

1 INTRODUCTION

This policy was established pursuant to the new Urban Stormwater Management Manual for Malaysia. The manual provides clear and consistent technical guidelines for stormwater management in the country while the Stormwater Management Policy aims to streamline the regulatory process.

This policy will establish uniform technical standards while consolidating the regulatory requirements of several authorities. The policy addresses both water quality (pollutants) and water quantity (flood control) by establishing the level of required controls which can be achieved through the use of site planning, nonstructural measures, and Best Management Practices (BMPs). BMPs reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site. The Standards are designed to meet the stormwater management requirements under various regulatory programs, and:

- Prevent untreated discharges to receiving waters;
- Preserve hydrologic conditions that closely resemble pre-development conditions;
- Reduce or prevent flooding by managing the peak discharge and volumes of runoff;
- Minimize erosion and sedimentation;
- Reduce suspended solids and other pollutants to improve water quality;
- Provide increased protection of sensitive natural resources.

The Stormwater Management Standards are intended to be applied during routine project review by approving authorities. Use of the standards should prevent or minimize adverse environmental impacts due to unmanaged stormwater while limiting undue costs and recognizing site constraints.

2 STANDARD SUBMISSION PROCEDURE

A standard submission procedure for stormwater was developed in line with the One Stop Center (OSC) for submission and approval of land development initiated by the Ministry of Housing and Local Government. This standard submission procedure is part of the strategy of DID being the relevant administrative agency for stormwater management in getting all parties involved such as planner, consultant, project owner/developer, contractor and the local authorities to improve their understanding and practices and achieve the required development control objectives.

The procedure covers the authority requirements for each application on stormwater management for land sub-division, building plan approval and approval for erosion and sediment control plan. This procedure covers standard application forms, drawings and reports which have to be filled and complied by the parties who need to submit the requirements and the authority officer who has to check and approve the submission.

3 APPLICABILITY

This standard shall be applied throughout Peninsula Malaysia. The Stormwater Management Technical Standards shall be apply to industrial, commercial, institutional, residential, and roadway projects, including site preparation, construction, redevelopment , and on going operation. The Stormwater Management Technical Standards does not apply to:

- To any emergency repairs works.

4 STORMWATER MANAGEMENT TECHNICAL STANDARDS

The DID requires that all projects development meet the following Stormwater Management Standards. When any of the Standards cannot be met, an applicant may demonstrate that an equivalent level of protection will be provided.

4.1 Runoff Quantity Control

In stormwater management system, the quantity of the runoff shall be controlled by the following criteria:

- Minor and major system shall be planned both generally confirm to natural drainage pattern and discharge to natural drainage system within catchment as possible.
- Runoff at development site within catchment or sub-catchment shall be maintained as discharge at the existing natural drainage outlet/s and the controls discharges shall be less or equal to the existing capacity of the existing natural drainage capacity at downstream.
- Stormwater management system must be designed so that post development peak discharge rate (2 yr, 10 yr, 50 yr and 100 yr ARI) less than the pre-development (2 yr ARI). More stringent criteria may be required in sensitive area where stormwater problems presently exist.
- There will be no new stormwater conveyance system outfall may discharge the runoff directly into the existing receiving water without any control.
- All new urban development shall be provided with a minor drainage system with capacity not more than the 10 yr ARI as describe in Table 4.1 of the Manual.
- The minor drainage system may comprise any combination of pipe, swale, open drain or engineered waterway, to be serving for the catchment less than 20 ha.
- The major drainage system shall be provided for the development area and the catchment of the development area equal to or larger than 40 ha. The stormwater design ARI shall be 100 years or as describe in Table 4.1 of the Manual.
- Conveyance system for the drainage area from 20 to 40 ha should be designed with storm ARI 50 years.
- The platform/lowest floor level in all new urban development and re-development shall be protected for flooding up to 100 years ARI with 0.5m freeboard.

- Diversion of runoff to or from other catchment or sub-catchment is prohibited (not permitted).
- An adequate drainage reserve shall be provided for stormwater conveyance located within private lot to provide access for maintenance.
- The construction of Onsite Storage Detention (OSD) facilities can be allowed to serve the small drainage area up to 0.1 ha only. For the area more than that, the community detention/retention facilities should be provided.
- Adequate storage shall be provided for the detention pond to store the post-development design flows of 1 in 100 years ARI from the catchment without overflow the secondary outlet (spillway).
- Primary outlets for the detention pond shall be designed to reduce post-development peak flows from the pond must not exceed the pre-development peaks flows of 2 year (minor primary outlet and major primary outlet).

4.2 Runoff Quality Control

Criteria for runoff quality control are as the following:

4.2.1 During Construction

- No land clearing shall be allowed for the construction site before the installation of sediment control facilities onsite.
- The erosion and sedimentation controls shall be provided on all land development and building project to prevent up to the maximum extent possible, the transport of the sediment from the project site resulting from clearing and grading or others land disturbing activities.
- The adequate sediment pond or sediment trap shall be provided prior to sediment rotate/release from the site.
- Sediment pond/trap/basin should retain a minimum 70% of coarse of sediment > 0.02 mm for storm up to or including 3 months ARI (equivalent to 40mm of rainfall depth to capture and detain at least 90% of 24 hours storm events runoff volume in a year) for construction period < 2 years and 6 months ARI (equivalent to 50mm of rainfall depth to capture and detain at least 95% of 24 hours storm events runoff volume in a year), for construction > 2 years to be completed.
- The Erosion Sedimentation Control Plan (ESCP) shall be submitted for **project area more than 1 ha**. The plans must be prepared based on construction activities staging which covers land grading & earthworks (pre-bulk grading plan) and construction stage (post-bulk grading plan). For project area less than 1 ha, the developer shall submitted Best Management Practices Plan to control soil erosion and siltation onsite.
- Erosion and sedimentation control must be implemented during construction and land disturbance activities (earthworks phase).

4.2.2 Post Construction

- No new stormwater conveyance outfall may discharge the untreated runoff directly to any receiving water of the area.
- Any stormwater (runoff) discharges to environmental sensitive area must utilize certain BMPs approved for that area.
- The design ARI for water quality control facilities shall be 3 month ARI.
- The use of infiltration practices without pre-treatment (to capture solids and sediment) is prohibited.

4.3 Aesthetical

- Stormwater management system shall be designed with appropriate aesthetic value to enhance the appearance of the area with proper landscaping.
- The proper landscaping is required for any proposed engineered waterway, watercourse management and proposed detention pond.

4.4 Operation and Maintenance

- All stormwater management system design need to take into account for easy and adequate access for maintenance and the continuation of maintenance requirement.
- All stormwater management system must have the O&M plan and schedule to ensure the system function as per design.

5 SUBMITTAL REQUIREMENTS

This section presents the requirements a project proponent must fulfill upon submission (see ANNEX A, B and C), apart from the general requirements already established by Local Authority.