

**JABATAN PENGAIRAN DAN SALIRAN
(DEPARTMENT OF IRRIGATION AND DRAINAGE)**

**APPLICATION FOR PLANNING PERMISSION IN RESPECT OF ANY
DEVELOPMENT**

[Section 28C.(1) of Enakmen Perancang Bandar dan Desa (Pindaan) 2002]

GUIDELINES FOR SUBMISSION OF DRAINAGE PLANS.

A Drainage Plan to be submitted in respect of an application for planning permission should comprise the following:

- 1) A Design Report in accordance with the format in Appendix 1.
- 2) A Layout Plan (scale 1:1000) in which all the proposed drains and other storm water management facilities complete with their gradients, sizes and levels are clearly shown.
- 3) A Contour Plan showing the topography of the catchment/sub-catchment in which the proposed development site is located.
- 4) A Site Plan of the development site showing spot levels, contours and all salient features.
- 5) A Summary of the proposed drainage and storm water management facilities in accordance with the format in Appendix 2.
- 6) Location Plan showing clearly the location of the development.

Submitting persons are advised to use the following references in carrying out planning and design of the drainage and storm water management facilities:

- 1) Manual Saliran Mesra Alam.
- 2) Technical Guidelines for the Design of Drainage and Storm Water Management Facilities – Jabatan Pengairan dan Saliran Sabah (Appendix 3).
- 3) Sabah Water Resources Enactment 1998.
- 4) Garispanduan JPS 1/97 – Guidelines on Erosion Control for Development Projects in the Coastal Zone.
- 5) Shoreline Management Plan for West Coast of Sabah.
- 6) Local Authority By-laws.

IMPORTANT NOTES

Submitting persons are also advised to consult the respective Local Authorities in particular DBKK on any restrictions on the types of storm water management facilities for detention/retention/drainage purposes.

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Appendix 1

FORMAT OF DESIGN REPORT

1. Introduction

- Project Name
- Project Description
- Project Location and Location Plan
- Project Proponent Details
- Project Engineer Details
- Design Codes, Guidelines and Standards

2. Existing Drainage System

- Existing Landuse
- Topography
- Groundwater Table and/or Receiving Water Bodies or Outlets
- Pre-Development Catchment Discretisation
- Impacts of proposed development on the existing system.

3. Proposed Drainage System

- General
 - Proposed Landscape and Landuse
 - Proposed Conceptual Drainage Plan and Mitigation Measures
(This should cover stormwater management for both the development sites as well as for existing drainage affected by development)
- Design Calculation and Computer Simulation/Modelling
 - Parameters for drainage system design
 - Design Storm or Rainfall (Minor and Major System)
 - Outflow Hydrograph With and Without Stormwater Management Facilities.
- Pre-Development Catchment Simulation/Modelling
 - Hydrological Analysis
 - Hydraulics Analysis
 - Hydrographs
- Post-Development Catchment Simulation/Modelling
 - Hydrological Analysis
 - Hydraulics Analysis
 - Hydrographs

4. Proposed Mitigation Measures

- Proposed Storm Water Detention Facilities
 - Proposed Discharge Outlets
 - Drainage system for the adjacent sites.

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5. Conclusions

6. Appendice

-Related document such as computer simulation printouts etc.

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Appendix 2

DRAINAGE PLAN SUMMARY SHEET

Local Authority:

Proposed Development: (Name of Project).

Location: (Local Plan area).

Development Plan Reference:

Drainage Plan Reference:

Project Proponent:

Professional Engineers:

I. DESIGN PARAMETERS/CRITERIA/ASSUMPTIONS

Catchment area (Ha) :

Development site area (Ha) :

Pre-development land conditions : (land cover, land gradient, pervious area etc.)

Post-development land conditions : (Density, land gradient, pervious area etc.)

Hydrological data :

Designed ARI :

Hydrological and Hydraulic Analysis

II. DESIGN METHODS/SOFTWARES/REFERENCES

III. PROPOSED DRAINAGE/STORM WATER MANAGEMENT FACILITIES

- 1) For adjacent lands/properties affected**
(e.g. Diversion drain along South boundary of site for xx ARI discharging at yy point).

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- 2) For storm water management of development site**
(Types, lengths/sizes, gradients and inverts of proposed facilities).
- 3) Operation and maintenance**
(Highlight special O & M requirements, maintenance frequencies, estimated costs and safety provisions etc.)
- 4) Compliance with statutory requirements (where relevant)**
River and Shore Reserve [Section 40.(1) of Sabah Water Resources Enactment 1998]

Shoreline setback in accordance with Shoreline Management Plans.

PROFESSIONAL ENGINEER'S CERTIFICATION

I hereby certify that the proposed drainage/storm water facilities for this development are in accordance with the technical guidelines of Jabatan Pengairan dan Saliran Sabah and in compliance with all relevant statutory requirements, and that due care has been taken in the design to ensure public safety and interest. I am fully responsible for the reliability and accuracy of all data and assumptions used, and the adequacy of the design for the entire drainage and storm water management facilities.

(Signed and stamped by Professional Engineer)

Date :

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Appendix 3

**TECHNICAL GUIDELINES FOR
THE DESIGN OF DRAINAGE AND STORM WATER MANAGEMENT
FACILITIES (BASED ON MANUAL SALIRAN MESRA ALAM (MSMA)-JPS)**

1. MINOR AND MAJOR SYSTEM FOR DRAINAGE DESIGN

Average Recurrence Interval (ARI) for Design Storm

Minor System

- ARI for minor system shall follow Table 4.1 Chapter 4 of the MSMA

Major System

- ARI for major system (trunk drain) shall be 50 year
- ARI of 100 year shall be adopted if the development is in rural areas which are outside the rating areas of Local Authorities.

2 LAND USE

Local Plan shall form the basis of the land use and reference for the required density of development as stated in Table 4.1 of MSMA.

3 DETENTION AND RETENTION FACILITIES

Design Storm for Detention/Retention Requirement

All detention and retention facilities shall be designed to meet the minor and major system

a. Direct discharge system

The direct discharge without detention facilities can be considered if the development site is immediately adjacent to the river mouth or sea. However, the quality of stormwater discharge has to be addressed in accordance with MSMA.

b. 10 year ARI detention facilities

The storage design storm of 10 year ARI can be considered if the development falls within one or more of the following:-

- Individual lot or site redevelopment
- The immediate discharge point is approximately 500m from the river mouth or Sea.

The *Swinburne Method* (Chapter 19.4) can be used to size the 10 year ARI detention facility for the abovementioned facility.

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c Design Storm Greater than 10 Year ARI

The *hydrograph method* shall be used to assess the detention facilities for design storm more than 10 year ARI. All other detention or retention facilities shall be designed to meet the requirement of minor and major system.

d Community and Regional Detention Ponds

This type of detention pond shall be designed for a minimum 50 year ARI and check against 100 year ARI. Dry pond is preferred for ease of maintenance. For minor system, it is preferred not to have ponding in public areas such as open space, car park, road and recreation area.

Although there is no limit to the depth of ponding for dug-out dry pond, it must be designed with public safety in mind (Chapter 20.8). For detention basin with embankment, the maximum ponding depth should not exceed 3m (Chapter 20.5). If embankment exceeds 3m. It shall be designed as a dam structure.

4 USING OPEN SPACE AS DETENTION FACILITY

The Consultant must get written permission from Local Authorities before making use of the open space as detention facility

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