



6. Post-Construction Runoff Control

6.1 Overview

Post-construction storm water management in areas undergoing new development or redevelopment is required by EPA because runoff from these areas has been shown to significantly affect receiving water bodies⁵. There are generally two forms of substantial impacts of post-construction runoff:

- An increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it can pick up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus).
- An increase in the quantity of water delivered to receiving waters during storms. Increased impervious surfaces (e.g., parking lots, driveways, and rooftops) interrupt the natural cycle of gradual percolation of water. Instead, water is collected from hard surfaces and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water.

6.2 Permit Requirement

The Permit requires an operator of a regulated small MS4 to develop, implement and enforce a program to reduce pollutants entering the permittee's regulated MS4 from new development and redevelopment projects that disturb one acre or more, including construction activities less than one acre that are part of a larger common plan of

development or sale that would disturb one acre or more, that, at a minimum, includes the following:

- Establish rules, ordinances, or other regulatory mechanism, including enforcement procedures and actions, that address post-construction runoff from new development and redevelopment projects;
- Require structural and/or non-structural BMPs to minimize water quality impacts and attempt to maintain pre-development runoff conditions; and
- Develop procedures for long-term operation and maintenance of BMPs.

6.3 Existing County Post-Construction Runoff Control Program

The County has established post-construction storm water BMP requirements in two sections of the Maui County Code: Section 18.20.135 (mandates compliance as part of subdivision development) and Section 16.26B.3900 (mandates compliance as part of the Building Code). Title MC-15, Chapter 111 establishes the "Rules for the Design of Storm Water Treatment Best Management Practices." These standards "shall establish controls on the timing and rate of discharge of storm water runoff to reduce storm water runoff pollution to the maximum extent practicable through the implementation of best management practices and engineering control facilities designed to reduce the generation of pollutants." The rules require the use of low impact development techniques to provide

⁵ EPA 833-F-00-008 (Fact Sheet 2.7), US EPA Office of Water, January 2000 (revised December 2005)

storm water management that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed.

New development and significant redevelopment projects that require Subdivision and/or Building Permits trigger the need to implement post-construction storm water quality BMPs. Redevelopment projects are defined as work such as remodeling, reconstruction, repairs, additions, and similar work, where the cost of the work over a period of twelve consecutive months exceeds fifty percent of the replacement value of the existing structure(s) before work is started per Maui County Code Section 16.26B.3900.

The projects that will require post-construction storm water quality BMPs include:

- Projects that disturb more than one acre;
- Single-family dwellings with total impervious surface over 5,000 square feet;
- All commercial, multi-family and industrial projects;
- All subdivision projects; and
- Other projects at the discretion of DPW.

The rules set criteria for the sizing of storm water quality features, stating that the criteria can be met by:

- Either detaining storm water for a length of time that allows storm water pollutants to setting (detention treatment from such methods as extended detention wet and dry ponds, created wetland, vaults/tanks, etc.);
- By use of filtration or infiltration methods (flow-through based treatment from such methods as sand filters, grass swales, other media filters, in infiltration);
- Short-term detention can be utilized with a flow-through based treatment system (e.g., a detention pond designed to meter flows through a swale or filter) to meet the criteria; or

- Upstream flow-through treatment and detention treatment.

Other proposals to meet the water quality criteria may be approved by DPW if the proposal is accompanied by a certification and appropriate supporting material from a civil engineer, licensed in the State of Hawai‘i, that verifies compliance with one of the following (by performance or design) meet one of the following:

- After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by eighty percent. For the purposes of this measure, an eighty percent TSS reduction is to be determined on an average annual basis for the two-year/twenty-four hour storm; or
- Reduce the post development loadings of TSS so that the average annual TSS loadings are no greater than the predevelopment loadings.

The rules further lay out minimum criteria for the design of permanent BMPs, including required design volumes, detention times, flow path length to width ratios, and outlet size for detention based controls. Minimum criteria are also prescribed for filtration systems, including bioretention.

The rules state that they are minimum requirements. If the DPW determines that additional controls and/or lower thresholds for developments are required to meet specific water quality needs for sensitive receiving waters, additional requirements may be imposed, including the design of larger facilities or additional structural or non-structural controls.

These regulations are administered by the DSA, who is responsible for reviewing and approving permanent BMPs proposed by the project owner/designer. The DSA also requests review of the plans by other affected agencies, and routes plans to the Maui Soil and Water Conservation District for review and comment. Additionally, the Maui Redevelopment Agency (MRA) reviews

applications for new development and renovation projects in the Wailuku Redevelopment Area. DSA has also requested third-party engineering review of more complicated large projects.

The County Code Title 18 (Subdivisions) and Title 16.26B (Building Code) contain provisions for assessment of penalties against any person, firm or corporation knowingly violating the rules. The penalties can be up to \$1,000 per day, and violations of the building code can also lead to requirements for community service and imprisonment. The County attorney may institute actions to prevent, restrain, correct or abate any violation of the Title.

Water quality facilities installed to meet this requirement remain privately owned and maintained unless dedication is approved by Maui County Council. Applicants are required to submit a proposed maintenance plan.

DPW has prepared an “Information Sheet for Storm water Quality Best Management Practices Plan and Maintenance Plan” (see Attachment E).

6.4 Proposed Post- Construction Runoff Controls

The County already has an excellent program requiring and enforcing the use of post-construction

BMPs. However, the County proposes the following additional measures focusing on compliance and training:

- Conduct training for County plan reviewers and inspectors on Post- Construction BMPs;
- Develop a construction inspection checklist that includes checkboxes for the BMPs required under the ordinance;
- Evaluate current ordinances and design guidance for revisions that could strengthen the County’s post-construction runoff control program; and
- Develop a tracking process and inventory for private and public post-construction storm water controls.

The proposed implementation schedule for the County’s actions is presented in Table 6-1 (items 6-1 through 6-4). The County will also conduct training for construction industry representatives on maintaining post-construction BMPs, as previously discussed in Section 2.5.2.

Table 6-1. Proposed Schedule and Goals – Post-Construction Site Runoff Control

Item No.	Proposed Activity or BMP	Proposed Development and Implementation Schedule			Quantifiable Target
		2014/15	2016	2017	
6-1	Conduct training for County plan reviewers and construction inspectors on post-construction BMPs.	Develop training program for County plan reviewers and construction site inspectors.	Conduct training sessions	Conduct training sessions.	<ul style="list-style-type: none"> By Year 2, conduct annual training for plan reviewers and construction inspectors.
6-2	Develop an inspection checklist for BMP inspection.	Work with DSA to develop a useful checklist to facilitate inspection of post-construction BMPs.	Implement checklist during County post-construction inspections.	Continue to use checklist during County post-construction inspections.	<ul style="list-style-type: none"> By Year 2, implement a checklist for DSA inspections of post-construction BMPs.
6-3	Review ordinances and design guidance	Evaluate current County Code and design guidance, assess relevant codes used by other municipalities, and identify revisions that could strengthen the County’s post-construction runoff control program.	Seek ordinance revision from County Council.	Enact ordinance and conduct education campaign to inform public of the revised ordinance and requirements.	<ul style="list-style-type: none"> Ordinance revision to strengthen County’s post-construction runoff control program within 3 years. Conduct education campaign to inform public of the revised ordinance within 3 years.
6-4	Develop a tracking process and inventory for private and public post-construction storm water controls.	Evaluate potential processes for developing an inventory of private and public post-construction storm water controls.	Determine information needed for inventory of permanent BMPs. Review programs used by other municipalities.	Include in rules a requirement for designer to include GIS information suitable to add the permanent BMP to the County’s storm water asset management system.	<ul style="list-style-type: none"> Within 3 years, revisions to post-construction runoff control rules to require designer to include GIS information suitable to add the permanent BMP to the County’s storm water asset management system.