STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1
for
STORM WATER BEST MANAGEMENT PRACTICES IMPROVEMENTS
AT MAINTENANCE BASEYARDS ON OAHU
PROJECT NO. HWY-O-02-18M

The following amendments shall be made to the Bid Documents:

The following are provided for your information.

A. PERMITS

1. Attached is a draft of the the Storm Water Pollution Prevention Plan (SWPPP) for your information. Selected contractor will be responsible for completing and updating the SWPPP.

B. MISCELLANEOUS

1. The Contractor shall coordinate his operations with the baseyard facility to establish allowable working times. The normal hours of operation of the baseyard facility are from 7:00 a.m. to 3:00 p.m. daily, except Saturdays, Sundays and observed State and Federal Holidays. The baseyard facility is secured twenty-four (24) hours a day, seven (7) days a week. Access to and within all areas of the baseyard must be provided at all time for State personnel and equipment, twenty-for (24) hours a day.

2. The deadline for all questions shall be 12:00 p.m., sixteen (16) calendar days prior to bid opening.

C. PRE-BID MEETING NOTES

Attached are the May 9, 2018 Pre-bid Meeting Notes and Attendance Sheet for your information.

Please acknowledge receipt of this Addendum No. 1 by recording the date of its receipt in the space provided on page P-4 of the Proposal.

JADE T. BUTAY
Director of Transportation

PRE-BID MEETING

PROJECT: STORM WATER BEST MANAGEMENT PRACTICES IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU

PROJECT NO: HWY-O-02-18M

DATE: MAY 9, 2018
TIME: 9:00 AM
LOCATION: OAHU DISTRICT OFFICE, 727 KAKOI STREET, HONOLULU, HAWAII, 96819

NAME: Tylor Sato

COMPANY: Dykio Contr.

PHONE/EMAIL: 372-1047 / tylers@d-sykohawaii.com

QUESTION:

Can both sites be worked on at the same?

QUESTION:

PRE-BID MEETING

PROJECT: STORM WATER BEST MANAGEMENT PRACTICES IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU

PROJECT NO: HWY-O-02-18M

DATE: MAY 9, 2018
TIME: 9:00 AM
LOCATION: OAHU DISTRICT OFFICE, 727 KAKOI STREET, HONOLULU, HAWAII, 96819

NAME: JON WHITE

COMPANY: OPERATING ENGINEERS LOCAL #3

PHONE/EMAIL: 772-3043 JON@HOEISF.COM

QUESTION:

IS THE ACCEPTANCE OF ACT 17 / FORM 1 IN THE BID DOCUMENTS?

QUESTION:

WILL HEAVY EQUIPMENT OPERATORS BE TRAINED AND QUALIFIED TO OPERATE?

PRE-BID MEETING
STORM WATER BEST MANAGEMENT PRACTICES IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
PROJECT NO. HWY-O-02-18M
5/9/2018
9:00 AM - 9:18 AM

NO.	NAME	COMPANY	PHONE NO.	EMAIL
1	Tyler Sato	DRAYKO CONSTR	372-1047	tylers@draykohawaii.com
2	Trevor Vance	Limtiaco Consulting Group	596-7790	TREVOR @ TLCGHAWAII .COM
3	Calvin Sandker	Drayko Construction	208-4840	Calvins@draykohawaii.com
4	JON WHITE	OPERATING ENGINEERS LOCAL #3	772-3043	JON @ HOEISF . COM
5	KELVIN AKAZAWA	HWY-O	486-2435	Kelvin.Akazawa@hawaii.gov
6	Angela Catingay	HAWAII WORKS	847-7140	atc@hawaiiworksinc.com
7	Robert Sawinski	Paradigm Construction	847-1646	robert@paradigmhi.com
8	Keith Miyashiro	HDOT - HWY-OW	483-7290	Keith.Miyashiro@hawaii.gov
9				
10				
11				
12				
13				

STORM WATER BEST MANAGEMENT PRACTICES IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU

PROJECT NO. HWY-O-02-18M

PRE-BID MEETING NOTES

MAY 9, 2018

The meeting was held at the Oahu District Office in Honolulu at 9:00 am. A sign in sheet with the names of the attendees is attached.

Questions:

1. Can both sites be worked on at the same time?

   Yes.

2. Is the acceptance of Act17 / Form 1 in the bid documents?

   No, bidders may get the Apprenticeship Program, Certification Form 1 from State of Hawaii, Department of Labor and Industrial Relations website, http://labor.hawaii.gov/wdd/forms/.

3. Will heavy equipment operators be trained and qualified to operate?

   The selected contractor will be responsible to provide the equipment operators necessary to construct the proposed improvements per plans and specifications.

The meeting ended at 9:18 am.

All items discussed at the meeting are for clarification only. The bid documents shall govern over anything said at the meeting and discrepancies shall be clarified in Addendum No. 1.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Project Title: Storm Water Best Management Practices Improvements at Maintenance Baseyards on Oahu
Project No.: HWY-O-02-18M

[DOH NGPC File No. HI[R10F532]

Prepared by: Department of Transportation, Highways Division, Design Branch

Date: May 14, 2018

***Based on HDOT Permitted SWPPP Template dated** 1/15/2016*

Storm Water Pollution Prevention Plan (SWPPP)

[Notice of General Permit Coverage File No. HI [R10F532]
Preparation Date 5/14/18

Table of Contents

7.0 Preface

The following documents are referenced throughout this document:

1) Hawaii Administrative Rules (HAR), Chapter 11-55

2) HDOT Construction Best Management Practices (BMP) Field Manual

3) Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions.

4) City & County of Honolulu, Rules Relating to Soil Erosion Standards & Guidelines

Please note that the Sections referenced are Sections in the HAR Chapter 11-55, Appendix C, NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity, unless stated otherwise.

7.0.1 Notes for Contractor/HDOT Construction Personnel

{

- Items in red need to be updated by the Contractor once the project is awarded prior to construction. The Contractor shall be responsible for updating the SWPPP during construction.

❖ Items in blue should be done by the designer. Remove this note and blue text when preparing the SWPPP.}

CONTRACTOR STAGING/STORAGE AREAS

- HDOT has permitted all outfalls and disturbed potential Contractor Staging/Storage Areas within the project limits. They are identified in the Project's Notice of Intent (NOI).
- The Contractor may use any disturbed area that is permitted and that is acceptable to the Engineer for their Staging/Storage.
- Staging/Storage Areas outside disturbed areas or outside the project limits WILL require a new National Pollutant Discharge Elimination System (NPDES) submittal. If the Staging/Storage Area is outside of the disturbed area or outside of the project limits, inform HDOT.
- *See permitting requirements in Section 209 Temporary Water Pollution, Dust, and Erosion Control of the Special Provisions.*

Outfalls 1 and 2 discharge to nutrient or sediment impaired waters. *The following applies to construction areas discharging to these outfalls:*

1) *Construction BMPs shall be inspected weekly, and within 24 hours of any rainfall event of **0.25 inches** or greater in a 24 hour period and daily during periods of prolonged rainfall. For more details, see Section 7.2.12 of this SWPPP.*
2) *Immediately initiate and complete stabilization within 7 calendar days on areas of the site in which earth-disturbing activities have temporarily or permanently ceased. For more details, see Section 7.2.10.2 of this SWPPP.*

7.2.1 Storm Water Team

The permittee shall assemble and oversee a "storm water team," which is responsible for the development of the SWPPP, any later modifications to it, and for compliance with the requirements in the Notice of General Permit Coverage (NGPC) or Individual NPDES permit.

The SWPPP must identify the personnel (by name or position) that are part of the storm water team, as well as their individual responsibilities. Each member of the storm water team must have ready access to an electronic or paper copy of applicable portions of the permit, the most updated copy of this SWPPP, and other relevant documents or information that must be kept with this SWPPP.

{The Contractor shall include their personnel information once the project is awarded.}

1) Name: **Keith Miyashiro**

Company: **Hawaii Department of Transportation**

Position: **HDOT Project Manager**

Contact Number: **(808) 483-7290**

Responsibilities: **Developed the Notice of Intent (NOI) and SWPPP during the design process**

2) Name:

Company: **Hawaii Department of Transportation**

Position: **HDOT Resident Engineer**

Contact Number: **(808) xxx-xxxx**

Responsibilities: **Authorized Representative's delegated signatory for BMP Inspection, Corrective Action and Discharge Reports.**

3) Name:

Company: **Hawaii Department of Transportation**

Position: **HDOT Construction Project Engineer**

Contact Number: **(808) xxx-xxxx**

Responsibilities: **Responsible for overall project and field compliance with HAR Chapter 11-55 and permit conditions, including SWPPP and any required modifications to SWPPP**

4) Name:

Company: **Hawaii Department of Transportation**

Position: **HDOT Supervising Inspector**

Contact Number: **(808) xxx-xxxx**

Responsibilities: **Responsible for BMP inspections and verifying implementation of BMPs in the field**

5) Name:

Company: **Contractor**

Position: **(FILL IN Contractor Designated Representative)**

Contact Number: **(808) xxx-xxxx**

Responsibilities: **Responsible for overall project and field compliance and BMP inspections**

6) Name:

Company: **Contractor**

Position: **(FILL IN Contractor Designated Representative)**

Contact Number: **(808) xxx-xxxx**

Responsibilities: **Responsible to develop and maintain updates and modifications of to the SWPPP**

7) Name:

Company: **Contractor**

Position: **Contractor**

Contact Number: **(808) xxx-xxxx**

Responsibilities:

8) Name:

Company: **Contractor**

Position: **Contractor**

Contact Number: **(808) xxx-xxxx**

Responsibilities:

7.2.2 Nature of Construction Activities Form C.6

What is the function of the construction activity (Please check all applicable activity(ies))?

☐ Residential ☐ Commercial ☐ Industrial ☐ Road Construction ☐ Linear Utility

☑ Other (please specify): Erosion Control

For construction site estimates, see **NOI Form C, Section C.3 – Construction Site Estimates, Attachment A-4**

What is being constructed? **This project proposes the construction of various permanent erosion control measures.**

Describe the scope of work and major construction activities covered in the NOI, including baseyards and staging areas. Include only project areas where the locations of impervious structures are known; project areas where the final grades are known; and work areas that will be performed by one (1) general contractor. A separate NOI will be required for all other project areas.
(Note: Per Section 209 of the Specifications and applicable Special Provisions, the maximum surface area of earth material which may be exposed at any time is 300,000 square feet.)

The scope of work for this project includes [ADD DESCRIPTION]

Construction activities include removal of existing asphalt pavement, application of seal coat on existing asphalt pavement, installation of new asphalt pavement, installation of concrete channel and concrete water polisher, installation of sampling equipment and equipment shed, hazardous material storage containers, trench drain, and installation of erosion control matting for permanent erosion control purposes. These measures will be implemented at State Maintenance Baseyards. {The locations of the staging and storage areas may be changed by the Contractor depending on his construction means and methods. The Contractor shall submit to the Engineer the locations of his staging and storage areas once the project is awarded for review and acceptance}.

7.2.3 Emergency Related Projects

Check as applicable:

☑ Not Applicable

☐ Applicable *(If this box is checked, provide additional information as described below)*

If conducting earth-disturbing activities in response to a public emergency (see Section 1.3.), the permittee shall document the cause of the public emergency (e.g., natural disaster, extreme flooding conditions, etc.), information substantiating its occurrence (e.g., state disaster declaration or similar state declaration), and a description of the construction necessary to

reestablish effected public services. *The declaration of emergency or imminent threat to public health is required to be from the state governor or the director.* See Attachment J for additional information.

7.2.4 Identification of Prime Contractor and Other Site Contractors

Here is a list of both the prime contractor and all other contractors (e.g., sub-contractors) who will be engaged in construction activities at the site, and the areas of the site over which each contractor has control. *{List prime contractor and sub-contractors below and attach map showing areas of control in Attachment A. Complete and attach a Signed Subcontractor Certification/Agreement in Attachment D.}*

General Contractor Company Name: The general contractor information will be submitted at least 30 calendar days before the start of construction activities.	
General Contractor Contact Person Name:	
General Contractor Mailing Address:	
General Contractor Mailing City:	*Mailing State and Zip Code:*
General Contractor Telephone Number: **(808)**	
General Contractor Email Address:	

Sub-Contractor #1 Company Name: **[ADD SUB-CONTRACTOR INFO]**	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	
Sub-Contractor Email Address:	

Sub-Contractor #2 Company Name:
Sub-Contractor Contact Person Name:
Sub-Contractor Mailing Address

Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	
Sub-Contractor Email Address:	

Sub-Contractor #3 Company Name, as needed:	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	
Sub-Contractor Email Address:	

Sub-Contractor #4 Company Name:	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	
Sub-Contractor Email Address:	

Sub-Contractor #5 Company Name:	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	
Sub-Contractor Email Address:	

Sub-Contractor #6 Company Name:	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
Sub-Contractor Telephone Number: **(808)**	

Sub-Contractor Email Address:

Sub-Contractor #7 Company Name:	
Sub-Contractor Contact Person Name:	
Sub-Contractor Mailing Address:	
Sub-Contractor Mailing City:	*Sub-Contractor Mailing State and Zip Code:*
(Sub-Contractor Telephone Number) **(808)**	
(Sub-Contractor Email Address)	

Complete the following items and include them in the Attachments:

- ❑ Attach maps showing areas of Contractor/Subcontractor Control in Attachment A.
- ❑ Complete and attach a Subcontractor Certification/Agreement in Attachment D.

7.2.5 Sequence and Estimated Dates of Construction Activities

❑ Attach the proposed construction schedule in Attachment C, which shall include, at a minimum:

{The Contractor shall submit to the Engineer an update of the dates in the SWPPP once the project is awarded.}

✓ *Installation of storm water control measures, and when they will be made operational, including an explanation of how the sequence and schedule for installation of storm water control measures complies with Section 5.1.1.3.1. and of any departures from manufacturer specifications pursuant to Section 5.1.1.3.2., including removal procedures of the storm water control measures after construction has ceased.*

✓ *Commencement and duration of earth-disturbing activities, including clearing and grubbing, mass grading, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization.*

✓ *Cessation, temporarily or permanently, of construction activities on the site, or in designated portions of the site.*

✓ *Final or temporary stabilization of areas of exposed soil. The dates for stabilization must reflect the applicable deadlines to which the permittee is subject to in Section 5.2.1.*

✓ *Removal of temporary storm water conveyances/channels and other storm water control measures, removal of construction equipment and vehicles, and cessation of any pollutant-generating activities.*

7.2.6.1 Property Boundary Maps

Complete the following and include in Attachment A:

☑ Include Property Boundary Maps showing the boundaries of the property and of the locations where construction activities will occur. Attach, title, and identify all maps (pdf - minimum 300 dpi) listed below, in Attachment A.

a. Legal boundaries of the project. **See SWPPP Attachment A-2**

b. Locations where earth-disturbing activities will occur, noting any sequencing of construction activities. **See SWPPP Attachment A-2**

c. Pre-Construction Topography including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows). Note areas of steep slopes (15% or greater in grade). **See SWPPP Attachment A-3**

d. During-Construction Topography (after major grading activities) including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows) Note areas of steep slopes (15% or greater in grade). **See SWPPP Attachment A-3**

e. Post-Construction Topography including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows). Note areas of steep slopes (15% or greater in

grade). *Proposed construction activities will not alter the site drainage patterns,* **See SWPPP Attachment A-3**

f. Locations where sediment, soil, or other construction materials will be stockpiled *7.2.6.1c.* **See SWPPP Attachment A-3.** *Stockpile locations may be changed by the Contractor depending on his construction means and methods. The Contractor shall submit to the Engineer for his review and acceptance the locations of stockpiles once the project is awarded and will be included in the SWPPP. The Contractor shall submit to the Engineer for his review and acceptance any updates/changes to stockpile areas during construction for inclusion in the SWPPP.*

g. Locations of any contaminated soil or contaminated soil stockpiles *7.2.6.1d.* **No areas of contaminated soil are expected to be encountered in the area. If any areas are encountered, the locations will be included in the SWPPP.**

h. *Locations of any crossings of state waters 7.2.6.1e.* **See SWPPP Attachment A-2**

i. *Designated points on the site where vehicles will exit onto paved roads 7.2.6.1f.* **See SWPPP Attachment A-3.** *Stabilized entrance locations may be changed by the Contractor depending on his construction means and methods. {The Contractor shall submit to the Engineer the locations of stabilized entrances once the project is awarded for his review and acceptance and will be included in the SWPPP.} The Contractor shall submit to the Engineer for his review and acceptance any updates/changes to stabilized entrances during construction for inclusion in the SWPPP.*

j. Location(s) of impervious structures (including buildings, roads, parking lots, etc.) after construction is completed *7.2.6.1g.* **No new impervious structures are proposed on this project. Existing storage containers will be removed and replaced with new containers.**

k. Locations of construction support activity areas covered by this permit *7.2.6.1h.* **See SWPPP Attachment A-2?.** *The locations of the staging and storage areas may be changed by the Contractor depending on his construction means and methods. {The Contractor shall submit to the Engineer the locations of his staging and storage areas for his review and acceptance once the project is awarded.} The Contractor shall submit to the Engineer any updates/changes to staging and storage areas during construction for his review and acceptance and inclusion in the SWPPP.*

7.2.6.2 to 7.2.6.8 State Waters and BMP Maps

Complete the following items:

☑ Attach, title, and identify all maps (pdf - minimum 300 dpi) listed below, in Attachment A.

☑ Reference which maps account for the features listed below.

a. Locations of all state waters, including wetlands that exist within or in the immediate vicinity of the site and indicate which waterbodies are listed as impaired *7.2.6.2.* **See SWPPP Attachment A-2**

b. The boundary lines of any natural buffers provided consistent with *Section 5.1.2.1.1, 7.2.6.3.* **All earth disturbances are located farther than 50 feet from any state waters and will have installed sediment control measures.**

c. Topography of the site, existing vegetative cover (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of storm water onto, over, and from the site property before and after major grading activities *7.2.6.4.* **See SWPPP Attachment A-3**

d. Storm water discharge locations, including: a) Locations of any storm drain inlets on the site and in the immediate vicinity of the site to receive storm water runoff from the project; **See SWPPP Attachment A-2**
and b) Locations where storm water will be discharged to state waters (including wetlands) *7.2.6.5.* **See SWPPP Attachment A-2**

e. Locations of all potential pollutant-generating activities identified in *Section 7.2.7, 7.2.6.6.* **See SWPPP Attachment A-2**

f. Locations of storm water control measures *7.2.6.7.* **See SWPPP Attachment A-3.** *The Contractor may change the locations of storm water control measures by construction activity and construction sequence depending on his construction means and methods. The Contractor shall submit changes to the Engineer for his review and acceptance once the project is awarded. The Contractor shall submit a separate map for each phase of construction which changes the drainage pattern. The Contractor shall submit to the Engineer for his review and acceptance any updates/changes to storm water control measures during construction for inclusion in the SWPPP.*

g. Locations where chemicals will be used and stored 7.2.6.8. **No chemicals will be stored onsite, chemicals will be used anywhere landscaping will occur. See Attachment A-2 for locations.** *The locations where chemicals may be used and stored may be changed by the Contractor depending on his construction means and methods. The Contractor shall submit to the Engineer for his review and acceptance any updates/changes to locations where chemicals will be used and stored during construction for inclusion in the SWPPP.*

Chemical	***Location***	***Major Construction Activity***
Hydraulic oils/ fluids *** Applicable As Noted**	• *Vehicle Refueling area* • *Leaks from broken hoses on equipment* • *Vehicles shall be maintained off site. If a maintenance area is necessary on-site, the Contractor shall submit to the Engineer the locations and BMPs for his review and acceptance for inclusion in the SWPPP.*	*Roadway Demolition and Construction*
Antifreeze/Coolants **** Applicable As Noted***	• *Vehicle Refueling area* • *Leaks from broken hoses on equipment* • *Vehicles shall be maintained off site. If a maintenance area is necessary on-site, the Contractor shall submit to the Engineer the locations and BMPs for his review and acceptance for inclusion in the SWPPP.*	*Roadway Demolition and Construction*
Glue, Adhesives	• *Roadway construction*	*Roadway Demolition and Construction*
Concrete Curing Compounds/ Form Release Oils	• *Roadway construction involving concrete*	
Pesticides **** Not Applicable***	• *Landscaping areas-* **no landscaping will be performed for this project**	

Herbicides **** Not Applicable***	• *Landscaping areas-* **no landscaping will be performed for this project**	
Insecticides **** Not Applicable***	• *Landscaping areas-* **no landscaping will be performed for this project**	
Fertilizers **** Not Applicable***	• *Landscaping areas-* **no landscaping will be performed for this project**	

7.2.7 Construction Site Pollutants

For each pollutant-generating activity, an inventory of pollutants or pollutant constituents (e.g., sediment, fertilizers and/or pesticides, paints, solvents, fuels) associated with that activity, which could be exposed to rainfall and could be discharged from the construction site. Take into account where potential spills and leaks could occur that contribute pollutants to storm water discharges. Document for the Engineer's review and acceptance any departures from the manufacturer's specifications for applying fertilizers containing nitrogen and phosphorus, as required in Section 5.3.5.1 under Attachment J.

All solid waste shall be disposed of at DOH, Solid and Hazardous Waste Branch (SHWB), Solid Waste Section (SWS) permitted facilities. If not, contact the SHWB-SWS at (808) 586-4226 as additional permits may be required.

Source/Material	***Description of How Potential Pollutant Source will be Prevented from Discharging with Storm Water Runoff***	***Major Construction Activity***
Construction debris, green waste, general litter	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*

Materials associated with the operation and maintenance of equipment, such as oil, fuel, and hydraulic fluid leakage	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Soil erosion from the disturbed areas	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Sediment from soil stockpiles	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Emulsified asphalt or prime/tack coat	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Materials associated with painting, such as paint and paint wash solvent **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no painting will be done for this project*	
Industrial chemicals, fertilizers, and/or pesticides **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs*	
Hazardous waste (Batteries, Solvents, Treated Lumber, etc.) **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- project does not involve hazardous waste*	

Metals and Building Materials **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs*	
Existing Pollution Sources **** Not Applicable*** *(If no indication, then Applicable)*	• *See Section 7.2.10 for Site Specific BMPs*	*Demolition and Construction, Landscaping*
Other (Contaminated Soil) *** Not Applicable**	• *See Section 7.2.10 for Site Specific BMPs- site does not contain any contaminated soils*	

7.2.8 –Sources of Non-Storm Water

Identify all sources of non-storm water and information, including, but not limited to, the design, installation, and maintenance of the control measures to prevent its discharge.

All solid waste shall be disposed of at DOH, Solid and Hazardous Waste Branch (SHWB), Solid Waste Section (SWS) permitted facilities. If not, the Contractor shall contact the SHWB-SWS at (808) 586-4226 and notify the Engineer for his agreement the disposal locations. Additional permits may be required.

Source	***Description of How Potential Non-Storm Water Pollution Source will not be Discharged to State Waters***	***Major Construction Activity***
Dust Control Water	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*

Source	***Description of How Potential Non-Storm Water Pollution Source will not be Discharged to State Waters***	***Major Construction Activity***
Concrete Truck Wash Water	• *See Section 7.2.10 for Site Specific BMPs- no concrete work will be done for this project*	*Construction*
Sediment Track Out	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Irrigation Water **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no irrigation will be done for this project*	
Hydrotesting Effluent **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no hydrotesting will be done for this project*	
Dewatering Effluent **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no dewatering will be done for this project*	
Saw-cutting Slurry	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*
Concrete Curing Water	• *See Section 7.2.10 for Site Specific BMPs*	*Construction*

Source	***Description of How Potential Non-Storm Water Pollution Source will not be Discharged to State Waters***	***Major Construction Activity***
Plaster Waste Water **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no plaster will be used for this project*	
Water-Jet Wash Water **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs- no jet wash water will be used for this project*	
Sanitary/Septic Waste **** Not Applicable***	• *See Section 7.2.10 for Site Specific BMPs*	

7.2.9 –Buffer Documentation

If required to comply with Section 5.1.2.1. because a state water is located within 50 feet of the project's earth disturbances, describe which compliance alternative has been selected for the site, and comply with any additional requirements to provide documentation in Section 5.1.2.1. Delineate, and clearly mark off, with flags, tape, or other similar marking device all natural buffer areas. *Use velocity dissipation devices if necessary to prevent erosion caused by storm water within the buffer. Ensure all discharges are first treated by erosion and sediment controls.*

Check, as applicable:

☐ Option 1

Provide and maintain a 50-foot undisturbed natural buffer and sediment control.
Note: If the earth disturbances are located 50 feet or further from a state water and have installed sediment control, then the permittee has complied with this alternative. If the buffer is located outside State Highways Right of Way, include written permission from the owner of the land in SWPPP Attachment J.

Width of Buffer_____feet

☐ Option 2

Provide and maintain an undisturbed natural buffer that is less than 50 feet and double sediment control (e.g., double perimeter control) spaced a minimum of 5 feet apart.

Width of Buffer_____feet

☐ Option 3

If it is infeasible to provide and maintain an undisturbed natural buffer of any size, the permittee shall provide and maintain double sediment control (e.g., perimeter control) spaced a minimum of 5 feet apart and complete stabilization within 7 calendar days of the temporary or permanent cessation of earth-disturbing activities. Provide documentation why it is infeasible to provide buffer of any size in Attachment J.

☑ Exception 1

There is no discharge of storm water to state waters through the area between the site and any state waters located within 50 feet of the site, the permittee is not required to comply with the requirements in this section. This includes situations where control measures have been implemented, such as a berm or other barrier that will prevent such discharges.

☐ Exception 2

For "linear construction projects" where "linear construction projects" means the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area, the permittee is not required to comply with the requirements in this section if site constraints (e.g., limited right-of-way) prevent the permittee from meeting any of the compliance alternatives in Section 5.1.2.1.1., provided that, to the extent practicable, the permittee limit disturbances within 50 feet of state waters and/or the permittee provide erosion and sediment controls to treat storm water discharges from earth disturbances within 50 feet of the state water. The permittee shall also document below the rationale as to why it is infeasible to comply

with the requirements in Section 5.1.2.1.1., and describe any buffer width retained and/or erosion and sediment controls installed below.

_____

_____

☐ Exception 3

The following disturbances within 50 feet of a state water are exempt from the requirements in this Part: construction approved under a Clean Water Act (CWA) 404 permit; or construction of a water-dependent structure or water access area (e.g., pier, boat ramp, trail).

Document below if any of the above disturbances will occur within the buffer area on the site:

_____

_____

_____

+7.2.10 Storm Water Control Measures

Please refer to Hawaii Department of Transportation Construction Best Management Practices Field Manual dated January 2008 and Supplemental Sheets. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under "applicable bid documents" include the construction plans, Standard Specifications, Special Provisions, Permits, and the SWPPP.

BMP Details

Complete the table below.

Note: Bolded text in the table are requirements of HAR Chapter 11-55. The Designer will provide an installation detail of all proposed BMPs (From HDOT Construction BMP Field Manual) identified in Section 7.2.6.7, including the proposed BMPs that will be used to mitigate the potential pollutants identified in Sections 7.2.7 and 7.2.8. Attach the details and design calculations, if applicable, in SWPPP Attachment A (7.2.10.1a). The Contractor shall include the project-specific product sheets (e.g. Tru-Dam or Gutter Buddy, etc.) and any changes to the proposed BMPs above for the Engineer's review and acceptance.

Check the appropriate boxes below verifying the following requirements are met. If not applicable, indicate on the blank lines below *(7.2.10.1)*:

☑ *The specific perimeter sediment controls will be installed and made operational prior to conducting earth-disturbing activities in any given portion of the site that will receive storm water from earth-disturbing activities are described below (7.2.10.1b). Perimeter sediment controls will be installed and maintained throughout the duration of the project.*

☑ *If contaminated soil exists on-site, control measures will be taken to either prevent the contact of storm water with the contaminated soil, including any contaminated soil stockpiles, or prevent the discharge of any storm water runoff which has contacted contaminated soil or any contaminated soil stockpiles are described below (7.2.10.1.c). This is not applicable to the project. However, if any contamination is found on-site, theContractor shall add the BMP measures and locations for the Engineer's review and acceptance.*

☑ *For exit points on the site (or any areas which exit onto a paved street), stabilization techniques and any additional controls that are planned to remove sediment prior to vehicle exit consistent with Section 5.1.2.3 will be taken and are described below (7.2.10.1d). Stabilized entrance locations may be changed by the Contractor depending on his construction means and methods. The Contractor shall submit to the Engineer for his review and acceptance the locations of stabilized entrances once the project is awarded for inclusion in the SWPPP. The Contractor shall submit to the Engineer for his review and acceptance any updates/changes to stabilized entrances during construction for inclusion in the SWPPP.*

☑ The project is linear, and the use of perimeter controls on portions of the site is impracticable for the following reasons (7.2.10.1e): This is not applicable to the project, perimeter controls can be used at the project site.

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Construction debris, green waste, general litter	• *Separate contaminated clean up materials from construction and demolition (C&D) wastes.* • ***Provide waste containers (e.g., dumpster or trash receptacle) of sufficient size and number to contain construction and domestic wastes.*** • *Inspect construction waste and recycling areas regularly.* • *Schedule solid waste collection regularly.* • *Schedule recycling activities based on construction/demolition phases.* • *Empty waste containers weekly or when they are two-thirds full, whichever is sooner.* • ***Do not allow containers to overflow. Clean up immediately if they do.*** • ***On work days, clean up and dispose of waste in designated waste containers.*** • *See Solid Waste Management Section SM-6 for additional requirements.* • *Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.* • *The Contractor shall submit for the Engineer's review and acceptance and SWPPP inclusion a Litter Management Plan.* [	*See Solid Waste Management Section SM-6. Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable.* *Contractor to include Litter Management Plan once the project is awarded.* **See Litter Management Plan.**

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Materials associated with the operation and maintenance of equipment, such as oil, fuel, and hydraulic fluid leakage	• *Use off-site wash racks, repair and maintenance facilities, and fueling sites when practical.* • ***Designate bermed wash area if cleaning on site is necessary.*** • ***Place drip pans or drop cloths under vehicles and equipment to absorb spills or leaks.*** • ***Provide an ample supply of readily available spill cleanup materials.*** • ***Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.*** • ***Do not clean surfaces or spills by hosing the area down.*** • ***Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.*** • *Inspect on-site vehicles and equipment regularly and immediately repair leaks.* • *Regularly inspect fueling areas and storage tanks.* • *Train employees on proper maintenance and spill practices and procedures and fueling and cleanup procedures.* • ***Store diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in water-tight containers and provide cover or secondary containment.*** • *Do not remove original product labels and* ***comply with manufacturer's labels for proper disposal.***	*See Vehicle and Equipment Cleaning, Maintenance, and Refueling, Sections SM-11, SM-12, and SM-13, and Material Delivery, Storage and Material Use Sections SM-2 and SM-3, and* ***Spill Prevention and Control SM-10.***

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	• *Dispose of containers only after all the product has been used.* • ***Dispose of or recycle oil or oily wastes according to Federal, State, and Local requirements.*** • ***Store soaps, detergents, or solvents under cover or other means to prevent contact with rainwater.*** • *See Vehicle and Equipment Cleaning, Maintenance, and Refueling, Sections SM-11, SM-12, and SM-13 and Material Use Section SM-3 for additional requirements.*	

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Soil erosion from the disturbed areas	• *Provide Soil Stabilization, Slope Protection, Storm Drain Inlet Protection SC-2, Perimeter Controls and Sediment Barriers, Sediment Basins and Detention Ponds, Check Dams SC-9 ,Level Spreader SC-10, Paving Operations SM-19, Construction Road Stabilization EC-1, Controlling Storm Water Flowing Onto and Through the Project, Post-Construction BMPs, and Non-Structural BMPs (Employee Training SM-1, Scheduling SM-14, Location of Potential Sources of Sediment SM-15, Preservation of Existing Vegetation SM-16)* **.** • ***Delineate, and clearly mark off, with flags, tape, or other similar marking device all natural buffer areas defined in the SWPPP.*** • ***Preserve native topsoil where practicable.*** • ***In areas where vegetative stabilization will occur, restrict vehicle/equipment use in areas to avoid soil compaction or condition soil to promote vegetative growth.*** • ***For Storm Drain Inlet Protection, clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or***	*Soil Stabilization* 1. *Geotextiles and Mats* *SC-2 Storm Drain Inlet Protection* *Perimeter Controls and Sediment Barriers* 1. *SC-8 Compost Filter Berm* *Post Construction BMPs* 1. *EC-7 Geotextiles and Mats* *Non-Structural BMPs* 1. *SM-1 Employee Training* 2. *SM-14 Scheduling* 3. *SM-15 Location of Potential Sources of Sediment* 4. *SM-16 Preservation of Existing Vegetation* *SM-19 Paving Operations*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	performance is compromised. • ***Where there is evidence of sediment accumulation adjacent to the inlet protection measure, 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.*** • ***Sediment basins shall be designed and maintained in accordance with HAR Chapter 11-55.*** • ***Minimize disturbance on steep slopes (Greater than 15% in grade).*** • ***If disturbance of steep slopes are unavoidable, phase disturbances and use stabilization techniques designed for steep grades.*** • ***For temporary drains and swales use velocity dissipation devices within and at the outlet to minimize erosive flow velocities.***	*EC-1 Construction Road Stabilization* *Controlling Storm Water Flowing onto and Through the Project* 1. *EC-8 Run-On Diversion* 2. *SC-7 Temporary Drains and Swales*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Sediment from soil stockpiles ***Not Applicable***	• *Locate stockpiles a minimum of 50 feet or as far as practicable from concentrated runoff* ***or outside of any natural buffers identified on the SWPPP****.* • *Place bagged materials on pallets and under cover.* • *Provide physical diversion to protect stockpiles from concentrated runoff.* • ***Cover stockpiles with plastic or comparable material when practicable.*** • ***Place silt fence, fiber filtration tubes, or straw wattles around stockpiles.*** • ***Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any storm water conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or state water.*** • ***Unless infeasible, contain and securely protect stockpiles from the wind.*** • *Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.* • *See Protection of Stockpiles Section SM-4 for additional requirements.*	*See Protection of Stockpiles Section SM-4. Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable.*
Emulsified asphalt or prime/tack coat	• *Provide training for employees and contractors on proper material delivery and storage practices and procedures.* • *Restrict paving operations during wet weather to prevent paving*	*See Material Delivery and Storage Section SM-2* ***and Material Use Section SM-3****, Paving Operations Section SM-*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	materials from being discharged. • *Use asphalt emulsions such as prime coat when possible.* • *Protect drain inlet structures and manholes during application of tack coat, seal coat, slurry seal, and fog seal.* • ***Keep ample supplies of drip pans and absorbent materials on site.*** • *Inspect inlet protection devices.* • *See Material Delivery and Storage Section SM-2 and Paving Operations Section SM-19 for additional requirements.* • *Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.*	*19, Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable.*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Materials associated with painting, such as paint and paint wash solvent ****Not Applicable***	• *Hazardous chemicals shall be well-labeled and stored in original containers.* • ***Keep ample supply of cleanup materials on site.*** • *Dispose container only after all of the product has been used.* • *Remove as much paint from brushes on painted surface.* • *Rinse from water-based paints shall be discharged into the sanitary sewer system where possible. If not,* ***direct all washwater 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.*** • ***Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.*** • ***Do not dump liquid wastes into the storm drainage system.*** • *Filter and re-use solvents and thinners.* • *Dispose of oil-based paints and residue as a hazardous waste.* • *Ensure collection, removal, and disposal of hazardous waste complies with regulations.* • ***Immediately clean up spills and leaks.*** • *Properly store paints, solvents, and epoxy compounds.* • *Properly store and dispose waste materials generated from painting and structure repair and*	*See Material Delivery and Storage Section SM-2, Material Use Section SM-3, Hazardous Waste Management Section SM-9, Waste Management, Spill Prevention and Control Section SM-10, and Structure Construction and Painting Section SM-20, Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable.*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	construction activities. • *Mix paints in a covered and contained area when possible to minimize adverse impacts from spills.* • *Do not apply traffic paint or thermoplastic if rain is forecasted.* • *See Material Delivery and Storage Section SM-2, Material Use SM-3, Waste Management, Hazardous Waste Management Section SM-9, Waste Management, Spill Prevention and Control Section SM-10, and Structure Construction and Painting Section SM-20 for additional requirements.* • *Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.*	

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Industrial chemicals, fertilizers, and/or pesticides ***Not Applicable**	• *Hazardous chemicals shall be well-labeled and stored in original containers.* • ***Keep ample supply of cleanup materials on site.*** • ***Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.*** • ***Do not clean surfaces or spills by hosing the area down.*** • ***Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.*** • *Dispose container only after all of the product has been used.* • *Retain a complete set of safety data sheets (formerly MSDS) on site.* • ***Store industrial chemicals in water-tight containers and provide either cover or secondary containment.*** • ***Provide cover when storing fertilizers or pesticides to prevent these chemicals from coming into contact with rainwater.*** • *Restrict amount of pesticide prepared to quantity necessary for the current application.* • ***Do not apply fertilizers or pesticides during or just before a rain event.*** • ***Do not apply to stormwater conveyance channels with flowing water*** • ***Comply with fertilizer and pesticide manufacturer's recommended usage and disposal instructions. Document***	*See Material Delivery and Storage Section SM-2, Material Use Section SM-3, and Hazardous Waste Management Section SM-9, and* ***Spill Prevention and Control SM-10***

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	departures from manufacturer's specifications in Attachment J. • ***Apply fertilizers at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth.*** • ***Follow federal, state, and local laws regarding fertilizer application.*** • ***Do not dispose of toxic liquid wastes (solvents, used oils, and paints) or chemicals (additives, acids, and curing compounds) in dumpsters allocated for construction debris.*** • ***Ensure collection, removal, and disposal of hazardous waste complies with regulations. Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.*** • *See Material Delivery and Storage Section SM2, Material Use SM-3, and Waste Management, Hazardous Waste Management Section SM-9 for additional requirements.*	
Hazardous waste (Batteries, Solvents, Treated Lumber, etc.) ****Not Applicable***	• *Do not dispose of toxic materials in dumpsters allocated for construction debris.* • ***Ensure collection, removal, and disposal of hazardous waste complies with regulations.*** • ***Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.*** • *Segregate and recycle wastes*	*See Hazardous Waste Management Section SM-9 and Vehicle and Equipment Maintenance SM-12*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	from vehicle/equipment maintenance activities such as used oil or oil filters, greases, cleaning solutions, antifreeze, automotive batteries, and hydraulic and transmission fluids. • ***Store waste in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, and local requirements.*** • ***All containers stored outside shall be kept away from surface waters and within appropriately-sized secondary containment (e.g., spill berms, decks, spill containment pallets). Provide cover if possible.*** • ***Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.*** • ***Do not clean surfaces or spills by hosing the area down.*** • ***Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.*** • ***Ensure collection, removal, and disposal of hazardous waste complies with manufacturer's recommendations and is in compliance with federal, state, and local requirements.*** • *See Hazardous Waste Management Section SM-9 and*	

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	Vehicle and Equipment Management, Vehicle and Equipment Maintenance SM-12 for additional requirements.	
Metals and Building Materials ***Not Applicable**	• *Inspect construction waste and recycling areas regularly.* • *Schedule solid waste collection regularly.* • ***If building materials or metals are stored on site (such as rebar or galvanized poles) store under cover under tarps or in containers.*** • *Minimize the amount of material stored on site.* • ***Do not stockpile uncovered metals or other building materials in close proximity to discharge points.*** • *See Solid Waste Management Section SM-6 for additional requirements.*	*See Solid Waste Management Section SM-6*
Contaminated Soil ***Not Applicable**	• *See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Waste Management Section SM-9 for additional requirements.* • ***At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheets.***	*See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Waste Management Section SM-9*
Dust Control Water ***Applicable As Noted** or **Not Applicable** (If no indication, then all*	• *Do not over spray water for dust control purposes which will result in runoff from the area.* • ***Apply water as conditions require.***	*See Dust Control Section SM-18*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Site-Specific BMPs are Applicable)	• *Washing down of debris or dirt into drainage, sewage systems, or State waters is not allowed.* • *See Dust Control Section SM-18 for additional requirements.*	
Concrete Truck Wash Water	• *Disposal of concrete truck wash water via percolation is prohibited.* • *Wash concrete-coated vehicles or equipment off-site or in the designated wash area.* • *Locate on-site wash area a minimum of 50 feet away* ***or as far as practicable*** *from storm drain inlets, open drainage facilities, or water bodies.* • *Runoff from the on-site concrete wash area shall be contained in a temporary pit or level bermed area where the concrete can set.* • ***Design the area so that no overflow can occur due to inadequate wash area sizing or precipitation.*** • *The temporary pit shall be lined with plastic to prevent seepage of wash water into the ground.* • *Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin.* • ***Do not dump liquid wastes into***	*See Waste Management, Concrete Waste Management Section SM-5*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	storm drainage system. • ***Dispose of liquid and solid concrete wastes in compliance with federal, state, and local standards.*** • *See Waste Management, Concrete Waste Management Section SM-5 for additional requirements.*	

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Sediment Track-Out	• ***Include Stabilized Construction Entrance at all points that exit onto paved roads.*** • *A sediment trapping device is required if a wash rack is used in conjunction with the stabilized construction entrance/exit.* • *The pavement shall not be cleaned by washing down the street.* • *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, or vacuuming the wash water.* • *Use BMPs for adjacent drainage structures.* • ***Remove sediment tracked onto the street by the end of the day in which the track-out occurs.*** • ***Restrict vehicle use to properly designated exit points.*** • *Include additional BMPs that remove sediment prior to exit when minimum dimensions can not be met.* • *See Stabilized Construction Entrance Section EC-2 for additional requirements.*	*See Stabilized Construction Entrance Section EC-2*
Irrigation Water	• *Consider irrigation requirements.* • *Where possible, avoid species*	*See Seeding and Planting Section EC-5*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	which require irrigation. • *Design timing and application methods of irrigation water to eliminate the runoff of excess irrigation water into the storm water drainage system.* • *See Seeding and Planting Section EC-5 and California Stormwater BMP Handbook SD-12 Efficient Irrigation included in SWPPP Attachment A for additional requirements.*	*and California Stormwater BMP Handbook SD-12 Efficient Irrigation*
Hydrotesting Effluent ***Not Applicable**	• *If work includes removing, relocation or installing waterlines, and Contractor elects to flush waterline or discharge hydrotesting effluent into State waters or drainage systems, the Contractor shall prepare and obtain HDOT acceptance of a NOI/NPDES Permit Form F application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Hydrotesting Activities if necessary. Site specific BMPs will be included in the NOI/NPDES Permit Form F submittal.*	*Site specific BMPs will be included in the NOI/NPDES Permit Form F submittal.*
Dewatering Effluent ***Not Applicable**	• *If excavation or backfilling operations require dewatering, and Contractor elects to discharge dewatering effluent into State waters or existing drainage systems, Contractor shall prepare*	*See Dewatering Operations SM-17. Site specific BMPs will be included in the NOI/NPDES Permit Form G submittal.*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	and obtain HDOT acceptance of a NOI/NPDES Permit Form G application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Dewatering Activities if necessary. See Site Planning and General Practices, Dewatering Operations Section SM-17 for additional requirements.	
Saw-cutting Slurry	• *Saw cut slurry shall be removed from the site by vacuuming.* • *Provide storm drain protection during saw cutting. See Paving Operations Section SM-19 for additional requirements.* • *Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.*	*See Paving Operations Section SM-19, Storm Drain Inlet Protection SC-2, Perimeter sediment controls where applicable*
Concrete Curing Water	• *Avoid overspraying of curing compounds.* • *Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.* • *See California Stormwater BMP Handbook NS-12 Concrete Curing included in SWPPP Attachment A for additional requirements.*	*See California Stormwater BMP Handbook NS-12 Concrete Curing*
Plaster Waste Water ***Not Applicable**	• ***Direct all washwater into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can***	*See Material Delivery and Storage Section SM-2, Material Use Section SM-3, and*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
	occur due to inadequate sizing or precipitation. • ***Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.*** • *Any significant residual materials remaining on the ground after the completion of construction shall be removed and properly disposed. If the residual materials contaminate the soil, then the contaminated soil shall also be removed and properly disposed of.* • ***Plaster waste water shall not be allowed to flow into drainage structures or State waters.*** • *See Material Delivery and Storage Section SM-2, Material Use SM-3, and Hazardous Waste Management Section SM-9 for additional requirements.*	*Hazardous Waste Management Section SM-9*

Pollutant Source	***Appropriate Site-Specific BMP to be Implemented***	***BMP Requirements***
Water-Jet Wash Water	• *For Water-Jet Wash Water used to clean vehicles, use off site wash racks or commercial washing facilities when practical.* • *See Vehicle and Equipment Cleaning Section SM-11 for additional information.* • *For Water-Jet Wash Water used to clean impervious surfaces, the runoff shall not be allowed to flow into drainage structures or State Waters.*	*See Vehicle and Equipment Cleaning Section SM-11*
Sanitary/Septic Waste **** Not Applicable***	• *Locate Sanitary facilities in a convenient place away from drainage facilities.* • ***Position sanitary facilities so they are secure and will not be tipped over or knocked down.*** • *Wastewater shall not be discharged to the ground or buried.* • *A licensed service provider shall maintain sanitary/septic facilities in good working order.* • *Schedule regular waste collection by a licensed transporter.* • *See Sanitary/Septic Waste Section SM-7 for additional requirements.*	*See Sanitary/Septic Waste Section SM-7.*

7.2.10.2 – Stabilization Practices

Describe the specific vegetative and/or non-vegetative practices that will be used to comply with the requirements in HAR Chapter 11-55, Section 5.2., including if the permittee will be complying with the stabilization deadlines specified in HAR Chapter 11-55, Section 5.2.1.3.2. Document the circumstances that prevent the permittee from meeting the deadlines specified in Sections 5.2.1.1. and/or 5.2.1.2.

The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this SWPPP section, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased (5.2.1.1).

For the purposes of this SWPPP section, any of the following types of activities constitutes initiation of stabilization (5.2.1.1):

a) Prepping the soil for vegetative or non-vegetative stabilization;
b) Applying mulch or other non-vegetative product to the exposed area;
c) Seeding or planting the exposed area;
d) Starting any of the activities in a) – c) on a portion of the area to be stabilized, but not on the entire area; and
e) Finalizing arrangements to have stabilization product fully installed in compliance with the applicable deadline for completing initial stabilization activities.

For the purposes of this SWPPP section, any of the following types of activities constitutes completion of initial stabilization activities (5.2.1.1):

a) For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and/or
b) For non-vegetative stabilization, the installation or application of all such non-vegetative measures.

If the Contractor is unable to meet the deadlines above due to circumstances beyond the Contractor's control, and the Contractor is using vegetative cover for temporary or permanent stabilization, the Contractor may comply with the following stabilization deadlines instead as agreed to by the Engineer (5.2.1.3.1):

5.2.1.3.1.1.
Immediately initiate, and complete within the timeframe shown below, the installation of temporary non-vegetative stabilization measures to prevent erosion;

5.2.1.3.1.2.

Complete all soil conditioning, seeding, watering or irrigation installation, mulching, and other required activities related to the planting and initial establishment of vegetation as soon as conditions or circumstances allow it on the site; and

5.2.1.3.1.3.
The Contractor shall notify and provide documentation to the Engineer the circumstances that prevent the Contractor from meeting the deadlines required in Sections 5.2.1.1. and/or 5.2.1.2. and the schedule the Contractor will follow for initiating and completing initial stabilization and as agreed to by the Engineer. Include this information in this SWPPP.

The Contractor shall follow the applicable requirements of the Specifications and Special Provisions including Section 209 Temporary Water Pollution, Dust, and Erosion Control; Section 619 Planting; and Section 641 Hydro-Mulch Seeding.

Final Stabilization
To be considered adequately stabilized, the permittee shall meet the criteria below depending on the type of cover the permittee is using, either vegetative or non-vegetative.

5.2.2.1. Vegetative stabilization.

5.2.2.1.1.1.
If the permittee is vegetatively stabilizing any exposed portion of the site through the use of seed or planted vegetation, the permittee shall provide established uniform vegetation (e.g., evenly distributed without large bare areas), which provides 70 percent or more of the density of coverage that was provided by vegetation prior to commencing earth-disturbing activities. The permittee should avoid the use of invasive species; (HDOT requires 98% coverage for permanent hydromulch per Specification and Special Provision Sections 619 Planting and 641 Hyrdo-Mulch Seeding.) The Designer needs to meet the 70% requirement above when designing plantings and ground cover which do not involve hydromulch. If the Designer uses a soil test to determine amounts, rates, and type of fertilizer, and the amount and rate is not consistent with manufacturer's specifications, the Designer should document this in this SWPPP in Attachment J.

5.2.2.1.1.2.
For final stabilization, vegetative cover must be perennial; and

5.2.2.1.1.3.
Immediately after seeding or planting the area to be vegetatively stabilized, to the extent necessary to prevent erosion on the seeded or planted area, the Contractor shall install non-vegetative erosion controls that provide cover (e.g., mulch, rolled erosion control products) to the area while vegetation is becoming established.

5.2.2.2. Non-Vegetative Stabilization.
If the permittee is using non-vegetative controls to stabilize exposed portions of the site, or if the Contractor is using such controls to temporarily protect areas that are being vegetatively stabilized, the Contractor shall provide effective non-vegetative cover.

The stabilization schedule for this project is:

Outfalls 1 and 2 discharge to nutrient or sediment impaired waters. *The following applies to construction areas discharging to these outfalls:*

> *Immediately initiate and complete stabilization within 7 calendar days on areas of the site in which earth-disturbing activities have temporarily or permanently ceased.*

All areas of soil disturbance will be overlaid with concrete, asphalt pavement, erosion control matting, and/or hydromulch. Kaupuni Stream is an impaired water for Total N, NO3+NO2, Total P, Turbidity, TSS, and Trash. Keaahala Stream is impaired for Total N, NO3+NO2, Total P, Turbidity, TSS, and Trash. The Contractor will be complying with the deadlines in Section 5.2.1.3.2, with completion of initial plantings within 7 calendar days of completion of prepping the soil for planting. Mulch will be applied to the exposed areas. The Contractor shall notify the Engineer for his agreement if any stabilization practices or timetables to complete stated above will not be followed and document the reasons in the SWPPP below.

The deadlines for initiating and completing stabilization in *Sections 5.2.1.1.* and/or *5.2.1.2.* cannot be met because of the following (Note: Document location(s,)reasons, and schedule)_____

7.2.10.3 – Post Construction Measures

Descriptions of measures that will minimize the discharge of pollutants via storm water discharges after construction operations have been finished. Examples include: open, vegetated swales and natural depressions; structures for storm water retention, detention, or recycle; velocity dissipation devices to be placed at the outfalls of detention structures or along with the length of outfall channels; and other appropriate measures. All projects require post construction BMPs to minimize the discharge of pollutants via storm water discharges after construction operations have been finished. Examples include: open, vegetated swales and natural depressions; structures for storm water retention, detention, or recycle; velocity dissipation devices to be placed at the outfalls of detention structures or along with the length of

outfall channels; and other appropriate measures. All projects require post-construction BMPs to minimize the discharges of pollutants via storm water discharges after construction operations have finished.

7.2.11.1 – Spill Prevention and Response Procedures

The SWPPP must describe procedures that the permittee will follow to prevent and respond to spills and leaks consistent with Section 5.3., including:

a. Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or position of the employee(s) responsible for detection and response of spills or leaks; and

b. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Section 5.3.4. and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period. The Contractor shall post contact information in locations that are readily accessible and available.

Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at 586-4309, and the Hawaii State Hospital Operator at 247-2191, the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately, and the Engineer. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested. State and local requirements may necessitate additional reporting of spills or discharges to local emergency response, public health, or drinking water supply agencies (HAR Chapter 11-55 5.3.4). The Contractor shall submit to the Engineer information necessary to complete the reporting requirements.

☒ The Spill Prevention and Response Procedures are included in SWPPP Attachment F.
The Contractor shall update the Spill Prevention and Response Procedures in the SWPPP once the project is awarded for the Engineer's review and acceptance.

7.2.11.2 – Waste Management Procedures

The SWPPP must describe procedures for how the permittee will handle and dispose of all wastes generated at the site, including, but not limited to, clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste.

☒ The Waste Management Procedures are included in SWPPP Attachment G.
The Contractor shall update the Waste Management Procedures in the SWPPP once the project is awarded for the Engineer's review and acceptance.

7.2.12 – Procedures for Inspection, Maintenance, and Corrective Action

The SWPPP must describe the procedures the permittee will follow for maintaining the storm water control measures, conducting site inspections, and, where necessary, taking corrective actions, in accordance with Section 5.1.1.4., Section 5.3.2., Section 9, and Section 10 of the permit. The following information must also be included in this SWPPP:

a. Personnel responsible for conducting inspections: **Field Office Engineer and/or Inspector, AND Contractor Representatives.**

Qualifications: *HDOT construction staff and HDOT Contractors attend Stormwater BMP Classes annually. Contractor representatives selected for the inspection and maintenance responsibilities shall receive training from the Contractor. The Contractor's Representatives shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order. The Contractor's Representative(s) inspecting the site shall be knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possesses the skills to assess conditions at the construction site that could impact storm water quality, and the skills to assess the effectiveness of any storm water controls selected and installed to meet the requirements of this permit.*

b. The inspection schedule the permittee will be as follows, which is based on whether the site is subject to Section 9.1.2. or Section 9.1.3., and whether the site qualifies for any of the allowances for reduced inspection frequencies in 9.1.4. If the permittee will be conducting inspections in accordance with the inspection schedule in Section 9.1.2.a. or Section 9.1.2.b., the

location of the rain gauge on the site or the address of the weather station the permittee will be using to obtain rainfall data;

Describe the inspection schedules and procedures you have developed for the site. *Include the maintenance requirements for each BMP (e.g., level of sediment buildup allowed):*
All Construction BMPs shall be inspected weekly, and within 24 hours of any rainfall event of 0.25 inches or greater in a 24 hour period. The Contractor shall submit a copy of the SWPPP Inspection and Maintenance Report Form to the Engineer within 24 hours of the inspection.

Maintenance requirements for specific BMPs are included in the HDOT Construction BMP Field Manual. The Contractor shall initiate work to fix the problem immediately after discovering the problem, and complete such work by the close of the next work day, if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. In this section, "immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day. When installation of a new pollution prevention control or a significant repair is needed, the Contractor shall install the new or modified control and make it operational, or complete the repair, by no later than 7 calendar days from the time of discovery. If it is infeasible to complete the installation or repair within 7 calendar days, the Contractor shall provide notice to the Engineer and document why it is infeasible to complete the installation or repair within the 7 calendar day timeframe and document the schedule for installing the storm water control(s) and making it operational as soon as practicable after the 7 calendar day timeframe and as agreed to by the Engineer. Where these actions result in changes to any of the pollution prevention controls or procedures documented in the SWPPP, modify the SWPPP accordingly. The Contractor will attach product specific maintenance practices as well as product installation instructions in the SWPPP once the project is awarded.

c. Use the Corrective Action Report Form for any the following (10.2.1 and 10.4.1):

- *A required storm water control was never installed, was installed incorrectly, or not in accordance with the requirements in HAR Chapter 11-55 Sections 5 and/or 6.*
- *The Contractor/Engineer becomes aware that the storm water controls installed and being maintained are not effective enough for the discharge to meet applicable water quality standards or applicable requirements in HAR Chapter 11-55 Section 6.1.*
- *One of the prohibited discharges below is occurring or has occurred:*
    - *Wastewater from washout of concrete*
    - *Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials*

  - *Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance*
  - *Soaps, solvents, or detergents used in vehicle and equipment washing*
  - *Toxic or hazardous substances from a spill or other release*
- *Corrective actions required by the Department of Health or Environmental Protection Agency (EPA)*

Note: Corrective actions must be included with the monthly compliance report in Attachment E1.

d. Any inspection or maintenance checklists or other forms that will be used.

☒ The Inspection Report Form provided in SWPPP Attachment E1 will be used.

☒ The Corrective Action Report Form provided in SWPPP Attachment E1 will be used.

7.2.13 – Staff Training

The SWPPP must include documentation that the required personnel were trained in accordance with the following:

Prior to the commencement of earth-disturbing activities or pollutant-generating activities, whichever occurs first, the permittee shall ensure that the following personnel understand the requirements of this permit and their specific responsibilities with respect to those requirements:

a. Personnel who are responsible for the design, installation, maintenance, and/or repair of storm water controls (including pollution prevention measures);

b. Personnel who are responsible for the application and storage of chemicals (if applicable);

c. Personnel who are responsible for conducting inspections as required in Part 4.1.1; and

d. Personnel who are responsible for taking corrective actions as required in Part 5.

The Contractor is responsible for ensuring that all activities on the site comply with the requirements of this permit. The Contractor is not required to provide or document formal training for subcontractors or other outside service providers, but must ensure that such personnel understand any requirements of the permit that may be affected by the work they are subcontracted to perform.

At a minimum, personnel must be trained to understand the following if related to the scope of their job duties (e.g., only personnel responsible for conducting inspections need to understand how to conduct inspections):
a. The location of all storm water controls on the site required by this permit, and how they are to be maintained;
b. The proper procedures to follow with respect to the permit's pollution prevention requirements; and
c. When and how to conduct inspections, record applicable findings, and take corrective actions.

The Engineer will discuss the roles and responsibilities of HDOT and the Contractor in the SWPPP during the Water Pollution, Dust, and Erosion Control Meeting.

☒ The Contractor Certification is included in Attachment B.

7.2.14 – Documentation of Compliance with Safe Drinking Water Act Underground Injection Control (UIC) Requirements for Certain Subsurface Storm Water Controls

Document any contact with the DOH Safe Drinking Water Branch if any of the following storm water controls are used at the site:

❑ *Infiltration trenches (if storm water is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system);*

❑ *Commercially manufactured precast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate storm water flow;*

❑ *Drywells, seepage pits, or improved sinkholes (if storm water is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system).*

If any of the boxes above are checked, attach documentation in SWPPP Attachment J.

7.2.15 –Other State, Federal, or County Permits

Include in SWPPP Attachment J any of the following permits or approvals:

☐Attach the Drainage System Owner(s) Approval to Discharge, in Attachment J- *N/A*.

❑ Check this box if the Certifying Person is responsible for the overall operation and maintenance of the Separate Drainage System and approves of the storm water discharge into their drainage system.

County-approved Erosion and Sediment Control Plan and/or Grading Permit

a. Is a County-approved Erosion and Sediment Control Plan and/or Grading Permit, where applicable for the activity and schedule for implementing each control, required?
   ❑ Yes. Please complete Section b below and skip Section c.
   ☑ No. Please complete Section c below and skip Section b.

b. Is a copy County-approved Erosion and Sediment Control Plan and/or Grading Permit, as appropriate for the activity and schedule for implementing each control, attached?
   ❑ Yes, see Attachment J _____
   ❑ No, the County-approved Erosion and Sediment Control Plan and/or Grading Permit, as appropriate for the activity and schedule for implementing each control, will be submitted at least 30 calendar days before the start of construction activities.

c. Please select and complete at least one (1) of the following items to demonstrate that a County-approved Erosion and Sediment Control Plan and/or Grading Permit, as appropriate for the activity and schedule for implementing each control, is not required.
   ❑ See Attachment J _____ for the County written determination.
   ❑ Provide the County contact person information (Name, Department, Phone Number, and Date Contacted): _____
   ☑Other (specify): Proposed excavation and embankment quantities fall below the amounts requiring a grading permit.

❑ Department of the Army Permit (Section 404) and Section 401 Water Quality Certification:

If the project requires work in, above, under or adjacent to State waters, please contact the Army Corps of Engineers (COE) Regulatory Branch at (808) 438-9258 regarding their permitting requirements. Provide a copy of the COE permitting jurisdictional determination (JD) or the JD with COE Person's Name, Phone Number, and Date Contacted.

❑ List other permits below (No copy necessary in Attachment J)

7.2.16 –Other Information As Requested by the Director

☒ *Does DOH require any additional information per Section 7.2.16? If so attach in Attachment J.*

N/A

7.2.17 Certification of the CWB SWPPP

The certifying person and duly authorized representative shall meet the requirements of Hawaii Administrative Rules 11-55, Appendix A, Section 15.

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

Signature: _____ *Date:* _____

Person Name: George Abcede

Person Position Title: Oahu District Engineer

Person Company or Agency: Department of Transportation

Department: Department of Transportation

Division: Department of Transportation, Highways Division

Phone Number: (808) 831-6700 ext 126 *Fax No.:* (808) 831-6725

Person Email: george.abcede@hawaii.gov

7.2.18 Post-Authorization Additions to the SWPPP

After the issuance of the NGPC include the following documents as part of the SWPPP in Attachment K:

a. A copy of the NOI submitted to the department along with any correspondence exchanged between HDOT and DOH related to coverage under this permit;

b. A copy of the NGPC and all attachments included with the NGPC (an electronic copy easily available to the storm water team is acceptable)

7.4 Required SWPPP Modifications

Modify the SWPPP, including the site map(s), in response to any of the following conditions:

7.4.1.1.
Whenever new contractors become active in construction activities on the site, or changes are made to the construction plans, storm water control measures, pollution prevention measures, or other activities at the site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered under Section 10. The permittee does not need to modify the SWPPP if the estimated dates in Section 7.2.5. change during the course of construction;

7.4.1.2.
To reflect areas on the site map where operational control has been transferred (and the date of transfer) since initiating permit coverage;

7.4.1.3.
If inspections or investigations by site staff, or by local, state, or federal officials determine that SWPPP modifications are necessary for compliance with this permit;

7.4.1.4.
Where DOH determines it is necessary to impose additional requirements on the discharge, the following must be included in the SWPPP:

a. A copy of any correspondence describing such requirements; and
b. A description of the storm water control measures that will be used to meet such requirements.

7.4.1.5.
To reflect any revisions to applicable federal, state, and local requirements that affect the storm water control measures implemented at the site; and

7.4.2. Deadlines for SWPPP modifications.
The permittee shall complete required revisions to the SWPPP within 7 calendar days following the occurrence of any of the conditions listed in Section 7.4.1.

7.4.3. SWPPP modification records.
The permittee shall maintain records showing the dates of all SWPPP modifications. The records must include a signature of the person authorizing each change (see Section 7.2.17), date, and a brief summary of all changes. Log all changes and include relevant attachments in Attachment I.

7.4.4. Certification requirements.
All modifications made to the SWPPP consistent with Section 7.4. must be certified, signed, and dated by the Certifying Person that meets the requirements in Section 15 of appendix A, chapter 11-55 or the duly authorized representative that meets the requirements of 11-55-07(b). (See Section 7.2.17)

7.4.5. Required notice to other contractors.
Upon determining that a modification to the SWPPP is required, if there are multiple contractors covered under this permit, the Contractor shall immediately notify any contractors who may be impacted by the change to the SWPPP.

13.0 Monthly Compliance Report Submittal Requirements

Submit to the Engineer a monthly compliance report, which shall include, but is not limited to, information as required in the NGPC, any updates to NOI information already on file with DOH, and any incidences of non-compliance and corrective actions. Submit this information within 2 working days of the end of the month. The monthly compliance report shall be kept on-site and available by the end of the next business day when requested by DOH. Upon DOH receiving EPA's Cross-Media Electronic Reporting Regulation (CROMERR), the monthly compliance reports shall be submitted through the e-Permitting Portal. Any comments provided by DOH shall be answered in the time specified and to the satisfaction of DOH. If the activity is in compliance and none of the information on file with DOH requires updating, or there were no incidences of non-compliance, preparation of the monthly compliance information is still required which states that there were "no changes, updates, or any incidences of non-compliance to report.

Note: EPA's Cross-Media Electronic Reporting Regulation (CROMERR) sets performance-based, technology-neutral standards for systems that states, tribes, and local governments use to receive electronic reports from facilities they regulate under EPA-authorized programs and requires program modifications or revisions to incorporate electronic reporting. CROMERR also addresses electronic reporting directly to EPA.

☒ **HDOT's form in Attachment E4 will be used.**

SWPPP Attachments

Attachment A – Contractor/Sub-Contractor Control Maps, Property Boundary Maps, State Waters and BMP Maps, and BMP Details (SWPPP Sections 7.2.4, 7.2.6.1,7.2.6.2 to 7.2.6.8 & 7.2.10)

MAPS SHOWING LOCATIONS OF CONTRACTOR/SUB-CONTRACTOR CONTROL, PROJECT SITE MAPS, CONSTRUCTION PLANS/DRAWINGS, BMP LOCATION MAPS, AND BMP DETAILS

HDOT Construction Best Management Practice Field Manual (BMP Details) – A-1
Property Boundary, Project Location, and State Waters Maps– A-2

Site-Specific Best Management Plan and Drainage Maps – A-3

Drainage Mapping – A-4

Contractor/Sub-Contractor Control Map – A-5

List of Equipment – A-6
List of Materials – A-7

Catalog Pages and Information on Storm Water Control Materials – A-8

Attachment B – HDOT SWPPP Training Log (SWPPP Section 7.2.13)

Instructions

Check Appropriate Box and Include Additional Sheet for Each of the Training Classes Listed Below on the Training Log Form:

A) Attendance at Department Of Transportation, Highways Division Annual Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors.

B) Attendance at Non-HDOT sponsored Stormwater BMP Training Courses.

C) Participation in viewing Annual HDOT Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors on DVD provided by HDOT.

TRAINING LOG

- ❑ Department of Transportation, Highways Division Annual Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors
- ❑ Non-HDOT Sponsored Stormwater BMP Training Courses
  Name of Course/Sponsor_____
- ❑ Annual HDOT Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors on CD Provided by HDOT
- ❑ Annual HDOT Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors – Viewed Presentation Slides on the stormwaterhawaii.com Website

Project Name:
Project Location:
Instructor's Name(s):
Instructor's Title(s):

Course Location: _____ *Date:* _____

Course Length (hours): _____

Stormwater Training Topic: (check as appropriate)

- ❑ Erosion Control BMPs
- ❑ Sediment Control BMPs
- ❑ Non-Stormwater BMPs
- ❑ Emergency Procedures
- ❑ Good Housekeeping BMPs

*Specific Training Objective:*_____

_____

Attendee Roster:

No.	***Name of Attendee***	***Company***
1		
2		
3		
4		
5		
6		

No.	***Name of Attendee***	***Company***
7		
8		
9		
10		

Add rows as needed

Attachment C - Construction Schedule (SWPPP Section 7.2.5)

CONSTRUCTION SCHEDULE

[Include CPM]

Date when the SWPPP, including erosion control measures will be implemented:	Month Day, 2XXX

All Perimeter Sediment Control and Inlet Protection BMPs (except for the perimeter sediment controls around the median) will be installed prior to construction. These BMPs meet Section 5.1.1.3.1 as the inlets protected and the perimeter control BMPs are downstream of the paving work. The perimeter sediment controls around the median will be installed on Month Day, 2XXX *as work on the median landscaping will commence. These BMPs will be installed per the manufacturer's recommendations.The schedule shown in this section is a preliminary estimate. The Contractor shall submit the actual timetable for the activities for inclusion into this SSCBMP Plan.*

Date when the general contractor will begin the earth-disturbing activities:	Month Day, 2XXX
Cessation, temporarily or permanently, of construction activities on the site:	Month Day, 2XXX
Final or temporary stabilization of areas of exposed soil	Month Day, 2XXX
Date when the general contractor will end site disturbance:	Month Day, 2XXX
Date when erosion control measures will be removed:	Month Day, 2XXX
Date when the Notice of Cessation form will be submitted	Month Day, 2XXX

For updated construction scheduled dates, including installation and removal of erosion control measures, cessation, temporarily or permanently of construction activities, final or temporary stabilization of areas of exposed soil, dates when site disturbance will end, date when erosion control measures will be removed, and the date when the Notice of Cessation form will be submitted, see the latest updated construction schedule on file at the DOT offices, General Contractor office, or field offices.

Attachment D – Subcontractor Certifications/Agreements (SWPPP Section 7.2.4)

SUBCONTRACTOR CERTIFICATION

NGPC or Individual NPDES File No: **HIR10F532**

Project Title: Storm Water Best Management Practices Improvements at Maintenance Baseyards on Oahu

Operator(s): _____

As a subcontractor, you are required to comply with the Storm Water Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact storm water must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

Signature: _____

Title: _____

Date: _____

Attach copies, retain originals on-site.

Attachment E1 – SWPPP Inspection Report Form for Oahu (SWPPP Section 7.2.12) Rev. 1/28/2015

(See Next Page)

SITE-SPECIFIC BEST MANAGEMENT PRACTICE/STORM WATER POLLUTION PREVENTION INSPECTION AND MAINTENANCE REPORT

DATE: _____ PERMIT NO. _____ ☐ INDIVIDUAL NPDES PERMIT PROJECT (RECEIVING STATE WATERS INSPECTIONS REQUIRED)

PROJECT NO.: _____ PROJECT: _____

☐ PRE-CONSTRUCTION VERIFICATION INSPECTION REPORT PHASE: _____ ☐ INDEPENDENT (THIRD-PARTY) INSPECTION

☐ WEEKLY REPORT ☐ EVENT REPORT _____ INCHES OF RAIN FOR THE PAST 24 HOURS (if rain event) ☐ OTHER _____

BMP Measures and Devices Currently Installed on the Project:

LOCATION	ACTIVITY AND TYPE OF BMP MEASURE/DEVICE	ACTION REQUIRED?		NOTES/COMMENTS
		Y	N	

BMP Deficiencies Found and Corrective Actions Taken:

DATE FOUND	LOCATION	ACTIVITY AND TYPE OF BMP MEASURE/DEVICE	DATE CONTRACTOR NOTIFIED	NOTES/COMMENTS	AMENDMENT REQUIRED? (Y/N)	DATE CORRECTED	ACTION TAKEN - NOTES/COMMENTS

Page 1 of **2** **Project No.** **Date**

Rev 01/28/15

CHECK ALL THAT ARE APPLICABLE:

☐ There is evidence of a discharge.

☐ There is evidence that a polluted discharge is leaving or has left the project site.

☐ The polluted discharge was contained prior to reaching the storm drain system/receiving waters.

NOTE: If any of the boxes above were checked, fill out HDOT Construction Discharge Report.

Included Attachments: ☐ A. Photographs (Required for BMP Deficiencies) ☐ B. Other attachments
Describe: _____

Comments/Remarks: _____

I certify that I am the person who performed the inspection documented above and that all information recorded on this form is a true and accurate representation of what was observed at the construction site recorded above.

Inspector Name and Title	Signature	Date

Attachment E2 – Corrective Action Reports (SWPPP Section 7.2.12) Rev. 02/25/14

Hawaii Department of Transportation Corrective Action Report

Section 10.1 "Corrective Actions" Defined

Corrective actions are actions taken in compliance with this section to:

a. Repair, modify, or replace any storm water control used at the site
b. Clean up and properly dispose of spills, releases, or other deposits
c. Remedy a permit violation

Section 10.2.1. Triggering Events

The following are triggers that require corrective action be taken (this triggering condition is to be documented within 24 hours of discovering the occurrence):

- ❑ *A required storm water control was never installed, was installed incorrectly, or not in accordance with the requirements in HAR Chapter 11-55, Sections 5 and/or 6.*
- ❑ *The Contractor/Engineer becomes aware that the storm water controls installed and being maintained are not effective enough for the discharge to meet applicable water quality standards or applicable requirements in HAR Chapter 11-55, Section 6.1. The Contractor shall notify the Engineer immediately. The Engineer will notify the Department of Health by the end of the next work day.*

  *Date/time Engineer notified by Contractor*_____

  *Date/time DOH notified by Engineer*_____

- ❑ *One of the prohibited discharges below is occurring or has occurred:*
  - ❒ *Wastewater from washout of concrete*
  - ❒ *Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials*
  - ❒ *Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance*
  - ❒ *Soaps, solvents, or detergents used in vehicle and equipment washing*
  - ❒ *Toxic or hazardous substances from a spill or other release*

Section 10.2. Requirements for Taking Corrective Actions

The Contractor shall complete corrective actions in accordance with the deadlines specified below. In all circumstances, the Contractor shall immediately take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational, including cleaning up any contaminated surfaces so that the material will not discharge in subsequent storm events. Immediately means the same day the condition is discovered, unless it is too late in the day, in which initiation of corrective action must begin on the following work day.

Following any of the above triggering events, the Contractor shall install a new or modified control and make it operational, or complete the repair, by no later than 7 calendar days from the time of discovery. If it is infeasible to complete the installation or repair within 7 calendar days, the Contractor shall document and submit to the Engineer, for his agreement, why it is

infeasible to complete the installation or repair within the 7 calendar day timeframe and document a schedule for installing the storm water control(s) and making it operational as soon as practicable after the 7-day timeframe.

*Date installation/repair completed or date/time prohibited discharge ceased*_____

_____

Reason it is infeasible to complete installation or repair within 7 calendar days and proposed schedule (if applicable) _____

_____

_____

_____

10.4.1. Initial Report (24 Hours)

Within 24 hours of discovering the occurrence of one of the triggering conditions in HAR Chapter 11-55, Section 10.2.1. at the site, the Contractor must complete the following:

- *The nature of the condition identified*
- *The date and time of the condition identified and how it was identified*

10.4.2. Final Report (7 Days)

Within 7 calendar days of discovering the occurrence of one of the triggering conditions in HAR Chapter 11-55, Section 10.2.1. at the site, the Contractor must complete a report of the following:

- *Any follow-up actions taken to review the design, installation, and maintenance of storm water controls, including the dates such actions occurred*

  _____
- *A summary of storm water control modifications taken or to be taken, including a schedule of activities necessary to implement changes, and the date the modifications are completed or expected to be completed*

  _____
- *Notice of whether SWPPP modifications are required as a result of the condition identified or corrective action*

  _____

  _____

Section 10.2.2. SWPPP Modification Due to Corrective Actions

Where corrective actions result in changes to any of the storm water controls or procedures documented in the SWPPP, modify the SWPPP accordingly within 7 calendar days of completing corrective action work.

❑ *Date SWPPP modified should be indicated in the Amendment Log*

_____

Section 10.3 Corrective Actions Required by the Department of Health (DOH)

The Contractor shall comply with any corrective actions required by the department as a result of permit violations found during an inspection by DOH or EPA.

Was the Corrective Action triggered by a DOH/EPA inspection?

- ❑ *Yes* ❑ *No*
- ❑ *Date of DOH/EPA Inspection*_____

Section 10.4.3. Certification

The certifying person and duly authorized representative shall meet the requirements of Hawaii Administrative Rules 11-55, Appendix A, Section 15.

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

Section 10.4.4. Corrective Action Report

NOTE: Corrective Actions shall be documented in the Site-Specific Best Management Practice/Storm Water Pollution Prevention Inspection and Maintenance Report, See Attachment E1.

Attachment E3 – HDOT Highways Oahu Construction Discharge Response Flow Chart, Rev. 11/17/2015; HDOT Construction Discharge Report Form (SWPPP Section 7.2.12) Rev. 1/28/15

(See Next Pages)

HDOT CONSTRUCTION DISCHARGE REPORT

☐ CHECK IF DISCHARGE OBSERVED IS DURING AN INSPECTION

DATE: _____ INSPECTOR/ENGINEER: _____
PROJECT NO.: _____ DOH FILE NO.: _____
PROJECT: _____
WEATHER CONDITIONS: _____ INCHES OF RAIN IN THE PAST 24 HOURS: _____

LOCATION OF WORK ACTIVITIES: _____
DESCRIPTION OF WORK ACTIVITIES: _____

This report is required when a non-stormwater or polluted stormwater discharge may have or may have potentially entered a storm drain or Receiving State Waters, if a discharge (e.g., spill) has occurred, if a polluted discharge is observed leaving the project limits, or if there is evidence of an unreported polluted discharge leaving project limits prior to inspection (such as: silty trail, eroded areas beyond site limits).

1) General Information

Date of Incident: _____
Incident Identified or reported by: _____
Time of Incident (note if time is approximate): _____
Duration of Incident (note if duration is approximate): _____
Source/Cause of Incident:

_____
Describe the Incident:

_____

Is the suspected reason for the discharge that a storm water control is clearly not operating as intended or is in need of maintenance?
☐ BMP needs maintenance ☐ BMP not operating as intended ☐ BMP is not a factor

2) Specific Discharge Information

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A. Nature of the Discharge:	B. Characteristic of Immediate Area Where Discharge Occurred:
a. ☐ Sediment – Amount: _____ b. ☐ Concrete – Amount: _____ c. ☐ Oil/Grease – Amount: _____ d. ☐ Hazardous Material (describe): _____ – Amount: _____ e. ☐ Other (describe): _____ – Amount: _____	a. ☐ Receiving Water(s) – Name(s): _____ b. ☐ Storm Drain - MS4 Owner: _____ c. ☐ Soil - Type: _____ d. ☐ Asphalt/Concrete Surface e. ☐ Other - Describe: _____
C. Location Where Discharge Originated (include location map and photos on attached template): _____ ☐ Map or Photos attached	D. Description of Path of Discharge (include map and/or photos on attached template): _____ Where did the polluted discharge ultimately go? ☐ Entered a drainage system. ☐ Directly entered State waters (discharged directly to stream or other water body). ☐ Other (describe): _____ ☐ Map or Photos attached If the polluted discharge entered a drainage system or receiving water (e.g., stream, ocean), complete section 3.

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3) Inlets, Outfalls, and Receiving Water Information

List all inlets and corresponding receiving water outfall locations from each drainage system. If discharge went directly to receiving waters, list the point where discharge entered receiving waters. At each point check the characteristics of the water upstream (if applicable), at discharge or outfall location, and downstream of discharge or outfall location (if applicable) and describe (turbidity, color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of storm water pollutants).

If the discharge did not enter a drainage system or receiving water (e.g., stream, ocean), skip this section.

Inlet Location / Drainage System Owner (if applicable)	**Outfall / Discharge Location**	**Characteristics of water (turbidity, color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of storm water pollutants)**		**Notes** (Include information about other inlets entering drainage system prior to outfall, etc.)
		Upstream of Location (if applicable)	**At Outfall/Discharge Location**	

4) Action Taken

a. Describe Immediate Measures Taken (include photos on attached template):

_____

☐ Photos attached

b. Describe Additional Follow-Up Measures Taken (include photos on attached template):

_____

☐ Photos attached

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5) Other Notes/Comments

I certify that I am the person who performed the inspection documented above and that all information recorded on this form is a true and accurate representation of what was observed at the construction site recorded above.

Inspector Name and Title	Signature	Date

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

Pratt M. Kinimaka	Date

Duly Authorized Person's Name: Pratt M. Kinimaka

Duly Authorized Person's Position Title: Oahu District Engineer

Duly Authorized Person's Company or Agency Information:

Company or Agency:	State of Hawaii Department of Transportation, Highways Division	Phone:	831-6700 ext 126
Address:	727 Kakoi Street	Fax:	831-6725
	Honolulu, Hawaii 96819	Email:	Pratt.Kinimaka@hawaii.gov

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LOCATION MAP

PROJECT NO.: _____ DOH FILE NO.: _____

PROJECT NAME: _____

PROJECT LOCATION: _____

DESCRIPTION: _____

PHOTOS

PHOTOS TAKEN BY: _____

PROJECT NO.: _____ DOH FILE NO.: _____

PROJECT: _____

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Attachment E4 – Monthly Compliance Report

Hawaii Department of Transportation Monthly Compliance Report

A Monthly Compliance Report is required to be completed within 2 working days of the end of the month. This report must be kept on-site and made available by the end of the next business day when requested by DOH. The following is required to be addressed in the Monthly Compliance Reports and include attachments as necessary.

- ❑ *Any instances of non-compliance or corrective actions*
- ❑ *Changes to the information on file with DOH*

If the activity is in compliance and none of the information on file with the department requires updating, or there were no incidences of non-compliance, preparation of the monthly compliance information is still required which states:

- ❑ *No changes, updates, or any incidences of non-compliance to report.*

The certifying person and duly authorized representative shall meet the requirements of Hawaii Administrative Rules 11-55, Appendix A, Section 15. The certifying person or duly authorized representative is required to sign the Monthly Compliance Reports with the following certification statement:

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

MONTHLY COMPLIANCE REPORT

Reporting Month/Year: _____

Project Name: _____
Location/Address: _____
DOH NGPC File No.: _____ **Project No.:** _____
County/Island: _____ **Acreage Disturbed (acres):** _____
Construction Start Date: _____ **Percent of Work Completed (%):** _____

This form must be completed within 2 working days of the end of the month and must be kept on-site and made available by the end of the next business day when requested by DOH. In addition, this form is required to be submitted to DOH with the Notice of Cessation at the completion of the project.

1. BMP Deficiencies and Associated Corrective Actions

Date Found	Location	Activity and Type of BMP Measure/Device	Date Contractor Notified	Notes/Comments	Date Corrected	Action Taken

2. Discharges This Month

Date Discharge Occurred	Outfall	Receiving Waterbody Discharged To	Date DOH Notified	Notes

3. Other Major Incidents Reported to DOH This Month

Date/Time Incident Occurred (if applicable)	Date/Time Incident Discovered	Date/Time Reported to DOH	Description of Incident	Notes

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

Pratt M. Kinimaka **Date**

Duly Authorized Person's Name: Pratt M. Kinimaka

Duly Authorized Person's Position Title: Oahu District Engineer

Duly Authorized Person's Company or Agency Information:

Company or Agency: State of Hawaii Department of Transportation, Highways Division

Address: 727 Kakoi Street
Honolulu, Hawaii 96819

Phone: 831-6700 ext 126

Fax: 831-6725

Email: Pratt.Kinimaka@hawaii.gov

Attachment E5 – Receiving State Waters Inspection Report for Individual NPDES Permits (SWPPP Section 7.2.12) Rev. 01/28/15

NOT APPLICABLE

Permit NO. HISXXXXXX, A. General Requirements, Item 6:

Inspect, at a minimum of once per week, the receiving state waters, storm water runoff and control measures and BMPs to detect violations of and conditions which may cause or contribute to a violation of the basic water quality criteria as specified in HAR, Chapter 11-54, Section 11-54-4 (e.g., the Permittee shall look at storm water discharges and receiving state waters for turbidity, color, floating oil and grease, floating debris and scum, materials that will settle, substances that will produce taste in the water or detectable off-flavor in fish, and inspect for items that may be toxic or harmful to human or other life).

The Receiving State Waters Inspection Report for Individual NPDES Permits shall be used to document the weekly inspections of the receiving state waters.

SITE-SPECIFIC BEST MANAGEMENT PRACTICE INSPECTION AND MAINTENANCE REPORT
RECEIVING STATE WATERS INSPECTION REPORT FOR INDIVIDUAL NPDES PERMITS

TO BE COMPLETED A MINIMUM OF ONCE PER WEEK, TYPICALLY ALONG WITH WEEKLY BMP INSPECTION ☐ CHECK IF STAND-ALONE INSPECTION

DATE: _____ **INSPECTOR/ENGINEER:** _____
PROJECT NO.: _____ **DOH FILE NO.:** _____
PROJECT: _____
WEATHER CONDITIONS: _____ **INCHES OF RAIN IN THE PAST 24 HOURS:** _____

LOCATION OF WORK ACTIVITIES: _____
DESCRIPTION OF WORK ACTIVITIES: _____

This report is required if the project is covered under an Individual NPDES Permit and there is a requirement to inspect the receiving state waters.

List all receiving water outfall/discharge locations at which inspection occurred. At each point check the characteristics of the water upstream (if applicable), at discharge or outfall location, and downstream of discharge or outfall location (if applicable) and describe (turbidity, color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of storm water pollutants).

OUTFALL/DISCHARGE LOCATION	CHARACTERISTICS OF WATER UPSTREAM OF LOCATION (IF APPLICABLE)	CHARACTERISTICS OF WATER AT OUTFALL/DISCHARGE LOCATION	NOTES (INCLUDE INFORMATION ABOUT OTHER INLETS ENTERING DRAINAGE SYSTEM PRIOR TO OUTFALL, ETC.)	EVIDENCE OF PROJECT RELATED POLLUTED DISCHARGE?*

*YES = FILL OUT ATTACHMENT A: DISCHARGE REPORT
NO = NO ACTION REQUIRED

DATE: _____ INSPECTOR/ENGINEER: _____
PROJECT NO.: _____ DOH FILE NO.: _____
PROJECT: _____

I certify that I am the person who performed the inspection documented above and that all information recorded on this form is a true and accurate representation of what was observed at the construction site recorded above.

Inspector/Engineer Name and Title	Signature	Date

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

Pratt M. Kinimaka	Date

Duly Authorized Person's Name: Pratt M. Kinimaka
Duly Authorized Person's Position Title: Oahu District Engineer
Duly Authorized Person's Company or Agency Information:

Company or Agency:	State of Hawaii Department of Transportation, Highways Division	Phone:	831-6700 ext 126
Address:	727 Kakoi Street	Fax:	831-6725
	Honolulu, Hawaii 96819	Email:	Pratt.Kinimaka@hawaii.gov

SITE-SPECIFIC BEST MANAGEMENT PRACTICE INSPECTION AND MAINTENANCE REPORT
RECEIVING STATE WATERS INSPECTION REPORT FOR INDIVIDUAL NPDES PERMITS

PAGE 2 OF 3

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DATE: _____ INSPECTOR/ENGINEER: _____
PROJECT NO.: _____ DOH FILE NO.: _____
PROJECT: _____

OUTFALL/PHOTO LOCATION: _____
DESCRIPTION: _____
DATE: _____ TIME: _____

PHOTO:

INSERT PHOTO HERE

Attachment F – Spill Prevention and Response Procedures (SWPPP Section 7.2.11.1)

Spill Prevention and Control Plan (SM-10)

Description	*Practices and procedures to reduce or prevent leaks or spills of fuels, oil, and other chemicals which may be discharged into the storm drain system or adjacent water bodies.*
Applications	*Construction projects involving the storage of chemicals or hazardous substances.*
Installation and Implementation Requirements	*General Requirements include the following:* *• Store hazardous materials and wastes in covered containers and protect containers from vandalism;* *• Maintain an ample supply of cleanup materials for spills shall be readily accessible;* *• Train employees on proper spill prevention and cleanup; and* *• Review spill response requirements at all applicable work sites.* *Cleanup Requirements include the following:* *• Immediately clean up leaks and spills;* *• Use minimal water to clean up spills on paved surfaces. For small spills, use a rag. For general cleanup, use a damp mop. For larger spills, use absorbent materials. Properly dispose of materials used to clean up hazardous materials;* *• Do not hose down or bury spills; and* *• Eliminate the source of the spill to prevent a discharge or continuation of an ongoing discharge.* *Reporting includes the following:* *• Report significant spills to the U.S. Coast Guard, DOH Clean Water Branch, Hawaii State Office of Hazard Evaluation and Emergency Response, and City and County of Honolulu agencies, such as the Fire Department and* *• Per federal regulations, report significant spills of oil onto an adjoining shoreline or into a water body to the National Response Center at 800-424-8802 (24 hour).* *Vehicle and equipment maintenance activities requirements include the following:* *• Use a designated area and/or secondary containment for on-site repair or maintenance activities. These areas shall be located away from drainage courses;* *• Complete regular inspections of on-site vehicles and equipment, including delivery trucks and employees' vehicles, for leaks. Do not allow vehicles or equipment with leaks on-site. Provide Vehicle and Equipment Maintenance BMPs in SM-12 if repair must be made on site.* *• Secondary containment devices such as drop cloths and drain pans shall be used to catch leaks or spills while removing or changing fluids from vehicles or equipment;* *• Place drip pans or absorbent materials under paving equipment not in use;* *• Use absorbent materials on small spills. Do not hose down or bury spills. Remove and properly dispose of cleanup materials;* *• Immediately transfer used fluids to the appropriate waste or recycling containers. Avoid leaving full drip pans and open*

	containers on-site; *• Drain excess oil from oil filters prior to disposal by placing filter in a funnel over a waste oil recycling drum. Recycle oil filters if this service is available or dispose in accordance with Federal, State, and Local requirements;*
Installation and Implementation Requirements (Continued)	*• Store all cracked batteries in a non-leaking secondary container with cover even if the acid appears to have drained out. Handle dropped batteries as cracked batteries until assured it is not leaking.* *• Dispose of or recycle oil in accordance with Federal, State, and Local requirements. Store in water-tight container and provide cover to prevent containers from coming into contact with rainwater or secondary containment.* *Vehicle and equipment fueling activities requirements include the following:* *• Use designated areas for required on-site fueling. Fueling areas shall be located away from drainage courses;* *• Avoid "topping off" of fuel tanks; and* *• Use secondary containment devices such as drain pans to catch spills or leaks while fueling.*
Limitations	*Use of a private spill cleanup company may be necessary.*
Inspections and Maintenance	*• Update spill prevention and control plans and stock necessary cleanup materials as the chemicals used or stored on-site change.* *• Ample supplies of materials for spill control and cleanup shall be located on-site near maintenance and material storage or unloading areas.*

Emergency Spill Response Plan

Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases (7.2.11.1a).

Spill Coordinator
The Contractor shall appoint a Primary and Secondary Emergency Spill Response Coordinator who will be responsible for the reporting of spills, coordinating contractor personnel for spill cleanup, subsequent site investigations, and associated reports. In the event of a spill, the Emergency Spill Response Coordinator will be responsible for determining the extent of the containment/isolation area and cleanup methods. Include Names, positions, and emergency contact information.
The Contractor shall make contact with a Spill Cleanup Emergency Response Contractor prior to start of construction to provide sufficient information for the spill contractor to be prepared should they receive a call in the event of an emergency.

Immediate Response
All spills regardless of size must be reported to the Emergency Spill Response Coordinator and the (HDOT Construction Resident Engineer/Project Engineer/Construction Inspector). The person observing the incident will take the following actions:
• Assess the safety of the situation (including the risk to the surrounding public).
• Alert nearby personnel and secure the immediate area for safety.

If the person is aware the chemical spilled is not toxic or a known petroleum product do the following:
• Make every effort to remove potential ignition sources and stop the source of the spill.
• Clean the spill using absorbent materials available on-site. Do not hose down or bury spills. Remove and properly dispose of cleanup materials.
• Promptly notify the Emergency Spill Response Coordinator. Report name, the spill location, material spilled, and the extent of the incident.

Upon learning of the spill, the Emergency Spill Response Coordinator will implement the following measures:
• Assess the safety of the situation (including the risk to the surrounding public).
• If the source of the spill is toxic or unknown, immediately notify the Fire Department and ask for assistance from the HAZMAT team.
• Secure the area by stopping traffic if necessary and install barricades or safety fencing around the area.
•If safe to do so, prevent hazardous material from entering the stormwater or sewer system or any waterbodies by covering/blocking any drains in the spill area, and providing containment BMPs to either prevent stormwater from contacting hazardous material or contain commingled stormwater.
•If safe to do so, absorbent materials will be applied to the spill area. Contaminated soils and vegetation will be excavated and temporarily placed on and covered by plastic sheeting or in an appropriate container or surrounded by impermeable lined berms in a containment area a minimum of 100 feet away from any wetland or waterbody, until proper disposal is arranged.
• Notify appropriate agencies as required by Federal, State, and local regulations.
•For petroleum spills, provide notification if the release meets any of conditions the below:
a) Greater than 25 gallons
b) Not cleaned within 72 hours
c) Enters a storm drainage system or state waters
• Arrange for proper disposal (including contaminated personal protective equipment and/or cleanup supplies) in accordance with Federal, State, and local regulations and Manufacturer's instructions if known.
• If a spill is beyond the scope of on-site equipment and personnel, contact the Spill Cleanup Emergency Response Contractor to further contain and clean up the spill.
• Notify the (HDOT Construction Resident Engineer/Project Engineer/Construction Inspector).

Contents of the Spill kits shall be determined by the Contractor based on the anticipated type and quantity of hazardous material to be stored/used on-site. The kit should contain at minimum:
•55 gallon drum with lid
•absorbent pads (50)
•absorbent socks (12)
•absorbent pillows (5)
•1 pair goggles or faceshield
•1 pair elbow length gloves
•1 disposable apron
•disposable bags with ties (3)
•Include additional materials such as Absorbent Skimmers or Booms for work adjacent or over State Waters as needed.
•Include additional materials as necessary to secure the spill area.

Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with HAR Chapter 11-55 subsection 5.3.4. and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period (7.2.11.1.b).

• Contact information must be in locations that are readily accessible and available.

• The Contractor shall take all reasonable measures to protect human health and the environment.

• For emergencies or life-threatening situations, call 911 first.

• Notify responsible parties listed below as required and immediately notify DOH Clean Water Branch and the National Response Center of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures. Notify other agencies as required by Federal/State/Local laws. List additional agencies or personnel below as required.

1. *Owner Contact/Emergency Contact Number: (HDOT Construction Resident Engineer/Project Engineer/Construction Inspector)*

   [INSERT NAME] (Resident Engineer) - [INSERT PHONE NO. XXX-XXXX]
   [INSERT NAME] (Project Engineer) - [INSERT PHONE NO. XXX-XXXX]
   [INSERT NAME] (Supervising Inspector) - [INSERT PHONE NO. XXX-XXXX]

2. Authorized Representative/ Emergency Contact Number: (HDOT District Engineer or designated representative who can contact Authorized Representative)

3. Contractor/ Emergency Contact Number: (Contractor Emergency Contact)

4. Department of Health
Clean Water Branch (During regular working hours): ……..808-586-4309
Hawaii State Hospital Operator (After hours):…….. 808-247-2191

AND E-mail Clean Water Branch via email at cleanwaterbranch@doh.hawaii.gov

5. Hawaii Hazard Evaluation and Emergency Response (HEER) ……..808-586-4249
(After Hours) ……....808-247-2191

AND

Appropriate Local Emergency Planning Committee (LEPC)

For projects on Hawaii Island
Henry Silva, Hawaii County LEPC……..……..808-936-0858

For projects on Oahu
Leland Nakai Department of Emergency Management……808-723-8958
LEPC……..…..808-723-8960
(After Hours)……..911

For projects on Kauai
Clifford Ikeda, Kauai Civil Defense……..……..……..808-241-1800
(After Hours)……..808-241-6711

For projects in Maui County
Scott Kekuewa, Maui Fire Department……..…..808-270-7911
(After Hours)……..911

6. National Response Center (NRC)……..(800)424-8802

7. Coast Guard Operations Center, Honolulu (working hours) …….. 808-522-8246
(After hours)……808-247-2191

1. *County Fire Department/Police…… 911*
2. *HDOT Tunnels Emergency Contact Number (After hours)……...808-485-6200*
3. *Spill Cleanup Emergency Response Contractor*

[ADD Spill Cleanup Emergency Response Contractor]……808-XXX-XXXX

• *If required, fill in and follow the requirements of the HDOT Corrective Action Report.*

Attachment G – Waste Management Procedures (SWPPP Section 7.2.11.2)

Waste Management Procedures

The Contractor shall submit the DOH "Solid Waste Disclosure Form for Construction Sites" to the Engineer within 30 calendar days of contract execution. The form can be downloaded at:
http://health.hawaii.gov/shwb/files/2013/06/swdiscformnov2008.pdf

Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer monthly, this should also include documentation from any intermediary facility where solid waste is handled or processed, or as directed by the Engineer.

Solid Waste Management (SM-6)

Description	*Practices and procedures to prevent or reduce the discharge of pollutants from construction site wastes to the drainage system or adjacent water bodies.*
Applications	*Construction projects generating non-hazardous solid wastes from construction and demolition (C&D) activities. These wastes include C&D wastes, inert fill material, and recycle/reuse material.* *C&D wastes include materials originating from the demolition of roads, buildings, or other structures. Materials generated from these activities include concrete, brick, bituminous concrete, wood, masonry, composition roofing, roofing paper, steel, plaster, and minor amounts of metals.* *Inert fill materials are wastes that are not contaminated with hazardous materials such as asbestos or lead-based paint. Inert fill materials do not decompose or produce leachate or other products harmful to the environment. Inert fill materials include earth, soil, rock, cured asphalt, brick, and clean concrete (no exposed steel-reinforcing rod) with no dimension greater than eight inches.* *Recycle/reuse materials include but are not limited to: asphalt pavement, cardboard, concrete aggregate (no LBP, asbestos-free), electronic equipment, excavated rock, soil (uncontaminated), Freon from appliances, glass, green waste, metals, ferrous/non-ferrous, used tires, wood and lumbers, furniture, etc.*
Installation and Implementation Requirements	*• Separate contaminated clean up materials from C&D wastes. Contamination may be from hazardous substances, friable asbestos, waste paint, solvents, sealers, or adhesives. (See Section SM-9 Hazardous Waste Management)* *• Inert fill material shall not contain vegetation, organic material, or other solid waste.* *• Inert fill materials shall not be mixed with other C&D waste.* *• Provide waste containers of sufficient size and number to contain construction and domestic waste. Dumpsters should be securely lidded. Roll off containers should have a cover to keep rain out or loss of waste during windy conditions. Waste containers shall meet all local and State solid waste management regulations* *• Clean up and dispose of waste in designated waste containers.* *• The Contractor's supervisory personnel shall be instructed regarding the correct practices for waste disposal. Post notices stating these practices in the office*

trailer and the Contractor shall be responsible for seeing that these practices are followed.

Limitations

None

Inspections and Maintenance

• Inspect construction waste and recycling areas regularly.
• Schedule solid waste collection regularly. Empty waste containers weekly or when they are two-thirds full, whichever is sooner.
• Schedule recycling activities based on construction/demolition phases.
• Do not allow containers to overflow and clean up immediately if they do.

Sanitary/Septic Waste Management (SM-7)

Description	*Practices and procedures to reduce or prevent the discharge of sanitary wastes from construction sites into the storm drain system or adjacent water bodies.*
Applications	*Construction sites with temporary or portable sanitary/septic waste systems.*
Installation and Implementation Requirements	*• Locate sanitary facilities in a convenient place away from drainage facilities and State Waters.* *• Untreated wastewater shall not be discharged into the drainage system, State waters, to the ground or buried.* *• Position sanitary facilities where they are secure and will not be knocked down.* *• Comply with the State of Hawaii, Department of Health requirements when using an on-site disposal system such as a septic system.* *• Avoid illicit discharges by properly connecting temporary sanitary facilities to the sanitary sewer system.* *• Sanitary/septic systems discharging to the sanitary sewer shall comply with the local wastewater treatment plant requirements.* *• A licensed service provider shall maintain sanitary/septic facilities in good working order.* *• Schedule regular waste collection by a licensed transporter at least once a week or as required.*
Limitations	*None*
Inspections and Maintenance	*• Inspect and maintain facilities regularly.* *• Schedule regular waste collection.* *• Prevent illicit discharges.*

Hazardous Waste Management (SM-9)

Description	*Practices and procedures to prevent the discharge of hazardous waste to the land, storm drain system, sewer system, or adjacent water bodies.*
Applications	*Handling procedures on construction sites involving one of the following hazardous wastes:* *• Paints and solvents;* *• Petroleum products such as oils, fuels, and grease;* *• Herbicides;* *• Acids for cleaning masonry;* *• Concrete curing and repair compounds; and* *• Contaminated waste material.* *Hazardous waste management shall also be implemented for wastes from existing structures including:* *• Sandblasted material such as grit or chips containing lead, cadmium, or chromium-based paints;* *• Asbestos; and* *• Polychlorinated Biphenyls (PCBs). Older transformers are a common source of PCBs.*
Installation and Implementation Requirements	*Recognize potentially hazardous waste by implementing the following:* *• Review product label and shipping papers;* *• Identify key words such as flammable or ignitable (able to catch fire); carcinogenic (causes cancer); toxic or poisonous (injures or harms people or animals); and hazardous, danger, caustic or corrosive (burns through chemical action). Hawaii Administrative Rules (HAR) Title 11, Chapter 261 includes a list of hazardous waste and criteria;* *• Review safety data sheets (SDS), formerly material safety data sheets (MSDS) from the manufacturer and supplier of the product; and* *• Contact DOH, Hazardous Waste Program Office at 586-4226 for additional questions and information.* *Material use practices and procedures for hazardous waste management include the following:* *• Dispose container only after all of the product has been used;* *• Keep the original product label on the container since it includes important safety and disposal information;* *• Restrict amount of herbicide prepared to quantity necessary for the current application. Comply with the recommended usage instructions. Do not apply herbicides during or just before a rain event; and* *• Remove as much paint from brushes on painted surface. Do not clean or rinse water-based paint brushes in soil, streets, gutters, storm drains, or streams. Rinse from water-based paints shall be discharged into the sanitary sewer system. Filter and re-use solvents and thinners. Dispose of oil-based paints and residue as a hazardous waste.* *• See SM-2 Material Delivery and Storage and SM-3 Material Use for other requirements.*

Waste recycling and disposal practices and procedures for hazardous waste management include the following:
• Designate areas for collection of hazardous wastes;
• Store hazardous materials and wastes in covered containers and label according to applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, and local requirements;
• Provide appropriately-sized secondary containment for hazardous waste containers or cover to prevent from contact with rainwater and stormwater runoff;
• Keep wastes separate to prevent chemical reactions which make recycling and disposal difficult;
• Recycle useful materials such as oil or water-based paint;
• Do not dispose of toxic liquid wastes (solvents, used oils, and paints) or chemicals (additives, acids, and curing compounds) in dumpsters allocated for construction debris;
• Schedule periodic waste collection to prevent overflow of containers; and
• Ensure collection, removal, and disposal of hazardous waste complies with manufacturer's recommendations and in compliance with federal, state, and local requirements.
• Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.
• Do not clean surfaces or spills by hosing the area down.
• Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.

Hazardous waste management training shall include the following:
• Awareness of potential dangers from hazardous wastes;
• Identifying hazardous wastes;
• Proper hazardous waste storage and disposal procedures;
• Safety procedures for hazardous wastes;
• Placement of warning signs in areas recently treated with chemicals;
• Use of cleanup materials for spills.

Limitations

Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.

Inspections and Maintenance

• Regularly inspect hazardous waste collection and storage areas and containers.
• Schedule hazardous waste collection regularly.

ADD SIGNED SOLID WASTE DISCLOSURE FORM – Include the solid wastes produced by your Sub-contractors, all solid waste should be accounted for.

[Edit as applicable] ***Litter Management Plan***

Project Name

A. Construction site preparations.

Before the start of construction activities, during the mobilization process, proper litter waste receptacles will be located at the construction site. Litter receptacles will be placed within the boundaries of the project right-of-way or within a project related vehicle on-site. Construction debris receptacles that accept mixed reuse may also act as litter control receptacles.

B. Daily Construction Site Litter Prevention Activities.

- *Pre-Construction activities litter prevention and control activities.*

  - *At the start of each work day, the active work areas of the construction site(s) will be inspected for litter debris.*
  - *Litter debris found will be collected and properly sorted into the proper debris receptacle.*
  - *Litter will be collected whether or not it was sourced from the job site and construction related activities.*
  - *After collection, litter will be disposed of in appropriate waste containers and all practices outlined in the Waste Management Plan will be followed.*
  - *Waste containers will be inspected regularly to prevent overfilling.*

- *Post-Construction Site Litter Prevention Activities*

  - *At the end of each work day, the active work areas of the construction site(s) will be inspected for litter debris.*
  - *Litter debris found will be collected a property sorted into the proper debris receptacle.*
  - *Litter will be collected whether or not it was sourced from the job site and construction related activities.*
  - *After collection, litter will be disposed of in appropriate waste containers and all practices outlined in the Waste Management Plan will be followed.*
  - *Waste containers will be inspected regularly to prevent overfilling.*

- *BMPs and Litter Control*

- *Construction Site BMPs will be inspected for litter debris when conducted weekly BMP inspection or after a significant rain event as litter debris may reduce the performance of BMPs.*

Attachment H – Contingency Plan

[Edit as applicable Provide a contingency plan that will be implemented to prevent or respond to a polluted discharge resulting from a severe storm or natural disaster. Include how the weather will be monitored, site will be secured, and who to notify at HDOT.]

SEVERE STORM CONTINGENCY PLAN

The following plan will be implemented by the General Contractor to prevent/respond to polluted discharges resulting from a severe storm or natural disaster. It is the General Contractor's responsibility to abide by the following plan as well as any other binding plan, agreement, regulation, rule, law, or ordinance applicable.

All contactors associated with the following construction project: ***Project Name*** *will follow this plan when a severe storm is either forecast or anticipated or as directed by the Engineer.*

General Contractors shall:

a. *Regularly monitor local weather reports for forecasted and/or anticipated severe storm events, advisories, watches, warnings or alerts. The Contractor shall inspect and document the condition of all erosion control measures on that day prior, during, and within 24 hours after the event. The Contractor shall prepare for forecasted and/or anticipated severe weather events to minimize the potential for polluted discharges.*

b. *Secure the construction site. Securing the site shall include at a minimum:*
   i. *Removing or securing equipment, machinery, construction materials, and portable toilets. If portable toilets are to remain on-site, they shall be pumped the day prior to the event.*
   ii. *Cleaning up all construction debris.*
   iii. *Stopping scheduled material deliveries.*
   iv. *Locating and turning off jobsite utilities, including electricity, water, and gas.*
   v. *Implementing all Best Management Practices detailed in the SWPPP. This includes BMPs for materials management, spill prevention, and erosion and sediment control. To protect human health, the Engineer will use their discretion as to whether to remove BMPs which may impede flow into inlets causing ponding on the roadway. These changes shall be noted on the SWPPP.*
   vi. *Work crews shall finalize securing the project site, and evacuate until the severe weather condition has passed.*

c. *Upon return to the Site, all BMPs shall be inspected, repaired and/or re-installed as needed. If repair or reinstallation of removed BMPs is necessary, it shall be initiated within 24 hours of the inspection. Note the changes on the SWPPP. To facilitate repair or replacement, the Contractor shall be required to store surplus material on the project site if the site is located where replacement materials will not be readily available.*

d. *When there has been a discharge which violates Hawaii Water Pollution rules and regulations OR there is an imminent threat of a discharge which violates Hawaii Water Pollution rules and regulations and/or endangers human and/or environmental health, the Engineer shall, at a minimum, execute the following steps:*

i. *Assess whether construction needs to stop or if additional BMPs are needed to stop or prevent a violation.*

ii. *Direct the Contractor to take all reasonable measures to protect human health and the environment.*

iii. *Notify responsible parties listed below and immediately notify the DOH of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures.*

1. *Owner Contact/Emergency Contact Number:* **XXX, XXX-XXXX**
2. *Owner Contact/ Emergency Contact Number:* **XXX, XXX-XXXX**
3. *Contractor/ Emergency Contact Number:* **XXX, XXX-XXXX**
4. *Department of Health Clean Water Branch (During regular working hours): 808-586-4309 Hawaii State Hospital Operator (After hours): 808-247-2191*

iv. *Document corrective actions, take photographs of discharge and receiving waters.*

v. *Evaluate the effectiveness of the construction BMPs in the Site-Specific Construction Best Management Plan in relation to the design storm. If the storm was less than the design storm and BMPs were ineffective, revise BMPs to prevent future discharges of a similar nature.*

Attachment I – SWPPP Amendment Log

AMENDMENT LOG

Each Amendment must be signed by the authorized representative authorizing the changes in Section 7.2.17 within 7 calendar days following the occurrence of any of the conditions listed in Section 7.4.1.

Project Name: _____

SWPPP Contact: _____

Amendment No.	***Description of the Amendment***	***Date of Amendment***	***Amendment Prepared by [Name(s) and Title]***

Add rows as needed.

Attachment J – Emergency Related Projects, Departures from Manufacturer's Specifications for Fertilizers Containing Nitrogen or Phosphorus, Buffer Documentation, Documentation of Compliance with UIC Requirements, Other State/Federal/County Permits, & Other Information as Requested by the Director (SWPPP Sections 7.2.3, 7.2.9, 7.2.14, 7.2.15, and 7.2.16)

Attachment K – Post-Authorization Additions to the SWPPP

A copy of the NOI, NOI Attachments, and the NGPC are included in this SWPPP binder.

ATTACHMENT A

HDOT Construction Best Management Practices Field Manual
(SWPPP Section 7.2.10)

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Chapter 1
Site Management

Site Management (SM) BMPs are preventative measures implemented during the planning and/or construction stage of the project, which control potential pollutants at their source through the use of good house-keeping practices.

In this chapter:

- Training;
- Material Management;
- Waste Management;
- Vehicle and Equipment Management;
- Site Planning and General Practices.

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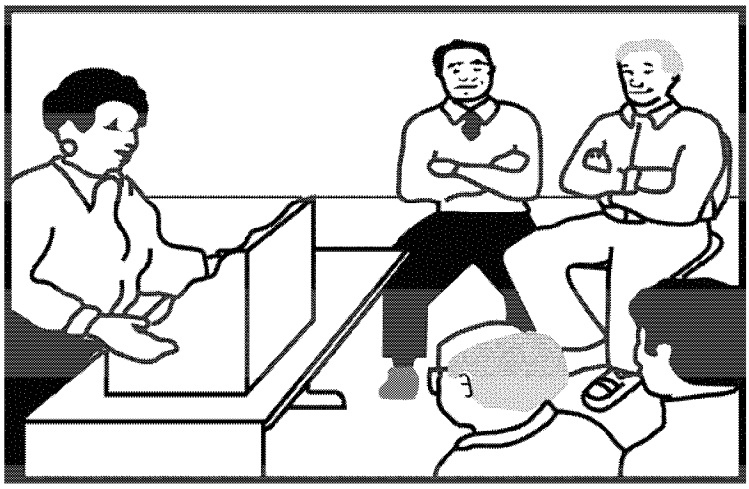
Employee Training SM-1



Source: Knoxville BMP Manual, 2003.

Description

Training programs ensure that all employees understand the requirements of the Storm Water Management Program Plan as applicable to their responsibilities. Training topics include but are not limited to storm water management, potential contamination sources, and BMPs.

Applications

Employees involved in the planning, design, or construction phase of construction, repair, or maintenance activities within the HDOT Highways rights-of-way.

Implementation Requirements

- Provide storm water management training through courses, seminars, workshops, product demonstrations, employee meetings, posters, and bulletin boards.
- Provide field training programs conducted by trained personnel.
- Maintain commitment and request input from senior DOT and Highways Division management.
- Promote open communication between employees involved in various stages of the projects.
- Improve storm water quality management based on past experience involving water quality problems at construction sites. Implement revised practices and procedures in training.
- Increase employee awareness of requirements and procedures for BMP monitoring and reporting.
- Develop standard operating procedures for storm water quality management.
- Conduct spill drills.

Employee Training SM-1

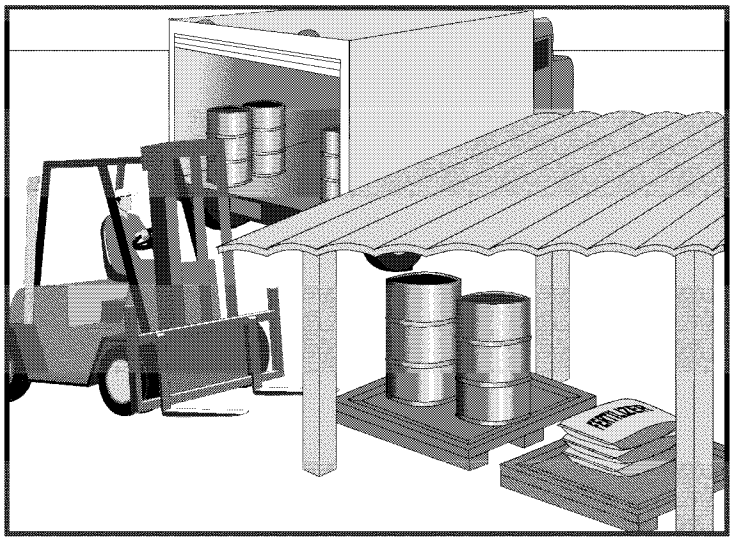
Limitations

- Training performance depends on the degree of employee motivation and incentive to learn about BMP implementation; and
- The availability of staff time to coordinate and conduct training.

Inspections and Maintenance

Provide annual training on construction BMP implementation for all employees involved with construction activities.

Material Delivery and Storage SM-2



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures that promote proper handling and storage of construction materials to prevent or reduce storm water pollution, injury to workers or visitors, groundwater pollution, and soil contamination.

Applications

Storage and handling activities on construction sites involving one of the following:

- Soil;
- Soil stabilizers and binders;
- Fertilizers;
- Pesticides and herbicides;
- Detergents;
- Plaster;
- Hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds;
- Petroleum products such as fuel, oil, and grease; and
- Asphalt and concrete products.

Installation and Implementation Requirements

- Provide training for employees and contractors on proper material delivery and storage practices and procedures.
- Designate on-site material delivery and storage areas. Areas shall be located near construction entrances and away from watercourses. Earth berms or other containment measures shall surround storage areas.

Material Delivery and Storage SM-2

Installation and Implementation Requirements (Continued)

- Flammable materials shall comply with the fire codes of Honolulu. Contact the local Fire Marshal for site specific requirements. Refer to the Flammable and Combustible Liquid Code, NFPA30 for more information.
- Maintain accurate and up to date records of material delivered and stored on-site.
- Minimize on-site inventory.
- Retain a complete set of material safety data sheets on-site.
- Minimize handling of hazardous materials.
- Store materials under cover during the rainy season.
- Store chemicals, drum, and bagged materials on a pallet and when possible, under cover in secondary containment.
- If drums must be stored in an uncovered area, place them at a slight angle to minimize ponding of rainwater on the lids to minimize corrosion.
- Hazardous chemicals shall be well-labeled and stored in the original containers.
- Employees with emergency spill cleanup training shall be present during unloading of dangerous materials or liquid chemicals.
- Any significant residual materials remaining on the ground after the completion of construction shall be removed and properly disposed. If the residual materials contaminate the soil, then the contaminated soil shall also be removed and properly disposed.

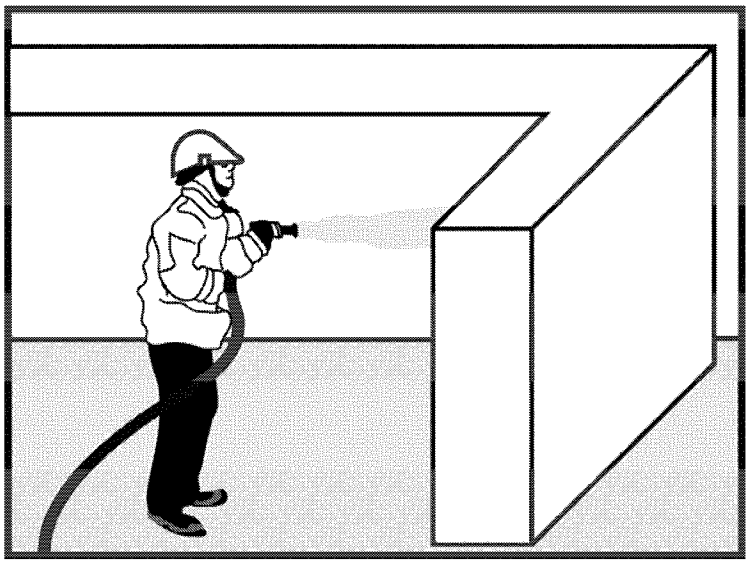
Limitations

Storage sheds shall comply with building and fire code requirements.

Inspections and Maintenance

- Storage areas shall be clean and well organized.
- An ample supply of spill cleanup materials shall be kept with work crew supplies.
- Conduct weekly inspections of material containers for corrosion.
- Conduct weekly inspections of storage areas which may require repair or replacement.

Material Use SM-3



Source: Modified from Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Minimizing or eliminating the discharge of pollutants to the storm drain system or adjacent water bodies by reducing hazardous material use on-site, using alternative products, and training employees in proper handling and use of construction materials.

Applications

Activities involving use of one of the following materials:

- Fertilizers;
- Detergents;
- Herbicides;
- Plaster;
- Petroleum products such as oil, fuel, and grease;
- Soil stabilizers and binders;
- Asphalt and concrete components; and
- Other hazardous materials such as acids, lime, glues, adhesives, paints, solvents, and curing compounds.

Installation and Implementation Requirements

- Restrict use of materials to only when and where necessary to complete the construction activity.
- Reduce or eliminate on-site use of hazardous materials. Refer to SM-9 (Hazardous Waste Management) in this manual for more information regarding use of hazardous materials.
- Carefully select appropriate material needed for the task.
- Do not remove the original label. Comply with manufacturer's labels, which include product information regarding uses, protective equipment, flammability, ventilation, and mixing of chemicals.

Installation and Implementation Requirements (Continued)

- Dispose container only after all of the product has been used.
- Restrict amount of herbicide prepared to quantity necessary for the current application. Comply with the recommended usage instructions. Do not apply fertilizers or herbicides during or just before a rain event.
- An ample supply of cleanup materials for spills shall be readily accessible.
- Provide employee training on proper material use.

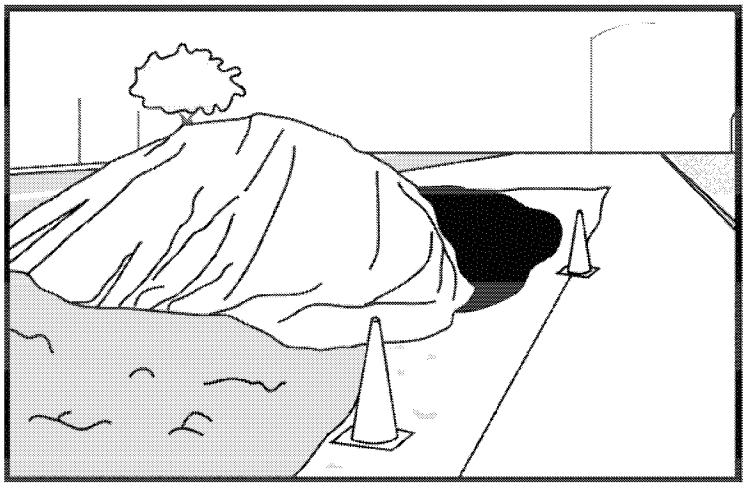
Limitations

Alternative materials may not be available or appropriate for certain construction activities.

Inspections and Maintenance

- Provide training to all new employees at the beginning of their employment.
- Provide periodic training to all employees involved in handling construction materials.

Protection of Stockpiles SM-4



Description

Stockpile protection measures reduce the potential for air and storm water pollution originating from stockpiles of construction materials, including soil and paving materials.

Applications

Projects requiring stockpiles of construction materials.

Installation and Implementation Requirements

- Stockpiles shall be located a minimum of 50 feet away from concentrated runoff.
- Place bagged materials on pallets and under cover.
- Provide physical diversion to protect stockpiles from concentrated runoff.
- Cover stockpiles with plastic or comparable material prior to a rain event and during the rainy season.
- Place silt fence, fiber filtration tubes, or straw wattles around stockpiles.

Limitations

Stockpiles are only applicable for temporary storage of material.

Inspections and Maintenance

Periodic replacement and repair of materials used for stockpile protection.

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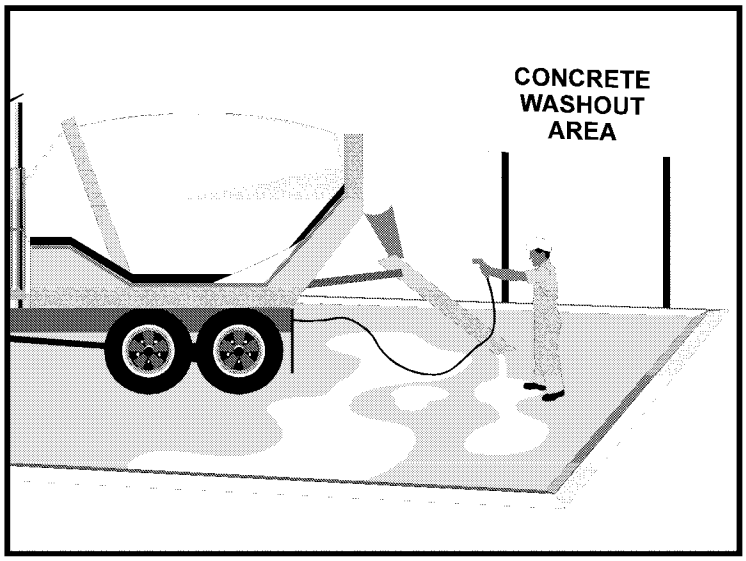
Concrete Waste Management SM-5



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of concrete waste to the drainage system or adjacent water bodies.

Applications

- Projects involving use of concrete as a construction material or demolition activities generating concrete dust and debris.
- On-site wash areas used for concrete-coated vehicles or equipment.
- Activities such as sawcutting and grinding which result in the formation of slurries containing portland cement concrete or asphalt concrete.

Installation and Implementation Requirements

- Properly store concrete materials away from runoff and under cover.
- Avoid mixing excess concrete, if possible. Discard excess concrete in the designated area.
- Wash concrete-coated vehicles or equipment off-site or in the designated wash area. Locate on-site concrete wash area a minimum of 50 feet away from storm drain inlets, open drainage facilities, or water bodies. Runoff from the on-site concrete wash area shall be contained in a temporary pit or level bermed area where the concrete can set.
- Temporary pit shall be lined with plastic to prevent seepage of the wash water into the ground. Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin.

Concrete Waste Management SM-5

Installation and Implementation Requirements (Continued)

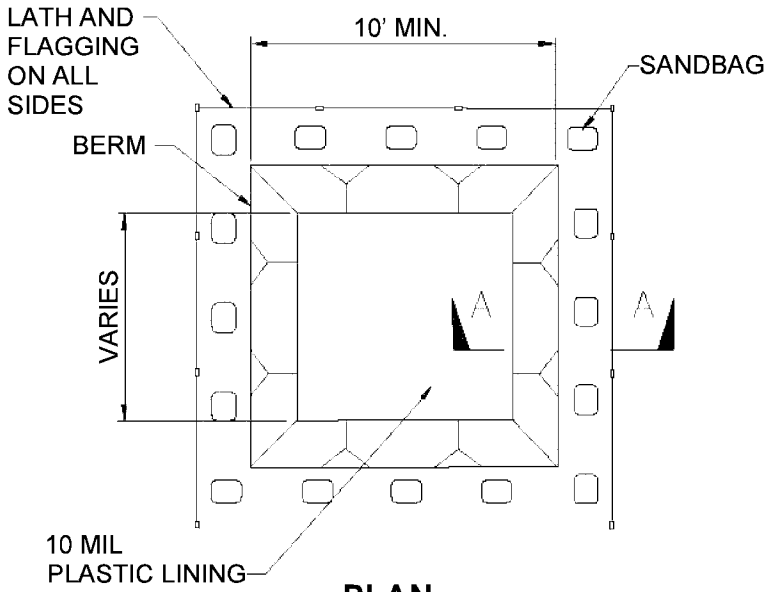
- Break up and properly dispose of hardened concrete from wash area.
- Collect and properly dispose of aggregate concrete sweepings.
- Provide concrete waste management training for employees and contractors.

Limitations

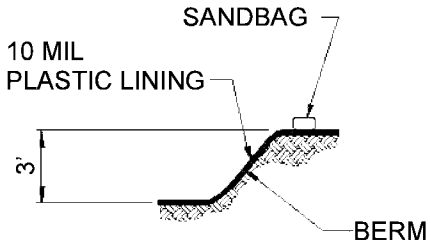
Off-site concrete wash areas may be impracticable.

Inspections and Maintenance

- Inspect concrete wash areas for damage and repair as necessary.
- Regularly remove and dispose hardened concrete.
- Monitor contractors to ensure proper concrete waste management measures are implemented.



PLAN
NTS



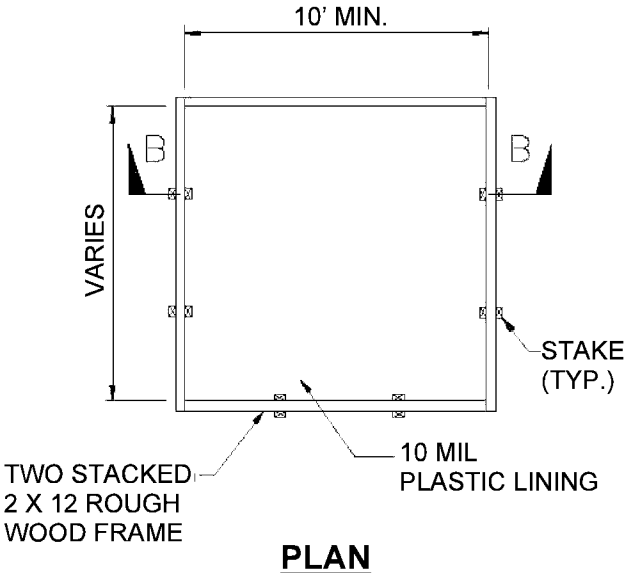
SECTION A-A
NTS

NOTES:

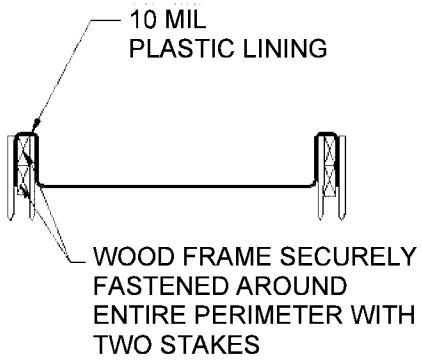
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

WASH AREA (BELOW GRADE)

Source: Caltrans Construction Site Best Management Practices Manual, 2003.



PLAN
NTS



SECTION A-A
NTS

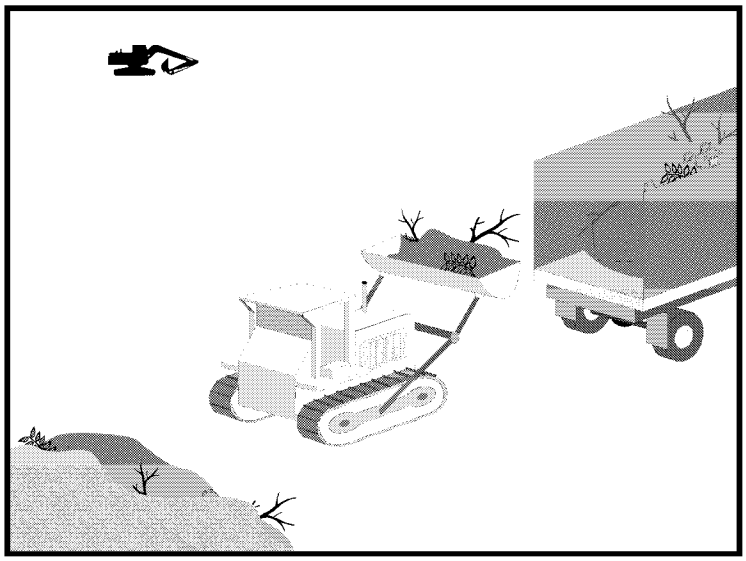
NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

WASH AREA (ABOVE GRADE)

Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Solid Waste Management SM-6



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of pollutants from construction site wastes to the drainage system or adjacent water bodies.

Applications

Construction projects generating non-hazardous solid wastes from construction and demolition (C&D) activities. These wastes include C&D wastes, inert fill material, and recycle/reuse material.

C&D wastes include materials originating from the demolition of roads, buildings, or other structures. Materials generated from these activities include concrete, brick, bituminous concrete, wood, masonry, composition roofing, roofing paper, steel, plaster, and minor amounts of metals.

Inert fill materials are wastes that are not contaminated with hazardous materials such as asbestos or lead-based paint. Inert fill materials do not decompose or produce leachate or other products harmful to the environment. Inert fill materials include earth, soil, rock, cured asphalt, brick, and clean concrete (no exposed steel-reinforcing rod) with no dimension greater than eight inches.

Recycle/reuse materials include but are not limited to: asphalt pavement, cardboard, concrete aggregate (no LBP, asbestos-free), electronic equipment, excavated rock, soil (uncontaminated), Freon from appliances, glass, green waste, metals, ferrous/non-ferrous, used tires, wood and lumbers, furniture, etc.

Solid Waste Management SM-6

Installation and Implementation Requirements

- Separate contaminated clean up materials from C&D wastes. Contamination may be from hazardous substances, friable asbestos, waste paint, solvents, sealers, or adhesives.
- Inert fill material shall not contain vegetation, organic material, or other solid waste.
- Inert fill materials shall not be mixed with other C&D waste.

Limitations

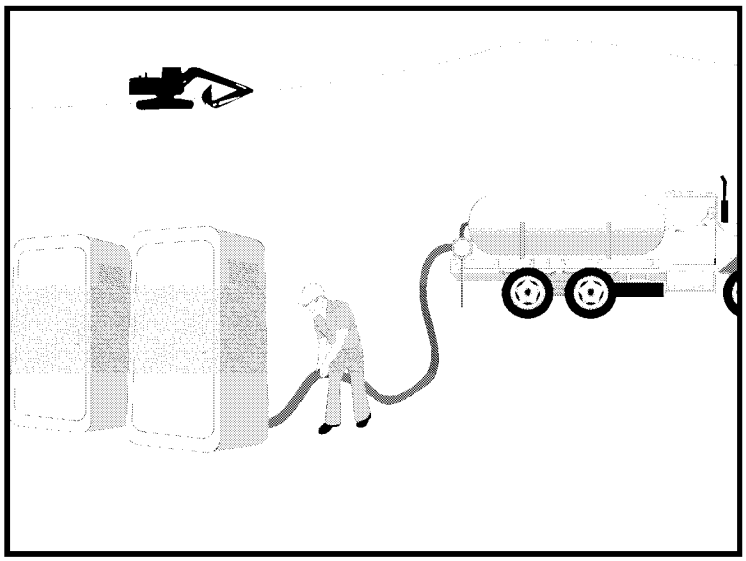
None

Inspections and Maintenance

- Inspect construction waste and recycling areas regularly.
- Schedule solid waste collection regularly.
- Schedule recycling activities based on construction/demolition phases.

Sanitary/Septic Waste Management

SM-7



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to reduce or prevent the discharge of sanitary wastes from construction sites into the storm drain system or adjacent water bodies.

Applications

Construction sites containing temporary or portable sanitary/septic waste systems.

Installation and Implementation Requirements

- Locate sanitary facilities in a convenient place away from drainage facilities.
- Untreated wastewater shall not be discharged to the ground or buried.
- Comply with the State of Hawaii, Department of Health requirements when using an on-site disposal system such as a septic system.
- Avoid illicit discharges by properly connecting temporary sanitary facilities to the sanitary sewer system.
- Sanitary/septic systems discharging to the sanitary sewer shall comply with the local wastewater treatment plant requirements.
- A licensed service provider shall maintain sanitary/septic facilities in good working order.
- Schedule regular waste collection by a licensed transporter.

Limitations

None

Sanitary/Septic Waste Management

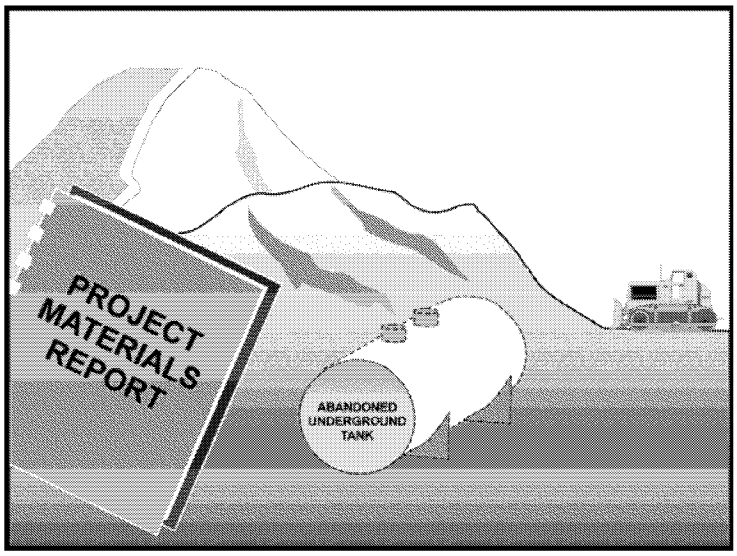
SM-7

Inspections and Maintenance

- Inspect and maintain facilities regularly.
- Schedule regular waste collection.
- Prevent illicit discharges.

Contaminated Soil Management

SM-8



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of pollutants to the drainage system, adjacent water bodies, or land.

Applications

Projects in urbanized or industrial areas where previous site usage, undetected spills or leaks, illicit discharges, or underground storage tank leaks may have contributed to soil contamination.

Installation and Implementation Requirements

- Research records of previous site uses and activities.
- Identify soil discoloration, odors, soil property differences, abandoned underground tanks or pipes, or buried debris to determine possible soil contamination.
- Prevent leaks and spills.
- Test soil at a certified laboratory if soil is suspected of contamination.
- Coordinate with the State of Hawaii, Department of Health for required permits and to determine treatment and disposal options of contaminated soil.

Limitations

Dispose of contaminated soils at DOH-permitted facilities. Transfer contaminated soils via DOH-approved transporter.

Inspections and Maintenance

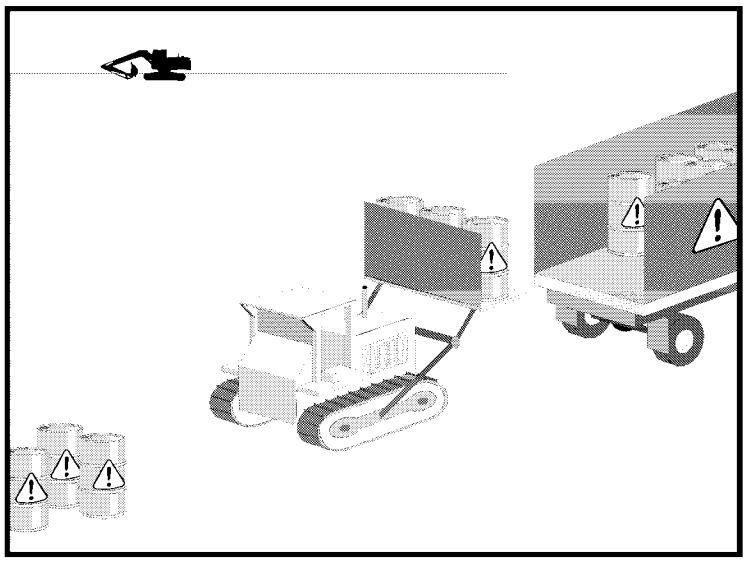
- Conduct daily inspections of excavated areas for evidence of contaminated soil.
- Regularly inspect hazardous waste disposal areas and receptacles.
- Monitor on-site contaminated soil storage and disposal procedures.

Inspections and Maintenance (Continued)

- Prevent leaks and spills by implementing Spill Prevention and Control practices and procedures.

Hazardous Waste Management

SM-9



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of hazardous waste to the land, storm drain system, or adjacent water bodies.

Applications

Handling procedures on construction sites involving one of the following hazardous wastes:

- Paints and solvents;
- Petroleum products such as oils, fuels, and grease;
- Herbicides;
- Acids for cleaning masonry;
- Concrete curing and repair compounds; and
- Contaminated waste material.

Hazardous waste management shall also be implemented for wastes from existing structures including:

- Sandblasted material such as grit or chips containing lead, cadmium, or chromium-based paints;
- Asbestos; and
- Polychlorinated Biphenyls (PCBs). Older transformers are a common source of PCBs.

Hazardous Waste Management

SM-9

Installation and Implementation Requirements

Recognize potentially hazardous waste by implementing the following:

- Review product label and shipping papers;
- Identify key words such as flammable or ignitable (able to catch fire); carcinogenic (causes cancer); toxic or poisonous (injures or harms people or animals); and hazardous, danger, caustic or corrosive (burns through chemical action). Hawaii Administrative Rules (HAR) Title 11, Chapter 261 includes a list of hazardous waste and criteria;
- Review material safety data sheets (MSDS) from the manufacturer and supplier of the product; and
- Contact DOH, Hazardous Waste Program Office at 586-4226 for additional questions and information.

Material use practices and procedures for hazardous waste management include the following:

- Dispose container only after all of the product has been used;
- Keep the original product label on the container since it includes important safety and disposal information;
- Restrict amount of herbicide prepared to quantity necessary for the current application. Comply with the recommended usage instructions. Do not apply herbicides during or just before a rain event; and
- Remove as much paint from brushes on painted surface. Avoid cleaning or rinsing water-based paint brushes in soil, streets, gutters, storm drains, or streams. Rinse from water-based paints shall be discharged into the sanitary sewer system. Filter and re-use solvents and thinners. Dispose of oil-based paints and residue as a hazardous waste.

Waste recycling and disposal practices and procedures for hazardous waste management include the following:

- Designate areas for collection of hazardous wastes;
- Store hazardous materials and wastes in covered containers;
- Provide secondary containment for hazardous waste containers;
- Keep wastes separate to prevent chemical reactions which make recycling and disposal difficult;
- Recycle useful materials such as oil or water-based paint;
- Avoid disposal of toxic liquid wastes (solvents, used oils, and paints) or chemicals (additives, acids, and curing compounds) in dumpsters allocated for construction debris;
- Schedule periodic waste collection to prevent overflow of containers; and
- Ensure collection, removal, and disposal of hazardous waste complies with regulations.

Hazardous Waste Management

SM-9

Installation and Implementation Requirements (Continued)

Hazardous waste management training shall include the following:

- Awareness of potential dangers from hazardous wastes;
- Identifying hazardous wastes;
- Proper hazardous waste storage and disposal procedures;
- Safety procedures for hazardous wastes;
- Placement of warning signs in areas recently treated with chemicals;
- Use of cleanup materials for spills;

Limitations

Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.

Inspections and Maintenance

- Regularly inspect hazardous waste collection and storage areas and containers.
- Schedule hazardous waste collection regularly.

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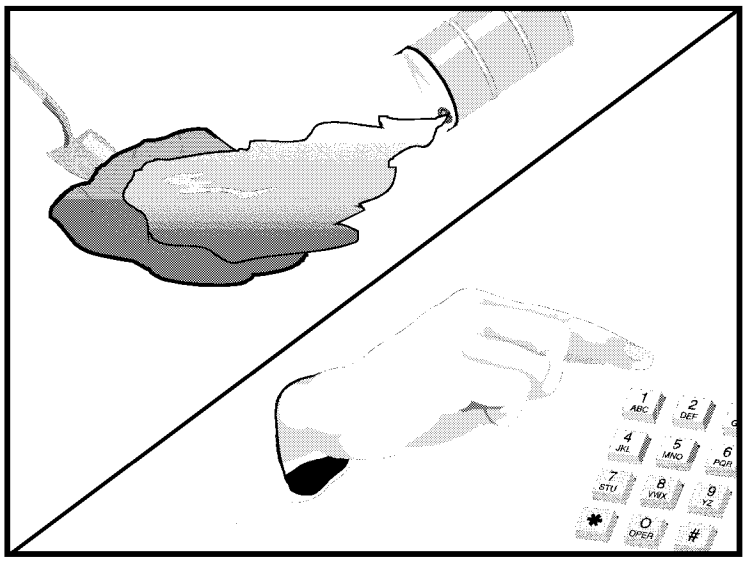
Spill Prevention and Control SM-10



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to reduce or prevent leaks or spills which may be discharged into the storm drain system or adjacent water bodies.

Applications

Construction projects involving the storage of chemicals or hazardous substances.

Installation and Implementation Requirements

General Requirements include the following:

- Store hazardous materials and wastes in covered containers and protect containers from vandalism;
- Maintain an ample supply of cleanup materials for spills shall be readily accessible;
- Train employees on proper spill prevention and cleanup; and
- Review spill response requirements at all applicable work sites.

Cleanup Requirements include the following:

- Immediately clean up leaks and spills;
- Use minimal water to clean up spills on paved surfaces. For small spills, use a rag. For general cleanup, use a damp mop. For larger spills, use absorbent materials. Properly dispose of materials used to clean up hazardous materials; and
- Avoid hosing down or burying dry material spills.

Reporting includes the following:

- Report significant spills to the U.S. coast Guard, Hawaii State Office of Hazard Evaluation and Emergency Response, and City and

Installation and Implementation Requirements (Continued)

County of Honolulu agencies, such as the Fire Department and

- Per federal regulations, report significant spills of oil onto an adjoining shoreline or into a water body to the National Response Center at 800-424-8802 (24 hour).

Vehicle and equipment maintenance activities requirements include the following:

- Use a designated area and/or secondary containment for on-site repair or maintenance activities. These areas shall be located away from drainage courses;
- Complete regular inspections of on-site vehicles and equipment, including delivery trucks and employees' vehicles, for leaks. Do not allow vehicles or equipment with leaks on-site;
- Secondary containment devices such as drop cloths and drain pans shall be used to catch leaks or spills while removing or changing fluids from vehicles or equipment;
- Place drip pans or absorbent materials under paving equipment not in use;
- Use absorbent materials on small spills. Avoid hosing down or burying spills. Remove and properly dispose of cleanup materials;
- Immediately transfer used fluids to the appropriate waste or recycling containers. Avoid leaving full drip pans and open containers on-site;
- Drain excess oil from oil filters prior to disposal by placing filter in a funnel over a waste oil recycling drum. Recycle oil filters if this service is available; and
- Store all cracked batteries in a non-leaking secondary container even if the acid appears to have drained out. Handle dropped batteries as cracked batteries until assured it is not leaking.

Vehicle and equipment fueling activities requirements include the following:

- Use designated areas for required on-site fueling. Fueling areas shall be located away from drainage courses;
- Avoid "topping off" of fuel tanks; and
- Use secondary containment devices such as drain pans to catch spills or leaks while fueling.

Limitations

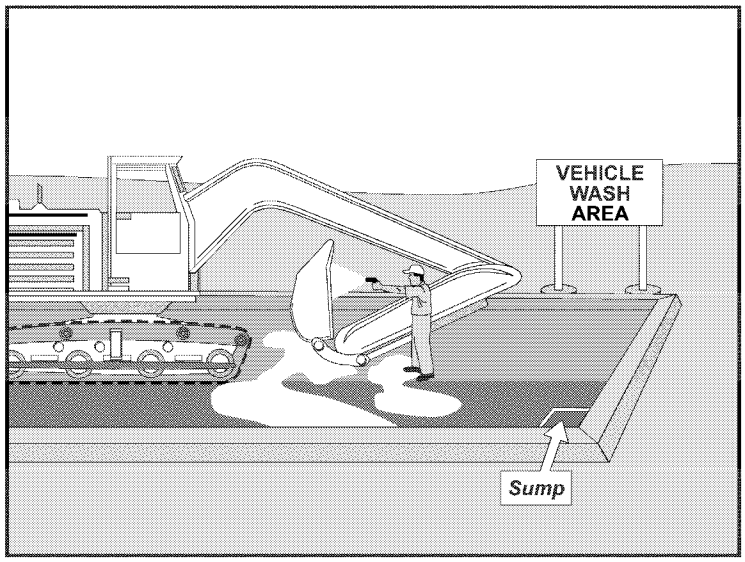
Use of a private spill cleanup company may be necessary.

Inspections and Maintenance

- Update spill prevention and control plans and stock necessary cleanup materials as the chemicals used or stored on-site change.
- Ample supplies of materials for spill control and cleanup shall be located on-site near maintenance and material storage or unloading areas.

Vehicle and Equipment Cleaning

SM-11



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to reduce or prevent the discharge of pollutants from vehicle and equipment cleaning activities to storm drain.

Applications

Construction or maintenance activities involving cleaning of vehicles and equipment.

Installation and Implementation Requirements

- Use off-site vehicle wash racks or commercial washing facilities when practical. Off-site cleaning facilities may be better equipped to properly handle and dispose of wash waters.
- If on-site cleaning is necessary, designate bermed wash areas for cleaning activities. The wash area may be sloped to facilitate collection of wash water and evaporative drying.
- Minimize water use to avoid the need for erosion and sediment controls for the wash area.
- Use phosphate-free, biodegradable soaps.
- Train employees on pollution prevention measures.
- Steam cleaning shall not occur in uncontained areas. Significant pollutant concentrations may be generated from steam cleaning.

Limitations

Some soaps labeled phosphate-free and/or biodegradable have been shown to be toxic to fish before the soap degrades. Do not discharge wash water directly into streams.

Inspections and Maintenance

- Train employees on implementation of revised procedures.
- Inspect and maintain structural controls.

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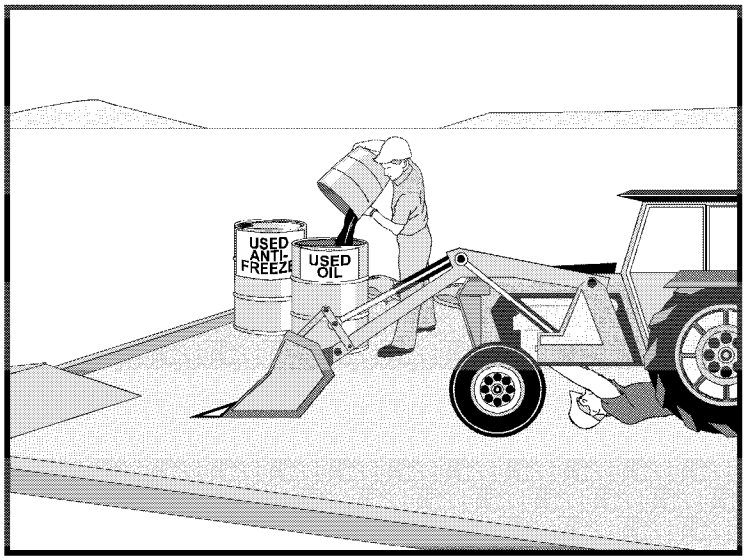
Vehicle and Equipment Maintenance

SM-12



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of pollutants from vehicular and equipment maintenance procedures into the storm drain system or adjacent water bodies.

Applications

Construction sites with on-site areas for storage and maintenance of vehicles and equipment.

Installation and Implementation Requirements

- Prevent excessive accumulation of oil and grease by keeping vehicles and equipment clean.
- Use off-site repair and maintenance facilities where practical.
- Designate a maintenance area away from drainage courses to prevent pollutants from entering the drainage system.
- Place drip pans or drop cloths under vehicles and equipment to absorb spills or leaks.
- Provide an ample supply of readily accessible spill cleanup materials.
- Use absorbent materials on small spills. Promptly remove and properly dispose of absorbent materials. Do not hose down or bury small spills.
- On-site vehicles and equipment shall be inspected regularly for leaks and all leaks shall be immediately repaired.
- Incoming vehicles and equipment shall be checked for leaks. Leaking vehicles and equipment shall not be allowed on-site.

Vehicle and Equipment Maintenance

SM-12

Installation and Implementation Requirements (Continued)

- Segregate and recycle wastes from vehicle/equipment maintenance activities such as used oil or oil filters, greases, cleaning solutions, antifreeze, automotive batteries, and hydraulic and transmission fluids.
- Properly dispose of wastes generated by vehicle/equipment maintenance activities.
- Provide employee training on proper maintenance and spill cleanup practices and procedures.

Limitations

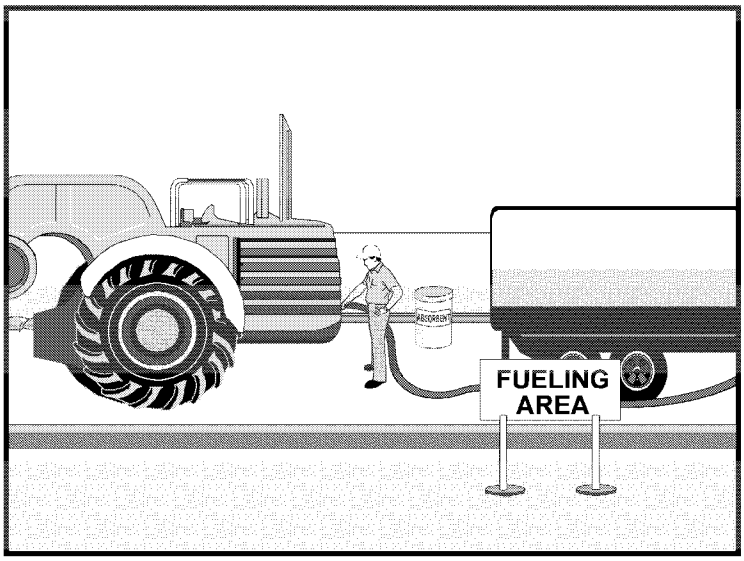
Off-site maintenance facility may not be easily accessible.

Inspections and Maintenance

- Regularly inspect vehicle and maintenance areas.
- Ample supplies of spill cleanup materials shall be kept on-site.

Vehicle and Equipment Refueling

SM-13



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Practices and procedures to prevent or reduce the discharge of pollutants to storm water from vehicle and equipment fuel leaks or spills.

Applications

Construction or maintenance activities involving fueling of vehicles or equipment.

Installation and Implementation Requirements

- Comply with Federal and State requirements regarding stationary, above ground storage tanks.
- Use off-site fueling sites when practical. Off-site fueling sites may be better equipped to service and handle spills due to multiple vehicles or pieces of equipment.
- If on-site fueling is necessary, locate designated fuel areas away from drainage courses to prevent contamination of storm water.
- Avoid "topping-off" of fuel tanks.
- Drip pans or drop cloths shall be used to absorb leaks or spills during fueling.
- Absorbent spill cleanup materials shall be available and located in fueling areas.
- Use absorbent materials on small spills instead of hosing down or burying the spill. Promptly remove and properly dispose the absorbent materials.
- Minimize mobile fueling of construction equipment by transporting equipment to designated areas for fueling.
- Train employees on proper fueling and cleanup procedures.

Vehicle and Equipment Refueling

SM-13

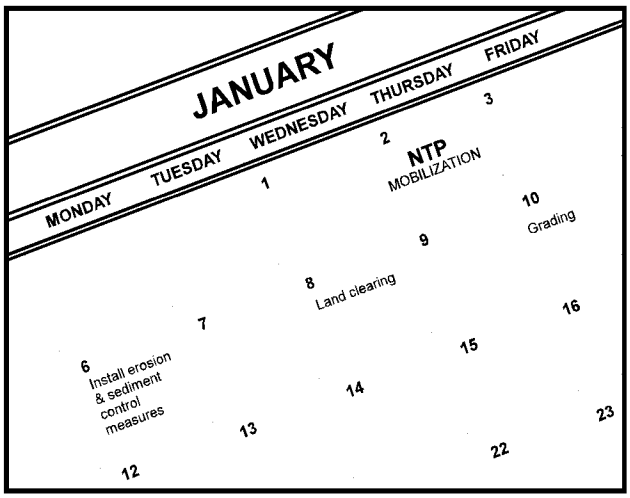
Limitations

Off-site fueling of vehicles and equipment may not be practical.

Inspections and Maintenance

- Ample supplies of materials for fuel spill control and cleanup shall be located on-site near fueling areas.
- Regularly inspect fueling areas and storage tanks.

Scheduling SM-14



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Development of a plan that addresses the sequence of construction activities as it relates to the local climate. Scheduling considerations may minimize soil erosion resulting from exposure to wind, rain, runoff, and vehicle tracking.

Applications

Proper scheduling shall be used on all projects.

Installation and Implementation Requirements

- Minimize the area of active construction. Limit is 300,000 square feet.
- Minimize work involving soil disturbing activities during the rainy season.
- Schedule disturbed areas to be stabilized prior to additional grading of other areas.
- Minimize duration of time trenches remain open. Schedule trenching activities to ensure trenches are closed prior to excavating new trenches.
- Implement erosion and sediment control year round.

Limitations

None

Inspections and Maintenance

- Monitor progress of construction activities relative to construction schedule. Implement remedial measures if progress deviates from schedule.
- Revise the schedule as necessary.

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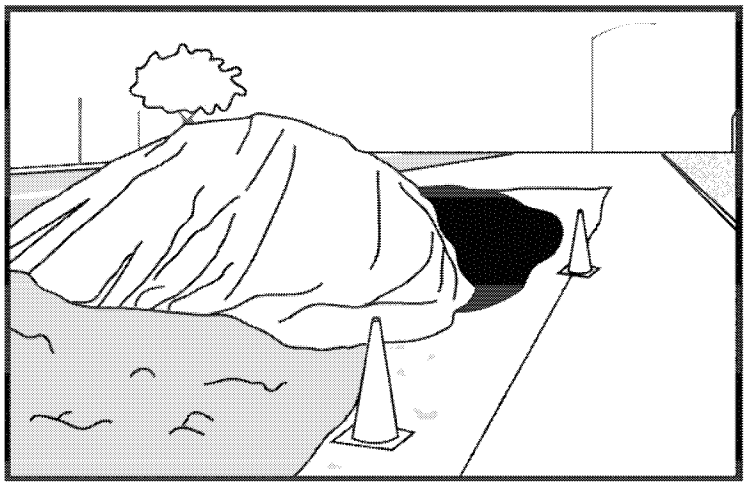
Location of Potential Sources of Sediment

SM-15



Description

Identify potential sources of sediment to reduce erosion and sediment discharge from construction sites.

Applications

Any potential source of sediment on all projects.

Installation and Implementation Requirements

- Configure construction site to ensure vegetated areas buffer haul roads and stockpiles. Vegetation provides an effective means of reducing sediment and pollutants discharged off-site.
- Place stockpiles away from waterways or low spots.
- Direct off-site runoff away from bare ground.
- Maintain vegetation in swales and natural drainage ways.
- Designate naturally level areas for parking and equipment staging during construction.

Limitations

Additional BMPs such as mulching, planting, and structural controls, including berms, silt fences, and silt basins, shall also be implemented.

Inspections and Maintenance

Inspect construction site periodically and after rain to identify areas requiring installation, repair, or replacement of additional BMPs to cover exposed areas or redirect off-site runoff.

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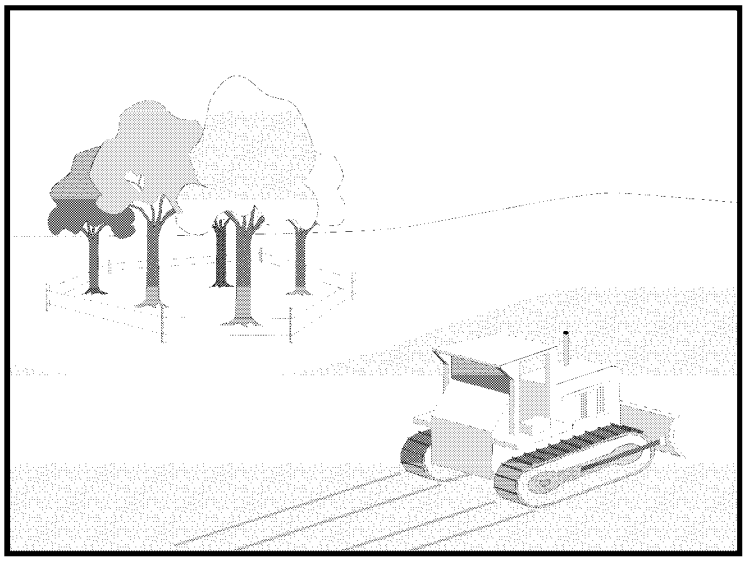
Preservation of Existing Vegetation

SM-16



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Identification of existing vegetation to remain provides erosion and sediment control on a site with future land disturbing activities.

Applications

Preservation of existing vegetation practices apply to the following:

- Areas on-site where no construction activity occurs or will occur at a later date.
- Areas where the existing vegetation should be preserved such as steep slopes, watercourses, and building sites in wooded areas.
- Natural resources or environmental protection areas requiring preservation by local, state, and federal governments such as wetlands and marshes.

Installation and Implementation Requirements

- Incorporate existing vegetation into landscaping plans when possible. Proper care of this vegetation before and after construction is required.
- Consider aesthetic and environmental values, tree/plant health, life span, sun exposure limitations, and space requirements when determining which vegetation to preserve.
- When preparing the landscaping plans, avoid using vegetation which competes with the existing vegetation.
- Establish setback distances defined by devices such as berms, fencing, or signs. Setback distances are based on vegetation species, location, size, and age. The type of construction activity in the vicinity of the vegetation shall also be considered. Construction activities are not permitted within the setback.

Preservation of Existing Vegetation

SM-16

Installation and Implementation Requirements (Continued)

- Protect existing vegetation using one of the following methods:
  - Mark, flag, or fence areas of vegetation to be preserved;
  - Designate limits of root system (tree drip line);
  - Tree wells and retaining walls which are large enough to protect the root system;
  - Limit grading to within one foot of the tree drip lines, if grading under the tree is necessary; and
  - Locate construction traffic routes, spoil piles, etc. away from existing vegetation.

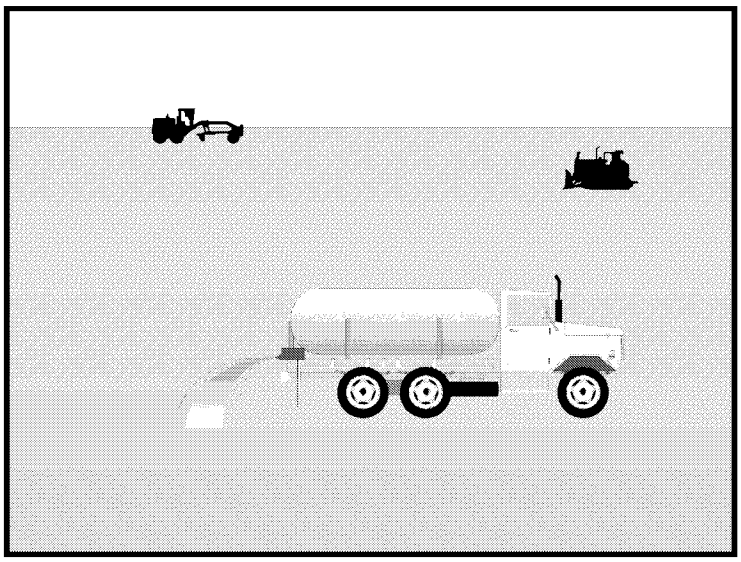
Limitations

- Requires advanced planning and coordination between the owner/ developer, contractor, and designer.
- Limited use if final site design does not incorporate existing vegetation.
- Diverse site topography may result in additional expenses to satisfy vegetation preservation and the grading required for the site improvements.

Inspections and Maintenance

Inspect protective measures and immediately repair or replace damaged protection measures.

Dust Control SM-18



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Application of water and/or dust control measures to minimize erosion due to wind or reduce the amount of dust generated by construction activities.

Applications

Dust control shall be used on all exposed soils or any construction activity generating dust. Dust control shall apply to the following:

- Clearing, grubbing, and grading;
- Construction vehicular travel on unpaved roads;
- Drilling and blasting;
- Sediment tracking onto paved roads;
- Soil and debris stockpiles;
- Batch drop from front-end loaders; and
- Unstable soil areas.

Installation and Implementation Requirements

- Minimize exposed areas through the schedule of construction activities.
- Utilize vegetation, mulching, sprinkling, and stone/gravel layering to quickly stabilize exposed soil.
- Identify and stabilize primary entrances/exits prior to commencement of construction.
- Anticipate the prevailing wind direction to minimize the amount of dust generated.
- Do not over-spray water for dust control purposes.
- Direct construction vehicular traffic to stabilized roadways.
- Comply with the 2005 Hawaii Standard Specifications for Road and Bridge in sections 209 and 620.

Dust Control SM-18

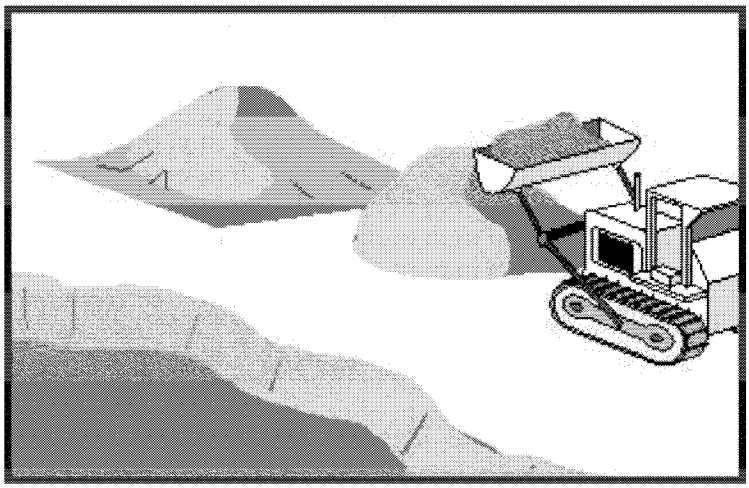
Limitations

- Daily or more frequent applications of water may be necessary since water is a short-term dust preventative.
- Erosion may result from overwatering.
- Oil may not be used for dust control since the oil may discharge into a drainageway or seep into soil.
- Some dust suppression chemicals may cause soil to be water repellent resulting in increased runoff.

Inspections and Maintenance

Inspect construction site periodically and after rain to identify areas requiring installation, repair, or replacement of additional BMPs to cover bare ground or redirect off-site runoff.

Topsoil Management SM-21



Source: Truckee Meadows Construction Best Management Practices Handbook, 2003.

Description

Reuse of native topsoil and other selected materials during revegetation activities. Salvaging, stockpiling, and reapplication of native topsoil are integral to successful revegetation efforts, especially for the reestablishment of native vegetation.

Applications

- Reestablishment of areas where vegetation with native plant species is desirable.
- Appropriate for sensitive habitat areas, floodplains, wetlands, and stream banks.

Installation and Implementation Requirements

- Conduct a site-specific soil survey of the area prior to soil disturbing activities to assess the location, depth, and amount of soils suitable for salvaging.
- Salvage and stockpile all suitable topsoil and other material for future use during revegetation of the area. Stockpile material in an area free of contamination from demolition or construction activities.
- Refer to SM-4 (Protection of Stockpiles) in this manual when stockpiling salvaged topsoil.
- Carefully remove shrubs suitable for revegetation and store with the roots covered with mulch or loose soil.
- Cover or stabilize soil stockpiles with temporary measures such as mulch or temporary vegetation.
- Apply topsoil or growth medium directly to disturbed areas when practicable.
- Soil replacement depths are determined by factors such as soil depth prior to disturbance, type of vegetation, and physical and/or chemical properties of the material to be covered. A deeper soil layer is required for soils with poor physical and chemical

Installation and Implementation Requirements (Continued)

properties. Testing (nutrients, pH, and toxicity factors) of replacement soils and material to be covered shall be completed prior to reapplication.

- Consideration of the following items is necessary when developing a topsoil management plan:
  - Quality and amount of native topsoil or growth medium;
  - Area of surface disturbance to which topsoil or growth medium will be applied and the required depth of application;
  - Methodology for salvaging topsoil or growth medium;
  - Stockpile location, duration of storage, and required erosion control measures to protect stockpile;
  - Feasibility of direct application of salvaged soils; and
  - Availability of other growth media to supplement topsoil reclamation.

Limitations

- Stockpiles may limit the area available for construction activity.
- Runoff from stockpiles may adversely impact water quality.

Inspections and Maintenance

- Regularly inspect stockpiles for erosion and stabilize as necessary.
- Inspect stockpile covers to ensure adequate protection from wind and rain.
- Adequately water plantings until they are established.

Chapter 2
Erosion Control

Erosion Control (EC) BMPs are devices installed on a construction site that reduce the erosion potential as a result of land disturbing activities. Erosion Control BMPs serve as prevention measures by stabilizing soil. They are the primary measures of reducing the negative impact of construction activities by preventing storm water pollution.

In this chapter:

- Control construction activities;
- Stabilize soil;
- Minimize disturbed area and protect natural vegetations, streams and soil;
- Control storm water flowing onto and through the project;
- Protect slopes.

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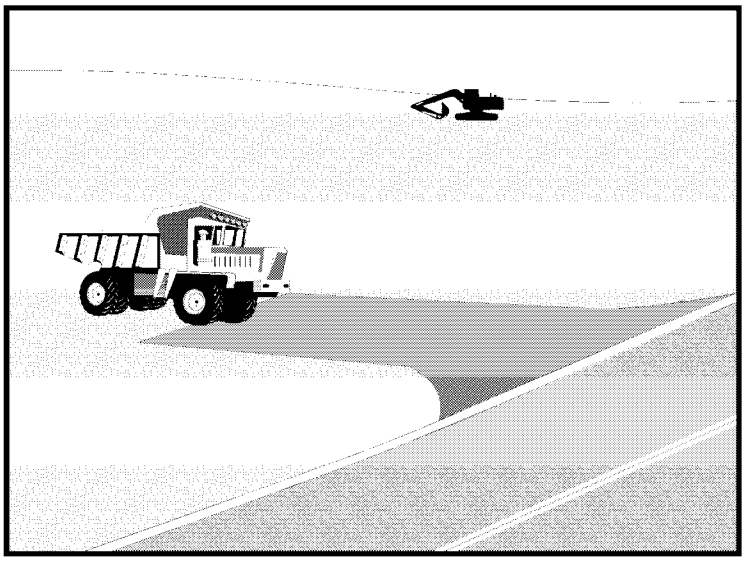
Stabilized Construction Entrance/Exit

EC-2



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Stabilized construction entrances/exits are designated areas for entry to or exit from a construction site. Stabilization of the construction entrances/exits reduces the amount of sediment tracked off-site by construction vehicles.

Applications

Stabilized construction entrances/exits shall be used where access to a construction site from paved roads is required.

Installation and Implementation Requirements

- Grade the stabilized entrance/exit to prevent runoff from discharging off-site.
- Direct runoff to a sediment trap or basin prior to discharge.
- Construct stabilized entrance/exit on level ground where possible.
- Provide ample turning radii.
- Crushed aggregate free of fine material shall be 3 to 6 inches in size. The use of crushed asphalt concrete (AC) is not allowed.
- Depth of aggregate shall be 12 inches thick or as recommended by the soils engineer. Contractor is responsible to design stabilized construction entrances/exit to support heaviest vehicles and equipment that will use it.
- Place geotextile filter fabric beneath the aggregate.
- Dimensions shall be a minimum of 50 feet in length and 30 feet in width. If project site layout will not accommodate minimum dimensions identify additional BMPs to minimize tire tracking.

Limitations

- Surface aggregate shall be periodically replenished.
- A sediment trapping device is required if a wash rack is used in

Limitations (Continued)

conjunction with the stabilized construction entrance/exit.

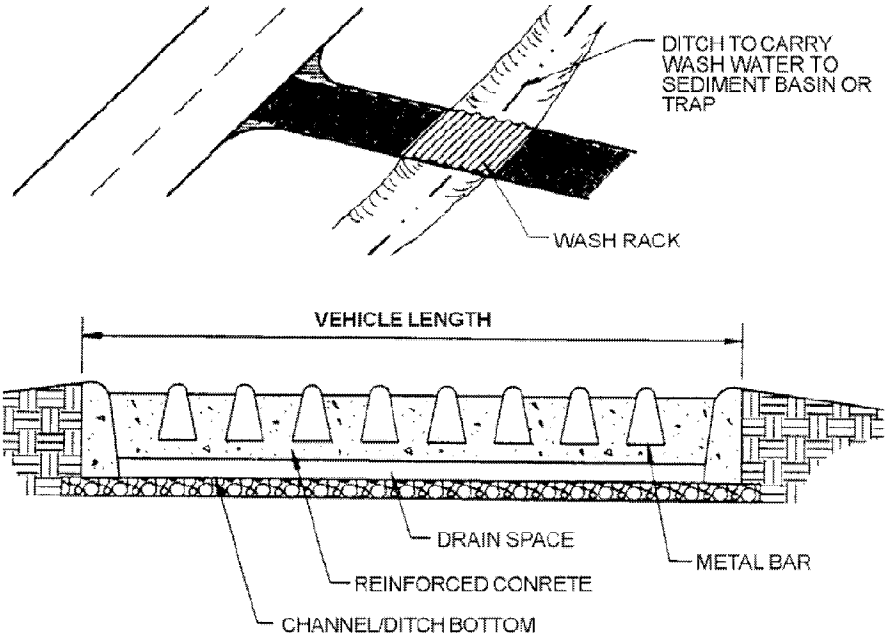
- If the construction entrance is not preventing sediment from being tracked onto the pavement, then alternative measures to keep the streets free of sediment shall be used. This may include street sweeping, and increasing the dimensions of the entrance, or the installation of a wheel wash. Any sediment that is tracked onto the pavement shall be removed by shoveling or street sweeping. The sediment collected by sweeping shall be removed or stabilized on site. The pavement shall not be cleaned by washing down the street, except when sweeping is ineffective and there is a threat to public safety. If it is necessary to wash the streets, the construction of a small sump shall be considered. The sediment would then be washed into the sump where it can be controlled. Use BMPs for adjacent drainage structures.

Inspections and Maintenance

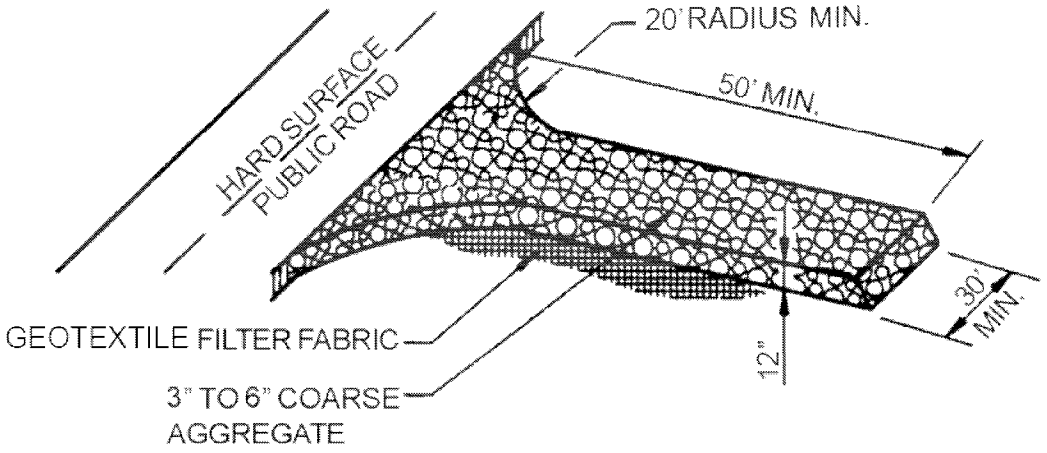
- Inspect construction entrance/exit weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall for damage.
- Remove deposited sediment from adjacent roadways or paved areas within 24 hours.
- Replenish surface aggregate periodically.
- Upon project completion, all construction entrances/exits shall be removed by the contractor and restore the area to the condition approved by the Engineer.

Stabilized Construction Entrance/Exit

EC-2



WASH RACK (SCHEMATIC)
NTS



STABILIZED CONSTRUCTION ENTRANCE
NTS

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

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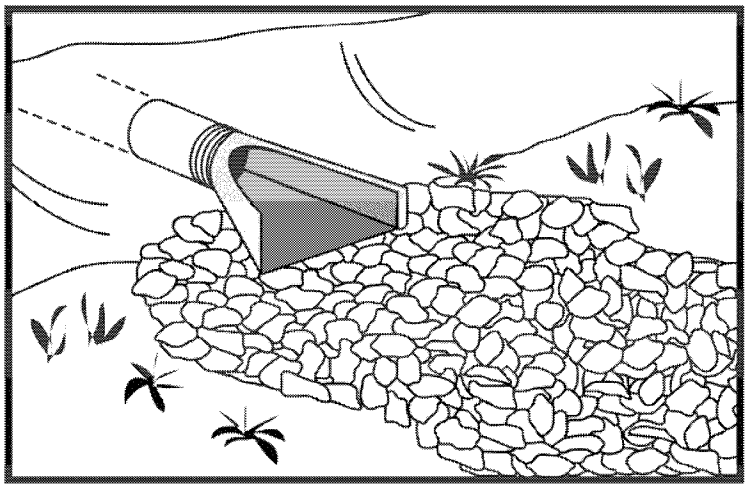
Flared Culvert End Sections EC-4



Source: Modified from Knoxville BMP Manual, 2003.

Description

Flared culvert end sections are devices placed at the inlet or outlet of pipes and channels to enhance hydraulic operation while minimizing scour and erosion.

Applications

Flared culvert end sections may be placed at inlets and outlets of slope drains and culverts.

Installation and Implementation Requirements

- Construct on level ground where possible.
- Supplement with other outlet protection.
- Protect the transition to the flared end section at inlets to prevent scouring.
- Obtain guidance from the District Maintenance Engineer or Highways Division's Hydraulic Section and refer to Highways Division's Standard Plans.

Limitations

Limited use as an erosion control measure since primarily used to increase hydraulic efficiency.

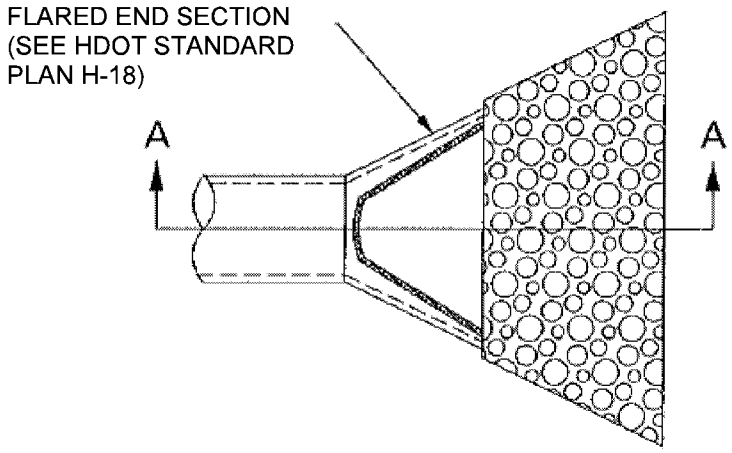
Inspections and Maintenance

- Establish an inspection schedule and conduct inspections.
- Monitor accumulation of debris and sediment and remove within 60 days of notification. Immediately clean culverts located where Class AA or Class 1 waters or highway safety may be adversely affected. Refer to HAR Chapter 11-54 for State waters classification.
- Inspect around and beneath flared end sections for scour. Report any scour for evaluation by the HWY-OM Engineer or Highway Design Section, as appropriate.
- Establish a repair schedule with priorities based on highway safety and protection of Class AA and Class 1 waters, followed by erosion

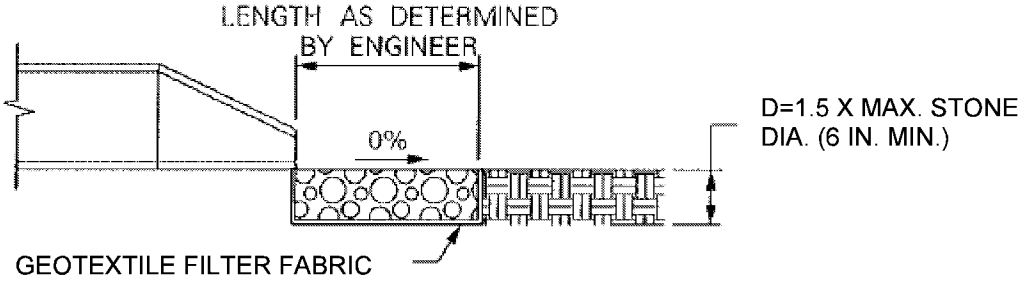
Inspections and Maintenance (Continued)

potential and possible damage to down-slope areas.

Flared culvert End Sections EC-4



PLAN
NTS



SECTION A-A
NTS

FLARED CULVERT END SECTION

Source: HDOT Storm Water Management Plan, Oahu District, 2003.

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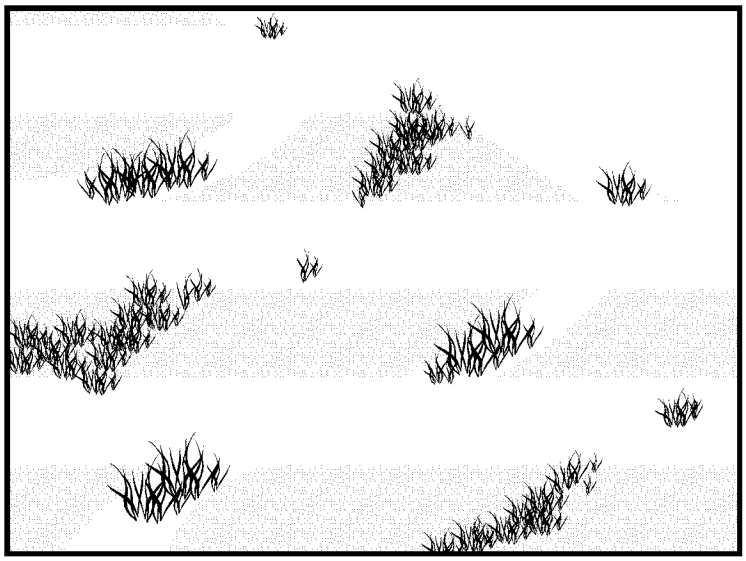
Seeding and Planting EC-5



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Seeding and planting of trees, vines, shrubs, and ground cover for temporary or permanent stabilization of soil.

Applications

Soil stabilization during or after the construction phase applies to the following site conditions:

- Graded/cleared areas without on-going construction activity;
- Open space and fill areas;
- Steep slopes;
- Spoil piles or temporary stockpile of fill material;
- Vegetated swales;
- Landscape corridors; and
- Stream banks.

Installation and Implementation Requirements

Requirements for each seeding/planting application shall be considered and include:

- Type of vegetation;
- Site and seedbed preparation;
- Seasonal planting times;
- Fertilization; and
- Water.

Grasses

- Ground preparation requires fertilization and mechanical stabilization of the soil.
- Short-term temperature extremes and waterlogged soil conditions tolerable.

Installation and Implementation Requirements (Continued)

- Appropriate soil conditions include a shallow soil base, good drainage, and 2:1 or flatter slope.
- Quickly develops from seeds.
- Vigorous grass growth dependent on mowing, irrigating, and fertilizing.

Trees and Shrubs

- Selection dependent on vigor, species, size, shape, and potential wildlife food source.
- Consider wind/exposure and irrigation requirements.
- Use indigenous species where possible.

Vines and Ground Cover

- Lime and fertilizer required for ground preparation.
- Use appropriate seeding rates.
- Consider requirements for drainage, acidity, and ground slope.
- Use indigenous species where possible.
- Avoid species which require irrigation.

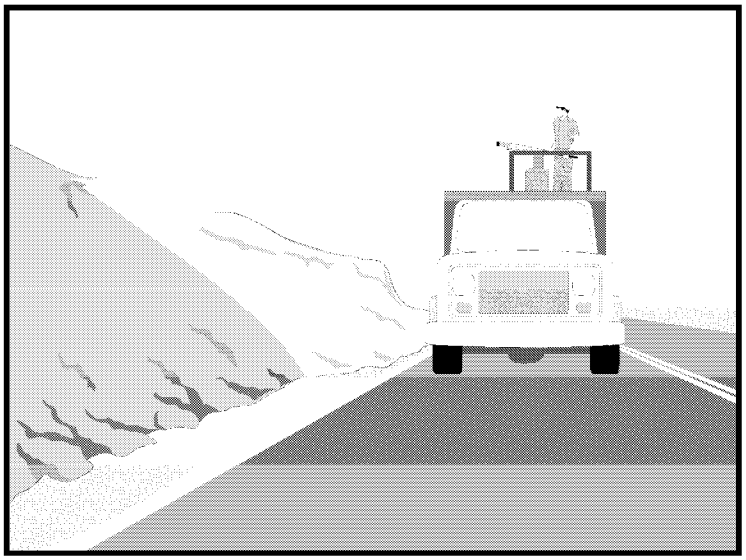
Limitations

- During dry periods without irrigation, permanent and temporary vegetation may not be appropriate.
- Improper application of fertilizer may contribute to storm water pollution.

Inspections and Maintenance

Monitor vegetation growth and water, fertilize, mow, and/or prune the grasses/plants as needed.

Mulching EC-6



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Application of loose bulk material to stabilize disturbed soil by protecting bare soil, increasing infiltration, and reducing runoff. Materials used for mulching include green material, hydraulic matrices, hydraulic mulches of recycled paper or wood fiber, stone and aggregate, vegetable fibers (hay or straw), and wood/bark chips.

Applications

- Temporary ground cover until permanent vegetation has been established.
- Method used in combination with temporary or permanent seeding to enhance plant growth.
- Areas requiring soil moisture retention to prevent cracking of the soil.
- Ground cover for exposed soil between trees or shrubs.

Installation and Implementation Requirements

VEGETABLE FIBERS (HAY OR STRAW)

- Loose hay or straw which may be used in combination with seeding. Mulching usually follows seeding and the process is described in the following:
  - Apply seed and fertilizer to bare soil;
  - Apply loose hay or straw over top of seed and fertilizer prior to seed germination. Apply at a rate of 2,000 pounds per acre by machine or hand distribution;
  - Evenly distribute mulch on the soil surface to cover 80% to 90% of the ground;
  - Maintain maximum fiber length. Average fiber length shall be greater than 6 inches;

Installation and Implementation Requirements (Continued)

- Use a tackifier, netting, or mechanical "punching" method to anchor mulch. Method depends on slope steepness, accessibility, soil conditions, and longevity; and
- "Punching" straw or hay into soil is the preferred method of anchoring mulch for the following conditions:
  - Use a spade or shovel on small areas,
  - Use a knife-blade roller or straight bladed coulter ("crimper") on slopes with soil, which can support construction equipment without undesirable compaction or instability,
  - Use plastic netting or jute on small areas and/or steep slopes. Geotextile pins, wooden stakes, or 11 gauge wire staples shall secure netting in place. This condition warrants consideration of the use of matting rather than mulch, and
  - Use tackifiers on steep slopes unable to support construction equipment or large application areas where use of nettings, straw, or hay is not cost-effective. Tackifiers glue vegetable fibers together and to the soil surface until the establishment of permanent vegetation.

GREEN MATERIAL

- Consists of recycled vegetation trimmings such as grass and shredded shrubs and trees.
- Generally applied by hand.
- Temporary ground cover with or without seeding.
- Evenly distribute green material on soil surface. Depth shall not exceed 4 inches.
- Anchor with a tackifier or netting on steep slopes or for areas with anticipated overland sheet flow. This condition warrants consideration of the use of matting rather than mulch.

WOOD/BARK CHIPS

- Suitable for areas which will not be mowed such as around trees, shrubs, and landscape plantings.
- Test soils prior to application. Add a minimum of 12 pounds of nitrogen per ton of mulch to counteract the effect of decomposing wood-based materials, which extract nitrogen from soil. Use a balanced, slow-release fertilizer or an organic source such as compost.
- Apply mulch by hand.
- Evenly distribute wood/bark chips on soil surface and maintain a mulch depth of 2-inch to tree basins and 4-inch to shrub beds.

HYDRAULIC MULCHES OF RECYCLED PAPER

- Consists of recycled newsprint, magazines, and other waste paper sources.
- May be applied with or without tackifiers.

Installation and Implementation Requirements (Continued)

- Hydraulic mulch materials shall conform to *2005 Hawaii Standard Specifications for Road and Bridge Construction.*
- Mix mulch in a hydraulic application machine (hydroseeder) and apply as a liquid slurry.
- May be sprayed from a cannon up to 200 feet or from a hose up to 1,500 feet away from the application area.
- Mix mulch with seed and fertilizer as specified by the manufacturer. Apply mulch at the manufacturer's recommended rate to ensure uniform, effective coverage.

HYDRAULIC MULCHES OF WOOD FIBER

- Consists of wood waste from lumber mills or urban sources.
- May be manufactured with or without a tackifier.
- Hydraulic mulch shall conform to *2005 Hawaii Standard Specifications for Road and Bridge Construction* or comply with the following requirements:
  - 100% wood fiber;
  - Maximum moisture content (total weight basis) shall not exceed 12% ±3%;
  - Minimum organic matter content (oven dry weight basis) of 99.3%;
  - Maximum inorganic matter (ash) content (oven dried basis) of 0.7%;
  - pH of 4.9±10% for a 3% water slurry; and
  - Minimum water holding capacity (oven dried basis) of 1.2 gallons per pound of fiber.
- Mix mulch in a hydraulic application machine (hydroseeder) and apply as a liquid slurry.
- Mix mulch with seed and fertilizer as specified by the manufacturer. Apply mulch at the manufacturer's recommended rate to ensure uniform, effective coverage.

HYDRAULIC MATRICES

- Hydraulic slurries consisting of wood fiber, paper fiber, or a combination of wood and paper fiber mixed with a binder system.
- Exceeds erosion control performance of blankets due to close contact with soil.
- Apply as an aqueous slurry (with seed) using standard hydroseeding equipment.
- Applications rates vary for different combinations of conditions and products.
- A typical mixture based on one acre of treated area includes the following:
  - 500 pounds wood fiber mulch;
  - 1,000 pounds recycled paper mulch; and

Installation and Implementation Requirements (Continued)

- 55 gallons acrylic copolymer with a minimum solids content of 55%.

- Bonded Fiber Matrix (BFM) consists of premixed fiber and binders.
  - After application and upon drying, BFM shall adhere to soil and form a 100% cover. The cover shall be biodegradable, promote vegetation, and prevent soil erosion.
  - Composed of long strand, thermally produced wood fibers (>88% of total volume by weight), held together by organic tackifiers (10%) and mineral bonding agents (<2%), which become insoluble and non-dispersible upon drying. Composition of BFM varies based on supplier.
  - Perform a free liquid quality control test on the liquid slurry.
  - Binder shall not dissolve or disperse upon watering.
  - Upon application to the soil, holes in the matrix shall not exceed 0.04 inches in size.
  - There shall not be any gaps between the matrix and the soil.
  - Minimum water holding capacity of the matrix shall be 1.2 gallons per pound matrix.
  - The matrix shall be free of germination or growth inhibiting factors and shall not form a water resistant crust.
  - Materials used for the matrix shall be 100% biodegradable and 100% beneficial to plant growth.
  - Testing and evaluation of the matrix by an independent research laboratory shall have been conducted to verify reported erosion control performance.
  - A trained and manufacturer certified applicator with knowledge of proper mixing and product application shall install the BFM.
  - Typical BFM application rates range from 3,000 to 8,000 pounds per acre per recommendations from various manufacturers.
  - BFM shall not be applied immediately before, during, or after a rainfall event to ensure a drying time of 24 hours after installation.

- Mulch used as temporary ground cover shall be reapplied to bare areas until permanent vegetation has been established.
- Avoid spraying mulch onto sidewalk, lined drainage channels, travelway, and existing vegetation.

Limitations

VEGETABLE FIBERS (HAY OR STRAW)

- Require three-step machinery.
- Labor intensive installation.
- Weed seeds and undesirable plant material may be introduced to sensitive areas.

Limitations (Continued)

- For applications using straw blowers, the applicable area must be located within 150 feet of a road or surface capable of supporting loads from large vehicles. If both hay and straw are available, it is preferable to use straw.

GREEN MATERIAL

- Limited commercial availability.
- Variable quality.
- Weeds or undesirable plant material may be introduced to the mulched area.
- Application primarily uses manual labor.
- Unpredictable effectiveness as an erosion control measure. Requires overspray with a tackifying agent to increase effectiveness.
- Application of fertilizer may be required.
- Limit use to non-critical steep slopes and areas where alternative erosion control measures may be readily applied.

WOOD/BARK CHIPS

- Poor erosion control effectiveness.
- Anchoring of chips onto steep slopes is difficult due to potential movement from high winds.
- Subject to displacement from concentrated flows.
- Use of a fertilizer with high nitrogen content is required to prevent nutrient deficiency in plants due to decomposing wood-based materials, which extract nitrogen from soil. Improper fertilizer use may contribute to water quality pollution.
- Limit use to non-critical steep slopes and areas where alternative erosion control measures may be readily applied.

HYDRAULIC MULCHES OF RECYCLED PAPER

- Limited erosion control effectiveness due to short fiber length and absence of a tackifier.
- Limited moisture and soil temperature moderation.
- Residual inks within mulches may be undesirable in environmentally sensitive areas.
- Significant decrease in longevity compared with wood fiber mulch.
- Difficulty budgeting for this product due to volatile prices for recycled paper products.

HYDRAULIC MULCHES OF WOOD FIBER

- Limited erosion control effectiveness.
- Short-term use of one growing season.

Limitations (Continued)

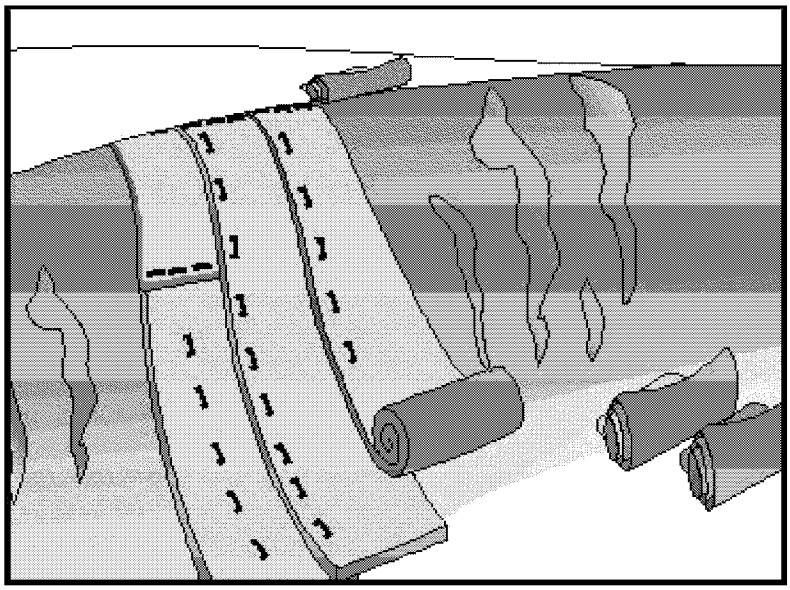
HYDRAULIC MATRICES

- Avoid application of mulch immediately before, during, or after a rainfall event.
- Requires drying time of 24 hours.

Inspections and Maintenance

- Mulches applied to seeded areas may be disturbed due to wind or runoff. Recover exposed areas until permanent vegetation has been established.
- Mulches applied to areas, which will be regraded and revegetated, shall be inspected weekly.
- Replace ornamental and landscape mulches of bark or wood chips if soil is visible in more than 75% of the designated area.

Geotextiles and Mats EC-7



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Natural or synthetic mats to be used for temporary or permanent soil stabilization.

Applications

- Drainage ditches, channels, and stream banks.
- Steep slopes.

Installation and Implementation Requirements

- Apply matting to disturbed soils and areas where vegetation has been removed.
- Organic matting provides temporary protection until permanent vegetation has been established, optimal weather conditions occur, or construction delays are resolved. Organic matting materials include the following:
  - Jute matting; and
  - Straw matting.
- Synthetic matting provides temporary or post-construction soil stabilization in both vegetated and non-vegetated areas. Synthetic matting materials include the following:
  - Excelsior™ matting;
  - Glass fiber matting;
  - Staples; and
  - Mulch netting.
- Other proprietary devices may be used and shall be installed per manufacturer's recommendations.

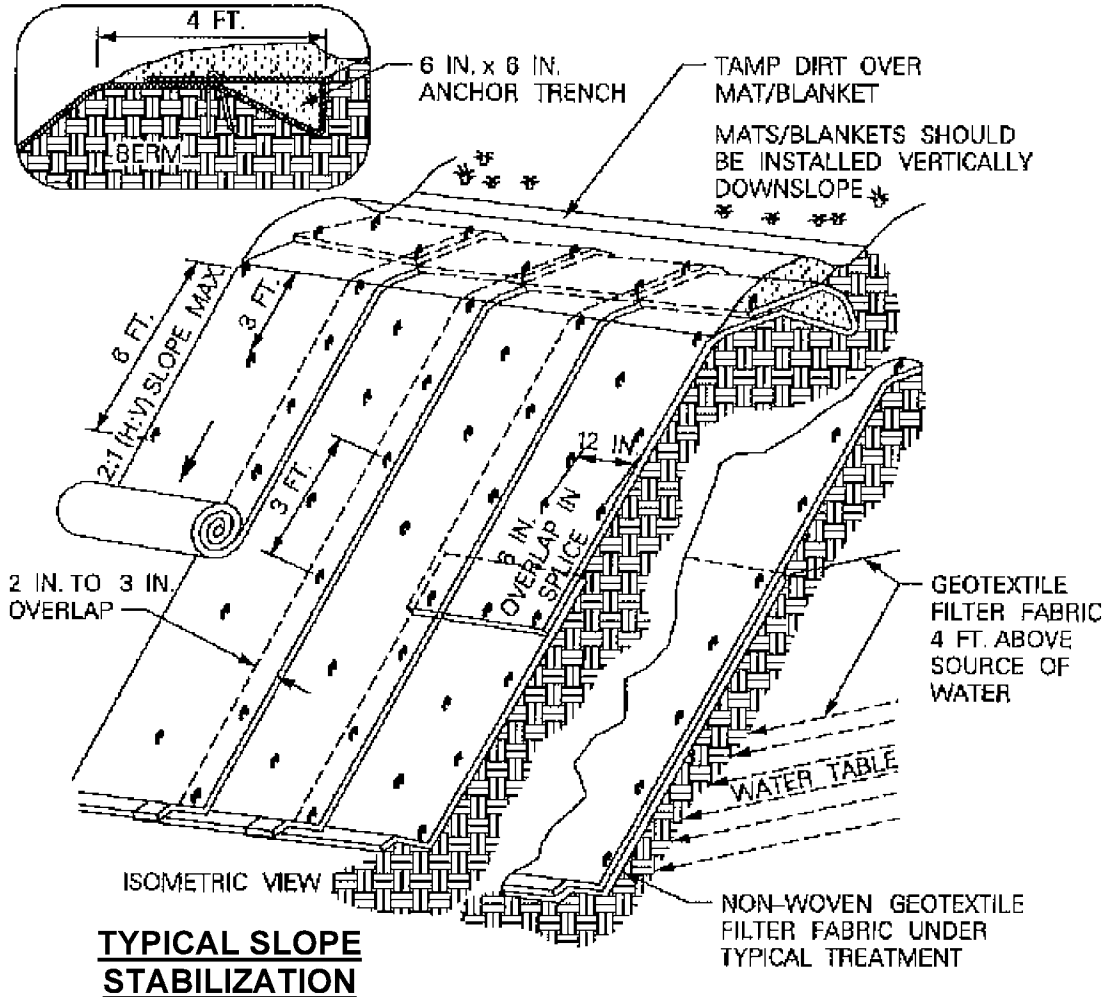
Geotextiles and Mats EC-7

Limitations

- Minimize use of matting to areas where other erosion control measures are not applicable such as channels or steep slopes since matting is more costly compared to other erosion control measures.
- Seed germination may be delayed due to decreased soil temperature.
- An experienced maintenance engineer is required during installation.

Inspections and Maintenance

Periodically inspect matting after installation.



TYPICAL SLOPE STABILIZATION
NTS

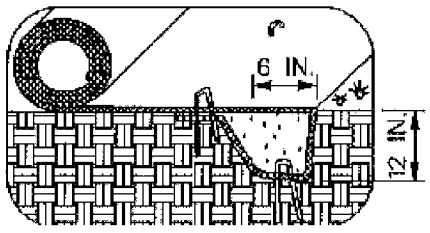
WET SLOPE LINING
NTS

NOTES:

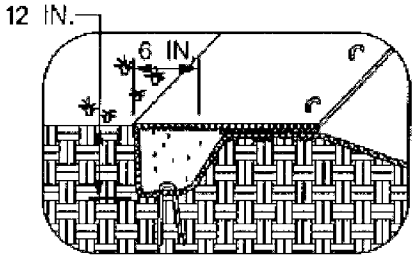
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS. SOIL CONTACT SHALL BE MAXIMIZED.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
3. INSTALLATION MAY VARY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

GEOTEXTILES AND MATS INSTALLATION DETAIL

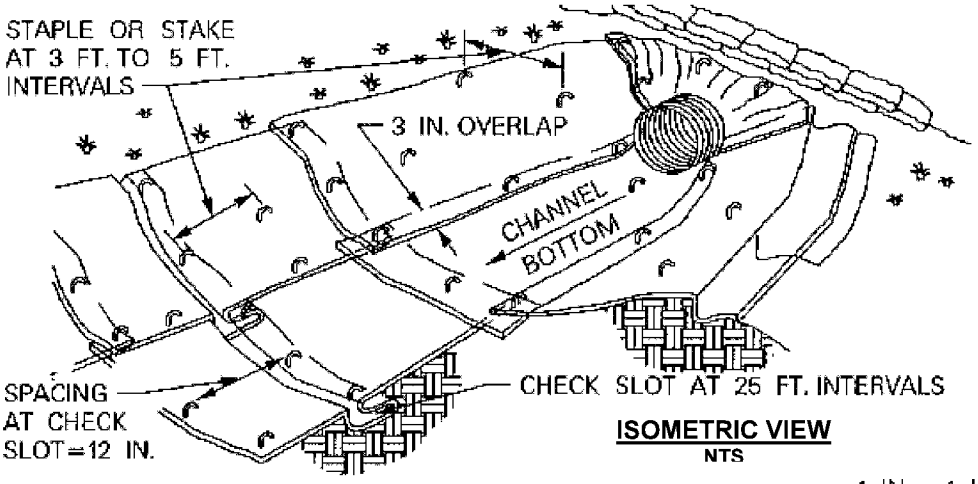
Source: HDOT Storm Water Management Plan, Oahu District, 2003.



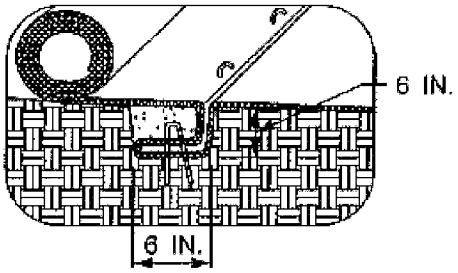
INITIAL CHANNEL ANCHOR TRENCH
NTS



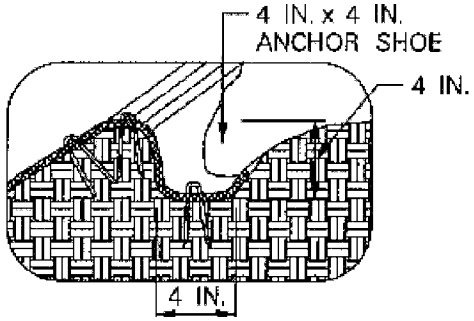
TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH
NTS



ISOMETRIC VIEW
NTS



INTERMITTENT CHECK SLOT
NTS



LONGITUDINAL ANCHOR TRENCH
NTS

NOTES:

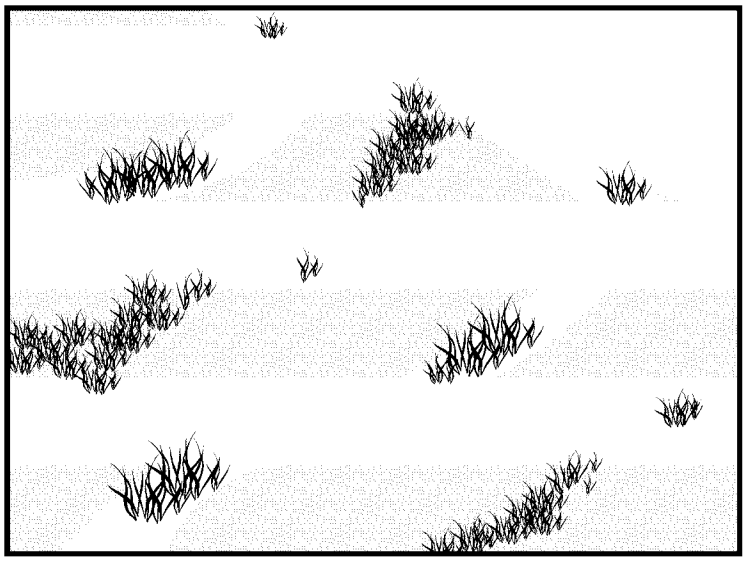
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURER'S SPECIFICATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURER'S SPECIFICATIONS.

GEOTEXTILES AND MATS DETAIL

Source: HDOT Storm Water Management Plan, Oahu District, 2003.

Slope Roughening, Terracing, and Rounding

EC-9



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Methods of slope grading to reduce potential erosion by decreasing runoff velocities, trapping sediment, shortening slope length, and increasing infiltration into the soil.

Applications

- Areas where seeding, planting, and mulching erosion control measures may be enhanced by roughening of the soil surface.
- Graded areas with smooth, hard surfaces.
- Areas requiring terracing to shorten the slope length.

Installation and Implementation Requirements

CUT SLOPE ROUGHENING

- Cut slopes steeper than 3:1 (H:V) shall use stair-step grading or furrows.
- Use stair-step grading on soft soils that may be ripped by a bulldozer. Stair-step grading is particularly suitable for slopes consisting of soft rock with some subsoil.
- The vertical cut distance shall be less than the horizontal distance. The "step" shall drain towards the slope.
- Avoid individual vertical cuts greater than 24 inches high in soft materials or greater than 36 inches high in rocky materials.
- Create ridges and depressions along the slope contours using machinery.

FILL SLOPE ROUGHENING

- Fill slopes steeper than 3:1 (H:V) shall be placed in lifts not exceeding 9 inches. Each lift shall be properly compacted.
- Slope faces shall consist of 4 to 6 inches of loose and uncompacted

Installation and Implementation Requirements (Continued)

soil.

- Grooving or tracking shall be used to roughen slope faces as necessary.
- Apply seed, fertilizer, and mulch. Track or punch in the mulch. Refer to EC-6 (Mulching) and EC-5 (Seeding and Planting) in this manual for additional information.
- The final slope face shall not be bladed or scraped.

CUTS, FILLS, AND GRADED AREAS

- Slopes that will be maintained by mowing shall be no steeper than 3:1 (H:V).
- Create shallow grooves by normal tilling, disking, harrowing, or use of a cultivator-seeder. Final pass of tillage shall be along the contour. Spacing between grooves shall be 10 inches or less. Groove depth shall be a minimum of 1 inch.

ROUGHENING WITH TRACKED MACHINERY

- Roughening with tracked machinery is only applicable to soils with a sandy texture. Other types of soil may be over-compacted by tracked machinery.
- Leave horizontal depressions in the soil by operating tracked machinery up and down the slope. During the final grading operation, do not back blade.
- Roughened areas shall be seeded and mulched for optimum seed germination and growth.

TERRACING

- Slope grades of 5:1 (H:V) shall include terraces or benches when slope heights exceed 30 feet. Steeper slope or highly erosive soil conditions may warrant terraces or benches for slope heights of 15 feet of higher.
- Runoff collected along terraces and benches shall be routed to lined diversion ditches. Install lined diversion ditches at the intersection of the terrace and slope.

ROUNDING

- All slopes shall be rounded with no sharp breaks in plan or profile.

Limitations

- Since terracing is permanent, design and approval shall be under the direction of a licensed, qualified engineer.
- Design of terraces shall provide adequate drainage and stabilized outlets.
- Roughening may result in increased grading costs and sloughing in soil.

Limitations (Continued)

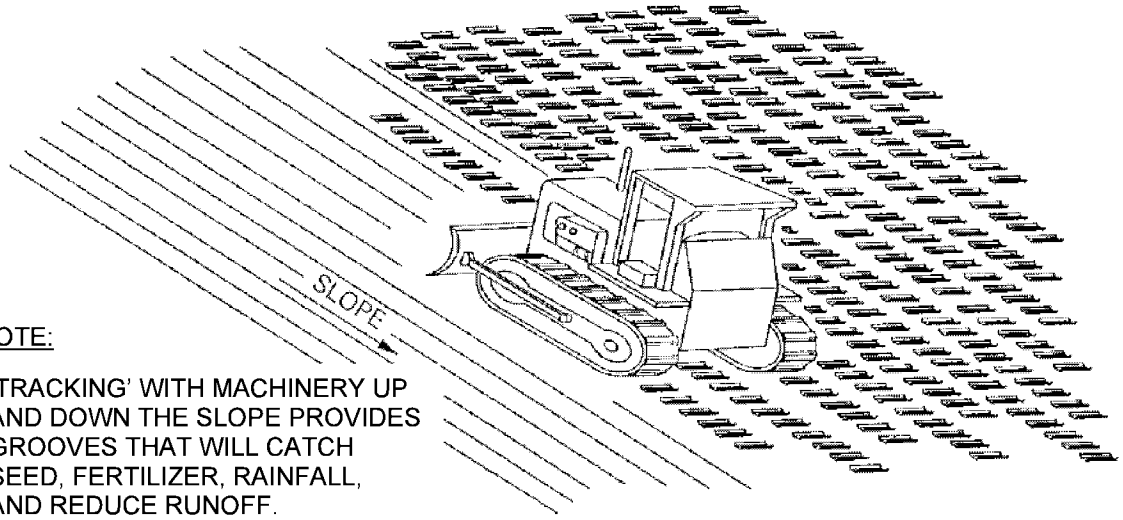
- Stair-step grading may not be applicable to sandy, steep, or shallow soils.
- During intense rainfall events, roughening may not be an effective temporary erosion control measure.

Inspections and Maintenance

Inspect seeded and planted slopes for rills and gullies weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.

Slope Roughening Terracing, and Rounding

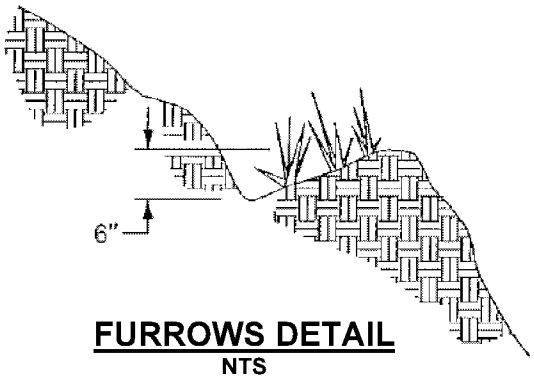
EC-9



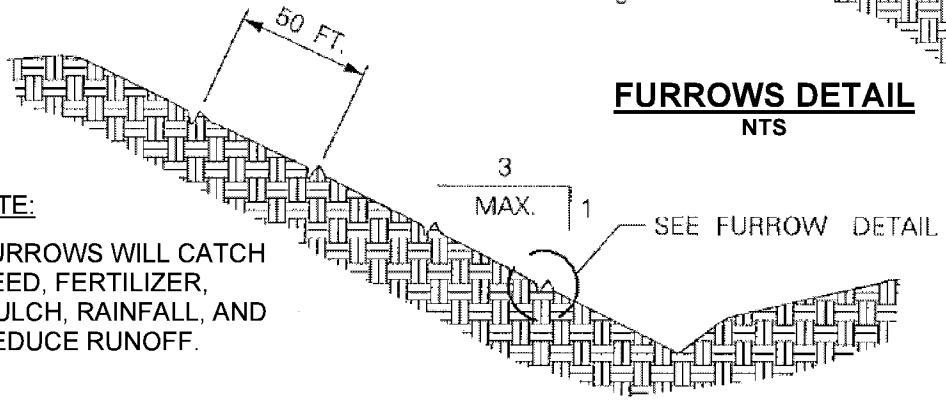
NOTE:

'TRACKING' WITH MACHINERY UP AND DOWN THE SLOPE PROVIDES GROOVES THAT WILL CATCH SEED, FERTILIZER, RAINFALL, AND REDUCE RUNOFF.

TRACKING
NTS



FURROWS DETAIL
NTS



NOTE:

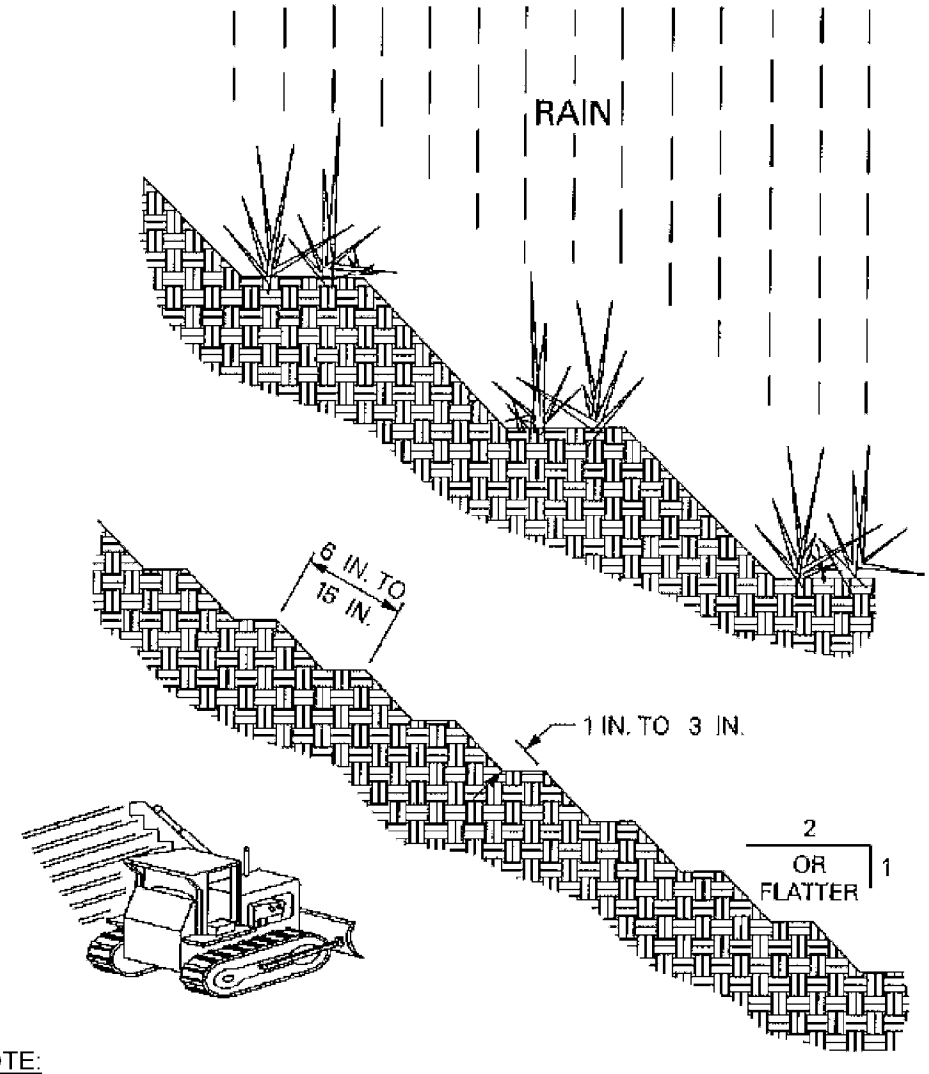
FURROWS WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL, AND REDUCE RUNOFF.

CONTOUR FURROWS
NTS

Source: HDOT Storm Water Management Plan, Oahu District, 2003.

Slope Roughening Terracing, and Rounding

EC-9



NOTE:
GROOVE BY CUTTING SERRATIONS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER, SEED, MULCH, AND FERTILIZER.

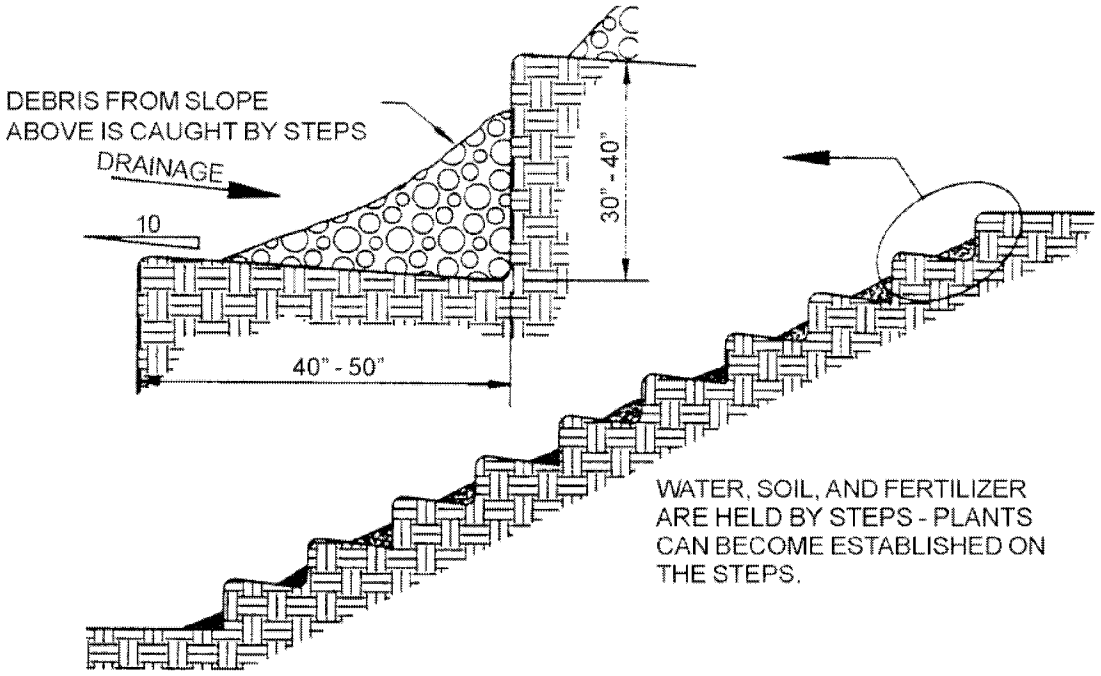
SERRATED SLOPE

NTS

Source: HDOT Storm Water Management Plan, Oahu District, 2003.

Slope Roughening, Terracing, and Rounding

EC-9



STAIR STEPPING CUT SLOPES

NTS

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

Chapter 3
Sediment Control

Sediment Control (SC) BMPs are controls implemented for a construction site that limit the amount of sediment from being transported and deposited off-site. Sediment Control BMPs serve as treatment measures by providing a second line of defense. Sediment control BMPs are used to detain sediment-laden storm water runoff and promote infiltration and/or sedimentation.

In this chapter:

- Retain sediment on-site;
- Protect storm drain inlets;
- Establish perimeter controls;
- Control dewatering practices.

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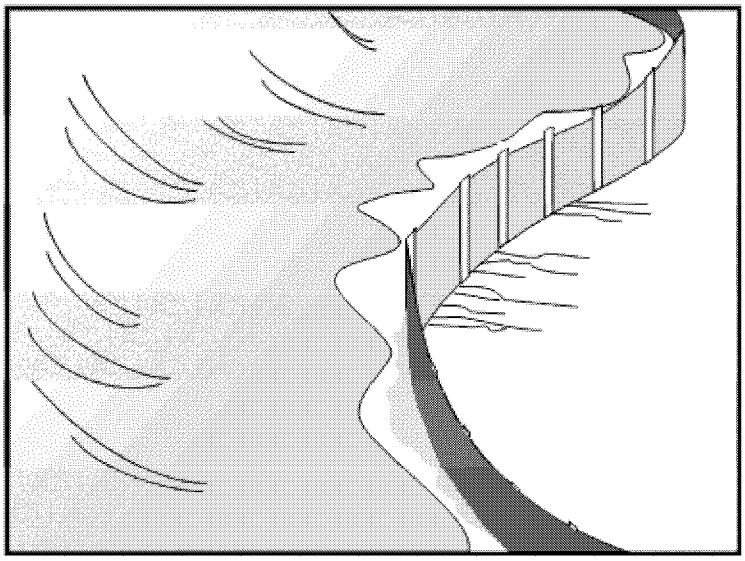
Silt Fence or Filter Fabric Fence

SC-1



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

A sediment barrier composed of permeable geotextile filter fabric attached to supporting posts. Wire fencing may provide additional support. The silt fence intercepts the flow of sediment laden runoff, which filters the water and traps the sediment.

Applications

- Along the site perimeter.
- Around temporary stockpiles.
- Along streams and channels.
- Below the toe of cleared or erodible slopes.
- Downslope of exposed soil areas.

Installation and Implementation Requirements

- Primarily use where sheet flow occurs.
- Install silt fence along or parallel to contours.
- Ends of silt fence shall be turned uphill and the geotextiles should be overlapped.
- Silt fence posts shall be driven 14 inches minimum into the trench (see silt fence detail) and the geotextile filter fabric shall be embedded a minimum of 6 inches vertically into the ground or install according to manufacturer's recommendation.

Limitations

- Avoid installing silt fence on slope. However if silt fence is placed on slope, fence posts may need additional embedment.
- Do not install in streams, channels, or areas of concentrated flow.
- Do not use to divert flow.

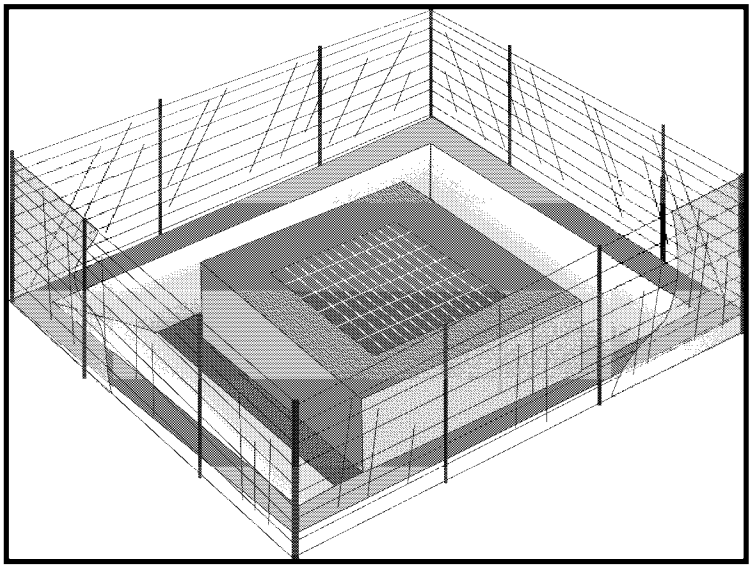
Silt Fence or Filter Fabric Fence

SC-1

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Repair or replace damaged fence or posts.
- Remove accumulated sediment when depth reaches 1/3 the barrier height.

Storm Drain Inlet Protection SC-2



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Devices installed at storm drain inlets to detain and/or filter sediment-laden runoff. These devices trap and prevent sediment from entering into the storm drain system.

Applications

Every storm drain inlet that may intercept sediment-laden runoff shall be covered or protected.

Installation and Implementation Requirements

- Five types of inlet protection are described below.
  - Geotextile Filter Fabric Fence: Applicable to drainage basins less than one acre and with less than a 5 percent slope.
  - Block and Stone Filter: Applicable to flows exceeding 0.5 cfs.
  - Stone and Wire Mesh Filter: Applicable to curb or drop inlets subjected to traffic from construction equipment.
  - Sandbag Barrier: Applicable to sloped, paved streets; creates a small sediment trap upstream of inlets.
  - Excavated Drop Inlet Sediment Trap: Applicable to areas requiring overflow capability due to expected high flows; an excavated area around the inlet which detains runoff and allows sediment to settle.
- In addition to the methods of inlet protection described above, there are other effective methods and proprietary devices, which may also be used.
- Limit to drainage areas less than one acre, unless a sediment trap intercepts the runoff prior to the inlet protection device.
- Provide an area for water to pond around inlet without flooding nearby structures and property.

Installation and Implementation Requirements (Continued)

- Other proprietary devices may be used and shall be installed per manufacturer's recommendations.

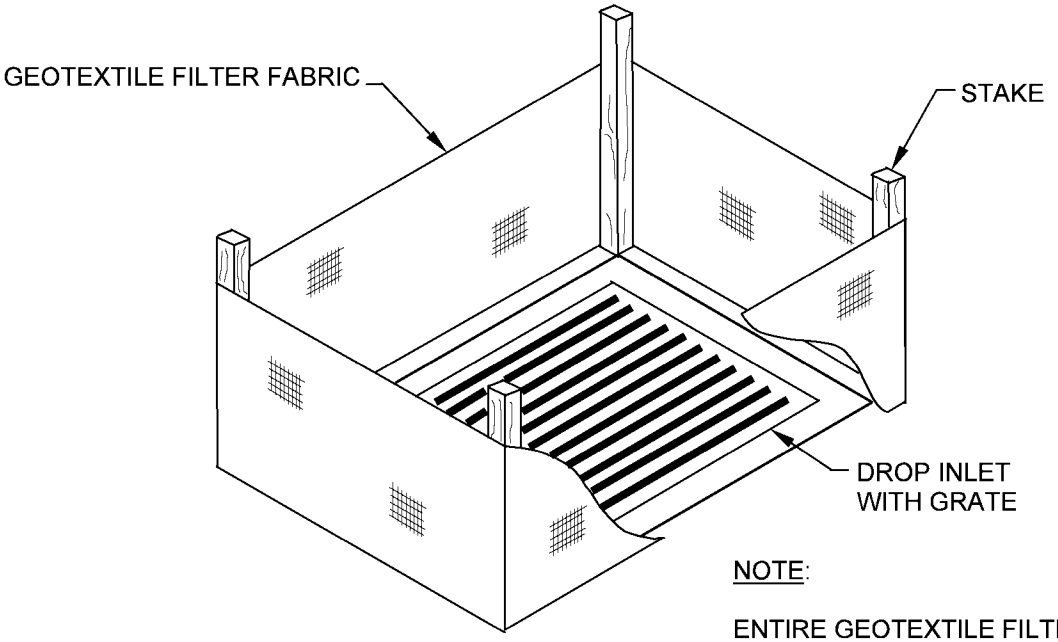
Limitations

- Short-term flooding at a protected inlet will occur but must not become a traffic hazard.
- Drainage area limited to one acre or less.
- Straw bales shall not be used for inlet protection.
- Runoff on slopes may bypass protected inlets

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Immediately replace clogged geotextile filter fabric or stone filters.
- Remove accumulated sediment when depth reaches half of the filter height or half of the sediment trap depth.
- Remove inlet protection after stabilization of upstream soils and sweeping of streets is completed. Properly dispose of trapped sediment.

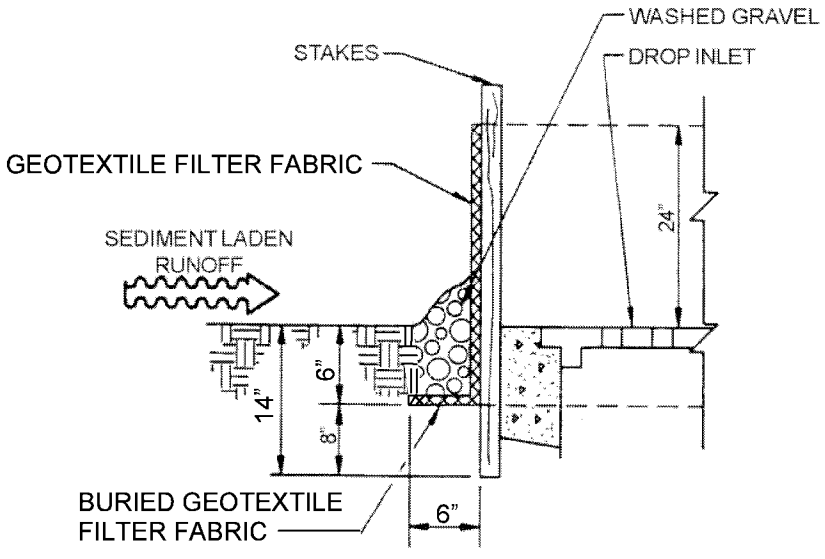
Storm Drain Inlet Protection SC-2



NOTE:

ENTIRE GEOTEXTILE FILTER FABRIC NOT SHOWN FOR ILLUSTRATIVE PURPOSES.

PERSPECTIVE VIEW
NTS

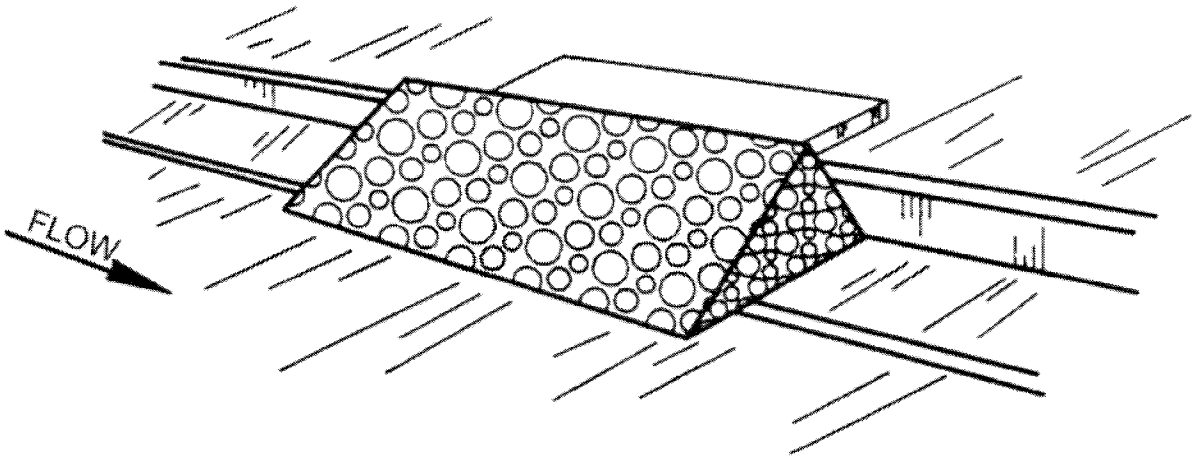


SECTION
NTS

GEOTEXTILE FILTER FABRIC FENCE FOR DROP INLET FILTER

Source: Modified from CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

Storm Drain Inlet Protection SC-2



PERSPECTIVE
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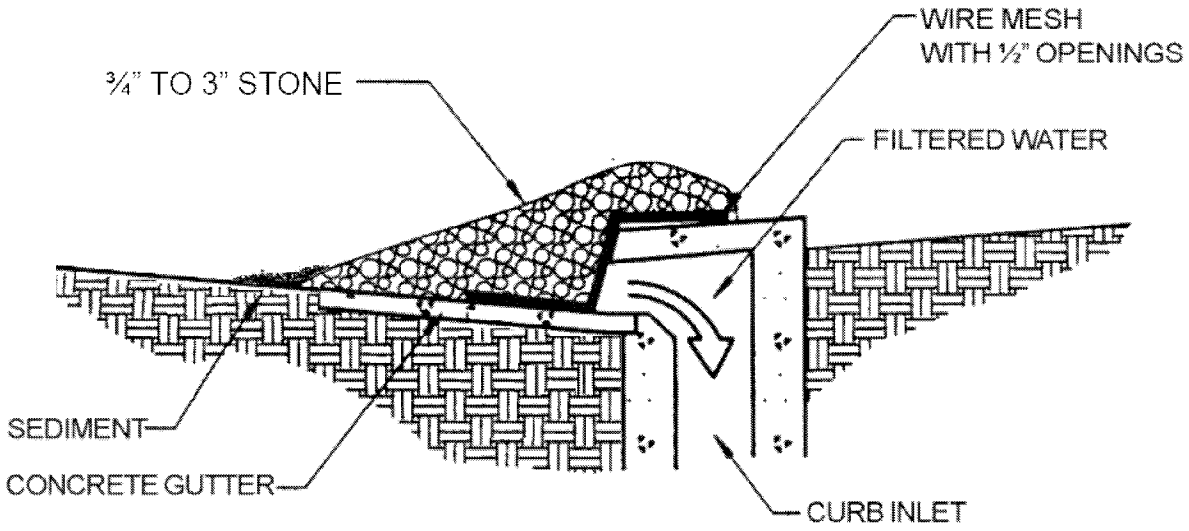


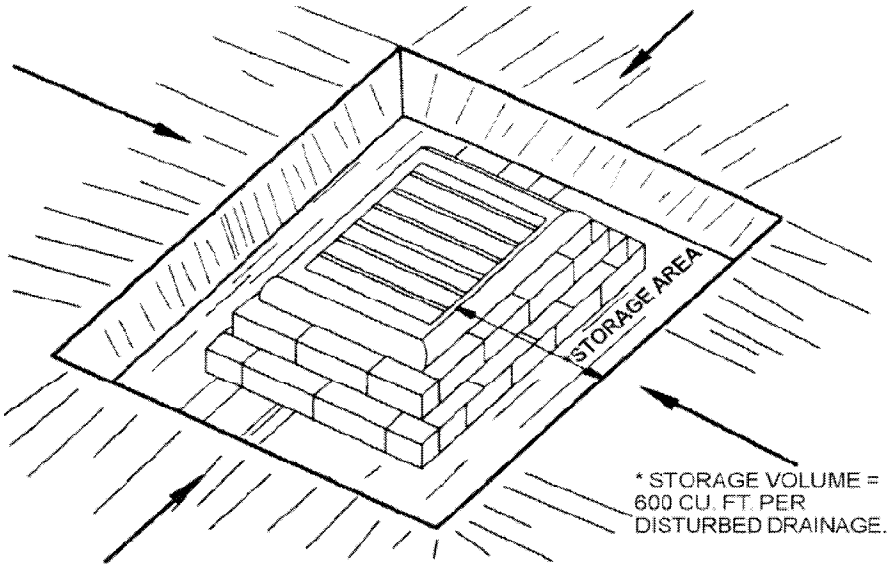
SECTION
NTS

NOTE: NOT APPLICABLE TO AREAS WITH HIGH TRAFFIC VOLUMES.

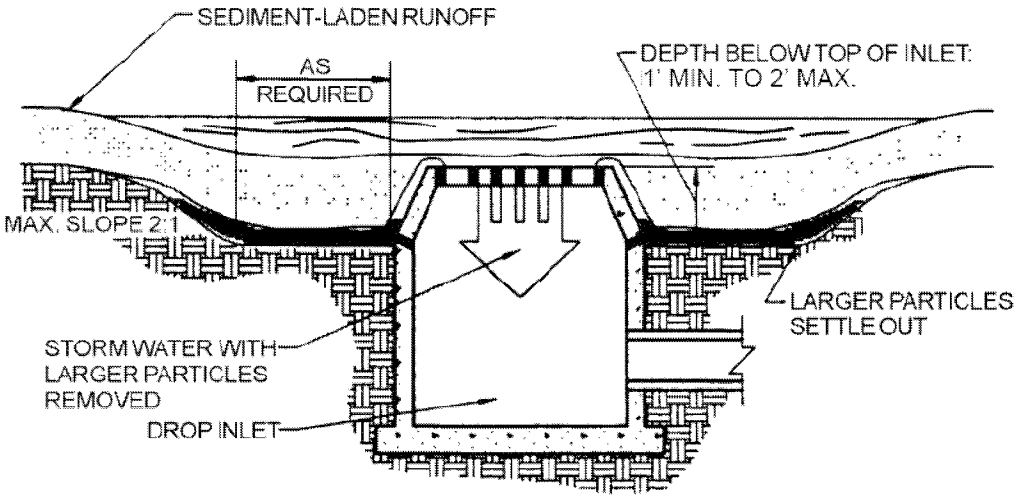
STONE AND WIRE MESH FILTER FOR CRUB INLET

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

Storm Drain Inlet Protection SC-2



PERSPECTIVE
NTS

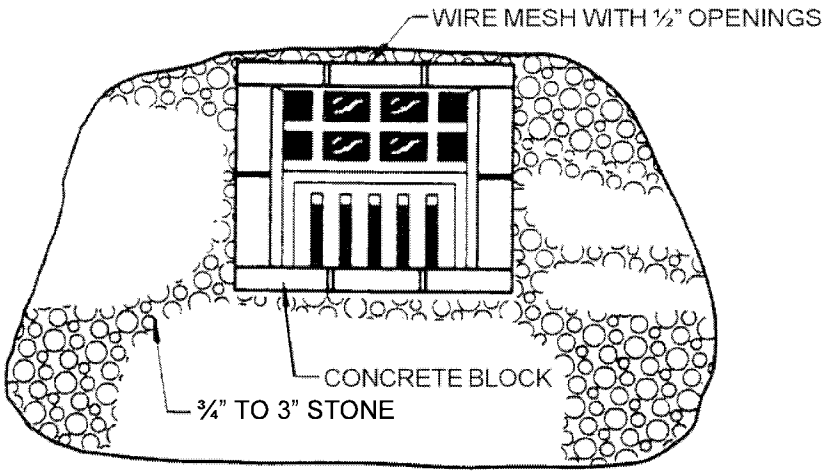


SECTION
NTS

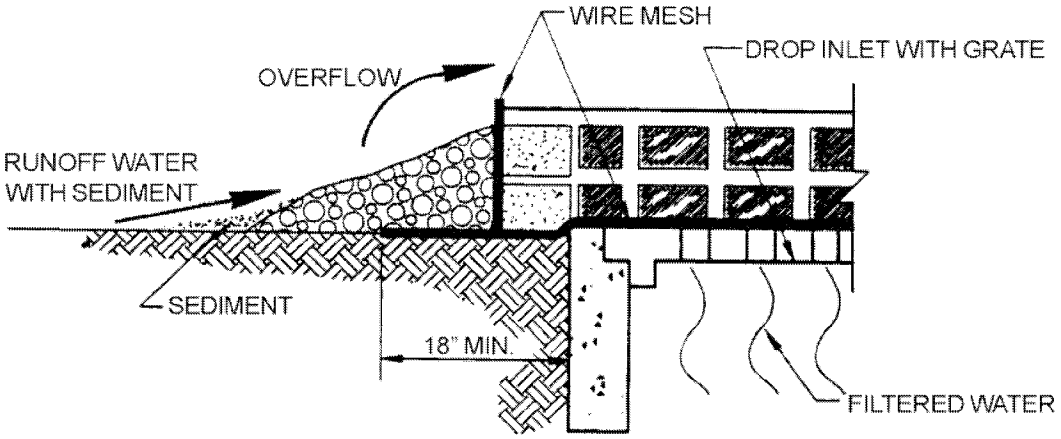
NOTE: THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPABILITY AND EASE OF MAINTENANCE ARE DESIRABLE.

EXCAVATED DROP INLET SEDIMENT TRAP

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.



PLAN
NTS

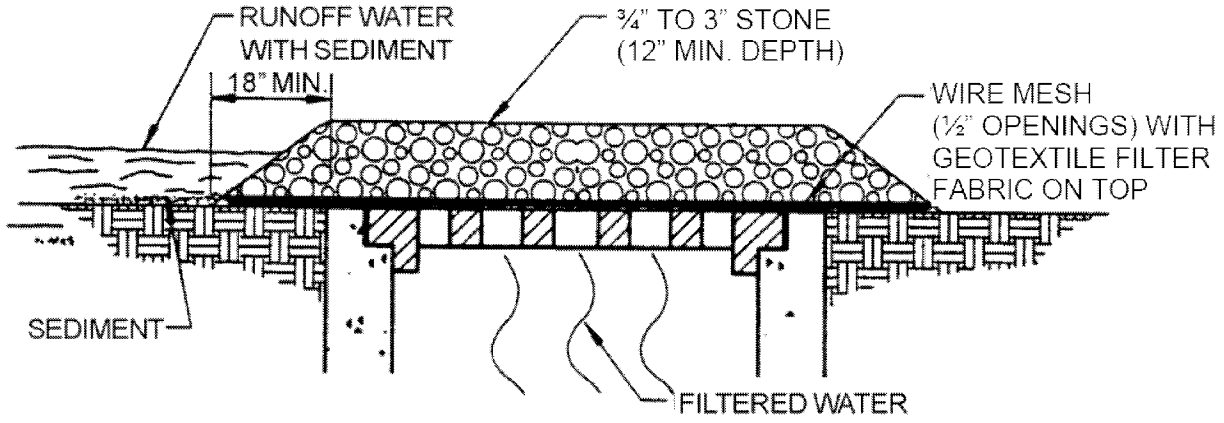


SECTION
NTS

BLOCK AND STONE FILTER AT DROP INLET

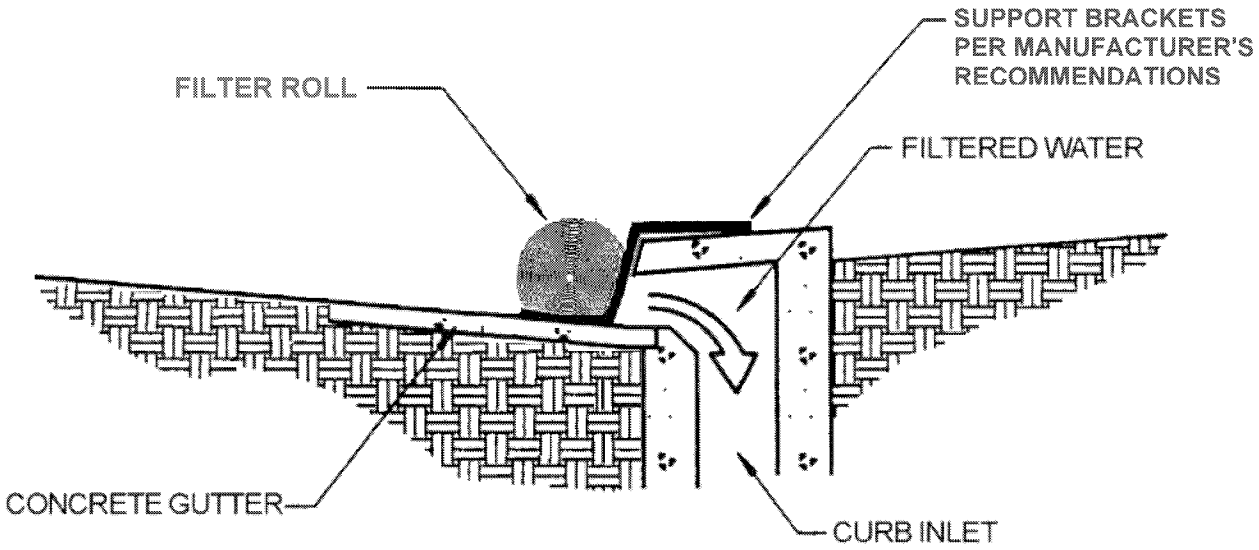
Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

Storm Drain Inlet Protection SC-2



STONE AND WIRE MESH FILTER FOR DROP INLET

NTS



FILTER ROLL WITH SUPPORTS FOR CURB INLET

NTS

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

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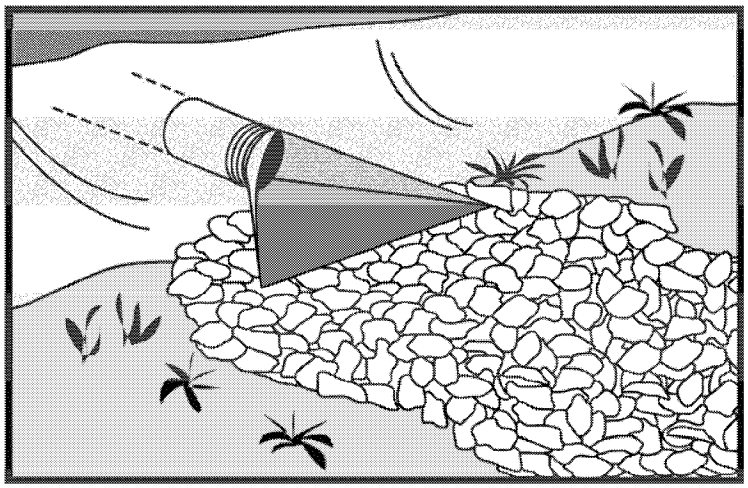
Outlet Protection and Velocity Dissipation Devices

SC-4



Source: Knoxville BMP Manual, 2003.

Description

Devices placed at outlets of pipes and channels to prevent or minimize scouring and erosion resulting from the high velocity of storm water flows.

Applications

- Outlets with continuous flows.
- Outlets located at the bottom of slopes.
- Outlets subject to short, intense flows.
- Discharge points from lined conveyances to unlined conveyances.

Installation and Implementation Requirements

- Apron length shall be determined by outlet flow rate and tailwater level.
- Align apron with direction of flow and avoid curves in apron. If a curve is necessary, place it in the upper section of the apron.
- Protect the underlying geotextile filter fabric with a 4 inches minimum rock blanket if the rip-rap is 12 inches or larger.

Limitations

- Potential for stones to wash away.
- Break up of grouted rip-rap resulting from hydrostatic pressure caused by water accumulation.

Inspections and Maintenance

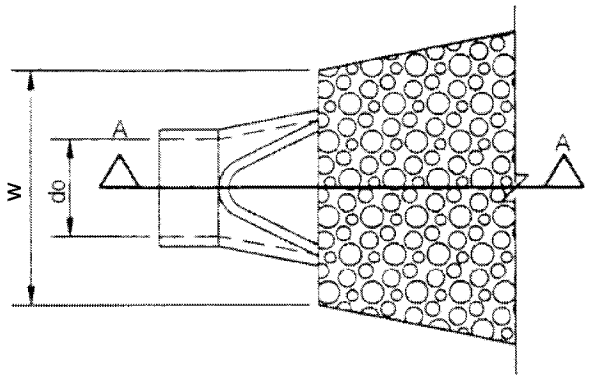
- Establish an inspection schedule for all structures.
- Inspect beneath the rip-rap and around the outlet for scour. Immediately repair damaged slopes or underlying geotextile filter fabric with priorities based on highway safety and protection of Class AA and Class 1 waters, followed by erosion potential and possible damage to down-slope areas.

Inspections and Maintenance (Continued)

- Inspect apron for damage to underlying geotextile filter fabric or dislodged rip-rap. Report any damage exceeding 10% of the apron surface area for evaluation by the HWY-OM Engineer or Highway Design Section, as appropriate.

Outlet Protection and Velocity Dissipation Devices

SC-4



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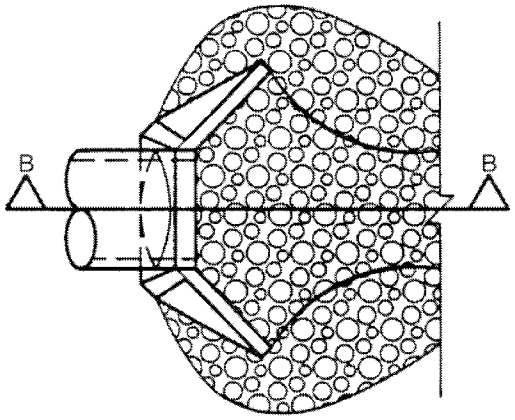

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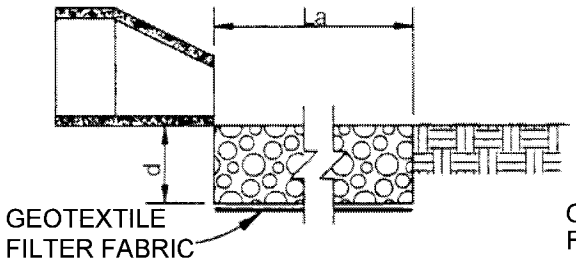
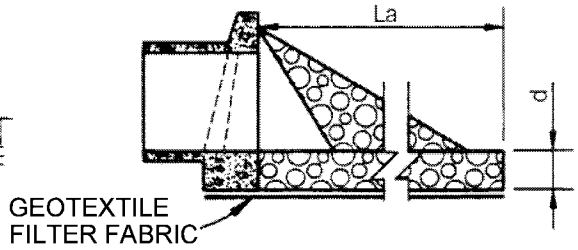


SECTION A-A
NTS



SECTION B-B
NTS

NOTES:

1. APRON LINING MAY BE RIP-RAP, GROUTED RIP-RAP, OR CONCRETE.
2. PIPE DIAMETER, APRON DIMENSIONS, AND AVERAGE ROCK SIZE FOR RIP-RAP ARE BASED ON THE DESIGN FLOW RATE AND VELOCITY. La AND ROCK SIZE MUST BE SET TO SLOW THE FLOW TO NON-EROSIVE VELOCITIES (e.g. LESS THAN 10 fps).
3. d=1.5 TIMES THE MAXIMUM ROCK SIZE DIAMETER BUT NOT LESS THAN 6 INCHES.

PIPE OUTLET CONDITIONS

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

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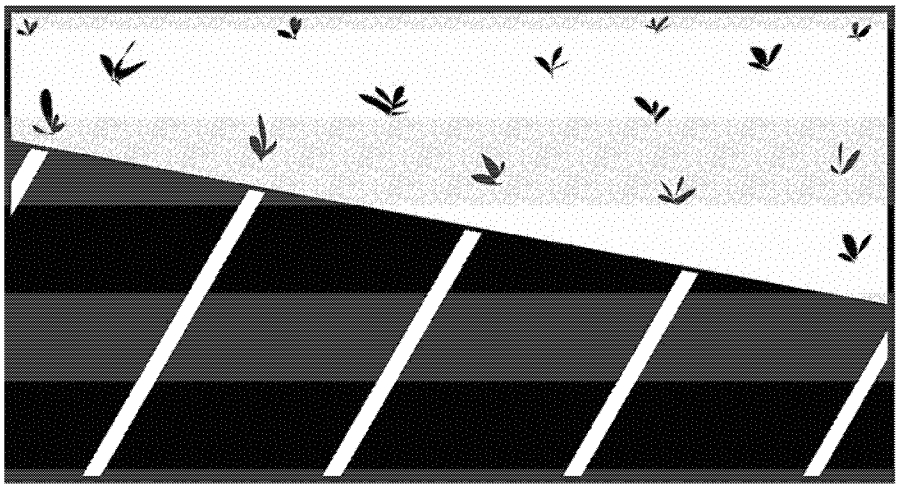
Vegetated Buffer Strips and Channels

SC-5



Source: Modified from Knoxville BMP Manual, 2003.

Description

Vegetative buffer strips and channels protect soil from erosion, increase infiltration, and remove sediment from surface runoff. Located adjacent to pollutant sources such as construction sites, vegetated buffer strips also provide protection to downstream receiving inlets or water bodies.

Applications

- Any site which is suitable for establishment of vegetation.
- Vegetated buffer strips are appropriate for uncurbed, paved areas; steep and potentially unstable slopes; and areas adjacent to sensitive water bodies.
- Vegetated channels are appropriate for surface runoff conveyed by channels to downstream inlets or receiving waters.

Installation and Implementation Requirements

- Refer to SM-16 (Preservation of Existing Vegetation) in this manual if existing vegetation will be used as a buffer strip.
- Installation of a buffer strip with new vegetation shall comply with the following:
  - Prior to cultivation of the designated buffer strip area, remove and dispose of all weeds and debris in accordance with *2005 Standard Specifications for Road and Bridge Construction;*
  - During construction, strip and stockpile good topsoil for surface preparation purposes prior to planting activities;
  - Plant the area upon completion of grading in the area;
  - Fine grade and roll areas to be planted after cultivating soil and, if applicable, installing the irrigation system;
  - Provide additional watering or irrigation of vegetation to supplement rainfall until vegetation has been established;
  - Fertilize vegetation in accordance with manufacturers' instructions and grass/soil requirements determined by testing of the soil;

Installation and Implementation Requirements (Continued)

- Vehicular traffic passing through vegetated buffer strips or channels shall be avoided to protect vegetation from damage and maximize its effectiveness;
- Comply with applicable regulations and manufacturers' instructions when applying fertilizers, pesticides, soil amendments, or chemicals;
- Comply with the following during seeding activities:
  - Add soil amendments such as fertilizer when preparing seedbed. Apply mulch after seeding to protect vegetation during establishment. Select an appropriate seed mixture based on site conditions. Dense grasses are more effective in reducing flow velocities and removing sediment. Thick root structures are necessary for erosion control,
  - Use proper equipment and methods to ensure uniform distribution and appropriate seed placement, and
  - Overseed, repair bare spots, and apply additional mulch as necessary; and
- Comply with the following during sodding activities:
  - Protect sod with tarps or other types of protective covering during delivery and do not allow sow to dry between harvesting and placement,
  - Any irregular or uneven areas observed prior to or during the plant establishment period shall be restored to a smooth and even appearance,
  - Prior to placing sod, ground surface shall be smooth and uniform,
  - Areas, which will be planted with sod and are adjacent to paved surfaces such as sidewalks and concrete headers, shall be 1.5±0.25 inches below the top grade of the paved surface after fine grading, rolling, and settlement of the soil.
  - Ends of adjacent strips of sod shall be staggered a minimum of 24 inches,
  - Edges and ends of sod shall be placed firmly against paved borders,
  - After placement of the sod, lightly roll sodded area to eliminate air pockets and ensure close contact with the soil,
  - After rolling, water the sodded area to moisten the soil to a depth of 4 inches,
  - Do not allow sod to dry,
  - Avoid planting sod during extremely hot or wet weather, and
  - Sod shall not be placed on slopes steeper than 3:1 (H:V) if the area will be mowed.

Limitations

- Site conditions such as availability of land.
- Flow depth and vegetative condition determine BMP effectiveness.
- May require irrigation to maintain vegetation.

Vegetated Buffer Strips and Channels

SC-5

Limitations (Continued)

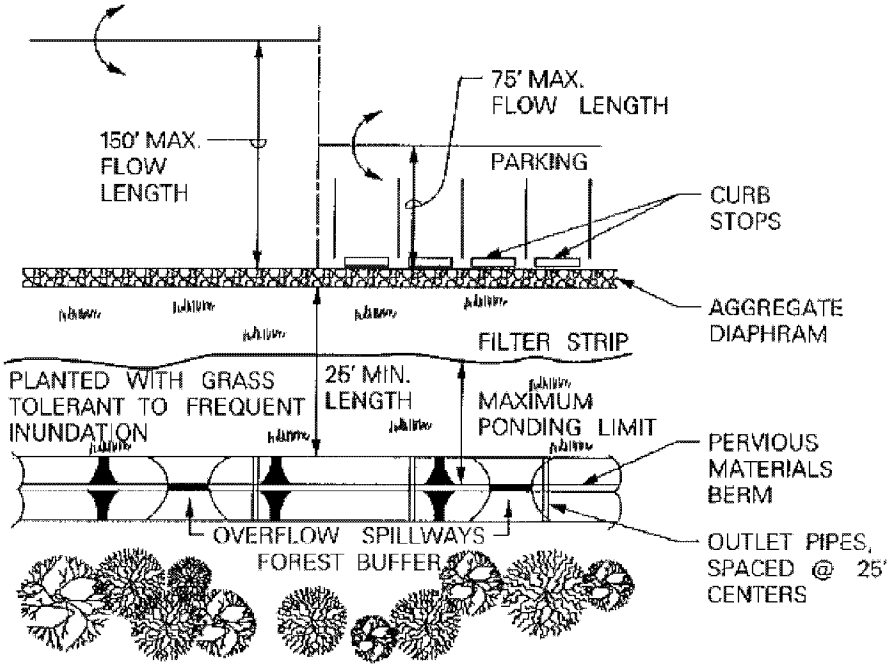
- High maintenance requirements may exist depending on the design condition of the vegetation.
- Unless existing vegetation is used as a buffer strip, an area will need to be provided specifically for a buffer strip and vegetation will need to be established.
- Maintaining sheet flow in buffer strips may be difficult.
- Vegetated channels require a larger area than lined channels.
- Vegetated channels require gradual slopes since runoff with high flow velocity may flow over grass rather than through it.

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall until vegetation is established. Repair eroded or damaged areas as necessary.
- Maintenance activities include mowing, weeding, and verification of a properly operating irrigation system, if applicable.
- Properly remove and dispose of clippings from mowing and trimming in accordance with *2005 Standard Specifications for Road and Bridge Construction.*

Vegetated Buffer Strips And Channels

SC-5



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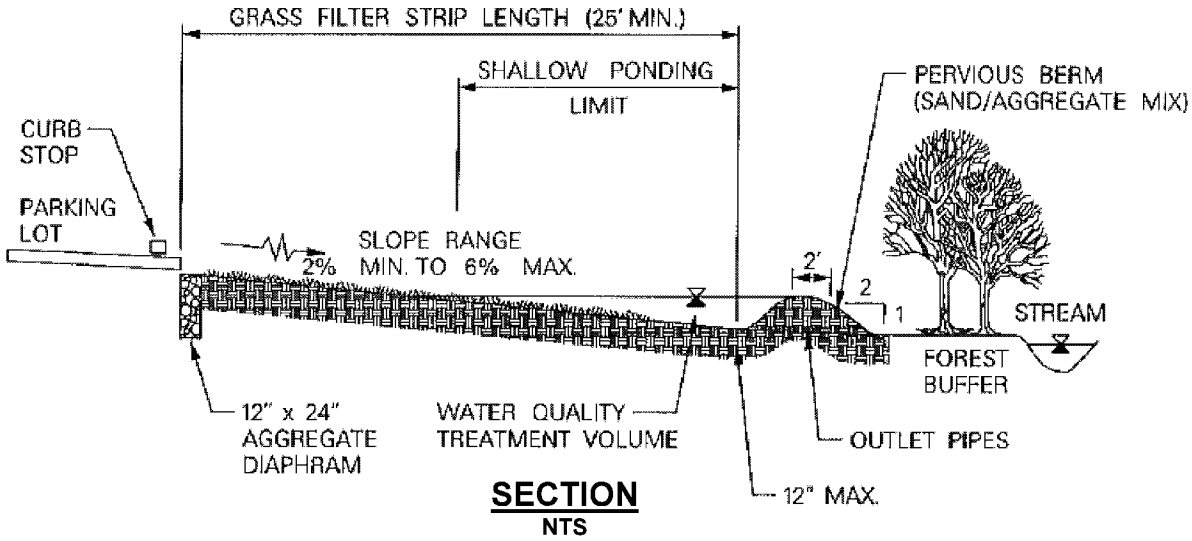

SECTION
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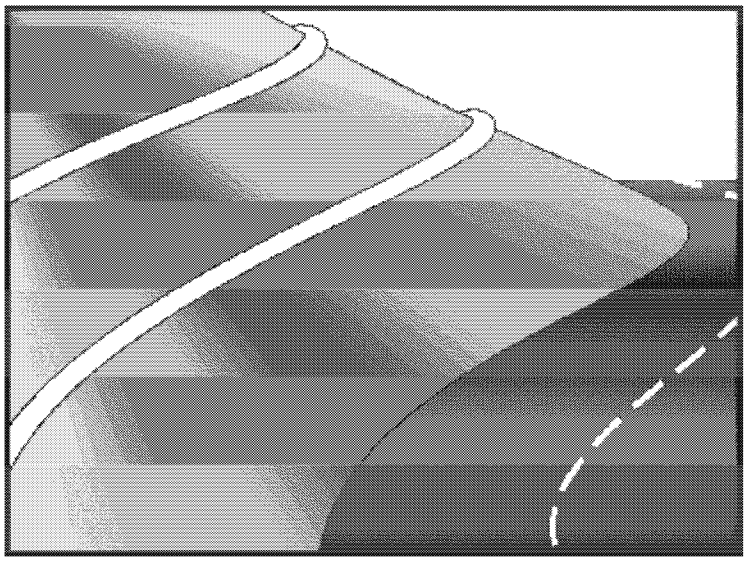
TYPICAL VEGETATED BUFFER STRIP

Source: Prince George's County, Low-Impact Development Design Strategies: An Integrated Environmental Design Approach, 1999.

Compost Filter Berm SC-8



Source: Truckee Meadows Construction Site Best Management Practices Handbook, 2003.

Description

A dike consisting of composted material and placed perpendicular to runoff to reduce flow velocity and retain sediment and other pollutants.

Applications

- Along the site perimeter.
- Along the slope face.
- Check dam in small drainage ditches.
- Inlet protection for storm drains.
- Appropriate for small drainage areas and low surface velocity flows (less than 1 cfs).
- May be used in combination with other BMPs such as a compost blanket or silt fence for high rainfall areas and steeper or longer slopes.

Installation and Implementation Requirements

- Usually located at the base of slopes, however, additional berms may be used for increased erosion protection.
- Berm size is determined by factors including slope length and grade, soil characteristics, climate, and presence of existing vegetation.
- Berms may be vegetated or unvegetated.
- Compost quality shall comply with all local, state, and Federal requirements.

Compost Filter Berm SC-8

Installation and Implementation Requirements (Continued)

- Installation of a compost filter sock, which consists of a mesh tube filled with composted material, as a type of compost filter berm shall comply with the following:
  - Assemble by tying a knot at one end of the mesh sock, filling the sock with compost, and knotting the other end of the sock. A pneumatic blower may be used to fill the sock with compost;
  - Use a filter sock equivalent to the length of the slope where practicable;
  - When use of multiple socks is required, place socks end-to-end and interlock the ends;
  - Anchor filter socks to ground; and
  - Turn ends of filter sock up slope to prevent flow around ends.
- Material for compost berm may be left at the site and used as a soil amendment.
- Mesh socks filled with compost may also be used for areas of concentrated flow such as near streams or shorelines.

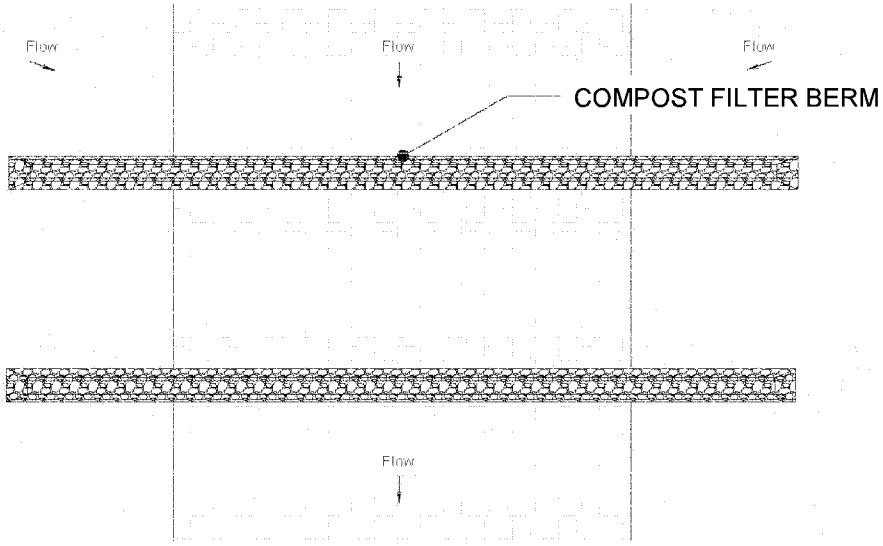
Limitations

- Unsuitable for areas with concentrated runoff unless a low flow rate and small drainage area warrants use of a filter berm.
- Heavy vegetation must be removed to ensure close contact of compost with the ground surface.

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Remove sediment which has accumulated to within 1/3 of the berm height.
- Replace disturbed or damaged areas of the berm.
- Significant washout may indicate a larger berm or additional BMPs such as a compost blanket or silt fence are required.

Compost Filter Berm SC-8



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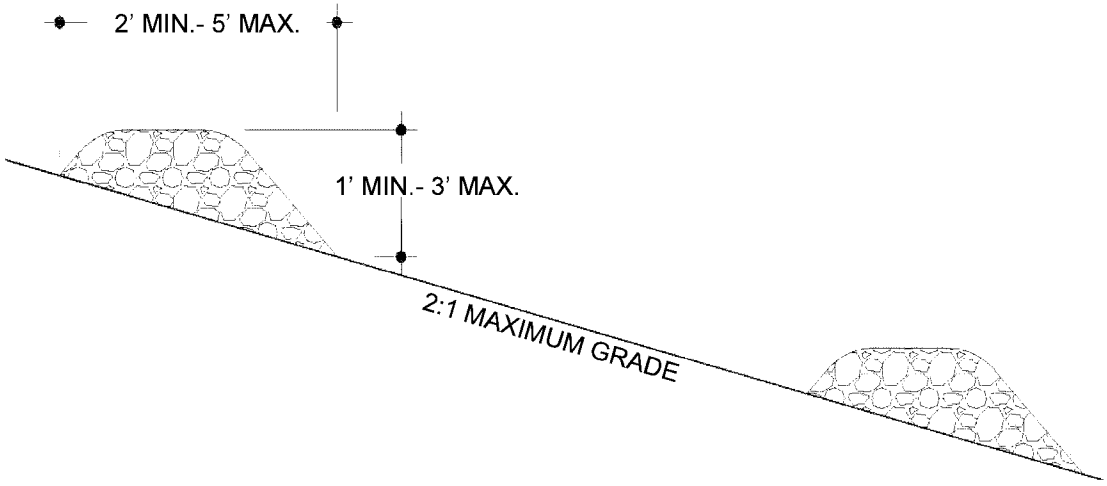

SECTION
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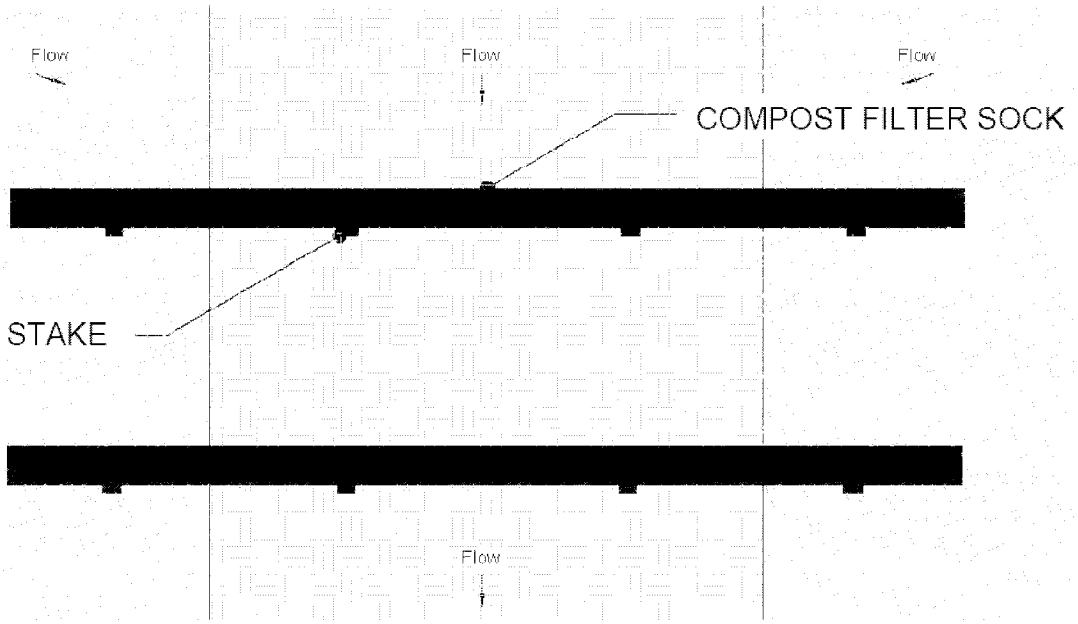
COMPOST FILTER BERM

Source: Texas Commission on Environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006.



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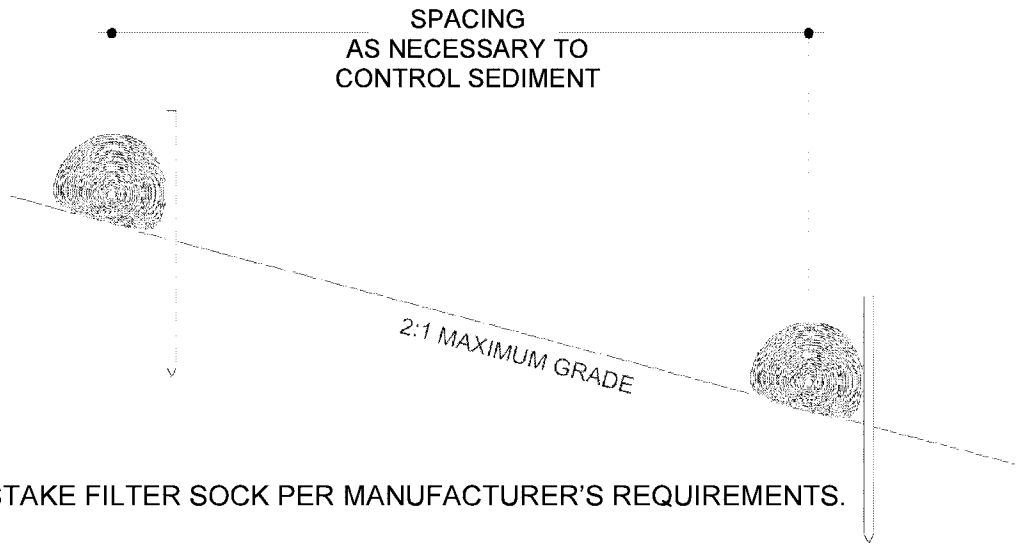


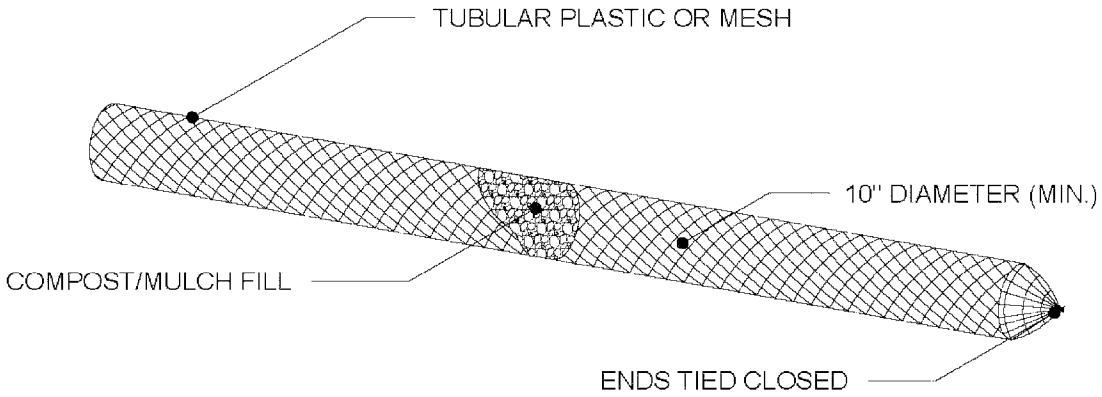
NOTE: STAKE FILTER SOCK PER MANUFACTURER'S REQUIREMENTS.

SECTION
NTS

COMPOST FILTER BERM (FILTER SOCK)

Source: Adapted from Texas Commission on environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006

Compost Filter Berm SC-8



COMPOST FILTER BERM (FILTER SOCK)
NTS

Source: Texas Commission on Environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006.

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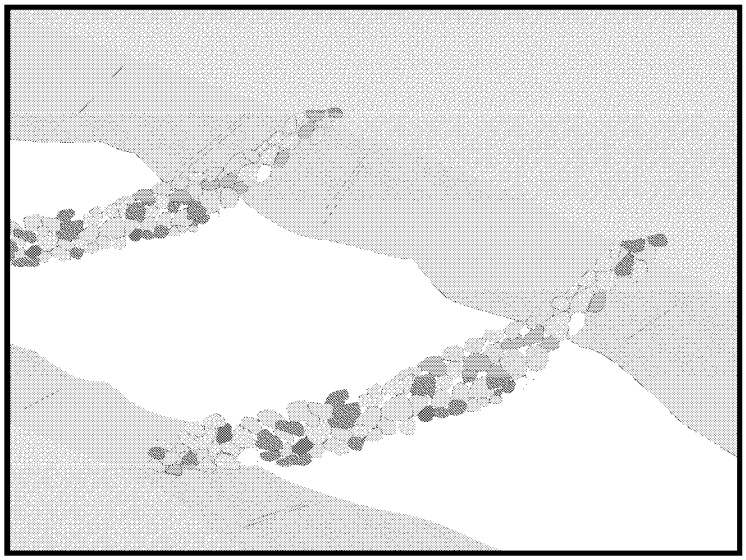
Check Dams SC-9



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

Temporary devices placed across channels or ditches to reduce scour and erosion by reducing flow velocity and promoting sedimentation.

Applications

- Appropriate for small open channels conveying runoff from 10 acres or less.
- Steep channels with runoff velocities exceeding 2 ft/sec.
- Temporary ditches which do not require installation of erosion-resistant linings due to expected short-term use.

Installation and Implementation Requirements

- Distance between check dams and height of each device shall promote the formation of small pools between adjacent devices.
- Backwater from the downstream check dam shall reach the toe of the upstream check dam.
- Major flows (2 year storm or larger) shall flow over the check dam without increasing upstream flooding or damaging the check dam.
- Remove check dams and accumulated sediment upon establishment of vegetative lining.
- Stone check dams shall consist of stones ranging from approximately 8 to 12 inches in size. Stones shall not be dumped but shall be placed by hand or by other mechanical means. Stone material shall completely span the channel or ditch to prevent washout of the check dam.
- Log check dams shall consist of logs ranging from approximately 4 to 6 inches in diameter. Logs shall be embedded a minimum of 18 inches into the soil.

Installation and Implementation Requirements (Continued)

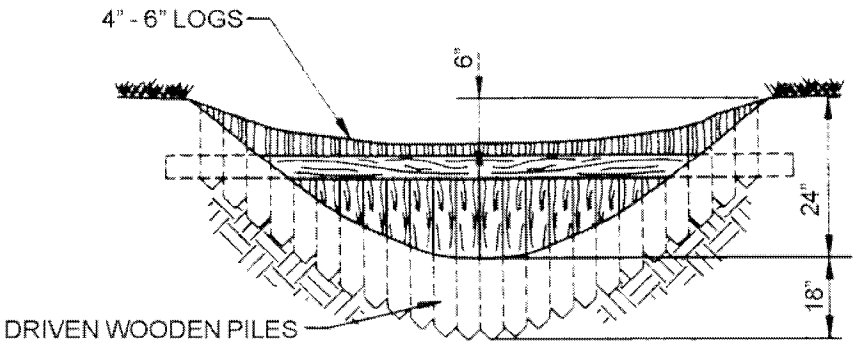
- Remove check dams upon establishment of grass used for stabilization of the ditch or channel, unless the slope of the swale exceeds 4 percent.

Limitations

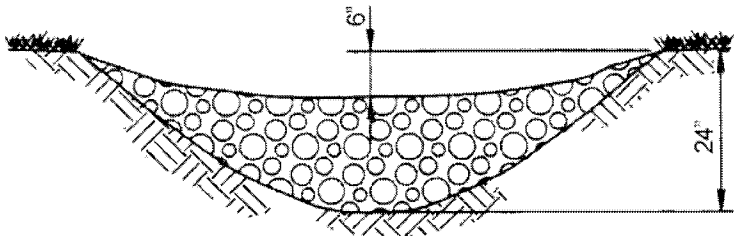
- Drainage area discharging to open channels shall not exceed 10 acres.
- Not applicable to live streams.
- Not applicable to channels with established grass linings unless erosion is expected since check dam installation may damage existing vegetation.
- High velocity flows may require extensive maintenance.
- Subsequent storms or removal of the check dam may re-suspend trapped sediment.

Inspections and Maintenance

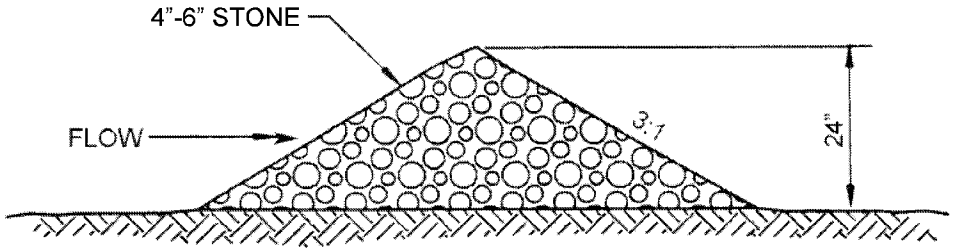
- Inspect check dams for sediment accumulation and erosion weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Remove accumulated sediment when depth reaches one-half the sump depth.
- Prior to permanent seeding or soil stabilization, remove accumulated sediment and check dams.



LOG CHECK DAM ELEVATION
NTS



STONE CHECK DAM ELEVATION
NTS



STONE CHECK DAM SECTION
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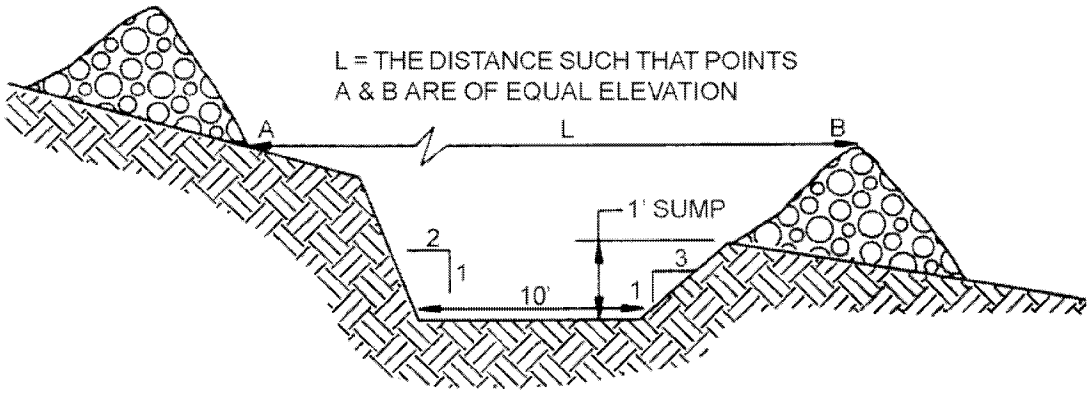
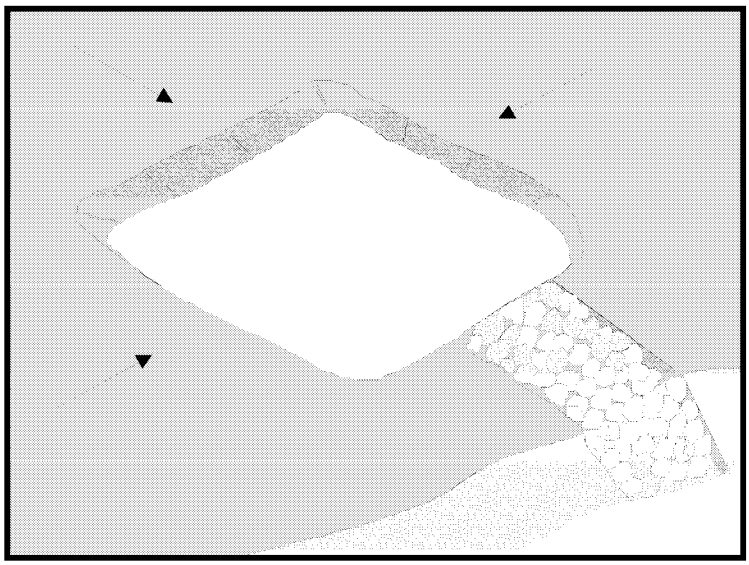
Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.



SPACING BETWEEN CHECK DAMS
NTS

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.

Sediment Trap SC-15



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

A temporary runoff containment area, which promotes sedimentation prior to discharge of the runoff through a stabilized spillway.

Applications

- Drainage areas less than 5 acres.
- Areas along the perimeter of the site where sediment-laden runoff is discharged off-site.
- Areas requiring additional sediment containment measures such as bodies of water or discharge points to a drainage system.
- On-site discharge points to a stabilized or natural area or waterway.

Installation and Implementation Requirements

- Construct sediment trap prior to engaging in clearing, grubbing, or grading activities.
- Location shall be based on the following:
  - Area where a low embankment may be constructed across a swale;
  - Area where failure of sediment trap will not cause property damage or loss of life; and
  - Area where maintenance crew may easily access sediment trap.
- Sediment trap size shall be based on the following:
  - Minimum trap settling volume of 133 cubic yards per acre;
  - Minimum trap sediment storage volume of 33 cubic yards per acre;
  - Trap width shall be less than half of the trap length; and
  - Flood volume which may contain a major flood without damage to upstream areas or overtopping the embankment.

Sediment Trap SC-15

Installation and Implementation Requirements (Continued)

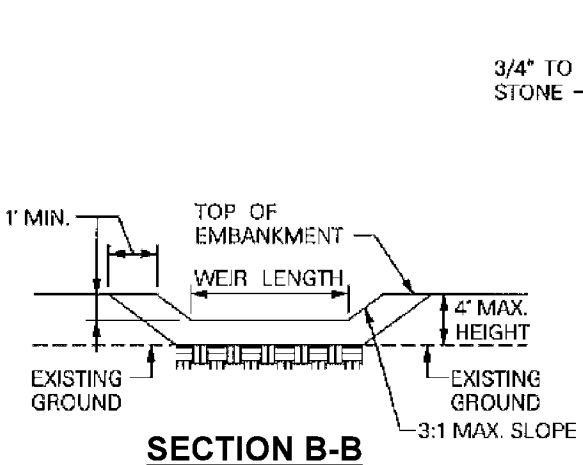
- Construct sediment trap by excavating ground or constructing an earthen embankment to create a containment area.
- Area under embankment shall be cleared, grubbed, and stripped of vegetation and root mat.
- Fill material for embankment shall be free of roots, woody vegetation, over-sized stones, rocks, organic material, or other objectionable material. Compact embankment by traversing with construction equipment.
- Stabilize trap outlet with stone or vegetation.
- Install fencing to prevent unauthorized entry and for safety purposes.
- All pipe joints shall be watertight when a riser is used.
- The top 2/3 of the riser shall be perforated with holes 1 to 4 inch in diameter. The holes shall be vertically spaced at 8 inch intervals and horizontally spaced at 10 to 12 inch intervals.
- Outlet crest elevation of an earth or stone outlet shall be a minimum of 1 foot below the top of the embankment.

Limitations

- Applies to maximum drainage area of 5 acres. Drainage areas exceeding 5 acres shall implement Sediment Basins. Refer to SC-16 (Sediment Basin) in this manual for more information.
- Only removes large and medium size particles.
- Requires protective fencing.
- Do not install in live streams.
- Availability of right-of-way may limit size of sediment trap.

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Inspect spillway and outlet for obstructions or damage. Remove obstructions and repair damage as necessary.
- Inspect outlet for erosion and stabilize as necessary.
- Inspect fencing for damage and repair as necessary.
- Remove sediment which has accumulated to within 1 foot of the top of the dry storage volume.
- Properly dispose of sediment and debris removed from sediment trap.



SECTION B-B
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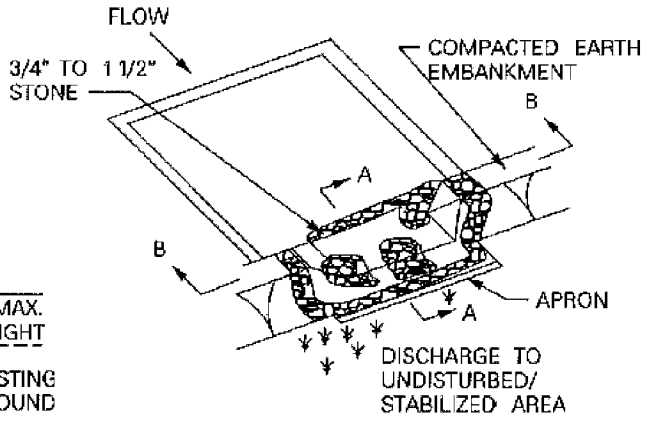
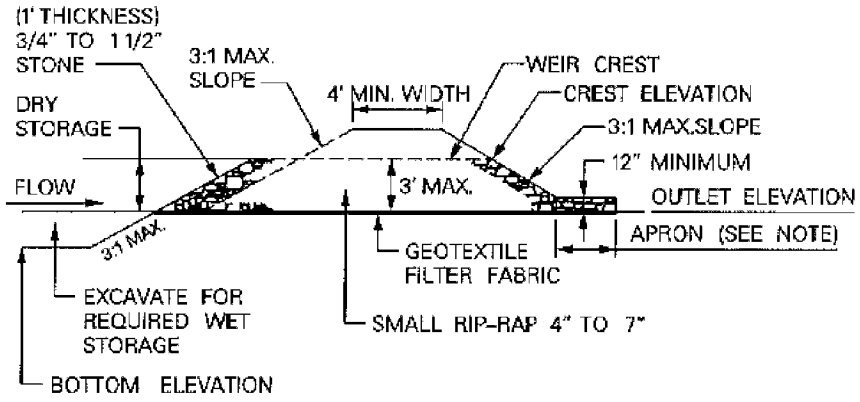


PERSPECTIVE VIEW
NTS



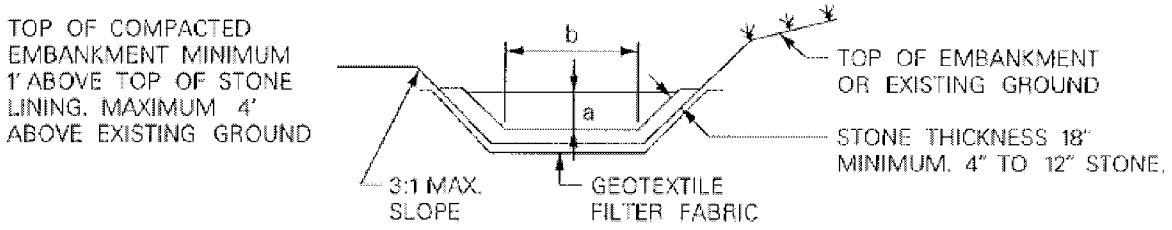
SECTION A-A
NTS

NOTE: MAXIMUM DRAINAGE AREA = 5 ACRES.

STONE OUTLET SEDIMENT TRAP

Source: Maryland Standards and Specifications for Soil Erosion and Sediment Control, 1994.

LEGEND
a = MINIMUM DEPTH OF CHANNEL
b = BOTTOM WIDTH OF WEIR



CROSS SECTION
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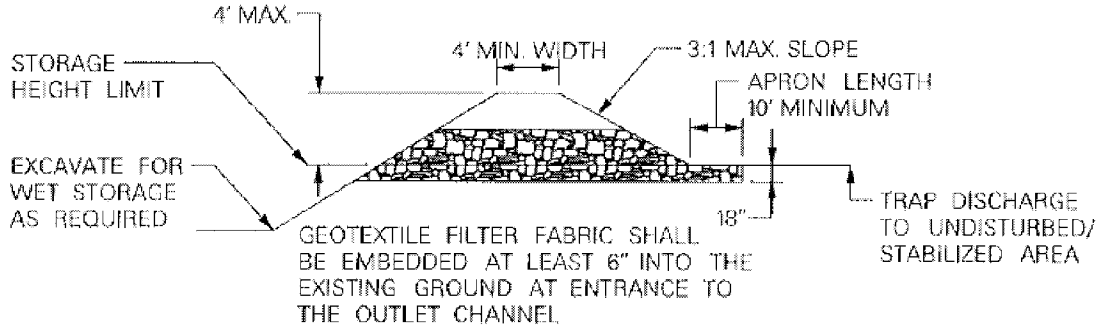

PROFILE
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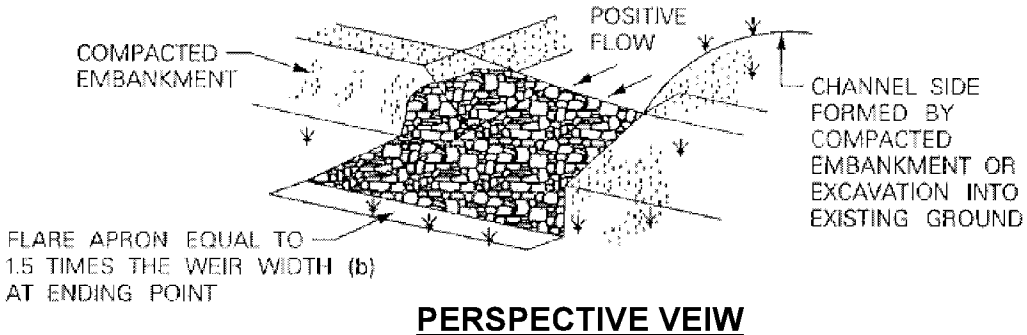

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NOTE: MAXIMUM DRAINAGE AREA = 5 ACRES.

RIP-RAP SEDIMENT TRAP

Source: Maryland Standards and Specifications for Soil Erosion and Sediment Control, 1994.

Efficient Irrigation SD-12

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- 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.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

ATTACHMENT A-2

Property Boundary, Project Location, and State Waters Maps
(*Section 7.2.6.1, 7.2.6.2, and 7.2.6.8 of SWPPP*)

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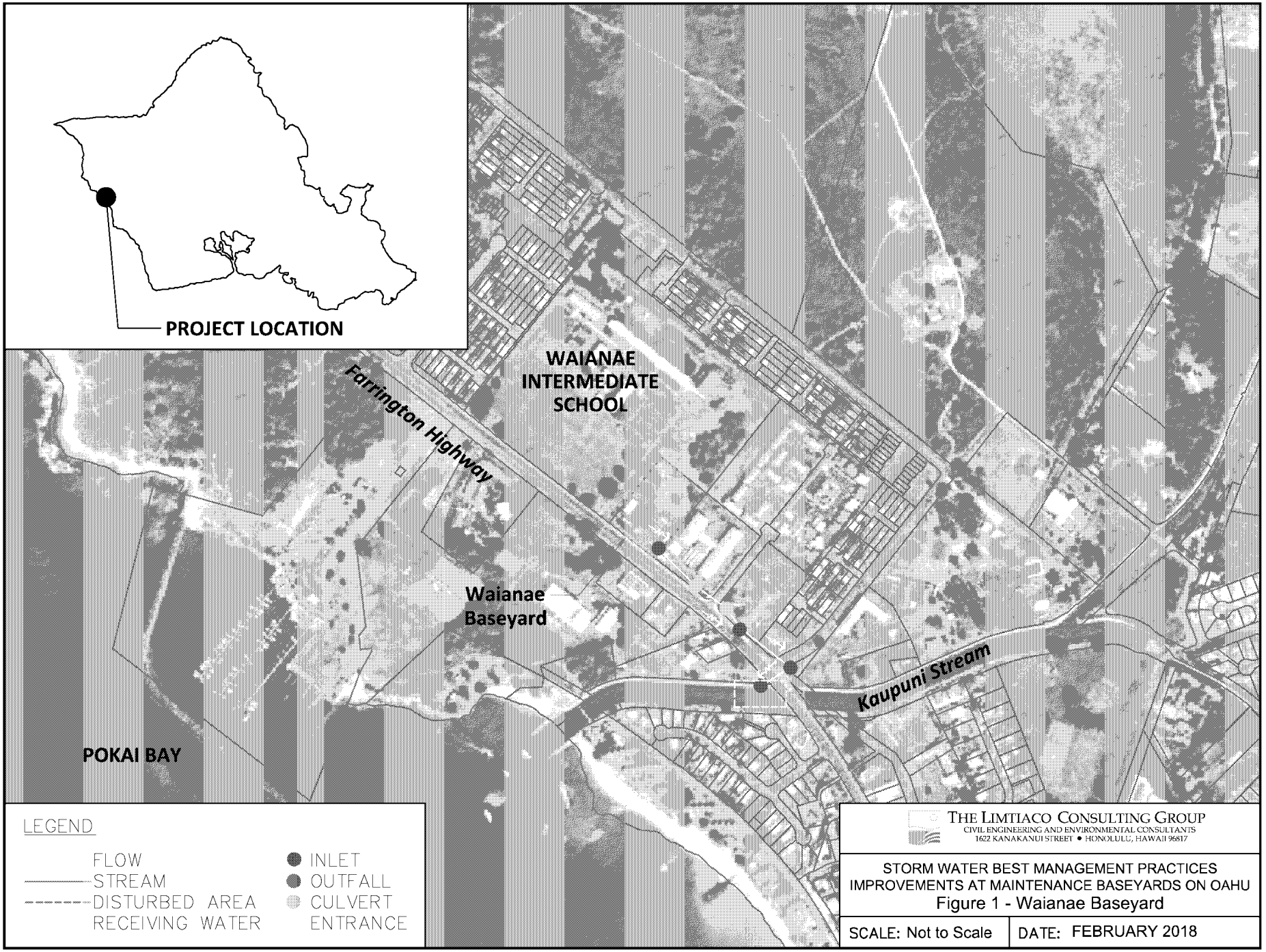
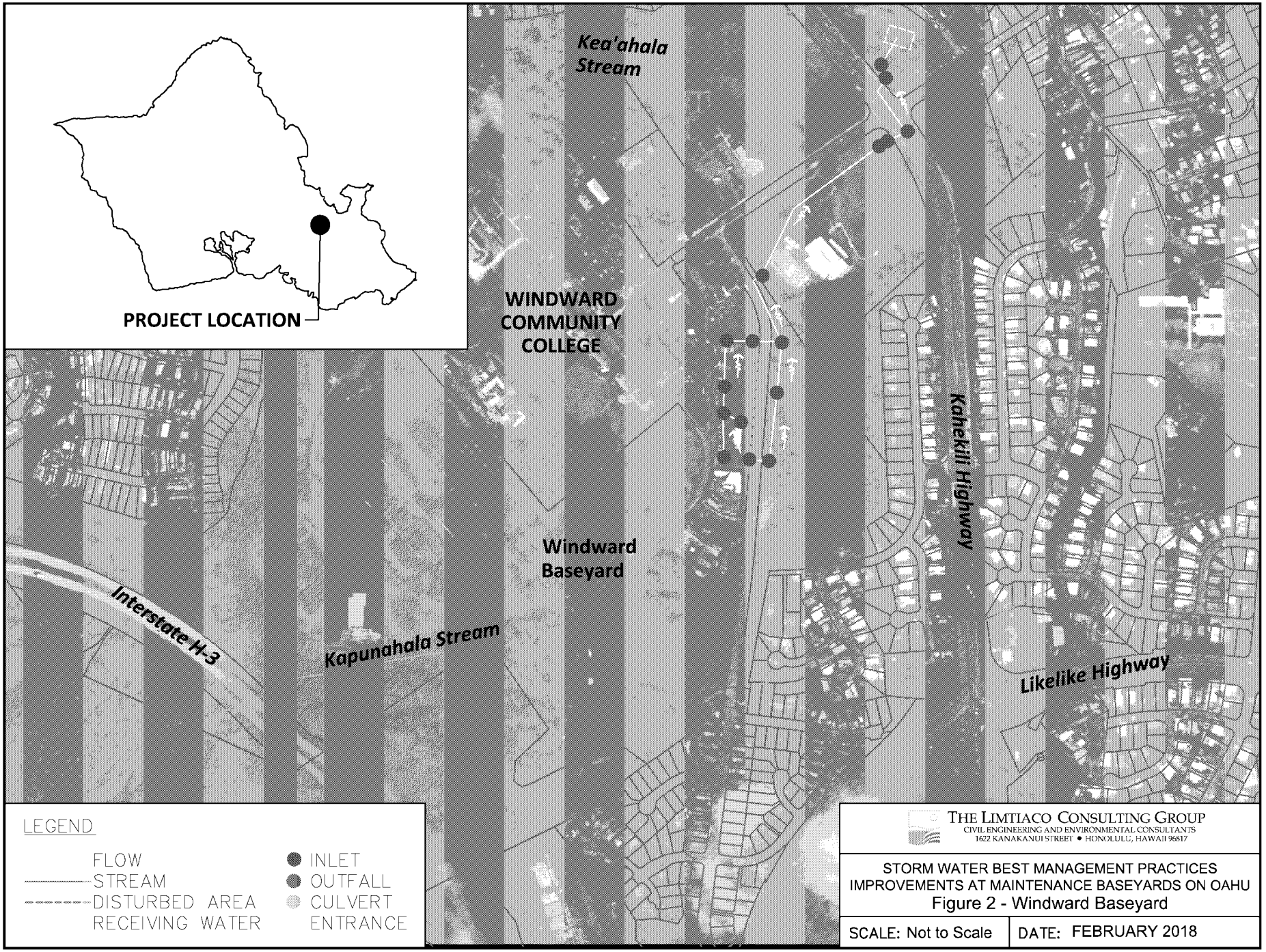


THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS
1622 KANAKANUI STREET • HONOLULU, HAWAII 96817

STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Figure 1 - Waianae Baseyard

SCALE: Not to Scale | DATE: FEBRUARY 2018



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STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Figure 2 - Windward Baseyard

SCALE: Not to Scale | DATE: FEBRUARY 2018

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ATTACHMENT A-3

Site-Specific Best Management Plan and Drainage Maps
(*Section 7.2.6.1, 7.2.6.2, and 7.2.6.8 of SWPPP*)

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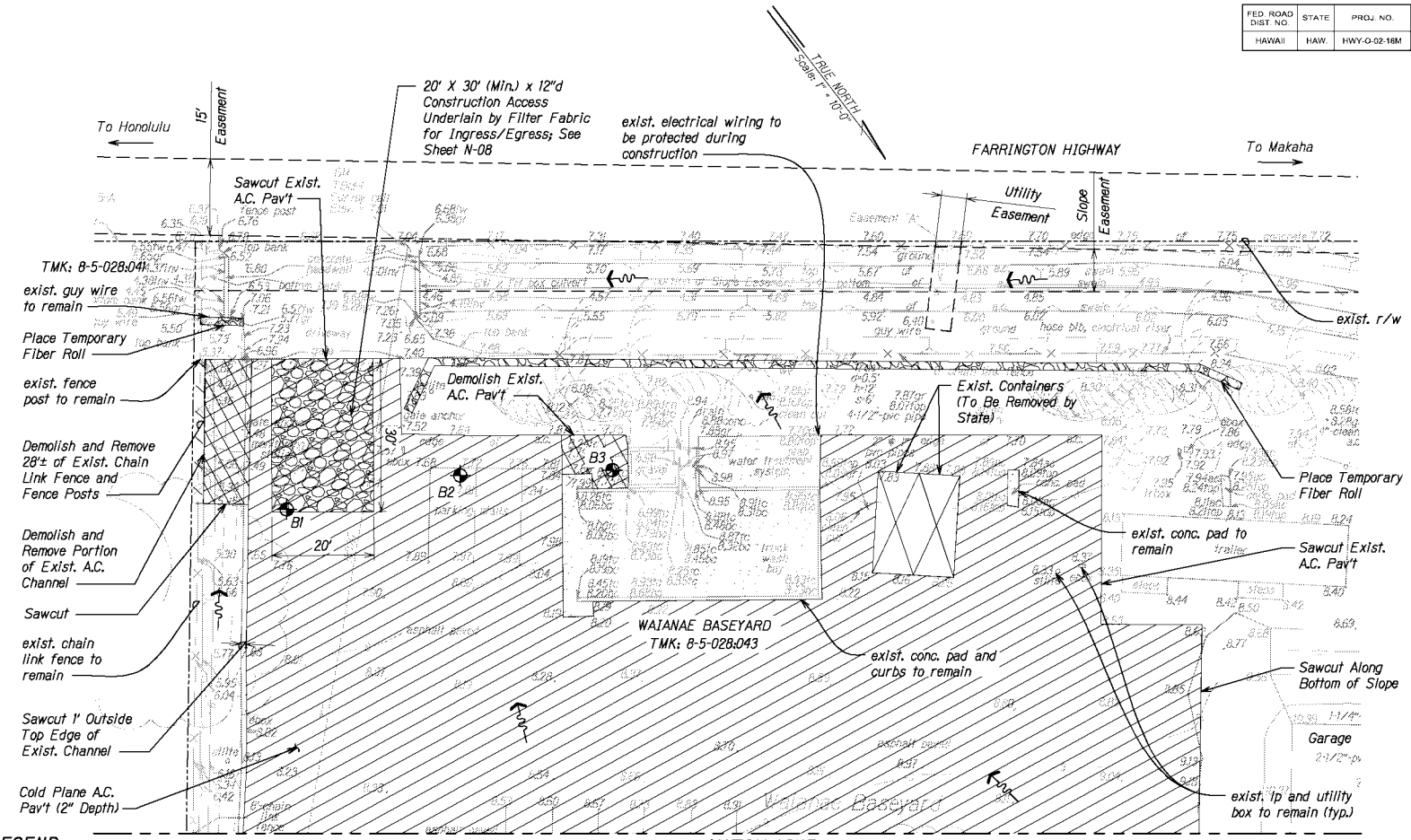
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-18M	2018	11	33



LEGEND

- Direction of Flow
- Cold Plane Existing A.C. Pavement (2" Depth)
- Demolish & Remove Existing A.C. Channel/Pavement
- B1 — Approx. Boring Location and ID Number

NOTES:

1. For boring log data, see Sheet EC-22 & EC-23

TEMPORARY BMP AND DEMOLITION PLAN
WAIANAE BASEYARD

Scale: 1" = 10'-0"

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
EXP. DATE
This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY BMP AND DEMO PLAN
WAIANAE BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 10'-0" Date: March 2018

SHEET No. EC-01 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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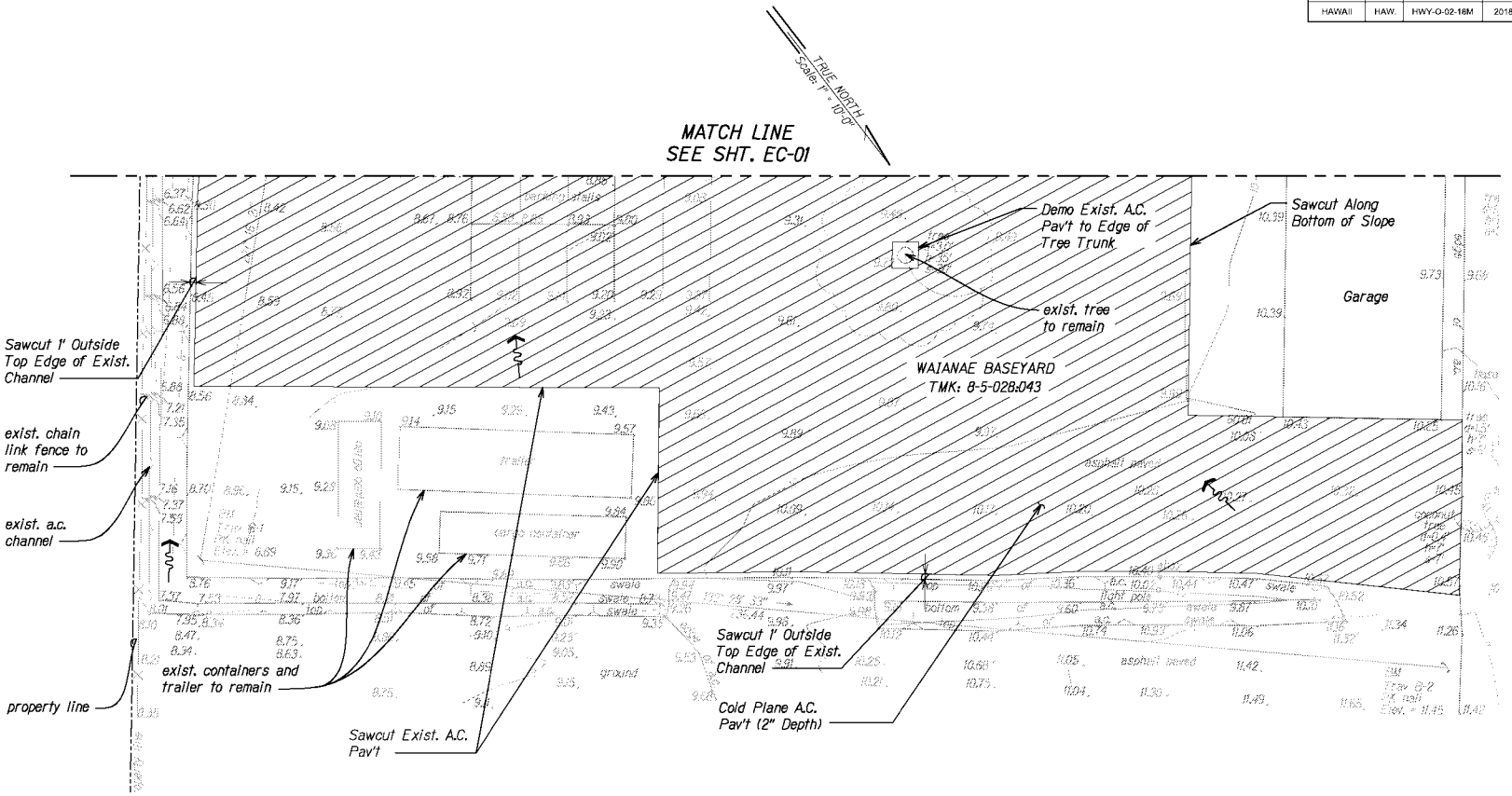

TEMPORARY BMP AND DEMOLITION PLAN
WAIANAE BASEYARD

Scale: 1" = 10'-0"

LEGEND

Direction of Flow

Cold Plane Existing A.C. Pavement (2" Depth)

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
EXP. DATE
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TEMPORARY BMP AND DEMO PLAN
WAIANAE BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 10'-0" Date: March 2018

SHEET No. EC-02 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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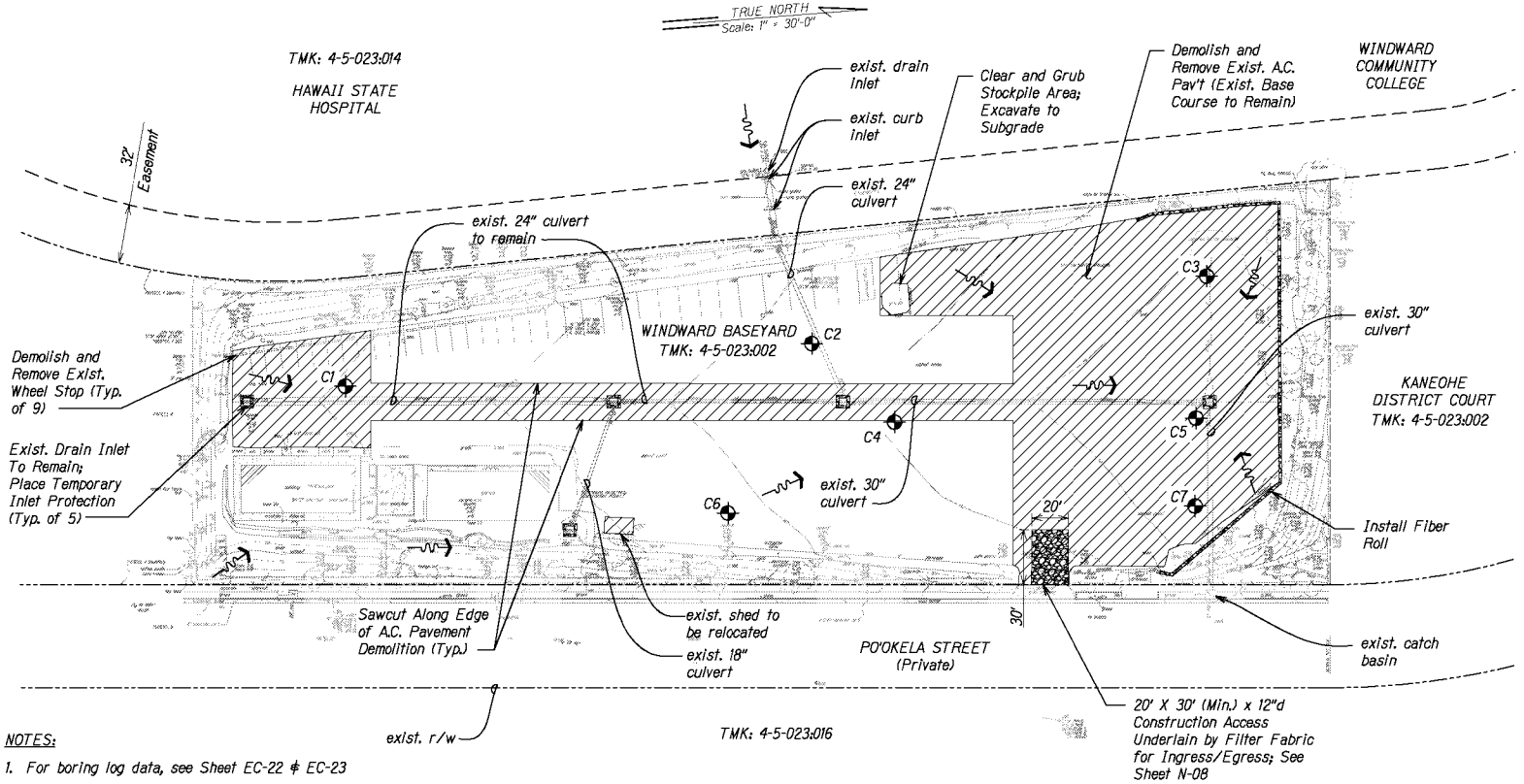

NOTES:

1. For boring log data, see Sheet EC-22 & EC-23

LEGEND

- A.C. Pavement Demolition, Approx. 2" to 3.5" Thick (Exist. Base Course to Remain)
- Direction of Flow
- C1 — Approx. Boring Location and ID Number

TEMPORARY BMP AND DEMOLITION PLAN
WINDWARD BASEYARD

Scale: 1" = 30'-0"

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
EXP. DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY BMP AND DEMO PLAN
WINDWARD BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 30'-0" Date: March 2018

SHEET No. EC-08 OF 23 SHEETS

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ATTACHMENT A-4

HDOT Drainage Mapping

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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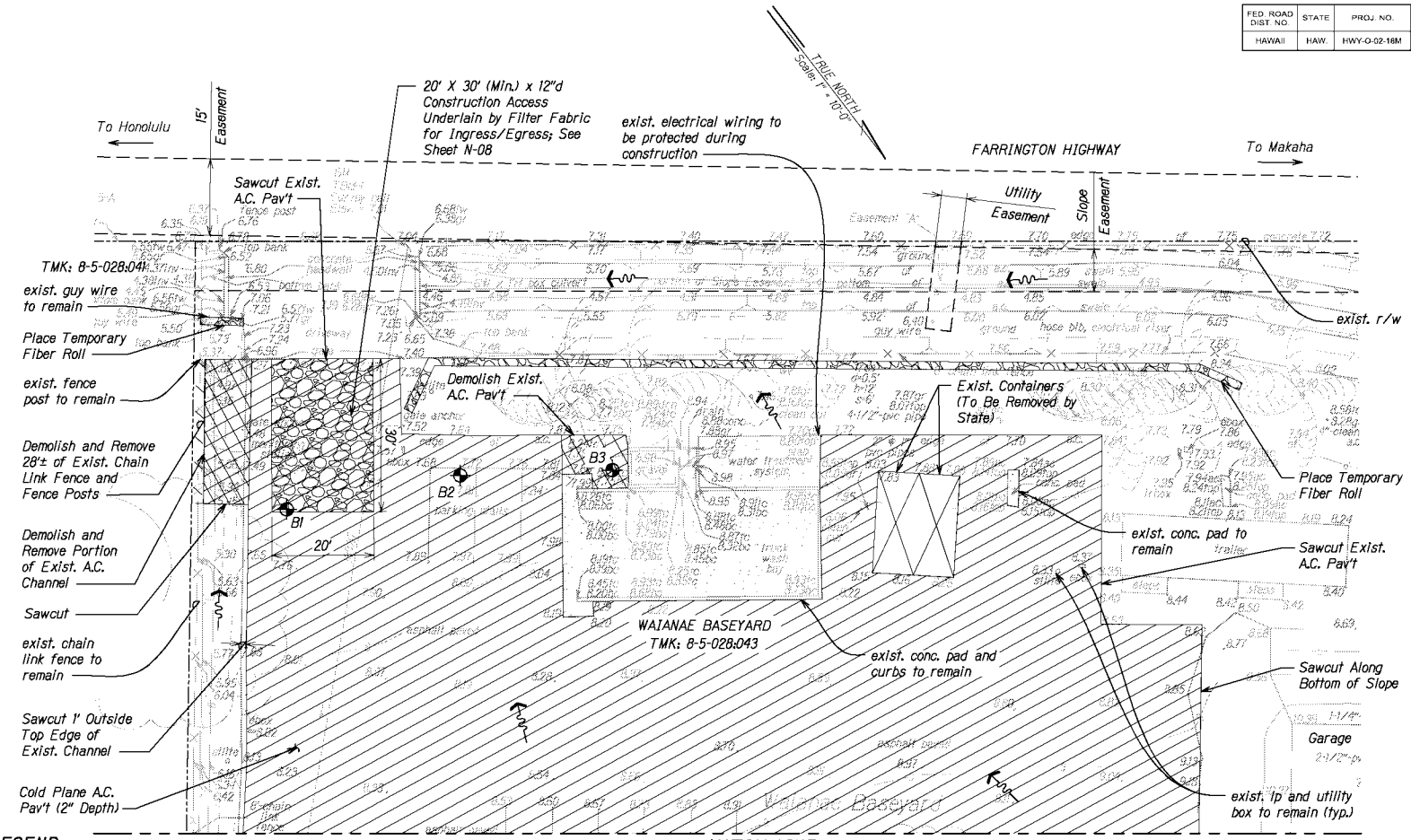

LEGEND

- Direction of Flow
- Cold Plane Existing A.C. Pavement (2" Depth)
- Demolish & Remove Existing A.C. Channel/Pavement
- B1 — Approx. Boring Location and ID Number

NOTES:

1. For boring log data, see Sheet EC-22 & EC-23

TEMPORARY BMP AND DEMOLITION PLAN
WAIANAE BASEYARD

Scale: 1" = 10'-0"

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LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
EXP. DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY BMP AND DEMO PLAN
WAIANAE BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 10'-0" Date: March 2018

SHEET No. EC-01 OF 23 SHEETS

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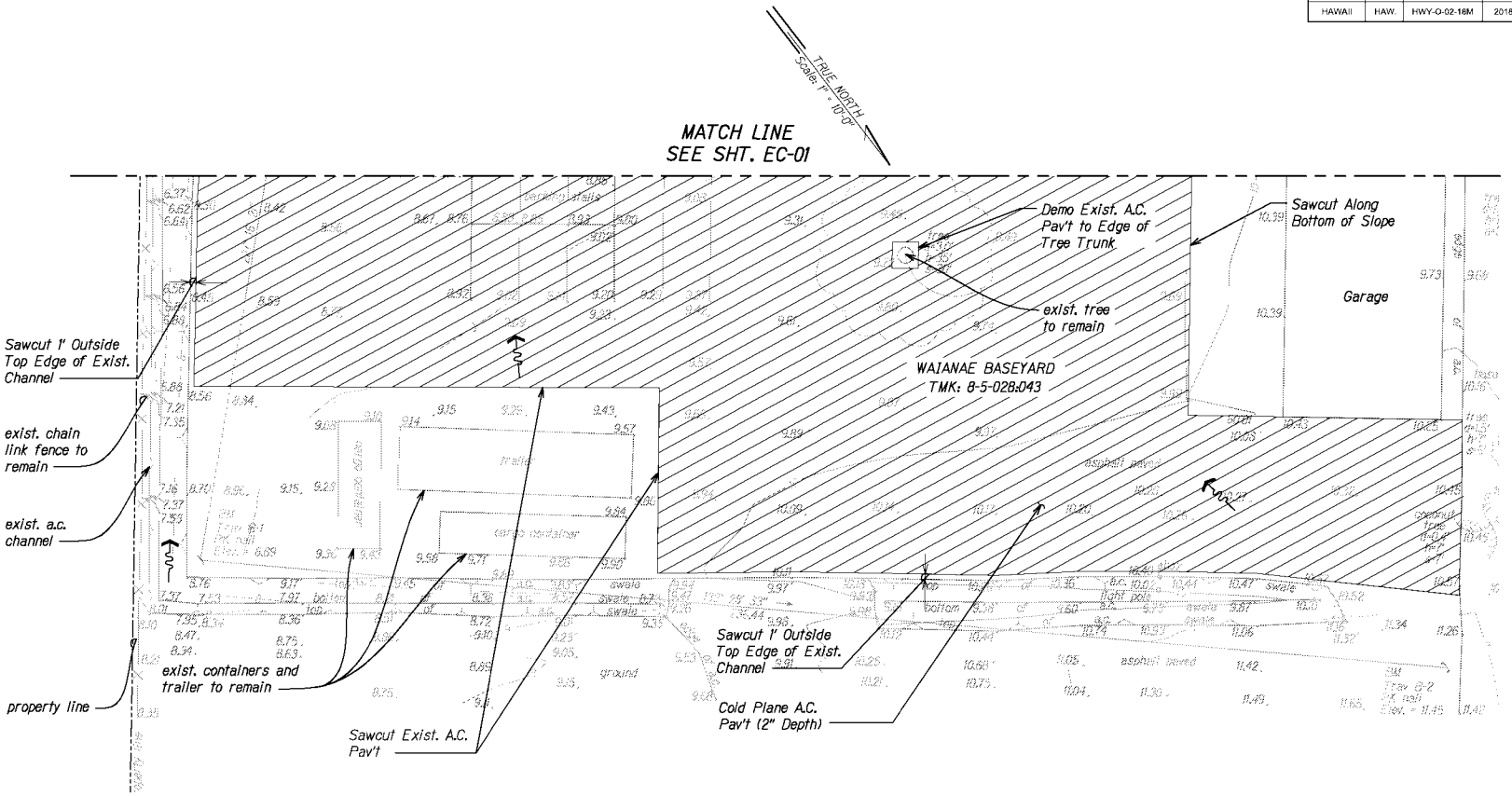
HAWAII	HAW.	HWY-0-02-18M	2018	12	33



TEMPORARY BMP AND DEMOLITION PLAN
WAIANAE BASEYARD

Scale: 1" = 10'-0"

LEGEND

Direction of Flow

Cold Plane Existing A.C. Pavement (2" Depth)

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY BMP AND DEMO PLAN
WAIANAE BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 10'-0" Date: March 2018

SHEET No. EC-02 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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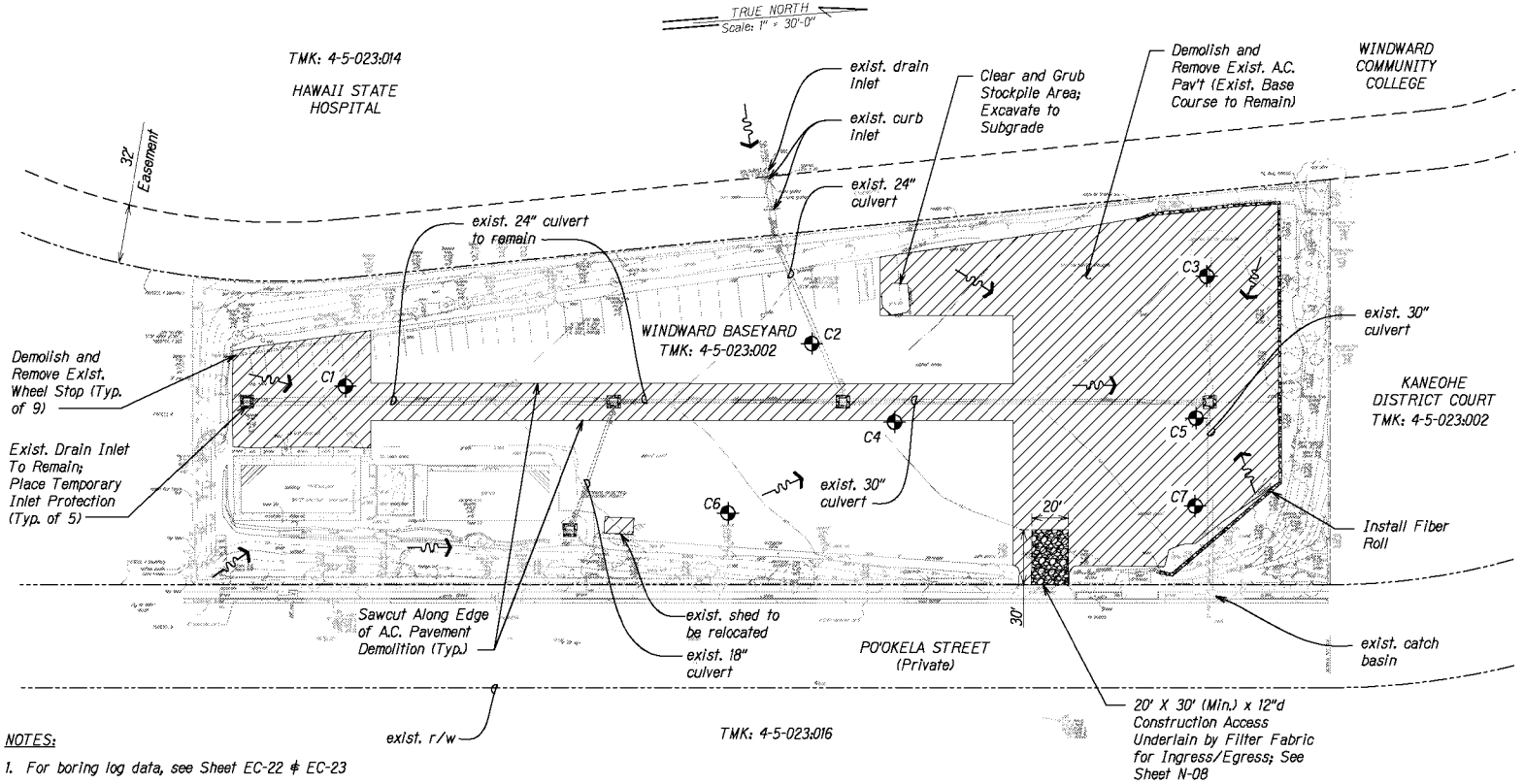

NOTES:

1. For boring log data, see Sheet EC-22 & EC-23

LEGEND

- A.C. Pavement Demolition, Approx. 2" to 3.5" Thick (Exist. Base Course to Remain)
- Direction of Flow
- C1 — Approx. Boring Location and ID Number

TEMPORARY BMP AND DEMOLITION PLAN
WINDWARD BASEYARD

Scale: 1" = 30'-0"

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII, USA
4/30/18
EXP. DATE
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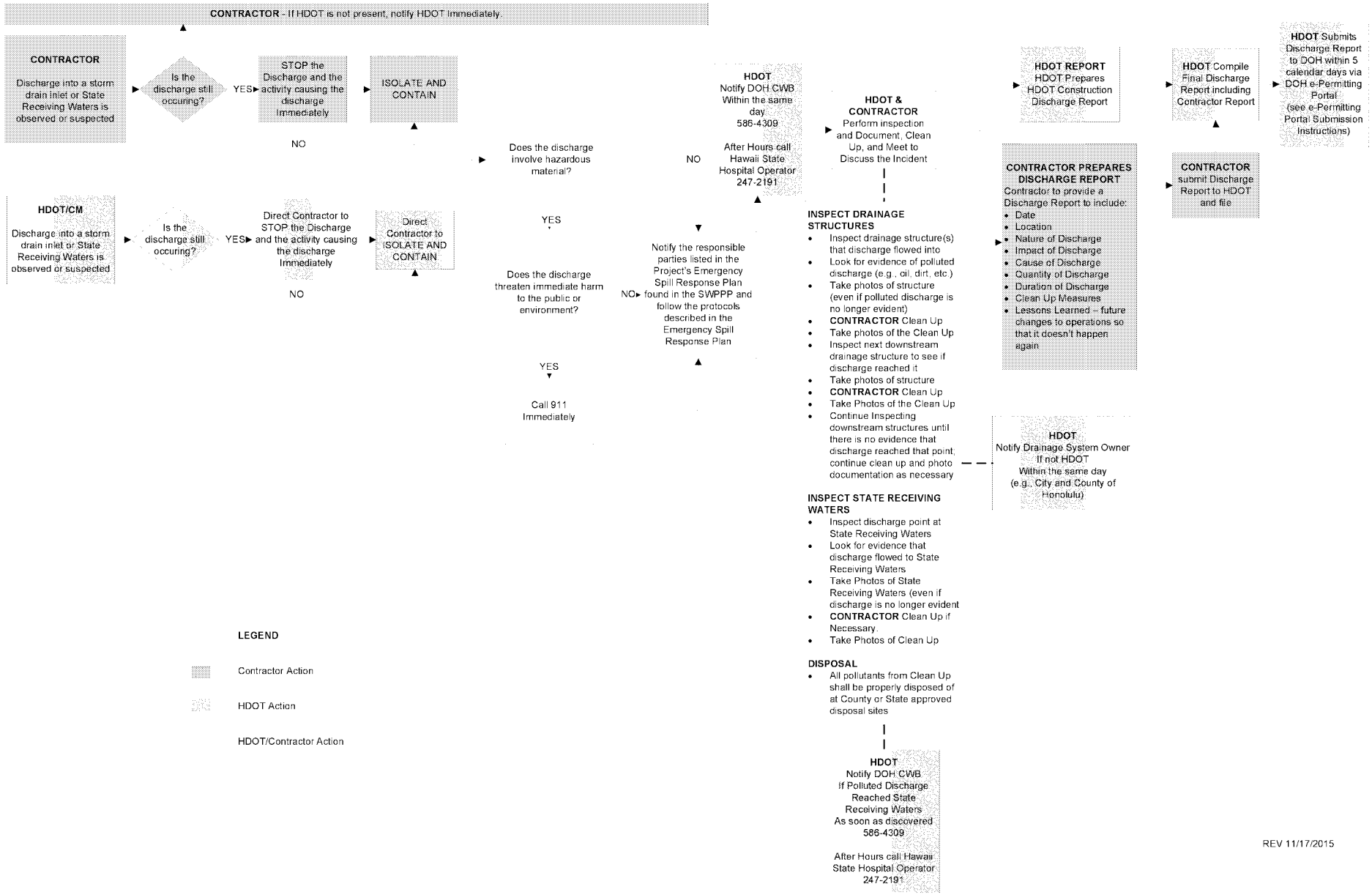
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY BMP AND DEMO PLAN
WINDWARD BASEYARD
STORM WATER BEST MANAGEMENT PRACTICES
IMPROVEMENTS AT MAINTENANCE BASEYARDS ON OAHU
Project No. HWY-0-02-18M
Scale: 1" = 30'-0" Date: March 2018

SHEET No. EC-08 OF 23 SHEETS

HDOT HIGHWAYS OAHU CONSTRUCTION
DISCHARGE RESPONSE FLOW CHART



REV 11/17/2015

ATTACHMENT J

City and County of Honolulu Grading Ordinance Letter of Agreement
(*Item 7.2.15c of SWPPP*)

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JUN 25 2008

HWY-D 2.8186

JUN 25 2008

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Request for Non-Applicability of Detailed Plan Review for State Department of Transportation Highways (HDOT) projects

We request for the City & County of Honolulu's (City) continued concurrence that a detailed plan review is not required for projects submitted for grading permits. In 1986, the City and HDOT agreed that a detailed plan review was not required provided that HDOT submits with the grading permit application, "a statement certifying that the work has been reviewed and found in substantial compliance with the City's Grading Ordinance."

The rationale for the previous agreement was that during project development by HDOT, our design process already covers the intent of the City's grading ordinance and is in compliance with current State and Federal requirements. Thus another level of review by a different government agency would be a duplication of effort.

HDOT will continue to submit grading permits as required by Chapter 14, Revised Ordinances of Honolulu. Approved plan sheets will be furnished with the permit application.

HDOT is responsible to correct any deficiencies in erosion and sediment control, both during construction and post construction, and our field construction personnel are required to monitor, control and enforce erosion control procedures and Best Management Practices.

If agreeable, this request supersedes the City's letter 14-0415 dated May 27, 1986 and DOT's letter HWY-DD 2.90019 dated May 13, 1986. We look forward for a favorable consideration to this request to enable a cost and time efficient means to deliver transportation projects to Oahu's motorists.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

Enclosures

ATTACHMENT A

SU: mjkn
bc: HWY-D, -DD, -DS, -DH, -DB, -DL, -T, -L

TYPICAL PROJECTS NOT REQUIRING GRADING PERMITS
(for DOT's use only to determine non-applicability)

	Project Type	Typical Scope of Work
1	Pavement Preservation and Maintenance (PPM)	Application of chip seal, slurry seal, cold plane and replace up to 1-1/2 inches of asphalt.
2	Road Resurfacing	Cut and replace asphalt, place more than 1-1/2 inches of asphalt, ultra thin white topping
3	Road Rehabilitation	Demolition and replacement of PCC, removal and repair and replacement of entire pavement section including PCC or AC and underlying pavement structure materials.
4	Electrical, water, sewer, drainage, communication or other utility installation or relocations	Trenching, removal and/or installation of conduits or pipes, trench backfill, and patching.
5	Traffic Signal Modernization and/or Installation	Trenching, installation of electrical and communication conduits, backfill, patching, replacement of traffic signal hardware, installation of poles & mast arms, augering and placement of concrete foundations, placement of small concrete pads for electrical equipment.
6	Lighting Improvements	Trenching, installation of electrical conduits, backfill, patching, augering and placement of concrete light foundations, placement of small concrete pads for electrical transformers and equipment.
7	Guardrail and Shoulder Improvements	Excavation for shoulder pavement section, install concrete sidewalks and wheel chair ramps, guardrails and end treatments, relocating street lights, grading to "shape" shoulder areas.
8	Intersection Improvements	Installation of pavement structures & sidewalks; minor grading and/or shaping; sometimes installation of traffic signal facilities and installation of electrical and communication conduits.
9	Landscape Improvements	Installation of trees, shrubs, irrigation facilities and other architectural features.
10	Retaining Walls or Sound Walls	Excavation and backfill for footings and walls.
11	Rockfall Protection	Installation of anchors, restraining or containment mesh, restraining or energy absorbing fencing. Slope scaling and removal of boulders.
12	Drainage Improvements	Trenching and replacement of drainage pipes, installation of catchment, inlet or outlet structures, installation of AC or concrete berms or curbs, installation of concrete gutters. Earth or lined ditches and/or swales.

Exclusions (Section 14, Article 13.5, ROH)

1. *Excavation* which does not alter the general drainage pattern with respect to abutting properties, which does not exceed 50 cubic yards of materials on any one site, and does not exceed three feet in vertical height at its deepest point; **provided that the cut meets the cut slopes and distance from property lines requirement in Section 14-15.1, ROH (attachment D).**
2. *Fill* which does not alter the general drainage pattern with respect to abutting properties, which does not exceed 50 cubic yards of materials on any one site, and does not exceed three feet in vertical height at its deepest point; **provided that the cut meets the cut slopes and distance from property lines requirement in Section 14-15.1, ROH.**
3. Grubbing that does not alter the general drainage pattern with respect to abutting properties and does not exceed a total of 15,000 square feet.

ATTACHMENT C
8/20/08