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	Construction of Hopewell to Magaqa Road	Date:	Dec 2021

# **STORMWATER MANAGEMENT PLAN**

**December 2021**

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## **1. INTRODUCTION**

The Stormwater Management Plan (SMP) consists of a proposed Water Management Strategy, which offers mitigatory measures in order to minimise environmental impacts for the proposed road. For successful rehabilitation, it is imperative that this plan is at all times used.

## **2. SCOPE**

This Stormwater Management Plan acts as a guideline to be applied by the contractor. This plan is a legally authorised document that must be implemented to fulfil the requirements of the Environmental Authorisation. However, this management plan is an evolving guideline that needs to be updated or adapted as progress is made with the revegetation and rehabilitation of the project area, and successes and failures of procedures are identified.

The aim of the Stormwater Management Plan is to:

- Provide tools for managing stormwater flow.

The objectives of the Stormwater Management Plan are to:

- Preserve as best possible the natural habitats on-site and to minimise erosion.
- Preserve or recreate the structural integrity of natural plant communities.
- Allow for natural surface and sub-surface flows so as not to impede the movement of water along drainage lines.
- Include measures to promote the dissipation of stormwater run-off.

## **3. LEGISLATION AND STANDARDS**

There are a host of legal requirements (National, Provincial and Local Government spheres) to which the project proponent must adhere for the proposed development. Fundamentally, the proponent is required to include and integrate environmental principles and values into all planning and implementation procedures taken for development purposes.

Underlying the reasoning above is the Constitutional right that people have to environmental protection as set out in the Bill of Rights in the Constitution (Section 24). These rights have now been interpreted and included into the National Environmental Management Act, 1998 (Act 107 of 1998), which, together with other national and provincial legislation, governs the way environmental principles are incorporated into any form of development.

Relevant legislation pertaining to the control of stormwater on-site is described hereunder.

### **3.1. National Environmental Management Act, 1998 (Act 107 of 1998)**

The National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) provides for the right to an environment that is not harmful to the health and wellbeing of South African citizens. In addition, there is recognition that development must be socially, environmentally and economically sustainable and that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied (Government Gazette, 1998).

### **3.2. Conservation of Agricultural Resources Act 43 of 1983**

The aim of the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA) is to provide for control over the utilisation of the natural agricultural resources within South Africa and to promote the conservation of soil and water resources, indigenous vegetation and the control of invasive plants. Thus, in terms of CARA, the landowner or land user is responsible for the maintenance of all soil conservation works located on his/her property. Added to this, the maintenance and improvement of the structure and function of wetlands further the aims of CARA.

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### 3.3. National Water Act, 1998 (Act 36 of 1998)

The National Water Act, 1998 (Act 36 of 1998) (NWA) has various sections of relevance to the proposed development. The Department of Water and Sanitation (DWS) is the responsible authority with regard to matters affecting water resource management. Added to this, certain provincial and local authority powers also influence the regulation of water resources, including agriculture, the environment, health services, nature conservation, pollution control, regional planning and development, soil conservation and water and sanitation services.

Part 4 of the NWA deals with pollution prevention, and, in particular, the situation where pollution of a water resource occurs or might occur as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking appropriate measures to prevent the pollution of water resources. If these measures are not taken, the catchment management agency concerned may, itself, do whatever is necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs from the persons responsible for the pollution. This section of the Act has bearing on the proposed development as it deals with pollution, which, in this case can include the spillage of chemicals and hydrocarbons during construction, or soil erosion run-off, all of which may enter surface and ground water resources.

## 4. GENERAL GUIDELINES

The purpose of the Stormwater Management Plan is to specify general guidelines and principles for stormwater management so as to ensure that the increased volumes of stormwater from hard surfaces and cleared areas do not result in ecological damage and erosion. Procedures for the management and control of stormwater are described in this plan.

### 4.1. The Planning Phase

Develop a Stormwater Management Plan (by a suitably qualified professional) to ensure that runoff from stormwater does not result in erosion at the collection areas and at the discharge points on site. In general, the following measures are recommended:

- All construction areas must have stable surfaces and channels lined (where possible) with vegetation.
- Points of stormwater discharge must be stabilised and energy dissipation measures specified. Ecological methods (gabions, perforated mattresses, vegetation, etc) are preferred.
- All activities that affect surface drainage should be designed so as to ensure that stormwater runoff does not lead to excessive surface erosion problems on the site.
- Rainwater runoff from roofs from offices within the site camp must be directed into natural areas.

### 4.2. The Construction Phase

Implement and maintain a Stormwater Management Plan. In general, the following measures are recommended:

- Remove only vegetation essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.
- Ensure that measures are in place to control the flow of excess water so that it does not impact on surface vegetation.
- The accumulation of water on the surface should be prevented. The drainage of the surface should be done in such a way that stormwater will be led away quickly and efficiently without any erosion taking place.
- Runoff must be managed to avoid erosion and pollution problems.

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- Prevent stormwater or contaminated water directly entering any watercourse.
- Install waste traps to catch litter conveyed by surface runoff.
- Dissipate concentrated stormwater flows through energy dissipaters or vegetated areas.
- Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs.
- All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time.
- The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report.
- Implement topsoil and stormwater runoff control management measures to prevent the loss of topsoil.

4.3. The Operational Phase

Maintain the storm water management system for the road on an ongoing basis and ensure that it is always in good working order. The following are of relevance:

- Ensure that measures are in place to control the flow of excess water so that it does not impact on surface vegetation.
- The accumulation of water on the surface should be prevented. The drainage of the surface should be done in such a way that stormwater will be led away quickly and efficiently without any erosion taking place.
- Runoff must be managed to avoid erosion and pollution problems.
- All waste traps within the stormwater system must be emptied/cleaned regularly to ensure their efficient functioning.
- Dissipate concentrated stormwater flows through energy dissipaters or vegetated areas.
- Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs.