August 2019

DRAFT

DESIGN REQUIREMENTS GUIDE
CATEGORY 5

The purpose of this guide is to provide useful information for the compliance of Category 5 Construction Projects within the City and County of Honolulu with storm water erosion and sediment control requirements. This guide incorporates *Rules Relating to Water Quality* requirements *(effective December 24, 2018),* as well as certain applicable requirements from *Appendix C, the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (effective February 9, 2019)*.

This guide is not intended to summarize, supersede or contradict the regulations; please refer to the rules for a complete listing of requirements.

Click on the water droplet icons

for additional information within this guide

for external resources

Click ***here*** to print a copy of the checklist.

Click ***here*** to see an example ESCP.

Please contact *The Limtiaco Consulting Group* should you have any questions or require any assistance.
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(808) 596-7790

Note:

Additional information within the guide

External resources

CATEGORY 5
EROSION AND SEDIMENT CONTROLS CHECKLIST
DESIGN REQUIREMENTS GUIDE

The purpose of this checklist is to provide useful information for the compliance of **Category 5 Construction Projects** within the City and County of Honolulu with storm water erosion and sediment control requirements. This checklist incorporates *Rules Relating to Water Quality* requirements *(effective December 24, 2018),* as well as certain applicable requirements from *Appendix C, the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (effective February 9, 2019).*

This checklist is not intended to summarize, supersede or contradict the regulations; please refer to the rules for a complete listing of requirements.

Project Name: _____

Project Location: _____

Tax Map Key: _____

Disturbed Area (acres or square feet): _____

	Category 5 ESCP Requirements
☐	Prepared by a Certified ESCP Preparer when training becomes available; in the interim, a Hawaii-licensed Civil Engineer
	The following site features have been included on the plans:
☐	Location map showing the name, coordinates, and classification (e.g., Class 1, 2, Class A, Class AA waters) of State Receiving Waters
☐	Vicinity map showing the location of streams, channels, and drainage structures located within 100 feet of the Project Site
☐	Location of the 100-year flood plain
☐	Existing and finished contours of the site
☐	Existing and final drainage patterns and discharge points
☐	Proposed structures, impervious areas, existing vegetation, final landscaping conditions, and appurtenant improvements
☐	Erosion control notes including non-structural BMPs
☐	BMP Site Plan, drawn to scale, which depicts the outline of buildings and structures, provides a clear delineation of disturbed areas, and the proximate location of proposed BMPs
☐	BMP design details and notes clearly identifying temporary BMPs, permanent BMPs, a schedule for BMP implementation, and BMP maintenance activities
☐	List or table of preconstruction, during construction, and post construction BMPs
☐	Any additional information required by the director
	Erosion Control BMPs
☐	Project Planning and Design
☐	Project Scheduling
☐	Slope Management and Protection

Note:

Additional information within the guide

External resources

CATEGORY 5
EROSION AND SEDIMENT CONTROLS CHECKLIST
DESIGN REQUIREMENTS GUIDE

Erosion Control BMPs (continued)	
☐	Temporary Stabilization
☐	Permanent Stabilization
☐	Diversion BMPs to divert runoff from upstream areas around disturbed areas of the Site
☐	Velocity Dissipation Devices
☐	Preserve Existing Vegetation
☐	Minimize Soil Compaction
Sediment Control BMPs	
☐	Storm Drain Inlet Protection
☐	Perimeter Controls
☐	Buffer Zones
☐	Sediment Traps (required for Category 5 disturbing less than 5 acres)
☐	Sediment Basins (required for Category 5 disturbing 5 acres or greater)
☐	Sediment Barriers
Good Housekeeping BMPs	
☐	BMP and Site Maintenance
☐	Dust Control
☐	Material Delivery, Storage and Use BMPs
☐	Stockpile Management BMPs
☐	Spill Prevention and Control BMPs
☐	Solid Waste Management BMPs
☐	Hazardous Waste Management BMPs
☐	Contaminated Soil Management BMPs
☐	Concrete Waste Management BMPs
☐	Sanitary/Septic Waste Management BMPs
☐	Liquid Waste Management BMPs
☐	Vehicle and Equipment Cleaning BMPs
☐	Vehicle and Equipment Fueling BMPs
☐	Vehicle and Equipment Maintenance BMPs
☐	Tracking Control
☐	Stabilized Construction Entrance and Exit
☐	Dewatering Operations BMPs

Note:

Additional information within the guide

External resources

CATEGORY 5
EROSION AND SEDIMENT CONTROLS CHECKLIST
DESIGN REQUIREMENTS GUIDE

Erosion and Sediment Control Notes	
☐	DPP's Construction BMP Standard Details
☐	If any of the BMPs listed above are not included in an ESCP for a Category 5 Project, the ESCP Notes shall provide a list of the omitted BMPs with a brief explanation of why each omitted BMP is unnecessary or impracticable for the project
The following inspection notes have been included under the "Project Sequence" heading:	
☐	Inspection frequency: - Once every 7 days - Within 24 hours of each 0.25" or greater storm event, if any portion of your site discharges to an impaired water
☐	Inspector must complete a report within 48 hours of an inspection - Use DPP's Appendix D – Construction Site BMPs Inspection Checklist for NPDES Permitted Construction Projects - Maintain all inspection reports in a "Project Log"
Changes to the ESCP	
	Minor changes should be noted on the site copy of the ESCP and initialed by a DPP inspector
	Major changes must be proposed to the Director in writing and approved before work resumes
ESCP Coordinator Information	
Designating an ESCP Coordinator:	
	Use **Appendix A**, and have it signed by the Property Owner or Authorized Agent
	An ESCP Coordinator must be appointed prior to permit issuance. However, the ESCP can still be submitted initially for review without designating an ESCP Coordinator (if not known at the time)
	Changes to the ESCP Coordinator must be submitted to DPP in writing immediately for acceptance
NPDES Construction Stormwater Permit Coverage	
☐	Notice of Intent (NOI) submitted for General Permit Coverage or Permit Application for an Individual Permit Permit/NGPC File No. (if available): _____
☐	Storm Water Pollution Prevention Plan (SWPPP) prepared
☐	NOI and SWPPP included in the bid documents
☐	Notes have been included that address NPDES requirements during construction, such as: notifying DOH upon the start of construction, updating the SWPPP as required, etc.

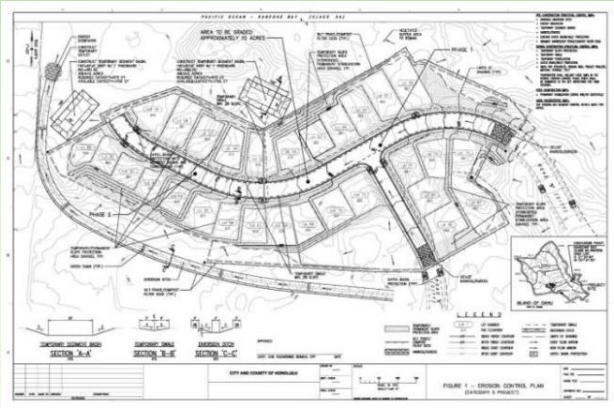
RESOURCES

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3

Resource	Link
Appendix A – ESCP Coordinator/CWPPP Designation Form	http://www.honoluludpp.org/LinkClick.aspx?fileticket=_o1UlYGELLA%3d&tabid=262&portalid=0&mid=3127
Appendix D – NPDES Permitted Project Inspection Checklist	http://www.honoluludpp.org/LinkClick.aspx?fileticket=EGnQU9K79G0%3d&tabid=262&portalid=0&mid=3127
CCH Construction BMP Manual	http://www.honoluludpp.org/Portals/0/pdfs/Storm%20Water%20Quality/CCH%20Construction%20BMP%20Manual_2017.pdf
DOH Clean Water Branch NPDES Forms	http://health.hawaii.gov/cwb/clean-water-branch-home-page/forms/
DOH e-Permitting Portal	https://eha-cloud.doh.hawaii.gov/epermit/
DOH e-Permitting Portal Guide to Submissions	http://npdes.tlcghawaii.com/wp-content/uploads/DOH-E-Permitting-Submittal-Guide-1.pdf
DPP's Construction BMP Standard Details	http://www.honoluludpp.org/Portals/0/pdfs/Storm%20Water%20Quality/BMP_STD_DET_NOTES.pdf
Example ESCP for a Category 5 Project	http://www.honoluludpp.org/Portals/0/pdfs/Storm%20Water%20Quality/Cat%205%20ESCP%20Example%2012212018.pdf
Guide to Selecting Dewatering Operations	http://npdes.tlcghawaii.com/wp-content/uploads/Design-Guide-To-Selecting-Dewatering-Ops.pdf
NPDES Bid Documents Guide – to include NPDES information in bid documents	Coming Soon!
NPDES General Permit Authorizing Discharges Associated with Construction Activity Dewatering (Effective February 13, 2018)	https://health.hawaii.gov/cwb/files/2018/08/11-55-App-G-A.pdf
NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (Effective February 9, 2019)	https://health.hawaii.gov/cwb/files/2018/08/11-55-App-C-A.pdf
Rules Relating to Water Quality (Effective December 24, 2018)	http://www.honoluludpp.org/LinkClick.aspx?fileticket=2-F-Yiv5W8Y%3d&tabid=262&portalid=0&mid=3127
Section 303(d) List of Impaired Waters	http://npdes.tlcghawaii.com/wp-content/uploads/List-of-Impaired-Waters-2018.pdf
SWPPP Template	http://npdes.tlcghawaii.com/design-storm-water-tools-large-projects/
Water Quality Standards Maps – for classification of receiving waters	http://health.hawaii.gov/cwb/clean-water-branch-home-page/water-quality-standards/

Project Planning and Design

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-27 Project Planning and Design. (a) Projects should be planned and designed to eliminate and prevent Pollutant Discharges to the MS4 and Receiving Waters to the MEP. All Project planning and design should be executed in a manner that prioritizes the following to the MEP:

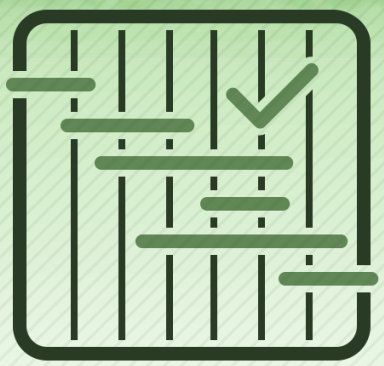
(1) Preserve native topsoil;
(2) Minimization of soil compaction;
(3) Directing Discharges from storm water controls to vegetated areas;
(4) Preservation and use of natural buffers;
(5) Restriction of vehicle use to necessary areas;
(6) Location of materials and stockpiles outside of buffers;
(7) Effective primary and secondary containment for potential sources of pollution;
(8) Establishment of effective perimeter controls;
(9) Protection of storm drain inlets; and
(10) Effective prohibition of off-site Discharges from wastewater and concrete washout, washout or cleanout water containing stucco, paint, release oils, curing compounds, and waste from construction materials, and Discharges containing fuels, oils, soaps, solvents, detergents, and toxic and/or hazardous substances.

Summary of Additional NPDES Appendix C Requirements

- Project design should account for: 1) typical precipitation, 2) run-on and runoff patterns, and 3) site soil characterization. (§5.1.1.2.1)
- Design storm water conveyance channels to avoid unstabilized areas unless infeasible. Design channels with erosion controls and velocity dissipation devised to prevent erosion of the channel, its banks, outlets, and downstream waters. (§5.1.1.2.2)

Project Scheduling

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-28 Project Scheduling. (a) All Trenching Permit and Category 1A, 1B, 1C, 2, 3, 4 and 5 Projects must be performed according to a written Project schedule approved by the Director.

(b) Project schedules must establish a sequence of all planned actions and activities on the Project Site, including, but not limited to, all Land Disturbing Activities, the implementation of the BMPs identified in the Project ESCP, scheduled inspections and maintenance of BMPs, and the removal of temporary BMPs. Deadlines for the implementation and removal of BMPs shall be provided in the form of specific dates or Project milestones. The scheduled start date shall be submitted to the Director in writing or by telephone 2 weeks prior to commencing any work governed by these Rules.

(c) Project schedules must be designed to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff and vehicle tracking to the MEP and sequence Land Disturbing Activities to Minimize onsite storage of equipment, materials and wastes that may cause or contribute to pollution Discharges to the MS4 and/or Receiving Waters. In addition, all Project Schedules shall include a rain response plan that identifies work that will not be performed during defined rain conditions and/or events.

(d) The Director may require DPP approval of BMPs and/or Site conditions at one or more points on a Project schedule before work may commence on the next sequenced action or event.

(e) Project schedules must be revised if delays or disruptions to the Project necessitate changes to the sequence of work or BMPs. Revisions to a Project schedule must be proposed by the submission of a revised Project schedule to DPP and approved by the Director before work may be performed pursuant to the revised schedule.

(f) A copy of the original Project schedule and all revised Project schedules must be kept on Site, in chronological order, and stored in a three-ring folder or binder or electronically, which shall be the Project Log. A complete version of the Project Log shall be on Site or electronically accessible from the Site at all times and immediately made available for inspection by the Director upon request.

- Use **Fact Sheet EC-1** in Appendix C of the CCH Construction BMP Manual (2017)

Slope Management and Protection

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-29 Slope Management and Protection. (a) Land Disturbing Activities on slopes with a grade of 15 percent or greater must be Minimized to the MEP. Where necessary, work on slopes with a grade of 15 percent or more should be phased to Minimize the amount disturbed to no greater than 5 acres at any time.

(b) Slopes with a grade of 15 percent or more must be stabilized at all times unless the slopes are being actively worked. Slope Stabilization must be initiated immediately unless active work is scheduled on the slope within 7 calendar days or where necessary due to anticipated weather conditions.

(c) Minimum stabilization of slopes 15 percent or greater shall consist of one or more of the following:

(1) Rolled Erosion Control Products that conform to the requirements of the American Association of State Highway and Transportation Officials M288 may be installed and maintained per the manufacturer's specifications, which must be kept onsite at all times and immediately made available for inspection by the Director upon request;

(2) Hydraulic mulch or hydroseed consisting of at least 5 percent soil binder and applied at a minimum of rate of 2000 lb/acre, unless otherwise required by the manufacturer's instructions, which shall be kept onsite at all times and immediately produced for inspection upon request;

(3) Hydraulic or Bonded Fiber Matrix installed and maintained per the manufacturer's specifications, which must be kept onsite at all times and immediately made available for inspection by the Director upon request; or

(4) Planting and/or vegetation providing at least 70 percent surface cover for Temporary Stabilization and at least 90 percent surface cover for Permanent Stabilization.

(d) Category 1C, 4 and 5 Projects with slopes with a grade of 15 percent or more must provide at minimum a 10-foot buffer with a maximum slope of 5 percent at the toe of the slope.

(e) Category 1C, 4, and 5 Projects must provide upstream runoff diversion using such measures as earth dikes, drainage swales and/or slope drains to intercept and direct surface flow away from disturbed slope areas of 15 percent or more.

- Include the notes on Slope Protection from DPP's Construction BMP Standard Details
- Use **Fact Sheets EC-3 to EC-11 and EC-15** in Appendix C of the CCH Construction BMP Manual (2017)

Temporary Stabilization

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-30 Temporary Stabilization. (a) Temporary Stabilization must be initiated immediately for Disturbed Areas that are not on slopes with a grade of 15 percent or more when they reach final grade or when active work is not scheduled within 14 calendar days.

(b) Minimum stabilization of Disturbed Areas shall consist of one or more of the following:

(1) Rolled Erosion Control Products that conform to the requirements of the American Association of State Highway and Transportation Officials M288 may be installed and maintained per the manufacturer's specifications, which must be kept onsite at all times and immediately made available for inspection by the Director upon request;

(2) Hydraulic mulch or hydroseed consisting of at least 5 percent soil binder and applied at a minimum of rate of 2000 lb/acre, unless otherwise required by the manufacturer's instructions, which shall be kept onsite at all times and immediately produced for inspection upon request;

(3) Hydraulic or Bonded Fiber Matrix installed and maintained per the manufacturer's specifications, which must be kept onsite at all times and immediately made available for inspection by the Director upon request;
or

(4) Planting and/or vegetation providing at least 70 percent surface cover for Temporary Stabilization and at least 90 percent surface cover for Permanent Stabilization.

Summary of Additional NPDES Appendix C Requirements

- If vegetatively stabilizing through the use of seed or planted vegetation, the permittee should avoid the use of invasive species. (§5.2.2.1.1.1)
- Once stabilization has been completed, the inspection frequency may be reduced to once per month only in this stabilized area. (§9.1.4)
  - ➢ If construction activity resumes in this area at a later date, the inspection frequency shall immediately increase back to the original amount.

- Include the notes on Temporary Stabilization from DPP's Construction BMP Standard Details
- Use **Fact Sheets EC-3 to EC-8 and EC-14** in Appendix C of the CCH Construction BMP Manual (2017)

Permanent Stabilization

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-31 Permanent Stabilization. (a) Prior to final approval and closing of the permits for work on the Site, permanent stabilization must be in place.

(b) All Disturbed Areas must be stabilized with permanent Erosion Control BMPs such as vegetation, gravel, or pavers;

(c) Rain gutters, downspouts, and channelized flows must be installed and functioning as designed;

(d) In seeded areas, grass or vegetation must cover at least 90 percent of the disturbed soils;

(e) Seeded areas that have not achieved 90 percent ground cover must be stabilized by tackifiers, mulch, turf reinforcement mats, or Rolled Erosion Control Products until 90 percent vegetative cover is established;

(f) Temporary Erosion Control measures, such as sediment fences, should be removed when permanent measures are in place;

(g) Ditches and areas of concentrated flow must be lined with rock, appropriately installed geosynthetics, or similar materials to prevent scour;

(h) All paved surfaces must be clean; and

(i) Storm drain inlet filters must be removed after all cleanup activities have been completed.

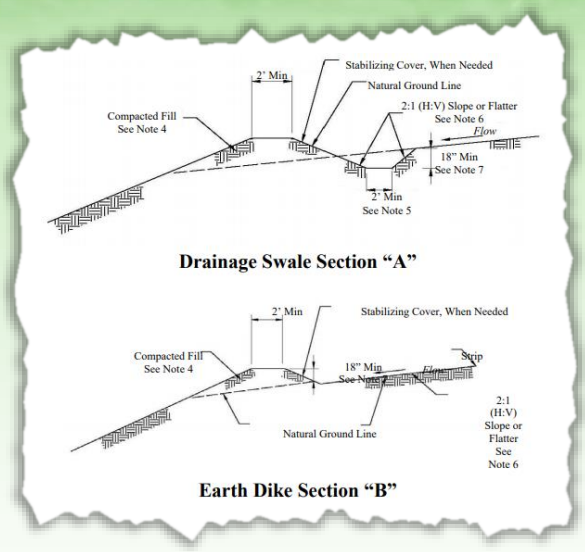
Summary of Additional NPDES Appendix C Requirements

- As soon as practicable, but no later than 14 calendar days after earth-disturbing activities have ceased on any portion of the site, the permittee shall have completed (§5.2.1.2):
  - For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and/or
  - For non-vegetative stabilization, the installation or application of all such non-vegetative measures.
- If vegetatively stabilizing through the use of seed or planted vegetation, the permittee should avoid the use of invasive species. (§5.2.2.1.1.1)
- Immediately after seeding or planting the area to be vegetatively stabilized, to the extent necessary to prevent erosion, install non-vegetative erosion controls that provide cover while vegetation is becoming established. (§5.2.2.1.1.3)
- Once stabilization has been completed, the inspection frequency may be reduced to once per month only in this stabilized area. (§9.1.4)
  - If construction activity resumes in this area at a later date, the inspection frequency shall immediately increase back to the original amount.

- Include the notes on Permanent Stabilization from DPP's Construction BMP Standard Details
- Use **Fact Sheets EC-3 to EC-8 and EC-14** in Appendix C of the CCH Construction BMP Manual (2017)

Diversion BMPs

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-32 Diversion BMPs. (a) Diversion BMPs consist of Earth Dikes, Drainage Swales and Slope Drains. Category 1C, 4, and 5 Projects must provide runoff diversion upstream of disturbed areas on slopes of 15 percent or more as described in §20-3-29(e).

(b) Earth dikes are ridges of compacted soil that may be placed at the top or base of a disturbed slope or along the perimeter of a Disturbed Area to intercept runoff and direct flows to areas where erosion can be controlled. The tributary area addressed by a single earth dike may not exceed 5 acres. Design capacity for earth dikes must be equal to or greater than the peak flow from a 10-year, 1-hour storm. The upslope side of the dike must provide positive drainage to the dike outlet. No erosion shall occur at the outlet. Earth dikes must be fully compacted and stabilized with vegetation and/or riprap.

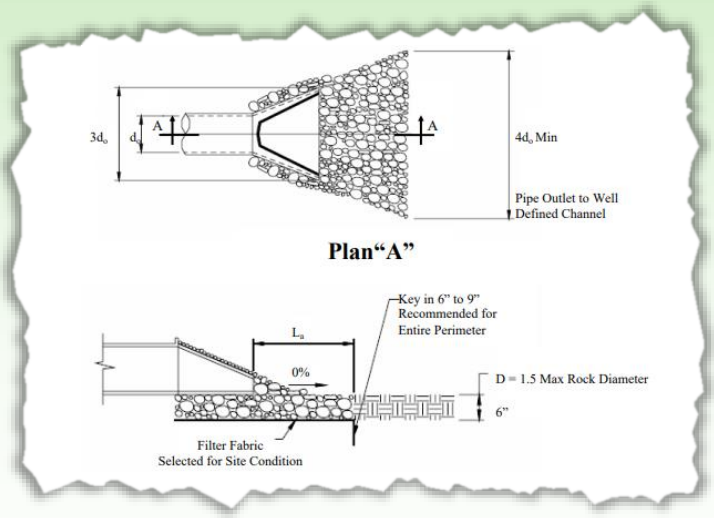
(c) Drainage swales are sloped depressions in the soil surface to convey runoff to a desired location. The tributary area addressed by a single drainage swale may not exceed 5 acres. Design capacity for drainage swale must be equal to or greater than the peak flow from a 10-year, 1-hour storm. Drainage swale must be fully stabilized with vegetation and/or riprap.

(d) Earth dikes and drainage swales can be used with slope drains to divert water from the top of a slope to the bottom of a slope. Slope Drains may be a rigid pipe, such as corrugated metal, a flexible conduit, or a lined terrace drain with the inlet placed on the top of a slope and the outlet at the bottom of the slope. The capacity for temporary slope drains intercepting offsite or on-site runoff should be sufficient to convey at least the peak runoff from a 10-year, 1-hour storm. The tributary area addressed by a single slope drain may not exceed 10 acres. Outlets should be stabilized with riprap, concrete or other type of Velocity Dissipation Device, or directed into a stable sediment trap or basin.

- Use **Fact Sheet EC-9 and EC-11** in Appendix C of the CCH Construction BMP Manual (2017)

Velocity Dissipation Devices

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-35 Velocity Dissipation Devices. (a) Velocity dissipation devices are channel linings, Structures, or flow barriers that are placed at outlets for storm drains, pipes, culverts, steep ditches, flumes and areas of contacted flow to lower flow velocities, prevent scour and dissipate energy.

(b) Velocity dissipation devices are required where the Director, Engineer, or preparer of the ESCP determines that Discharge velocities and energies are sufficient to erode the immediate downstream reach of Discharges.

(c) The apron length and materials for velocity dissipation devices must be adequate to accommodate the peak flow of a 10-year, 1-hour storm without resulting in scour or erosion in immediate downstream areas.

- Use **Fact Sheet EC-10** in Appendix C of the CCH Construction BMP Manual (2017)

Preservation of Existing Vegetation

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-33 Preservation of Existing Vegetation. (a) Preservation of existing vegetation is to minimize the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil erosion. Clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright position.

Summary of Additional NPDES Appendix C Requirements

- Preserve native topsoil when feasible. (§5.1.2.7)
  - E.g., Stockpiling of topsoil at off-site locations or transfer of topsoil to other locations for future use.

- Include the notes on Preserving Existing Vegetation from DPP's Construction BMP Standard Details
- Use **Fact Sheet EC-2** in Appendix C of the CCH Construction BMP Manual (2017)

Minimize Soil Compaction

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

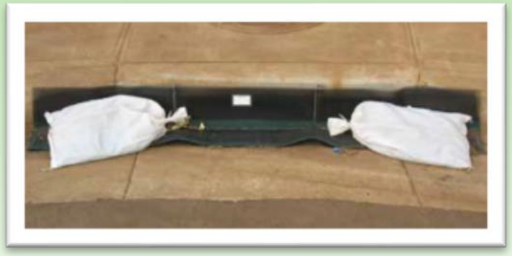
RRTWQ Citation

§20-3-34 Minimize Soil Compaction. (a) Areas where the final stabilization will occur and areas where infiltration practices will be installed must be protected from excessive compaction by restricting the vehicle and equipment use to appropriate areas or implementing soil conditioning techniques.

- Include the notes on Minimizing Soil Compaction from DPP's Construction BMP Standard Details
- Use **Fact Sheet EC-15** in Appendix C of the CCH Construction BMP Manual (2017)

Storm Drain Inlet Protection

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-39 Storm Drain Inlet Protection. (a) All drain inlets and catch basins that are not connected to a sediment basin or trap must be protected by sediment barriers or inlet protection devices if they are capable of receiving sediment or runoff from the Project Site unless severe weather conditions make the use of such devices unsafe or Infeasible.

(b) Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at any point along the length of the sediment barrier or the inlet protection device.

(c) Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.

(d) Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.

(e) Sediment collected from sediment barriers and inlet protection devices must be reincorporated into the Project Site or disposed of at off-site locations that are approved by the Director (refer to Solid Waste Management §20-3-46(i)).

Summary of Additional NPDES Appendix C Requirements

- Where there is evidence of sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same work day in which it is found or by the end of the following work day is removal by the same work day is not feasible. (§5.1.2.9.2)

- Include the notes on Inlet Protection from DPP's Construction BMP Standard Details
- Also see DPP's Construction BMP Standard Details for drawings
- Use **Fact Sheet SE-10** in Appendix D of the CCH Construction BMP Manual (2017)

Perimeter Controls

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-36 Perimeter Controls. (a) Perimeter Controls shall be required if a Project involves any Land Disturbing Activities within 50 feet of State Waters unless the Project has obtained a CWA 404 Permit for the work or the Land Disturbing Activities relate to a water-dependent structure such as a pier or boat ramp. Perimeter Controls shall also be required if the Director, Engineer, or ESCP Coordinator determines that Pollutant Discharges to the MS4 or State Waters are likely to occur based on Site conditions, the nature of planned construction activities, or the location of planned Land Disturbing Activities, or expected weather conditions.

(b) At a minimum, perimeter controls shall consist of vegetated buffers, sediment barriers, or silt fences along those perimeter areas of the Site that will receive storm water from earth disturbing activities.

(c) For Category 1C and 5 Projects that are within 50 feet of State Waters, perimeter controls must be installed along the perimeter of the Site along areas that will receive storm water from Disturbed Areas and consist of a 50 foot wide, undisturbed, natural buffer or in-series perimeter controls consisting of two or more sediment barriers or silt fences with spacing of at least 5 feet between the sediment barriers or silt fences (refer to §20-3-40 Vegetated Buffers).

Summary of Additional NPDES Appendix C Requirements

- Install sediment controls along perimeters that will receive storm water flows from earth-disturbing activities. (§5.1.1.2.2)
- Remove sediment before it has accumulated to one-half of the above-ground height of any perimeter control. (§5.1.2.2.2)

- Include the notes on Perimeter Controls and Sediment Barriers and Fences from DPP's Construction BMP Standard Details
- Also see DPP's Construction BMP Standard Details for drawings
- Use **Fact Sheets SE-1, 5, 6, 8, 15 and 16** in Appendix D of the CCH Construction BMP Manual (2017)

Buffer Zones

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

RRTWQ Citation

§20-3-40 Vegetated Buffers. (a) Vegetated buffer strips are vegetated surfaces that are designed to treat sheet flow from adjacent surfaces by slowing runoff velocities and allowing sediment and other pollutants to settle and partially infiltrate into underlying soils.

(b) The width of the vegetative buffer strips must have slope of 5 percent or less. The vegetative buffer must be one foot wide for every 3 feet of upslope drainage area directed to the vegetative buffer.

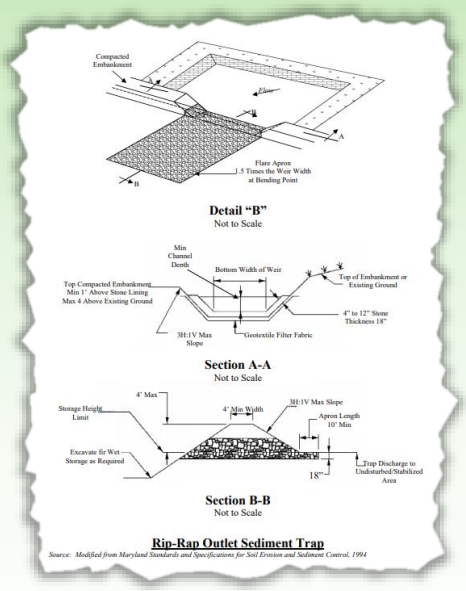
(c) Categories 1C and 5 Projects must maintain a 50-foot undisturbed natural buffer and sediment control between State Waters and the Construction Site. If a 50-foot natural buffer zone cannot be maintained, provide a natural undisturbed buffer zone that is less than 50 feet and either double sediment barriers or silt fences spaced at a minimum of 5 feet apart. If it is Infeasible to provide and maintain an undisturbed natural buffer of any size, provide double sediment barriers or silt fences spaced a minimum of five feet apart and complete stabilization within 7 consecutive days of the temporary or permanent cessation of earth disturbing activities. All Discharges from the area of earth disturbance to the natural buffer must be treated by the Site's erosion and sediment controls before release to buffer areas.

(d) Planned vegetated buffer strips must be shown in the ESCP for a Project. During clearing and grubbing, vegetation designated for use in a vegetated buffer must be enclosed by temporary fencing made of orange polypropylene that is stabilized against ultraviolet light. The temporary fencing must be at least 4 feet tall and have openings not larger than 2 inches by 2 inches. Fence posts must be comprised of wood or metal, driven securely to a depth of no less than one foot, and spacing to completely support the fence in an upright position without sagging at all times.

- Use **Fact Sheet SE-15** in Appendix D of the CCH Construction BMP Manual (2017)

Sediment Traps

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-42 Sediment Traps. (a) Sediment traps are excavated or depressed areas that are used to collect and detain sediments from areas of the Site that were cleared or graded during construction.

(b) **The use of Sediment traps shall be mandatory for Category 5 Projects with [less than] 5 acres of Disturbed Area.**

(c) The drainage area addressed by a single sediment trap shall not exceed 5 acres.

(d) The traps must be designed to provide storage for calculated volume of runoff for the 2-year, 24-hour storm for the Project Site or at least 3,600 cubic feet per acre to be drained.

(e) The embankment slopes shall be no steeper than 3 horizontal to 1 vertical.

(f) Sediment traps shall have an emergency spillway to accommodate overflow or bypass flows that exceed the design storm event. Emergency spillways and outlets require erosion protection such as velocity dissipation devices.

(g) Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one third of the trap capacity.

- Use **Fact Sheet SE-3** in Appendix D of the CCH Construction BMP Manual (2017)

Sediment Basins

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-41 Sediment Basins. (a) Sediment basins are excavated or depressed areas that are used to collect and detain runoff to allow suspended solids to settle out of storm water before storm water is Discharged to off-site areas.

(b) **The use of sediment basins shall be mandatory for Category 5 Projects with 5 acres of Disturbed Area or greater**

(c) Sediment basins shall provide sufficient storage to accommodate the volume of runoff for the 2-year, 24-hour storm for the Project Site or at least 3,600 cubic feet per acre area to be drained.

(d) The embankment slopes must be no steeper than 3 horizontal to 1 vertical. Basin depth must be no less than 3 feet and the length to settling depth ratio must be less than 200, where length is the average distance between the inlet and outlet structure of the basin. Discharges from sediment basins shall pass though outlet Structures that withdraw surface waters from the basin in order to Minimize Pollutant Discharges. Outlet Structures shall be sized to Minimize clogging and achieve a draw-down time between 36 and 72 hours.

(e) Sediment basins shall use stabilization controls such as Erosion Control blankets to prevent erosion of exterior basin surfaces and use velocity dissipation devices to reduce flow rates at inlets and outlets.

(f) Sediment basins shall have emergency spillways to accommodate overflow bypass. Emergency spillways may not direct overflow to sloped areas or other areas of concentrated flow. Emergency spillways and outlets require erosion protection such as velocity dissipation devices.

(g) Sediment basins must be kept in effective operating condition and sediment shall be removed to maintain at least one half of the design capacity of the sediment basin at all times.

Summary of Additional NPDES Appendix C Requirements

- Sediment basins must be situated outside of state waters and any natural buffers, and must be designed to avoid collecting water from wetlands. (§5.1.3.2.1.4)
- Remove accumulated sediment to maintain at least ½ of the design capacity of the basin at all times. (§5.1.3.2.2)

- Include the notes on Sediment Basins from DPP's Construction BMP Standard Details , if applicable
- Use **Fact Sheet SE-2** in Appendix D of the CCH Construction BMP Manual (2017)

Sediment Barriers

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-38 Sediment Barriers. (a) Sediment barriers are temporary BMPs that intercept sediment-laden runoff from small drainage areas in order to slow runoff velocities and allow suspended solids to settle out of storm water. Sediment barriers may consist of gravel bags, sandbags, fiber rolls, compost filter socks a minimum of 8 inches in diameter or an equivalent BMP approved by the Director.

(b) Sediment barriers must be used to protect disturbed or denuded soils that are not scheduled for active work within 24 hours if the Engineer, preparer of the ESCP, or Director determines that sediment Discharge to State Waters or the MS4 is likely due to Site conditions, the nature of work that will occur in the vicinity of the Disturbed Area, or the proximity of the Disturbed Area to State Waters or portions of the MS4.

(c) Unless more specific criteria apply to the specific type of sediment barrier selected, the contributing drainage area addressed by a single sediment barrier may not exceed 1/4 acre per 100 feet of barrier length. In addition, the maximum length of slope above a barrier may not exceed 100 feet. Unless more specific criteria apply to the type of sediment barrier selected, the spacing between sediment barriers along the slopes must follow the following requirements:

Slope	**Minimum Sediment Barrier Spacing**
< 5 percent	50 feet
5 to 15 percent	30 feet
> 15 percent	20 feet

(d) Sediment barriers may not be used in areas of concentrated flows, such as drainage channels, live streams or in swales where there is the possibility of a washout.

(e) Sediment levels shall not exceed one half of the height of a sediment barrier at any point along the length of the sediment barrier.

(f) Sediment collected from sediment barriers must be reincorporated into the Project Site or disposed of at off-site locations that are approved by the Director (refer to Solid Waste Management §20-3-46(i)).

- Include the notes on Sediment Barriers and Fences from DPP's Construction BMP Standard Details, if applicable
- Use **Fact Sheets SE-1, 4, 5, 6, 8, and 16** in Appendix D of the CCH Construction BMP Manual (2017)

BMP and Site Maintenance

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-12 BMP Use and Maintenance Required. (a) All BMPs must be designed, used, and maintained in compliance with the standards and specifications set forth in these rules at all times. Where these Rules do not provide standards and specifications for a BMP, the BMP must be installed and maintained in compliance with the manufacturer's specifications, which must be kept onsite and immediately made available for inspection upon request by the Director. If BMPs fail, notwithstanding their intent or design, the BMPs shall be modified or upgraded to prevent any further failure in the same or similar circumstances.

Summary of Additional NPDES Appendix C Requirements

- If a problem is found (e.g., erosion and sediment controls need to be replaced, repaired, or maintained):
  - Initiate work to fix the problem immediately after discovering the problem, and complete work by the close of the next day, if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. (§5.1.1.4.2.1)
- When installation of a new erosion or sediment control or a significant repair is needed:
  - Make it operational or complete the repair by no later than 7 calendar days from the time of discovery.
  - If infeasible to complete the installation or repair within 7 days, the permittee shall document in its records why it is infeasible, document the schedule for installing the storm water control(s), and make it operational as soon as practicable after the 7-day timeframe.
  - Where these 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 this work. (§5.1.1.4.2.2)

- Refer to applicable fact sheets in the CCH Construction BMP Manual (2017) for required BMP use and maintenance requirements.

Dust Control

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

RRTWQ Citation

§20-3-45 Dust Control. (a) Dust from a Project Site shall not be transported or Discharged to off-site areas. The work must be in conformance with air pollution control standards contained in the Hawaii Administrative Rules: Title 11 Chapter 60.1, "Air Pollution Control." All ESCPs shall provide for the control of dust by one or more of the following:

(1) Mulching to a depth of no less than 1 inch;
(2) Sprinkling exposed soils with water to maintain moistness at a depth of 2- 3 inches during working hours and not to generate any runoff; and
(3) Vertical dust barriers no less than 6 feet in height, constructed of materials capable of effectively preventing the spread of dust particles.

- Use **Fact Sheet WE-1** in Appendix E of the CCH Construction BMP Manual (2017)

Materials Delivery, Storage & Use Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (b) Materials Delivery, Storage and Use Management. Prevent, reduce, or eliminate the Discharge of Pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other sources of pollution shall not be stored in buffer areas, near areas of concentrated flow, or areas abutting the MS4, Receiving Waters, or drainage improvements that discharge off-site. Primary and secondary containment controls and covers shall be implemented to the MEP.

Summary of Additional NPDES Appendix C Requirements

- Provide either (1) cover (e.g., plastic sheeting or temporary roofs), (2) a similarly effective means to prevent the discharge of pollutants (e.g., spill kits), or (3) secondary containment (e.g., spill berms, decks, or spill containment pallets). (§5.3.3.3.1)
- Comply with all application and disposal requirements included on the registered label, if applicable. (§5.3.3.3.2)
- Clean up spills or contaminated surfaces immediately using dry clean up measures where possible, and eliminate source of spill. (§5.3.3.3.3)
- Do not clean surfaces by hosing the area down. (§5.3.3.3.3)

- Include the notes on Materials Delivery, Storage and Use Management from DPP's Construction BMP Standard Details
- Use **Fact Sheets WM-1 and WM-2** in Appendix H of the CCH Construction BMP Manual (2017)

Stockpile Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (k) Stockpile Management. Stockpiles shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the City right-of-way. Sediment barriers or silt fences shall be used around the base of all stockpiles. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require 8-foot wide benching in accordance with ROH Chapter 14, Article 15. Stockpiles must be covered with Plastic Sheeting or a comparable material if they will not be actively used within 7 days.

Summary of Additional NPDES Appendix C Requirements

- Do not hose down or sweep accumulated soil or sediment into any storm water conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or state water. (§5.1.2.4.4)
- Unless infeasible, contain and securely protect from wind. (§5.1.2.4.5)

- Include the notes on Stockpile Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-3** in Appendix H of the CCH Construction BMP Manual (2017)

Spill Prevention

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (c) Spill Prevention and Control. Projects shall create and implement spill prevention and response plans to eliminate and Minimize the Discharge of Pollutants to the MS4 and Receiving Waters from leaks and spills by reducing the chance for spills, absorbing, containing, and cleaning up spills and properly disposing of spill materials. At a minimum, all Projects shall cleanup all leaks and spills immediately.

- Include the notes on Spill Prevention and Control from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-4** in Appendix H of the CCH Construction BMP Manual (2017)

Solid Waste Management

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

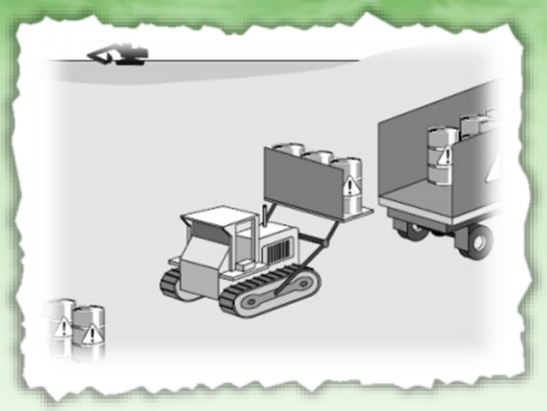
RRTWQ Citation

§20-3-46 (i) Solid Waste Management. Prevent or reduce Discharge of Pollutants to the land, groundwater, and in storm water from solid waste or construction and demolition waste by providing designated waste collection areas, collect Site trash daily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

- Include the notes on Solid Waste Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-5** in Appendix H of the CCH Construction BMP Manual (2017)
  - See **Table 6.2** for a Quick Reference Fact Sheet on Disposal Alternatives for waste materials

Hazardous Waste Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-46 (d) Hazardous Materials. Prevent or reduce the Discharge of Pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are Discharged to the MS4, the property owner or ESCP Coordinator shall immediately notify the Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the Discharge by telephone. A written report describing the Pollutants that were Discharged, the reasons for the Discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the Discharge shall be submitted to the Director no less than 3 days after notification by phone.

Summary of Additional NPDES Appendix C Requirements

- Separate hazardous or toxic waste from construction and domestic waste.
- Store 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.
- Store all containers away from surface waters and within appropriately-sized secondary containment (e.g., spill berms, decks, spill containment pallets).
- Dispose in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.
- Clean up spills or contaminated surfaces immediately using dry clean up measures where possible, and eliminate source of spill.
- Do not clean surfaces by hosing the area down. (§5.3.3.3.4)

- Include the notes on Hazardous and Nonhazardous Materials from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-6** in Appendix H of the CCH Construction BMP Manual (2017)
  - See **Table 6.2** for a Quick Reference Fact Sheet on Disposal Alternatives for waste materials

Contaminated Soil Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (n) Contaminated Soil Management. At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with Plastic Sheeting. Contaminated soil should be disposed of properly in accordance with all applicable regulations.

- Include the notes on Contaminated Soil Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-7** in Appendix H of the CCH Construction BMP Manual (2017)

Concrete Waste Management

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (m) Concrete Waste Management. Prevent or reduce the Discharge of Pollutants to storm water from concrete waste by conducting washout offsite or performing onsite washout in a designated area constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10-millimeter polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material. Containment areas or devices should not be located where accidental release of the contained liquid can Discharge to water bodies, channels, or storm drains. Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75 percent full. Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of as solid wastes.

- Include the notes on Concrete Waste Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-8** in Appendix H of the CCH Construction BMP Manual (2017)

Sanitary / Septic Waste Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (j) Sanitary/Septic Waste Management. Temporary and portable sanitary and septic waste systems shall be mounted or staked in, well-maintained and scheduled for regular waste disposal and servicing. Sources of sanitary and/or septic waste shall not be stored near the MS4 or Receiving Waters.

- Include the notes on Sanitary/Septic Waste Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-9** in Appendix H of the CCH Construction BMP Manual (2017)

Liquid Waste Management

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

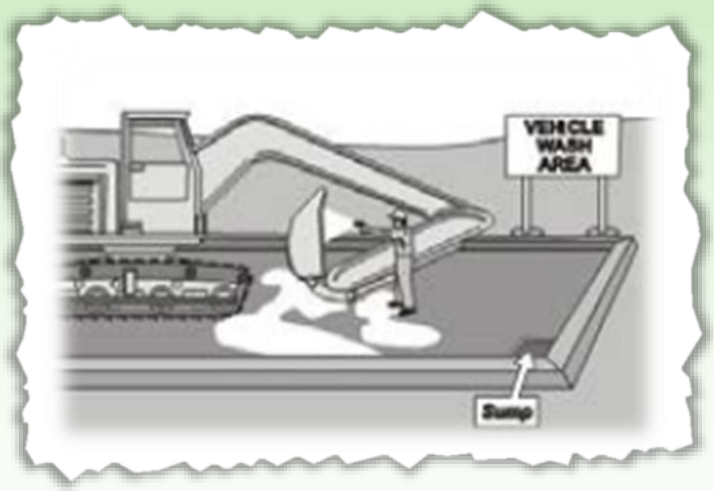
RRTWQ Citation

§20-3-46 (l) Liquid Waste Management. Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can Discharge to water bodies, channels, or storm drains.

- Include the notes on Liquid Waste Management from DPP's Construction BMP Standard Details
- Use **Fact Sheet WM-10** in Appendix H of the CCH Construction BMP Manual (2017)

Vehicle and Equipment Cleaning

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-46 (f) Vehicle and Equipment Cleaning. Eliminate and Minimize the Discharge of Pollutants to storm water from vehicle and equipment cleaning operations by using off-site facilities when feasible, washing in designated, contained areas only, and eliminating Discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.

Summary of Additional NPDES Appendix C Requirements

- For storage of soaps, detergents, or solvents, provide either (1) cover (e.g., plastic sheeting or temporary roofs), or (2) a similarly effective means to prevent the discharge of pollutants. (§5.3.3.2.2)

- Include the notes on Vehicle and Equipment Cleaning from DPP's Construction BMP Standard Details
- Use **Fact Sheet NS-8** in Appendix G of the CCH Construction BMP Manual (2017)
  - See **Table 6.2** for a Quick Reference Fact Sheet on Disposal Alternatives for waste materials

Vehicle and Equipment Fueling

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-46 (g) Vehicle and Equipment Fueling. Prevent fuel spills and leaks by using off-site facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

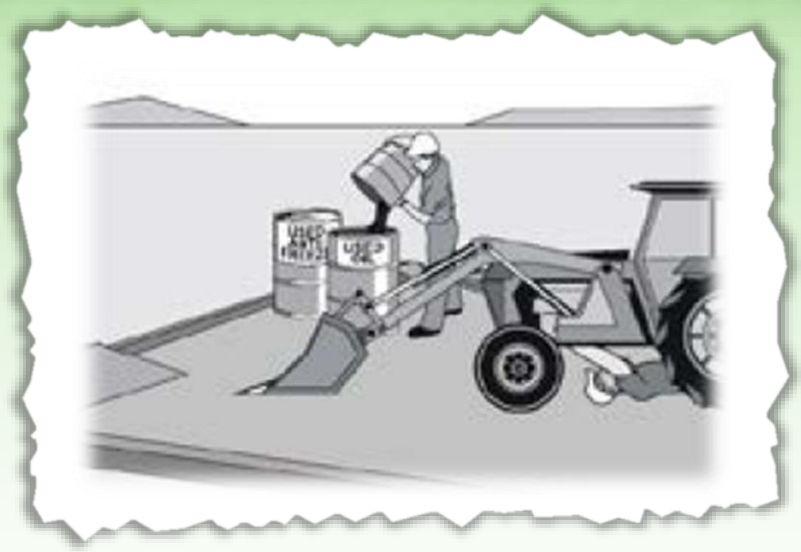
Summary of Additional NPDES Appendix C Requirements

- If applicable, comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and section 311 of the CWA. (§5.3.3.1.1)
- Use drip pans and absorbents under or around leaky vehicles and equipment. (§5.3.3.1.3)
- Dispose of or recycle oil and oily wastes in accordance with other federal, state, and local requirements. (§5.3.3.1.4)
- Clean up spills or contaminated surfaces immediately using dry clean up measures where possible, and eliminate source of spill. (§5.3.3.1.5)
- Do not clean surfaces by hosing the area down. (§5.3.3.1.6)

- Include the notes on Vehicle and Equipment Fueling from DPP's Construction BMP Standard Details
- Use **Fact Sheet NS-9** in Appendix G of the CCH Construction BMP Manual (2017)
  - See **Table 6.2** for a Quick Reference Fact Sheet on Disposal Alternatives for waste materials

Vehicle and Equipment Maintenance

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



RRTWQ Citation

§20-3-46 (h) Vehicle and Equipment Maintenance. Eliminate and Minimize the Discharge of Pollutants to storm water from vehicle and equipment maintenance operations by using off-site facilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.

Summary of Additional NPDES Appendix C Requirements

- If applicable, comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and section 311 of the CWA. (§5.3.3.1.1)
- Use drip pans and absorbents under or around leaky vehicles and equipment. (§5.3.3.1.3)
- Dispose of or recycle oil and oily wastes in accordance with other federal, state, and local requirements. (§5.3.3.1.4)
- Clean up spills or contaminated surfaces immediately using dry clean up measures where possible, and eliminate source of spill. (§5.3.3.1.5)
- Do not clean surfaces by hosing the area down. (§5.3.3.1.6)

- Include the notes on Vehicle and Equipment Maintenance from DPP's Construction BMP Standard Details
- Use **Fact Sheet NS-10** in Appendix G of the CCH Construction BMP Manual (2017)
  - See **Table 6.2** for a Quick Reference Fact Sheet on Disposal Alternatives for waste materials

Tracking Control

BACK TO CHECKLIST PAGE 1
BACK TO CHECKLIST PAGE 2
BACK TO CHECKLIST PAGE 3
BACK TO RESOURCES

RRTWQ Citation

§20-3-43 Tracking Control (a) All Projects must Minimize sediment track-out onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction Site by restricting vehicle traffic to properly designated areas and using additional controls to remove sediment from vehicle tires prior to exiting the Site.

(b) Vehicular parking and movements on Project sites must be confined to paved surfaces or predefined parking areas and vehicle paths, which shall be marked with flags or boundary fencing.

(c) All Pollutants and materials that are dropped, washed, tracked, spilled, or otherwise Discharged from a Project Site to off-site streets, other paved areas, sidewalks or the MS4 must be cleaned immediately using dry methods such as sweeping or vacuuming. Washing Pollutants and materials that are Discharged from the Project Site to the MS4 into drain inlets or catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin or sediment trap.

- Include the notes on Tracking Control from DPP's Construction BMP Standard Details
- Also see DPP's Construction BMP Standard Details for drawings
- Use **Fact Sheets TR-1 to TR-3** in Appendix F of the CCH Construction BMP Manual (2017)

Stabilized Construction Entrance/Exit

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

RRTWQ Citation

§20-3-44 Stabilized Construction Entrance and Exits. (a) Except where vehicular traffic is limited to paved surfaces, all construction entrances and exits for Categories 1C, 3, 4, and 5 shall provide an effective buffer for the deposit of mud and sediment from the Project Site prior to vehicles entering a paved or public road.

(b) Unpaved construction entrances and exits for Categories 1C, 4 and 5 Projects must consist of 3-6 inch diameter gravel placed upon a geotextile mat. The gravel must have a minimum depth of 12 inches above geotextile mat. The graveled entrance must be at least 50 feet long and 30 feet wide. Entrances and exits must provide a turning radius sufficient to accommodate the construction vehicles entering and exiting the Project Site.

(c) Unpaved construction entrances and exits for Categories 3 Projects must consist of 3-6 inch diameter gravel placed upon a geotextile mat. The gravel must have a minimum depth of 8 inches above geotextile mat. The graveled entrance must be at least 30 feet long and 20 feet wide. Entrances and exits must provide a turning radius sufficient to accommodate the construction vehicles entering and exiting the Project Site.

(d) Where Site conditions prevent the removal of all sediment and mud from tires traveling across construction entrances and exits, tire wash facilities must be provided to allow for the removal of mud and sediments from vehicle tires before they are allowed to enter a public road. Tire wash racks and facilities must direct all wash water and sediments away from the construction entrance or exit to a designated settling area located on the Project Site. The Discharge of wash water or sediment from the wash area to the MS4 or State Waters is prohibited.

- See DPP's Construction BMP Standard Details for drawings
- Use **Fact Sheet TR-1** in Appendix F of the CCH Construction BMP Manual (2017)

Dewatering Operations

BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES

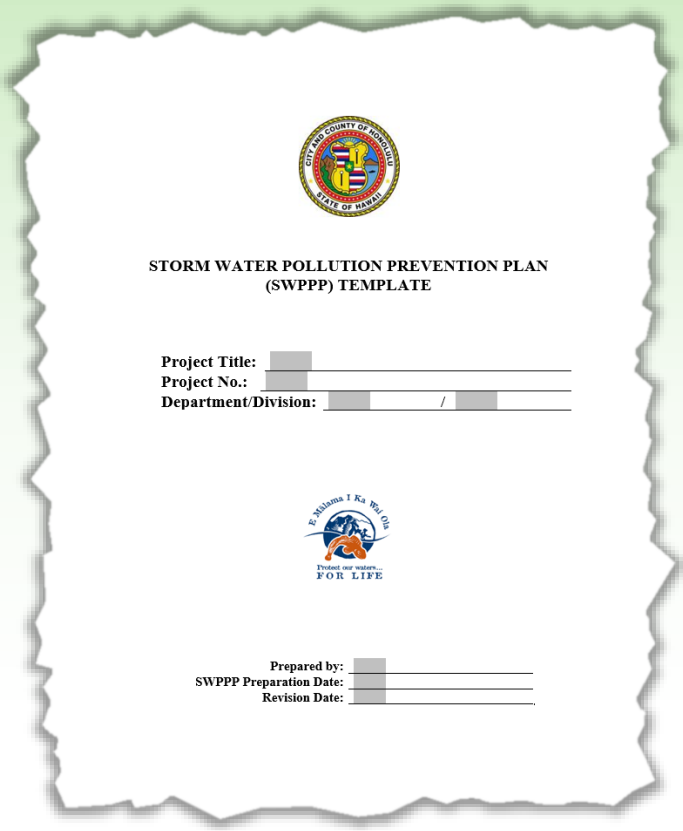
RRTWQ Citation

§20-3-47 Dewatering Operations. (a) Dewatering Operations are practices that manage the Discharge of Pollutants when non-storm water and accumulated precipitation must be removed from a work location so that construction work may be accomplished and may include sediment basins, sediment traps, weir tanks, dewatering tanks, filtration systems, or other manufactured systems. Dewatering non-storm water cannot be Discharged from the Site without prior notice to and approval from the DOH.

- Click here for a guide to selecting dewatering operations
- If dewatering must occur, click here to request NPDES permit coverage for Discharges of Construction Activity Dewatering (Form G)
- Use **Fact Sheet NS-2** in Appendix G of the CCH Construction BMP Manual (2017)

SWPPP General Information

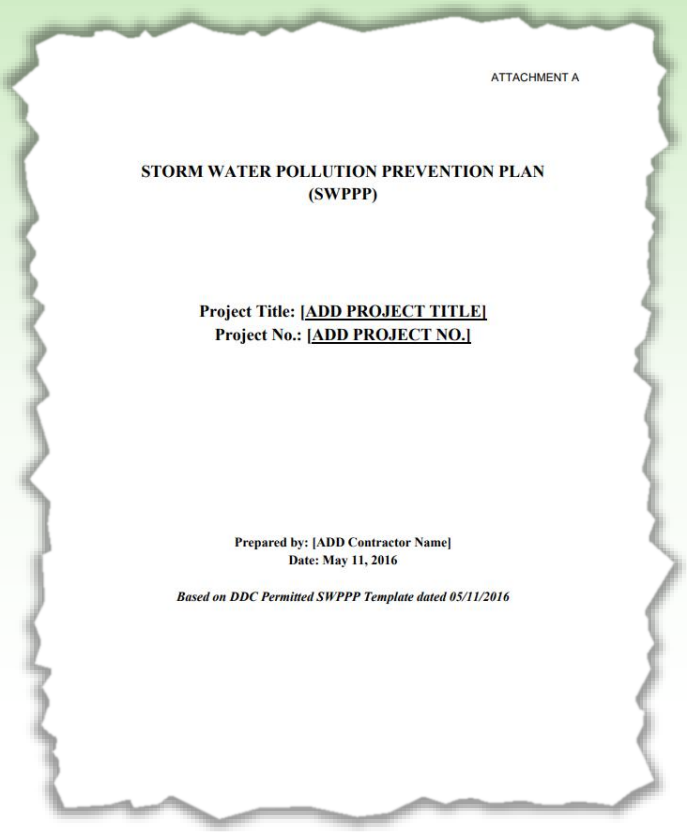
BACK TO CHECKLIST PAGE 1 | BACK TO CHECKLIST PAGE 2 | BACK TO CHECKLIST PAGE 3 | BACK TO RESOURCES



STORM WATER POLLUTION PREVENTION PLAN
(SWPPP) TEMPLATE

Project Title:
Project No.:
Department/Division: /

Prepared by:
SWPPP Preparation Date:
Revision Date:



ATTACHMENT A

STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)

Project Title: [ADD PROJECT TITLE]
Project No.: [ADD PROJECT NO.]

Prepared by: [ADD Contractor Name]
Date: May 11, 2016

Based on DDC Permitted SWPPP Template dated 05/11/2016

Summary of Additional NPDES Appendix C Requirements

- After issuance of the NGPC, include a copy of the NOI, NGPC, and all related attachments and documents as part of the SWPPP. (§7.2.18)
- A current copy must be kept on site or accessible at all times, and available upon request (§7.3)
- Must be maintained and revised as necessary within 7 calendar days following the occurrence of any conditions listed in §7.4.1 (§7.4.2)

- Required by Appendix C, Hawaii's NPDES Construction Storm Water General Permit, but not by Rules Relating to Water Quality.

- Click here for a SWPPP template that can be found on the NPDES website.