inspection		
<input type="checkbox"/>	M29.1	Monitor onsite hazardous waste storage and disposal on a daily basis.
<input type="checkbox"/>	M29.2	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
<input type="checkbox"/>	M29.3	Inspect perimeter controls at the end of each workday. Repair any damages immediately.
<input type="checkbox"/>	M29.4	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.
<input type="checkbox"/>	M29.5	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 SDS and facility spill response plan. Report all spills to the Airport Manager.
<input type="checkbox"/>	M29.6	Report spills of a certain size (volume of greater than 25 gallons of oil not contained within 72 hours) per HAR 11-451 to DOH HEER and the NRC. Refer to C.35 Spill Response Practices.
<input type="checkbox"/>	M29.7	Procure a spill response contractor for any large spills that cannot be contained.
<input type="checkbox"/>	M29.8	Provide two copies of the hazardous waste manifest to the Construction Manager.

## 6.5 C.30 Solid Waste Management - Debris

### Description

Prevent or reduce discharge of pollutants to the land, groundwater, and in stormwater from solid waste or C&D 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

- All waste debris and trash that can enter the AOA are Foreign Object Debris (FOD) and do not belong in or near aircrafts. FOD can result in injury to airport and airline personnel, and damage aircrafts. FOD-prevention is a major priority for safe airport operation.

Practice		
<input type="checkbox"/>	C30.1	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. Separate contaminated clean up materials from C&D Wastes.
<input type="checkbox"/>	C30.2	Place inert fill material such that it will not be subject to erosion from runoff. [Inert Fill Material is defined as earth, soil, rock, or rock-like material will not decompose or produce leachate]. Refer to C.28 Protection of Stockpiles for additional requirements.
<input type="checkbox"/>	C30.3	Recycle or reuse C&D waste whenever practical.
<input type="checkbox"/>	C30.4	Select designated waste collection areas onsite.
<input type="checkbox"/>	C30.5	Provide only watertight dumpsters. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
<input type="checkbox"/>	C30.6	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"/>	C30.7	Obtain additional containers and more frequent pickup during the demolition phase of a project.
<input type="checkbox"/>	C30.8	Collect site trash daily, especially during rainy and windy conditions.
<input type="checkbox"/>	C30.9	Dispose of trash into designated waste containers.
<input type="checkbox"/>	C30.10	Ensure 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"/>	C30.11	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. Metal can be recycled.
<input type="checkbox"/>	C30.12	Provide waste containers of sufficient size and number to contain C&D waste. Containers shall be of good integrity with no holes.
<input type="checkbox"/>	C30.13	Schedule solid waste collection regularly. Empty waste containers weekly or when they are two-thirds full, whichever is sooner.
<input type="checkbox"/>	C30.14	Do not allow containers to overflow. Clean up immediately if they do.
<input type="checkbox"/>	C30.15	Do not hose out dumpsters on the construction site. Leave dumpster cleaning to trash hauling employees.

**C.30 Solid Waste Management – Debris**  
(continued)

Practice		
<input type="checkbox"/>	C30.16	Require haulers to cover truck beds and waste containers for dust suppression.
<input type="checkbox"/>	C30.17	Require truck beds to maintain at least two feet of freeboard for dust suppression.
<input type="checkbox"/>	C30.18	Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls, as applicable.
<input type="checkbox"/>	C30.19	For C&D waste, site clearing debris, or dredged soils, submit a Solid Waste Disclosure Form to the DOH Solid Waste Section. Provide a copy of this form to the DOTA Engineer.

Maintenance and Inspection		
<input type="checkbox"/>	M30.1	Inspect entire site for litter and debris on a daily basis.
<input type="checkbox"/>	M30.2	Inspect the construction waste and recycling areas regularly.
<input type="checkbox"/>	M30.3	Remove solid waste collected at the Erosion and sediment control devices promptly.
<input type="checkbox"/>	M30.4	If a container does spill, clean up immediately.
<input type="checkbox"/>	M30.5	Train employees in proper solid waste management.



## 6.6 C.31 Contaminated Soil Management

### Description

Prevent or reduce the discharge of pollutants to stormwater and to the land from contaminated soil. Examine highly acidic or alkaline soils by conducting pre-construction surveys, inspect excavations regularly, and remediate 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 offsite to other than permitted remediation facilities, use transporters approved by the DOH Solid and Hazardous Waste Branch. DOH Solid and Hazardous Waste Branch must be notified 48 hours before any PCS loads are taken to DOH-permitted remediation facilities.
- The presence of contaminated soil may indicate contaminated groundwater as well. Refer to C.17 Dewatering Operations to address contaminated groundwater.
- Contamination may be identified through discoloration, odors, or sheen on the groundwater. Visual and/or olfactory observations should be verified through sampling of the potentially affected media.

Practice		
<input type="checkbox"/>	C31.1	Conduct thorough site planning including pre-construction review of in-house records regarding previous work in the area.
<input type="checkbox"/>	C31.2	Inspect soils for evidence of contamination, such as discoloration, odors, difference in soil properties, abandoned underground tanks or pipes, or buried debris etc.
<input type="checkbox"/>	C31.3	Notify the DOH, Clean Water Branch (CWB) at (808) 586-4309 at least 90 days prior to disturbing contaminated soil or dewatering from known areas of contamination.
<input type="checkbox"/>	C31.4	Notify the DOTA Engineer and AIR-EE when contaminated media is encountered.
<input type="checkbox"/>	C31.5	Make notifications in accordance with the State Contingency Plan, if it is a reportable quantity <ol style="list-style-type: none"><li>DOH, Hazard Evaluation and Emergency Response (HEER) Office (586-4249).</li><li>Local Emergency Planning Committee (LEPC) (723-8958).</li><li>National Response Center (800) 424-8802.</li></ol> Prepare and submit any associated written documentation as required by these agencies and provide a copy to AIR-EE.
<input type="checkbox"/>	C31.6	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"/>	C31.7	Test suspect soils at certified laboratories. Consult with a Certified Industrial Hygienist (CIH) for the proper handling and disposal of the contaminated soil, if applicable. Specific protection requirement shall be determined by the CIH.
<input type="checkbox"/>	C31.8	If the soil is contaminated, dispose per all applicable regulations. Contaminated soils must be disposed of at DOH-permitted facility by DOH-approved transporter. Ensure that the final disposal location for contaminated soils is approved by the DOTA Engineer and documented.
<input type="checkbox"/>	C31.9	Secure required DOH permits. Submit any associated written documentation required by these agencies to DOTA Engineer and AIR-EE.

### C.31 Contaminated Soil Management (continued)

Practice		
<input type="checkbox"/>	C31.10	<p>When temporarily storing contaminated soil onsite:</p> <ul style="list-style-type: none"> <li>a. Ensure stockpiles, at any time and manner, shall not endanger traffic or shall not in any other way be detrimental to the completed work, health, or the operation of the airport.</li> <li>b. Place contaminated soil and material on impermeable liner or device.</li> <li>c. Contain contaminated soil and material by surrounding with impermeable lined berms and cover exposed contaminated soil with plastic sheets.</li> <li>d. Provide physical diversion to protect stockpiles from concentrated runoff.</li> <li>e. Locate stockpiles a minimum of 50 feet or as far as practicable from concentrated runoff, drainage structures/facilities, or outside of any natural buffers identified on the SWPPP.</li> <li>f. Avoid sloping ground for locating stockpile and minimize stockpile height.</li> <li>g. Manage contaminated soil or materials properly to minimize exposure by workers.</li> <li>h. Contain any dewatering effluent or wastewater generated during decontamination of equipment and dispose properly.</li> <li>i. Ensure all control measures shall be in-place or restored by the end of each day.</li> <li>j. Refer to C.28 Protection of Stockpiles for additional requirements, as applicable.</li> </ul>
Maintenance and Inspection		
<input type="checkbox"/>	M31.1	Monitor onsite contaminated soil storage and disposal on a daily basis.
<input type="checkbox"/>	M31.2	Inspect contaminated soil storage areas on a daily basis.

## 6.7 C.32 Concrete Operation and Waste Management

### Description

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees. Concrete waste includes, but not limited to, concrete, mortar, plaster, stucco, and grout.

Concrete washout water is a slurry containing toxic metals. It is also caustic and corrosive, having a high pH.

### Limitations

- Offsite washout of concrete wastes may not always be possible.

Practice		
<input type="checkbox"/>	C32.1	Store dry and wet material under cover, away from drainage area.
<input type="checkbox"/>	C32.2	Avoid mixing excess amounts of fresh concrete or cement onsite.
<input type="checkbox"/>	C32.3	Perform washout of concrete trucks offsite or in designated areas only. The Airport Manager and AIR-EE shall approve the location of wash area, including a plan on how the area will be cleaned up and the waste materials disposed.
<input type="checkbox"/>	C32.4	Do not wash concrete trucks into storm drains, open ditches, streets, or streams.
<input type="checkbox"/>	C32.5	Do not allow excess concrete to be dumped onsite, except in designated areas. AIR-EE and the Airport Manager shall approve the location of dump area, including a plan on how the area will be cleaned up and the waste materials disposed.
<input type="checkbox"/>	C32.6	For onsite washout: <ul style="list-style-type: none"><li>• 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;</li><li>• Line the washout with a minimum of 10 mil polyethylene sheeting that is 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.</li><li>• Washout wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.</li><li>• Provide a minimum freeboard of 4 inches at the washout facilities to account for rain events.</li></ul>
<input type="checkbox"/>	C32.7	When sandblasting, avoid creating runoff by draining the water to a bermed or level area.
<input type="checkbox"/>	C32.8	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"/>	C32.9	Train employees in proper concrete waste management.
<input type="checkbox"/>	C32.10	Collect wash water and all concrete waste/debris in a concrete washout system bin. Allow wash water to evaporate or properly disposed at an appropriate treatment facility. Allow concrete to harden, broken up, and, then, properly disposed.
<input type="checkbox"/>	C32.11	Do not dump liquid wastes into storm drainage system or ground.
<input type="checkbox"/>	C32.12	Follow requirements of C.28 Protection of Stockpiles when storing concrete solid waste onsite.

### C.32 Concrete Operation and Waste Management (continued)

Practice		
<input type="checkbox"/>	C32.13	When heavy rains are forecasted, monitor the washout's liquid level. Cover the washout or pump out the liquid from the washout to avoid an overflow during the storm.
<input type="checkbox"/>	C32.14	Dispose of liquid and solid concrete wastes in compliance with the federal, state, and local standards. Refer to C.30 Solid Waste Management - Debris, for additional requirement for disposal and transportation, as applicable.
<input type="checkbox"/>	C32.15	If concrete involves an onsite batch plant, follow the stormwater permitting requirements for industrial activities. The Airport Manager must approve the location of the batch plant. Locate the batch plant away from drainage facilities and drain paths. Comply with applicable federal, state and local regulations.
<input type="checkbox"/>	C32.16	When saw-cutting concrete, collect the sawcut slurry and remove from the site by vacuuming. Avoid saw-cutting during wet weather. Cover or barricade storm drains during saw-cutting to contain slurry. Slurry may be placed in a temporary pit or container, as described in this section, to promote evaporation.
<input type="checkbox"/>	C32.17	Wastewater from mortar, plaster, stucco, and grout shall not be allowed to flow into drainage structures or surface waters. Direct all waters to a leak-proof pit or container, as described in this section.
<input type="checkbox"/>	C32.18	Remove and properly dispose any significant residual material from concrete, mortar, plaster, stucco, and grout remaining on the ground after the completion of construction. If the residual materials contaminate the soil, then, the contaminated soil shall also be removed and properly disposed.

Maintenance and Inspection		
<input type="checkbox"/>	M32.1	Inspect concrete washout facilities after heavy rains and at the end of each workweek. Repair any damages before the next time it is used.
<input type="checkbox"/>	M32.2	Cleanout the facility or construct a new one when it reaches 75 percent capacity or 4 inches of freeboard.

## 6.8 C.33 Sanitary/Septic Waste Management

### Description

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

### Limitations

None.

Practice		
<input type="checkbox"/>	C33.1	Locate sanitary facilities in a convenient location, away from drainage facilities, open ditches and water bodies.
<input type="checkbox"/>	C33.2	Never discharge untreated wastewater to the ground.
<input type="checkbox"/>	C33.3	If using an onsite disposal system, such as a septic system, comply with DOH requirements.
<input type="checkbox"/>	C33.4	Temporary sanitary facilities that discharge to the sanitary sewer system are to be properly connected to avoid illicit discharges.
<input type="checkbox"/>	C33.5	If discharging to the sanitary sewer, contact the local wastewater treatment plant for their requirements.
<input type="checkbox"/>	C33.6	Provide sufficient number of sanitary facilities based upon size of labor work force and usage.
<input type="checkbox"/>	C33.7	Arrange for regular waste collection by a licensed transporter before facilities overflow.
<input type="checkbox"/>	C33.8	Ensure that the triturator training is completed prior to using DOTA triturator. Contact AIR-EE for information regarding the training.
<input type="checkbox"/>	C33.9	Position sanitary facilities so they are secure and will not be tipped over or knocked down.
<input type="checkbox"/>	C33.10	When servicing facility, prevent spill of cleaning solutions, cleaning wastewater, and sanitary waste.
<input type="checkbox"/>	C33.11	Clean up spill immediately. For sanitary waste spill, disinfect area of spill after clean up. Do not over-apply disinfectant and prevent from discharging to drainage system, open ditches, and waters bodies.

Maintenance and Inspection		
<input type="checkbox"/>	M33.1	Inspect sanitary/septic waste storage facility at the end of each workweek.
<input type="checkbox"/>	M33.2	Monitor disposal operations for spills.
<input type="checkbox"/>	M33.3	Maintain sanitary/septic facilities in good working order using a licensed service provider.

## 6.9 C.34 Spill Prevention and Control

### Description

Prevent or reduce the discharge of pollutants to stormwater 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 (For HNL, Code 22) and AIR-EE. 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 absorbent 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.

If necessary, use a private spill cleanup company.

### Limitations

None.

Practice		
<input type="checkbox"/>	C34.1	Store hazardous materials and wastes in covered containers or in a covered area, within secondary containment and protected from vandalism.
<input type="checkbox"/>	C34.2	Place a stockpile of spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	C34.3	Train employees in spill prevention and cleanup.
<input type="checkbox"/>	C34.4	Designate responsible individuals.
<input type="checkbox"/>	C34.5	Review spill response requirements at each work site.
<input type="checkbox"/>	C34.6	Clean up leaks and spills immediately.
<input type="checkbox"/>	C34.7	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 absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous.
<input type="checkbox"/>	C34.8	Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. Refer to C.30 Solid Waste Management -Debris for BMPs.
<input type="checkbox"/>	C34.9	Report significant spills to the United States (U.S.) Coast Guard, DOH HEER Office, and City and County of agencies, such as the Fire Department; they can assist in cleanup.
<input type="checkbox"/>	C34.10	Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the NRC at (800) 424-8802 (24 hours). Notify DOH CWB at (808) 586-4309 and AIR-EE at (808) 838-8656 if the spill reached storm drains.
<input type="checkbox"/>	C34.11	If repair or maintenance must occur onsite, refer to C.22 Vehicle and Equipment Operation and Maintenance BMPs.
<input type="checkbox"/>	C34.12	Place drip pans or absorbent materials under all equipment when not in use.
<input type="checkbox"/>	C34.13	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
<input type="checkbox"/>	C34.14	Transfer used fluids to the proper waste or recycling drums promptly. Don't leave full drip pans or other open containers lying around.

### C.34 Spill Prevention and Control (continued)

Practice		
<input type="checkbox"/>	C34.15	Oil filter disposed of in trash cans or dumpsters can leak oil and pollute stormwater. 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"/>	C34.16	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"/>	C34.17	If fueling must occur onsite, refer to C.21 Vehicle and Equipment Refueling BMPs.

Maintenance and Inspection		
<input type="checkbox"/>	M34.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
<input type="checkbox"/>	M34.2	Remove any products and fluid collected in drip pans or other secondary containment devices promptly.
<input type="checkbox"/>	M34.3	Implement mandatory monthly Good Housekeeping/BMP refresher classes for employees.

## 6.10 C.35 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 DOTA right-of-way by DOTA and contract personnel. The Maintenance Baseyard and tenant facility stormwater pollution control plans will also contain information about spills in their respective areas.

Report all spills to the Airport Duty Manager and AIR-EE. 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 absorbent 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 EC until the Airport Manager or his representative assumes the role of EC.

### Limitations

None.

Practice		
<input type="checkbox"/>	C35.1	Stop work.
<input type="checkbox"/>	C35.2	Shut down pumps and equipment and secure valves and work operations.
<input type="checkbox"/>	C35.3	Shut down any nearby propane tanks.
<input type="checkbox"/>	C35.4	Move away from the affected area.
<input type="checkbox"/>	C35.5	Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
<input type="checkbox"/>	C35.6	Keep non-essential employees away from the spill area.
<input type="checkbox"/>	C35.7	Notify the EC.
<input type="checkbox"/>	C35.8	<p>The Emergency Coordinator 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"><li>• Your name, location, and how you may be reached.</li><li>• Location of the release.</li><li>• Type, quantity, and description of the release.</li><li>• Hazards of the release.</li><li>• Type of media affected (soil, asphalt, concrete, etc.).</li><li>• Rate of the release.</li><li>• Migratory direction of the release.</li><li>• Potential for fire or explosion.</li><li>• Potential for human exposure.</li><li>• Potential for migration to surface water (ocean, storm drains, etc.).</li></ul>
<input type="checkbox"/>	C35.9	Never subject yourself or other personnel to unreasonable risk of illness or injury.



### C.35 Spill Response Practices (continued)

Practice		
<input type="checkbox"/>	C35.10	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"/>	C35.11	If the decision is to “fight,” spill response personnel are to don the appropriate personal protective equipment (PPE).
<input type="checkbox"/>	C35.12	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
<input type="checkbox"/>	C35.13	Remove or isolate ignitable and incompatible materials from the area of the release.
<input type="checkbox"/>	C35.14	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"/>	C35.15	Confine the release to prevent further migration by: <ol style="list-style-type: none"> <li>1) Diking and berming using sand, soil, or other inert material;</li> <li>2) Sealing storm drains with plastic and sandbags;</li> <li>3) Placing granular sorbent or absorbent pads and booms;</li> <li>4) Diverting the chemicals from entering drains, manholes, streams, etc.; or</li> <li>5) Implementing retention techniques.</li> </ol>
<input type="checkbox"/>	C35.16	Implement proper decontamination procedures on vehicles, affected media, PPE, and equipment. This may include placing absorbent 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"/>	C35.17	All used decontamination solution, disposable PPE and affected media must be properly packaged in U.S. Department of Transportation (DOT) specified containers.
<input type="checkbox"/>	C35.18	Labeling, transportation and subsequent disposal of hazardous materials/waste must be in accordance with applicable government regulations.
<input type="checkbox"/>	C35.19	If needed, call the 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"/>	C35.20	If the release is not readily and easily controlled, evacuation may be necessary.
<input type="checkbox"/>	C35.21	If the EC decides on the “flight” option, the EC is to immediately alert and evacuate all personnel.
<input type="checkbox"/>	C35.22	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), NRC (800) 424-8802, Clean Islands Council (536-5814), and/or spill response contractors and vendors. Also notify the AIR-EE Supervisor (838-8656) in the event of large spills or spills that either enter the storm drain, canal, or ocean.
<input type="checkbox"/>	C35.23	Immediately report spills of a certain size (volume of greater than 25 gallons of oil, or any volume not contained and remediated within 72 hours) per HAR 11-451 to DOH HEER and the NRC immediately. Comply with the DOH HEER requirements. A written report shall be provided to DOH HEER within 30 calendar days of a Reportable Quantity spill cleanup. Provide copies of the written report to DOTA Engineer and AIR-EE.

### **C.35 Spill Response Practices** (continued)

<b>Practice</b>		
<input type="checkbox"/>	C35.24	Immediately report any spills reaching the storm drains to DOH CWB at (808) 586-4309. Comply with the DOH CWB requirements. A written report shall be provided to DOH CWB within 5 calendar days of a spill cleanup. Provide copies of the written report to DOTA Engineer and AIR-EE.
<input type="checkbox"/>	C35.25	Maintenance personnel are to proceed along an evacuation route to the nearest unaffected area.

<b>Maintenance and Inspection</b>		
<input type="checkbox"/>	M35.1	Implement spill response drills on a monthly basis specific to each employee's type of work and materials and equipment used.

## 6.11 C.36 Management of Materials Associated with Paint

### Description

Prevent or reduce the discharge of pollutants to stormwater and to the land from materials associated with paint through proper material use, waste disposal, and training of employees.

### Limitations

None.

Practice		
<input type="checkbox"/>	C36.1	Use proper storage and handling techniques for paint, solvents, and epoxy materials and supplies. Refer to C.26, Material Delivery and Storage BMPs.
<input type="checkbox"/>	C36.2	Store paint, solvents, and epoxy compounds in original water-tight containers over secondary containment and well-labeled. Retain a complete set of SDS onsite.
<input type="checkbox"/>	C36.3	Mix and clean paints and instruments in a covered and contained area, over secondary containment, when possible to minimize adverse impacts from spill.
<input type="checkbox"/>	C36.4	Painting areas should be contained so that drips are easily cleaned.
<input type="checkbox"/>	C36.5	When applying paint by spray, avoid over-spraying of paint. Apply paint per manufacturer's recommended application rate and coverage. Avoid or minimize applying paint in windy conditions. Maintain proper distance between sprayer tip and surface to minimize dissipation of the paint due to wind. Apply paint with brush or roller, if possible.
<input type="checkbox"/>	C36.6	Do not apply traffic paint or thermoplastic if rain is forecasted. Minimize excessive spreading or over-application of beads when applied manually to the surface of the thermoplastic.
<input type="checkbox"/>	C36.7	When painting operation is completed, clean brushes and other instruments by "painting out" brushes as much as possible or scraping off the excess paint. Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream.
<input type="checkbox"/>	C36.8	For water-based paints, wash brush and other instruments in a bucket and dispose of wash water into the sanitary sewer, where possible. If not, collect all wash water into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.
<input type="checkbox"/>	C36.9	Designate and locate onsite wash area a minimum of 50 feet or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.
<input type="checkbox"/>	C36.10	Do not dump liquid wastes into the storm drainage system.
<input type="checkbox"/>	C36.11	Oil-based paints and residue are hazardous waste. Ensure collection, removal, disposal of hazardous waste complies with regulations.
<input type="checkbox"/>	C36.12	Dispose containers only after all of the product has been used. Except for oil-based paints, all other paints can be disposed by drying, bagging, and placing with general rubbish.
<input type="checkbox"/>	C36.13	Filter and re-use thinners and solvents.
<input type="checkbox"/>	C36.14	Properly store and dispose waste materials generated from painting and structure repair and construction activities.
<input type="checkbox"/>	C36.15	Immediately clean up spills and leaks. Keep an ample supply of spill cleanup materials where they are readily accessible. Do not clean surfaces or spills by hosing the area. Eliminate the source of the spill to prevent discharge or a furtherance of an ongoing discharge.

**C.36 Spill Management of Materials Associated with Paint**  
(continued)

Practice		
<input type="checkbox"/>	C36.16	Refer to C.34 Spill Prevention and Control BMPs.
<input type="checkbox"/>	C36.17	Train employees in proper hazardous waste management and spill response.

Maintenance and Inspection		
<input type="checkbox"/>	M36.1	Inspect containers, equipment, and containment facilities for leaks.