

**Three-year EMP Monitoring Report for the
Establishment of Townships and Subdivision of Erven
in Mariental, Hardap Region.**

**Compiled for
Mariental Municipality
Mariental**

By
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Table of Contents

1	Introduction.....	2
1.1	Project Description	2
2	Implementation of the EMP	3
2.1	Social facilities	3
2.2	Water demand.....	4
2.3	Waste management	4
2.4	Building requirements	5
2.5	Smells.....	5
2.6	Historical burial ground	6
2.7	Dust.....	6
2.8	Proximity to the future B1 eastern bypass.....	7
2.9	Minimise erosion by water runoff.....	7
2.10	Cutting down protected tree species	7

1 Introduction

This monitoring report provides a summary of the environmental management actions outlined in the Environmental Management Plan (EMP) for the establishment of townships in Mariental, Hardap Region, undertaken during the past three years.

The application for an Environmental Clearance Certificate (ECC) for the project was granted on 26 April 2017. Very little activity towards township establishment has occurred in this time. However the EMP is still relevant to guide the implementation of the project.

The EMP addresses the impacts outlined in the EIA Scoping Report that was compiled for the Mariental Municipality and approved by the Environmental Commissioner.

1.1 Project Description

The growth of Mariental requires the establishment of additional townships as stated in the EIA Scoping Report. It comprises the following components, illustrated in Figure 1.

- Establishment of township Mariental Extension 5, 6, 7 and 8;
- Establishment of township Empelheim Extension 4 and 5;
- Establishment of township Aimablaagte Extension 2 and 3;
- Subdivision of Erf 1273, Aimablaagte;
- Subdivision of Erf 575, Empelheim.



Figure 1. Satellite image of Mariental and surroundings. The townships to be extended are Mariental (M5 – M8), Aimablaagte (A2 + A3), and Empelheim (E4 + E5). The townland is indicated in red.

2 Implementation of the EMP

The EMP is shown below, with recommended mitigation actions for each negative impact as they were set out in the EIA Scoping Report.

Notes on the implementation of the EMP are shown for each of the components, and depicted where relevant on the map in Figure 2.

2.1 Social facilities

Impact: The developments will increase the need for social facilities such as schools, clinics, police stations, waste disposal, and cemetery space.

Mitigation actions stated in the EMP (2017): The Municipality pledges to provide the necessary services. Planning is already underway for an additional school in Aimablaagte and two more in Mariental Extensions 5 and 6. The landfill will be moved to a new site in the northern part of the townlands. A second reservoir for water will be established to provide water to the new townships. Other facilities are considered to be adequate for the present population of Mariental at the moment, and will be expanded as required in future.

Actions implemented since 2017:

Recently, the Mariental Municipality Council via Resolution 093/10/20 resolved to award Erf 1381 Aimablaagte to the Ministry of Education for the establishment of a primary school. The Erf is zoned "Institutional" and measures 24,715m².

2.2 Water demand

Impact: The growing population of Mariental and expanded residential areas will increase the water demand of the town. Although there is an apparently abundant supply in the nearby Hardap Dam, there is potential conflict in future with the irrigation sector over water allocations.

Mitigation actions stated in the EMP (2017): The irrigation scheme is at its maximum limit for water allocation, and this amount will not be increased in future. There is adequate water for the Mariental demand although the supply to Empelheim gets interrupted when the reservoir is less than 60% full. A second reservoir will be established to overcome this problem. The Municipality recognises that in severe drought years it will still have to make a 'Plan B' to ensure there is adequate water for the town.

Actions implemented since 2017:

Namwater is currently in the process of building a second water reservoir for the town. This is situated outside of the town boundaries, at the NamWater Purification Plant.

2.3 Waste management

Impact: Greater volumes of waste generated in the town will require more waste management facilities, both for sewage and solid waste disposal.

Mitigation actions stated in the EMP (2017): Under the Draft Pollution Control and Waste Management Bill (MET 2003), Local Authorities are required to:

- Promote and support the minimisation of waste and recovery of waste for recycling, particularly at the point of production.
- Provide litter receptacles in public places.
- Collect and dispose of household waste.
- Prepare and submit a local waste management plan.
- Report annually on the waste management plan.

The Municipality is busy planning for a new landfill in the northern part of the townlands, to replace the present site. When it is established, the current landfill will be rehabilitated. Thorough waste management procedures will be implemented for proper disposal of waste at the new site.

Actions implemented since 2017:

Establishment of new landfill site and rehabilitation of the old landfill.

The Mariental Municipality recently appointed consultants to conduct an EIA for the decommissioning of the old landfill site and for the establishment of the new landfill. The old landfill site will be rehabilitated once the decommissioning is complete and the new landfill has been established.

Monitoring of waste generated in the town

Presently, the Municipality does not have figures for the amount of waste generated, as the original landfill site does not have a weighbridge. A weighbridge for the waste generated will be incorporated in the new landfill site.

Waste disposal practices

The waste currently generated in the town is collected daily and disposed of at the landfill site, where it is levelled and covered with sand and building rubble. The Municipality has acquired a new sanitation truck to ensure effective waste removal in the town. In addition the Municipality has also placed HOW MANY skip containers that are strategically located in the town.

Illegal Dumping: In order to tackle illegal dumping within the town the Municipality is instituting fines for illegal dumping in line with the Environmental Management Act.

Waste recycling and innovative waste management practices.

The Municipality has an annual Clean-up campaign, where volunteers clean the town and are educated on recycling and measures to keep the town clean. In addition the Council recently approved an application by a local company to do recycling of waste in town.

The Municipality does not have a waste management plan in place. The Municipality wishes to address all the above issues with the establishment of the new landfill site.

2.4 Building requirements

Impact: Developers doing construction in the new townships will face the difficulties of building on ‘swell clays’.

Mitigation actions stated in the EMP (2017): The precise area of swell clays is not yet demarcated. Construction on this substrate requires reinforced foundations, making it more expensive. One stakeholder asked that novel engineering solutions should be sought for this problem, so that poor people who might not afford the higher cost of reinforced foundations, are not disadvantaged. Possible solutions, such as sand-bag construction, can be considered.

Actions implemented since 2017:

A geotechnical investigation was carried out of all the extension areas of the town in order to evaluate the founding conditions and to make appropriate recommendations, where applicable, on the appropriate foundations. The Geotechnical report is attached (Appendix B).

2.5 Smells

Impact: Smells from the Pig Farm just outside the townlands to the south, will occasionally spread over the new southern townships.

Mitigation: Mariental sits in the difficult position where it has a pig farm at its southern end and sewage works at the northern end. Both of these sites give off offensive smells, which blow over town depending on the wind direction.

The Mariental Piggery lies outside of the townland so the Municipality actually has no jurisdiction over it. The emissions are not dangerous or toxic, only a nuisance, and there is little that can be done about them.

The Municipality intends to improve the sanitation system so that offensive smells will not be given off by the oxidation ponds in future.

Actions implemented since 2017:

Oxidation ponds

The oxidation ponds have been relined to avoid pollution of the underground water, and they have been fenced off.

2.6 Historical burial ground

Impact: Conflict with historical burial ground to the south of town.

Mitigation actions stated in the EMP (2017): The area of the old burial ground in Aimablaagte Extension 2 has been zoned as 'Special', and will not be occupied by residences or other buildings.

Actions implemented since 2017:

Provision has been made for the Historical burial ground in Planned Aimablaagte Extension 2. The area is zoned 'Special' as depicted in the zoning map (Figure 2). The specific area with the graves has been surveyed and allocated an Erf; the area around the graves will be used for a solar plant.

2.7 Dust

Impact: Clearing of the vegetation over large areas, creation of gravel roads and construction activities will increase the dust nuisance in the town.

Mitigation actions stated in the EMP (2017): During site clearing and construction, dust minimisation procedures should be followed. These include:

- Wetting newly scraped surfaces (if there is sufficient water available);
- Clearing the minimum amount of space, so that ground cover is not removed unnecessarily;

When the township areas are established and inhabited, tree planting and beautification programmes should be carried out. Where plant growth is unlikely, open surfaces should be covered with pavers, rocks and/or gravel. These measures help to slow down the wind, retain moisture in the soil, and reduce dust generation. Environmental input to the Mariental Structure Plan (2014) recommends all of the above dust minimisation procedures.

Actions implemented since 2017:

Dust minimisation

The Municipality wets newly scraped surfaces and gravel roads that are frequently used, to reduce the dust in town. The Municipality recently paved one of the most frequently used roads in Aimablaagte (Nommer 1 Straat).

Planned Mariental Extension 6

Mariental Extension 6 was offered un-serviced to a private developer on condition that they service the area and this includes the paving of the roads.

The Municipality wishes to pave more roads within the town, but the process has slow due to financial challenges.

2.8 Proximity to the future B1 eastern bypass

Impact 1: Possible conflict with route for new eastern bypass road. There will be a risk of accidents with people crossing the road informally, and dogs and other animals such as goats and donkeys being on the road. Particularly dangerous at night.

Impact 2: Traffic noise will extend to the nearby residential areas.

Mitigation actions stated in the EMP (2017): The Municipality states that the bypass route was set in the 1970s, and with proper motivation its route could now be altered, if necessary.

For accident risks: Erect warning signboards to warn drivers of people and/or animals on the road. Construct rumble strips on the road to alert drivers.

For noise reduction, the solution is to plant trees and create other sound barriers. Camelthorns look beautiful and would be aesthetically pleasing to look at both from the road and from the houses that are close to the road.

Actions implemented since 2017:

The Municipality has held several consultations with Roads Authority regarding the proposed access into Planned Mariental Extensions 5 and 6, where it was suggested to de-proclaim the road reserves leading through the Mariental urban area. The Roads Authority approved to de-proclaim the section of the bypass passing through the Mariental urban area (Figure 2).

2.9 Minimise erosion by water runoff

Impact: More runoff from hard surfaces will increase volumes of water generated during thunderstorms, and increase the erosive power of the water.

Mitigation actions stated in the EMP (2017): The topography of the extensions is generally flat or only gently sloping, so that increased runoff is unlikely to cause major erosion gullies. Storm water drains should be established in the new townships so that excess surface water is drained away.

Actions implemented since 2017:

The Municipality recently constructed storm water drainage in Aimablaagte along W. Jod Street. This was in response to complaints from property owners along the aforementioned Street.

2.10 Cutting down protected tree species

Impact: Land clearing will possibly involve cutting down some protected tree species, such as *Boscia albitrunca*, *Maerua schinzi*, *Tamarix usneoides*.

Mitigation actions stated in the EMP (2017): Inspection of the site during the assessment revealed that there are none of these trees, or any other protected tree species, in the township areas to be extended.

No actions required.

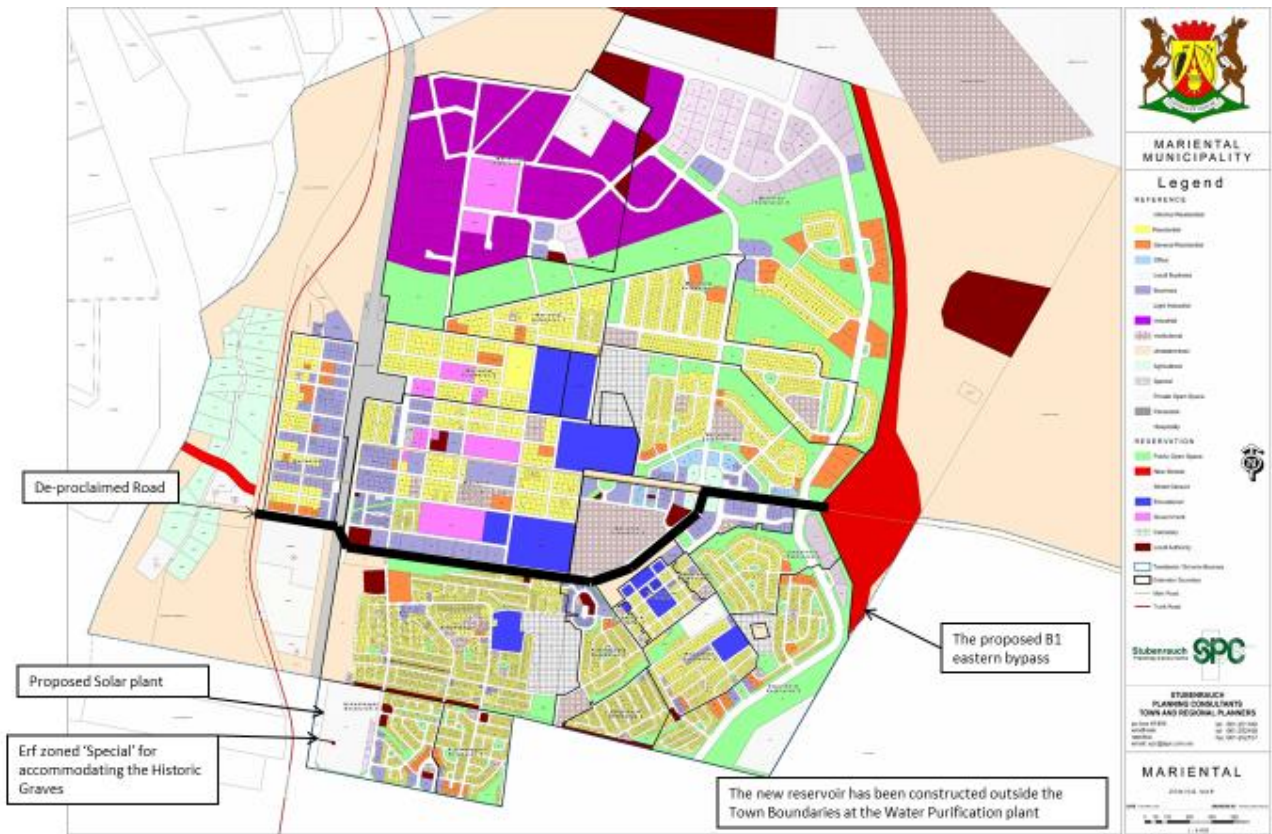


Figure 2. Mariental Zoning Map showing locations of items specified in the EMP.