KAMAU
town planning &
development specialist

No. 04 Wagner street | Windhoek West | c: +264 81 3290584
P.O. Box 22296 | Windhoek |t: +264 61251975 | f: +264 61 304219 |
neshila@kamautpds.com |w: www.kamau-architects.com

**PROJECT: APP-003837**

| | | | |
|---|---|---|---|
| **Title** | ENVIRONMENTAL ASSESSMENT SCOPING REPORT:<br>• SUBDIVISION OF ERF 1000 EXTENSION 5, GROOTFONTEIN INTO 26 PORTIONS AND THE REMAINDER STREET OF ERF 1000<br>• REZONING OF PORTIONS 1-13 AND 24 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'<br>• REZONING OF PORTIONS 14-23 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'<br>• REZONING OF PORTIONS 25, 26 AND RE/1000 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET<br>• SUBDIVISION OF ERF 1001 EXTENSION 5, GROOTFONTEIN INTO 23 PORTIONS AND THE REMAINDER<br>• REZONING OF PORTIONS 1, 11-22 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'<br>• REZONING OF PORTIONS 2-10 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'<br>• REZONING OF PORTION 23 AND THE REMAINDER OF ERF 1001 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET | | |
| **Report Status** | Final | | |
| **Reference** | Grootfontein 1001_1001 | | |
| **Proponent** | Mr Gerson Kandjambanga | | |
| **Environmental Assessment Practitioner** | Kamau Town Planning and Development Specialists<br>PO Box 22296, Windhoek<br>Contact Person: Fenni Nghiitwikwa<br>Contact Number: +264 81 811 3442<br>Email: fenni@kamautpds.com | | |
| **Report Date** | May 2024 | | |
| | **Name** | **Signature** | **Date** |
| **Author** | Fenni Nghiitwikwa | | May 2024 |

## EXECUTIVE SUMMARY

**Introduction**

Kamau Town Planning and Development Specialist (KTPDS), on behalf of Mr. Gerson Kandjambanga, as the rightful owner of Erf 1000 and Erf 1001 Extension 5 Grootfontein (T353/2021 & T3606/2022 respectively), has been appointed as the Environmental Assessment Practitioner (EAP) to conduct an Environmental Impact Assessment for the following:

- **Subdivision of Erf 1000 Extension 5, Grootfontein Into 26 Portions and the Remainder Street of Erf 1000**
- **Rezoning of Portions 1-13 and 24 (of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 14-23 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portions 25,26, and Re/1000 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to Street**
- **Subdivision of Erf 1001 Extension 5, Grootfontein into 23 Portions and the Remainder of Erf 1001**
- **Rezoning of Portions 1, 11-22 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 2-10 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portion 23 and the Remainder of Erf 1001 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to Street**

As such the proponent appointed Kamau Town Planning and Development Specialists to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry (MEFT: DEAF).

**Proposed Development**
**Development Description**

Grootfontein is the economic centre to surrounding ore mines, cattle and land cultivating farms. The town of Grootfontein is also a very famous tourist destination because of the then old fort military post. The town also boasts of favourable climate with sufficient rain for land cultivation and cattle breeding. Farmers around the town mostly farm with cattle, maize, peanuts, cotton, sunflower and sorghum. Further on, the town of Grootfontein is the shipping point for timber products from the Kavango East and West regions. All these economic activities in and around the town make it viable for the proposed 'Local Business' zoned portions.

Given the activities that make up the economy of Grootfontein, urbanisation rates will always be skyrocketing. As people migrate to Grootfontein in search of better living standards and investment opportunities, there will always be a high demand for residential properties. With ±4847 applicants on the housing waiting list, it is evident that there is a need for plots with

residential purposes. The proponent thus intends to subdivide Erven 1000 and 1001, Grootfontein Extension 5 and rezone the portions created from the subdivisions. Portion 23/1000 and Portion RE/1001 (two properties being created in this subdivision) will be rezoned to street, and used as streets, and it is for this reason that Kamau Town Planning and Development Specialists commenced with the Environmental Impact Assessment.

**Public Participation**

Communication with Interested and Affected Parties (I&APs) about the proposed development was facilitated through the following means as outlined in Table 1 below.

| **ACTIVITY** | **APPROACH/PROCESS** |
|---|---|
| Grootfontein Municipality | Submission of the subdivision and rezoning application to the Grootfontein Municipality |
| Identification of I & APs | A database was created for the proposed town planning development and the EIA process |
| Stakeholder meeting | A public meeting on the EIA was held on the **22 September 2023** |
| Newspaper advertisements | Advertisements were placed as follows:<br>- New Era: **29 September 2023 and 6 October 2023**<br>- Confidante: **29 September to 05 October 2023 and 06 October 2023 to 12 October 2023**<br>- Government gazette: **13 October 2023** |
| Site and Council's Board Notice | Concurrent with the placement of the advertisements in the newspapers, notices were placed on the site and the Municipality's notice board. |

Public consultation was carried out according to the Environmental Management Act's EIA Regulations. After the initial notification, the I&APs were given two weeks to submit their comments on the project (until **26 October 2023**).

**Conclusions and Recommendations**

None of the negative planning and design, construction or operational phase impacts were deemed to have a high significant impact on the environment. The impacts were assessed to a Medium to Low (negative) significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a Low (negative). The social impact was assessed to have Medium (positive) impact associated with possible job opportunities during construction and operation.

It is recommended that this project be authorised because should the development not proceed the subject erven will remain undeveloped and underutilised. This would result in no additional erven being developed. None of the positive or negative impacts from the proposed development would be realised.

The “no go” alternative was thus deemed to have a High (negative) impact, as all the benefits resulting from the development would not be realised.

The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of the EMP should be included as a condition of approval.

**Table of Contents**

**List of Tables**



**List of Figures**

**List of Acronyms**

| | |
|---|---|
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **CRR** | Comments and response report |
| **dB** | Decibels |
| **DESR** | Draft Environmental Scoping Report |
| **EA** | Environmental Assessment |
| **EAP** | Environmental Assessment Practitioner |
| **EAR** | Environmental Assessment Report |
| **ECC** | Environmental Clearance Certificate |
| **ECO** | Environmental Control Officer |
| **EIA** | Environmental Impact Assessment |
| **EMA** | Environmental Management Act |
| **EMP** | Environmental Management Plan |
| **FESR** | Final Environmental Scoping Report |
| **GTZ** | Gesellschaft für Technische Zusammenarbeit |
| **HIV** | Human Immunodeficiency Virus |
| **I&AP** | Interested and Affected Party |
| **IUCN** | International Union for Conservation of Nature |
| **MEFT** | Ministry of Environment, Forestry and Tourism |
| **MEFT: DEAF** | Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry |
| **MURD** | Ministry of Urban and Rural Development |
| **MWTC** | Ministry of Works Transport and Communication |
| **NAMPAB** | Namibia Planning Advisory Board |
| **NPC** | Namibia Planning Commission |
| **PPP** | Public Participation Process |
| **SADC** | Southern African Development Community |
| **USAID** | United States Agency for International Development |

# 1. Introduction

## 1.1. Project Background

Kamau Town Planning and Development Specialist (KTPDS), on behalf of Mr. Gerson Kandjambanga, as the rightful owner of Erf 1000 and Erf 1001 Extension 5 Grootfontein (T353/2021 & T3606/2022 respectively), has been appointed as the Environmental Assessment Practitioner (EAP) to conduct an Environmental Impact Assessment for the following:

- **Subdivision of Erf 1000 Extension 5, Grootfontein Into 26 Portions and the Remainder Street of Erf 1000**
- **Rezoning of Portions 1-13 and 24 (of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 14-23 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portions 25,26, and Re/1000 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to Street**
- **Subdivision of Erf 1001 Extension 5, Grootfontein into 23 Portions and the Remainder of Erf 1001**
- **Rezoning of Portions 1, 11-22 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 2-10 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portion 23 and the Remainder of Erf 1001 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to Street**

The above development triggers listed activities in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in Table 1 were triggered by the proposed project:

| **Activity description and No(s):** | **Description of relevant activity** | **The portion of the development as per the project description that relates to the applicable listed activity** |
|---|---|---|
| Activity 10.1 (b) Infrastructure | The construction of Public roads | The proposed project includes the construction of a public road. |
| Activity 10.2 (a) Infrastructure | The route determination of roads and design of associated physical infrastructure where – it is a public road | The proposed project includes the construction of a public road. |

**Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed**

The above activities will be discussed in more detail in Chapter 4. The proponent appointed Kamau Town Planning and Development Specialists to undertake an independent

Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEAF).

The process will be undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) and the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EIA process will investigate if there are any potential significant bio-physical and socio-economic impacts associated with the intended activities. The EIA process would also serve to provide an opportunity for the public and key stakeholders to provide comments and participate in the process.

### 1.2. Project Location

Erf 1000 and 1001 Extension 5 Grootfontein are located south-west from the CBD of Grootfontein town, as depicted in the figure below.


**Figure 1: Locality of Grootfontein (Source: Google Maps)**

### 1.3. Terms of Reference and Scope of Project

The scope of this project is limited to conducting an environmental impact assessment and applying for an Environmental Clearance Certificate for the street creation involved in this project as indicated in section 1.1 above.

### 1.4 Assumptions and Limitations

In undertaking this investigation and compiling the Environmental Scoping Report, the following assumptions and limitations apply:

- Assumes the information provided by the proponent is accurate and discloses all information available.

- The limitation that no alternative except for the preferred layout plans and the 'no-go' option was considered during this assessment. The unique character and appeal of Grootfontein was however taken into consideration with the design perspective. Various layout alternatives were initially considered by the proponent, also taking terrain and environmental constraints into account, thus the current design plans being the most feasible result.

### 1.5. Content of Environmental Assessment Report

Section 8 of the gazetted EIA Regulations requires specific content to be addressed in a Scoping / Environmental Assessment Report. Table 2 below is an extract from the EMA and highlights the required contents of a Scoping / Environmental Assessment Report whilst assisting the reader to find the relevant section in the report.

| Section | Description | Section of FESR |
|---|---|---|
| 8 (a) | The curriculum vitae of the EAPs who prepared the report; | Uploaded to the EIA portal |
| 8 (b) | A description of the proposed activity; | Refer to Chapter 4 |
| 8 (c) | A description of the site on which the activity is to be undertaken and the location of the activity on the site; | Refer to Chapter 3 |
| 8 (d) | A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity; | Refer to Chapter 3 |
| 8 (e) | An identification of laws and guidelines that have been considered in the preparation of the scoping report; | Refer to Chapter 2 |
| 8 (f) | Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including | Refer to Chapter 5 |
| | (i) the steps that were taken to notify potentially interested and affected parties of the proposed application | Refer to Chapter 5 |
| | (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; | Uploaded to the EIA portal |
| | (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; | Uploaded to the EIA portal |
| | (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues; | Uploaded to the EIA portal |
| 8 (g) | A description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and | Refer to Chapter 4 |

| Section | Description | Section of FESR |
|---|---|---|
| | disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity; | |
| 8 (h) | A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity; | Refer to Chapter 7 |
| 8 (i) | terms of reference for the detailed assessment; | NB – Assessment of impacts are included in this EA Report |
| 8 (j) | An environmental management plan | Uploaded to the EIA portal |

**Table 2: Contents of the Scoping / Environmental Assessment Report**

## 2. Legal Framework

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. Table 3 below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

| Legislation/Policy | Relevant Provision | Relevance to Project |
|---|---|---|
| The Constitution of the Republic of Namibia as Amended | Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia."<br><br>Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources. | Sustainable development should be at the forefront of this development. |
| Environmental Management Act No. 7 of 2007 (EMA) | Section 2 outlines the objective of the Act and the means to achieve that.<br><br>Section 3 details the principle of Environmental Management | The development should be informed by the EMA. |
| EIA Regulations GN 28, 29, and 30 of EMA (2012) | GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.<br><br>GN 30 provides the regulations governing the environmental assessment (EA) process. | The following listed activities are triggered by the proposed development:<br><br>Activity 5.1 (d) (Land Use and Development)<br>Activity 8.8 (Water resource developments)<br>Activity 10.1 (a) Infrastructure<br>Activity 10.1 (b) Infrastructure<br>Activity 10.2 (a) Infrastructure |
| Convention on Biological Diversity (1992) | Article 1 lists the conservation of biological diversity amongst the objectives of the convention. | The project should consider the impact it will have on the biodiversity of the area. |
| Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008) | Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process. | The EA process should incorporate the aspects outlined in the guidelines. |
| Namibia Vision 2030 | Vision 2030 states that the solitude, silence, and natural beauty that many areas in Namibia provide are becoming | Care should be taken that the development does not lead to the degradation of the natural beauty of the area. |

| Legislation/Policy | Relevant Provision | Relevance to Project |
|---|---|---|
| | sought after commodities and must be regarded as valuable natural assets. | |
| Water Act No. 54 of 1956 | Section 23(1) deals with the prohibition of pollution of underground and surface water bodies. | The pollution of water resources should be avoided during construction and operation of the development. |
| The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS | MEFT has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments. | The proponent and its contractor must adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities. |
| Township and Division of Land Ordinance 11 of 1963 | The Townships and Division of Land Ordinance regulates subdivisions of portions of land falling within a Local Authority area. | In terms of Section 19 such applications are to be submitted to NAMPAB and Townships Board respectively. |
| Local Authorities Act No. 23 of 1992 | The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council. | The development must comply with provisions of the Local Authorities Act. |
| Labour Act no. 11 of 2007 | Chapter 2 details the fundamental rights and protections.<br><br>Chapter 3 deals with the basic conditions of employment. | Given the employment opportunities presented by the development, compliance with the labour law is essential. |
| National Heritage Act No. 27 of 2004 | The Act is aimed at protecting, conserving and registering places and objects of heritage significance. | All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated. |
| Roads Ordinance 17 of 1972 | • Section 3.1 deals with width of proclaimed roads and road reserve boundaries<br>• Section 27.1 is concerned with the control of traffic on urban trunk and main roads | Adhere to all applicable provisions of the Roads Ordinance. |

| Legislation/Policy | Relevant Provision | Relevance to Project |
|---|---|---|
| | • Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads<br>• Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads. | |
| Public and Environmental Health Act of 2015 | This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979). | Contractors and users of the proposed development are to comply with these legal requirements. |
| Nature Conservation Ordinance no. 4 of 1975 | Chapter 6 provides for legislation regarding the protection of indigenous plants. | Indigenous and protected plants must be managed within the legal confines. |
| Water Quality Guidelines for Drinking Water and Wastewater Treatment | Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment | These guidelines are to be applied when dealing with water and waste treatment. |
| Environmental Assessment Policy of Namibia (1995) | The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components. | This EIA considers this term of Environment |

| Legislation/Policy | Relevant Provision | Relevance to Project |
|---|---|---|
| Water Resources Management Act No. 11 of 2013 | Part 12 deals with the control and protection of groundwater<br><br>Part 13 deals with water pollution control | The pollution of water resources should be avoided during construction and operation of the development. Should water need to be abstracted, a water abstraction permit will be required from the Ministry of Water, Agriculture and Forestry. |
| Forest Act 12 of 2001 and Forest Regulations of 2015 | To provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires; to repeal the Preservation of Bees and Honey Proclamation, 1923 (Proclamation No. 1of 1923), Preservation of Trees and Forests Ordinance, 1952 (Ordinance No. 37 of 1952) and the Forest Act, 1968 (Act No. 72 of 1968); and to deal with incidental matters. | Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may not be removed without a permit from the Department of Forestry. |
| Atmospheric Pollution Prevention Ordinance No 45 of 1965 | Part II - control of noxious or offensive gases,<br>Part III - atmospheric pollution by smoke,<br>Part IV - dust control, and<br>Part V - air pollution by fumes emitted by vehicles. | The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed). |
| Hazardous Substance Ordinance 14 of 1974 | To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the | The handling, usage and storage of hazardous substances on site should be carefully controlled according to this Ordinance. |

| Legislation/Policy | Relevant Provision | Relevance to Project |
|---|---|---|
| | importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith. | |
| Soil Conservation Act No 76 of 1969 | Act to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources. | The proposed activity should ensure that soil erosion and soil pollution is avoided during construction and operation. |

**Table 3: Legislation applicable to the proposed development**

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to Figure 2 below) provides an outline of the EIA process to be followed.

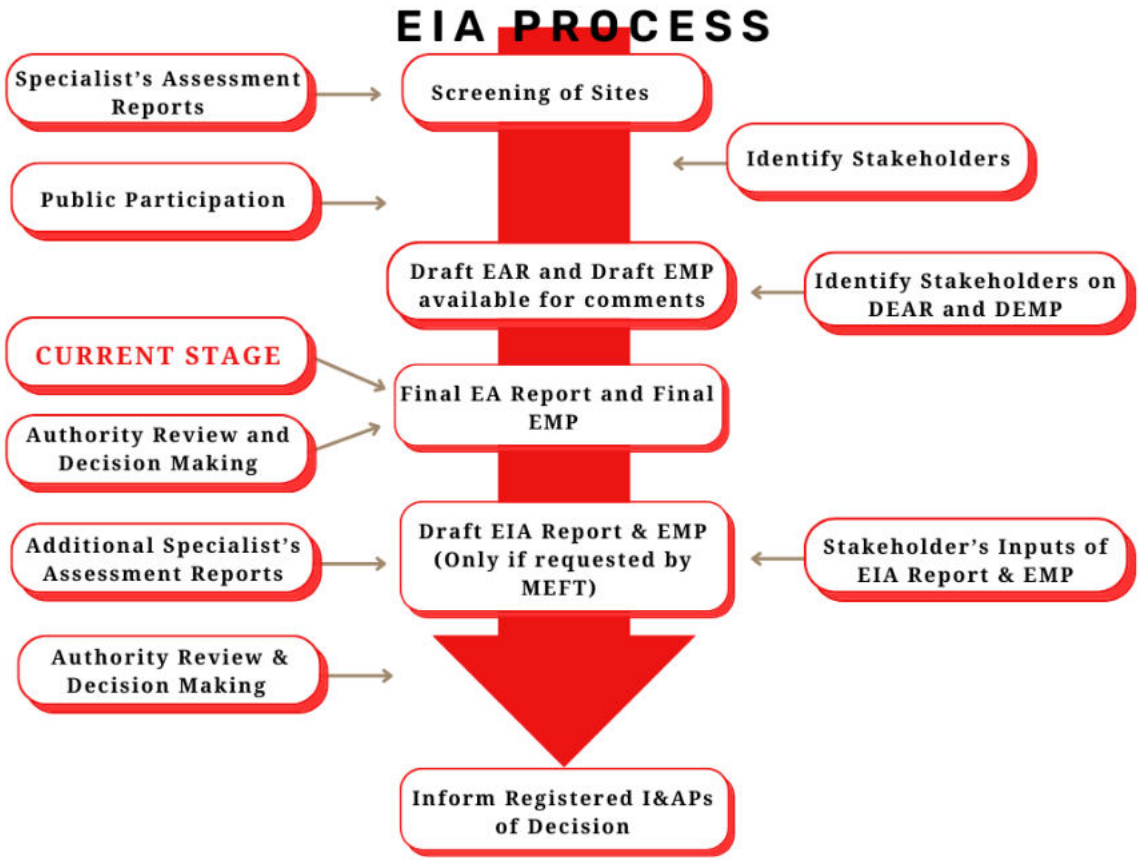


**Figure 2: EIA flow Diagram**

## 3. Environmental Baseline Description

### 3.1. Social Environment

#### 3.1.1. Socio-Economic Context

The statistics shown in Table 4 below are derived from the 2023 Namibia Population and Housing Census (Namibia Statistics Agency, 2024), and presented from a local and regional perspective.

| GROOTFONTEIN CONSTITUENCY | |
|---|---|
| **ATTRIBUTE** | **INDICATOR** |
| **Population** | 36 951 |
| **Females** | 18 246 |
| **Males** | 18 705 |
| **Female: male ratio** | 100:102.5 |
| **OTJOZONDJUPA REGION** | |
| **ATTRIBUTE** | **INDICATOR** |
| **Population** | 220 811 |
| **Females** | 107 531 |
| **Males** | 113 280 |
| **Female: male ratio** | 100:105.3 |

**Table 4: Statistics of the Grootfontein Constituency and Otjozondjupa Region (Namibia Statistics Agency, 2024)**

#### 3.1.2 Archaeological and Heritage Context

No archaeological and heritage sites are known to be located within the proposed development area.

### 3.2. Bio-Physical Environment

#### 3.2.1 Climate

a) Topography and Drainage

The Otjozondupa region's general geography is flat, with a few geographical extremes, such as the Omatako Mountains located 90km south of Okahandja. The elevations in the region varies from 1400m to 1600m. Grootfontein is located at 1415 meters above sea level.

b) Rainfall

The average annual rainfall in the region is ranges between 550 and 600 mm.

c) Temperature

The average annual temperature in the area ranges between 20 and 21 degrees Celsius. Summer temperatures are forecast to reach 30°C, while winter temperatures range from 5 to 18°C.

d) Wind

The major wind direction in the area is the easterly winds.

e) Precipitation

There are a lot of high storms recorded between October and April.

f) Vegetation

The location is part of the Tree and shrub savanna biome, which is known for its Karstveld-like vegetation. Mixed Woodland is the plant structure type that develops mostly on the Mollic Leptosols soil found in the area.

g) Hydrogeology

The town depends on the Groofontein-Otavi acquifer for its domestic, agricultural and industrial use. Factors such as population increase, and climate change have a negative effect on water availability for domestic and agricultural use and hence the application of national, regional and local policies on water management.

h) Biodiversity

- Flora

The town is well known for its flamboyant trees including the jacaranda tree.

- Fauna

There are no animals that are observed in the subject area and immediate surrounding site.

i) Noise

Existing noise sources within and around the project site include:

- natural sounds from wind, animals, and birds;
- vehicle movement on the adjacent street road;

j) Heritage

No visible archaeological artefacts or heritage sites were noted in the proposed project development area Grootfontein Municipality raise any such concerns.

## 4. Project Description

### 4.1. Project Components

As outlined in Section 1.1, the proposed project involves the following activities:

- **Subdivision of Erf 1000 Extension 5, Grootfontein Into 26 Portions and the Remainder Street of Erf 1000**
- **Rezoning of Portions 1-13 and 24 (of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 14-23 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portions 25,26, and Re/1000 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to Street**
- **Subdivision of Erf 1001 Extension 5, Grootfontein into 23 Portions and the Remainder of Erf 1001**
- **Rezoning of Portions 1, 11-22 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'**
- **Rezoning of Portions 2-10 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Residential 1'**
- **Rezoning of Portion 23 and the Remainder of Erf 1001 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to Street**

These components will be described in further detail below, in terms of their design, layout and footprint.

### 4.2 Alternatives

As pointed out in Section 1.4 above various layout alternatives were initially considered by the proponent, ultimately resulting in the final layouts. Alternatives are defined as: "different means of meeting the general purpose and requirements of the activity" (Environmental Management Act (Act 7 of 2007) of Namibia and its regulations (2012)). This chapter will highlight the different ways in which the project can be undertaken and identify the alternative that will be the most practical but least damaging to the environment.

#### 4.2.1 No-Go Alternatives

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the existing land would remain undeveloped. Thus, none of the positive or negative impacts associated with the intended development would realise.

### 4.3 The Proposed Development

Erf 1000 and Erf 1001 are currently zoned as 'Industrial 1'. According to the Grootfontein Zoning Scheme, the primary uses of 'Industrial 1' zoning include Industrial, Scrap Yard, Warehouse, Building Yard, Light Industrial, Place Of Entertainment, Truck Port, Public Garage,

Service Station and safari Undertaking, SME. While consent uses may include Business Building, Place of Instruction, Gambling House, Noxious Industry, Panel Beating, Place of Assembly. There erven currently lie vacant.

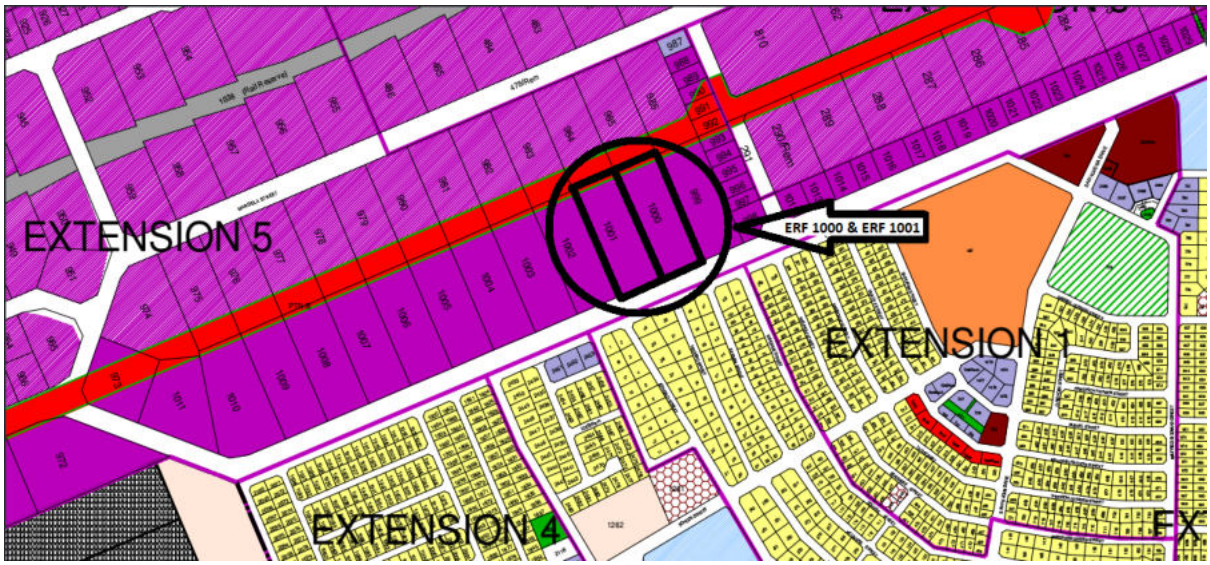


**Figure 3: Erf 1000 & Erf 1001 Extension 5 Current Land Use Zoning, and their Immediate Surrounding**

### 4.3.1 Development Description

Grootfontein is the economic centre to surrounding ore mines, cattle and land cultivating farms. The town of Grootfontein is also a very famous tourist destination because of the then old fort military post. The town also boasts of favourable climate with sufficient rain for land cultivation and cattle breeding. Farmers around the town mostly farm with cattle, maize, peanuts, cotton, sunflower and sorghum. Further on, the town of Grootfontein is the shipping point for timber products from the Kavango East and West regions. All these economic activities in and around the town make it viable for the proposed 'Local Business' zoned portions.

Given the activities that make up the economy of Grootfontein, urbanisation rates will always be skyrocketing. As people migrate to Grootfontein in search of better living standards and investment opportunities, there will always be a high demand for residential properties. With ±4847 applicants on the housing waiting list, it is evident that there is a need for plots with residential purposes, it is for these reasons that Kamau Town Planning and Development Specialists lodged the subject application, and commenced with the Environmental Impact Assessment.

### 4.3.2 Subdivision of Erf 1000 Extension 5, Grootfontein into 26 Portions and the Remainder Street of Erf 1000

Erf 1000 was subdivided into 26 Portions and the Remainder (street). The owner of the erven intends to develop dwelling units on some (Portions 14-23) of the erven and to use the rest (Portions 1-13 and 24) for business purposes while Portions 25, 26 and the remainder of Erf 1000 will be reserved for streets. Hence, the need to rezone the respective properties from 'Industrial 1' to 'Residential', 'Local Business' and 'Street' to ensure alignment of the desired

land use (residential and local business use) with the Grootfontein Zoning Scheme and to simultaneously subdivide the Erf into 26 portions and the remainder reserved for street measuring 12 meters in width.

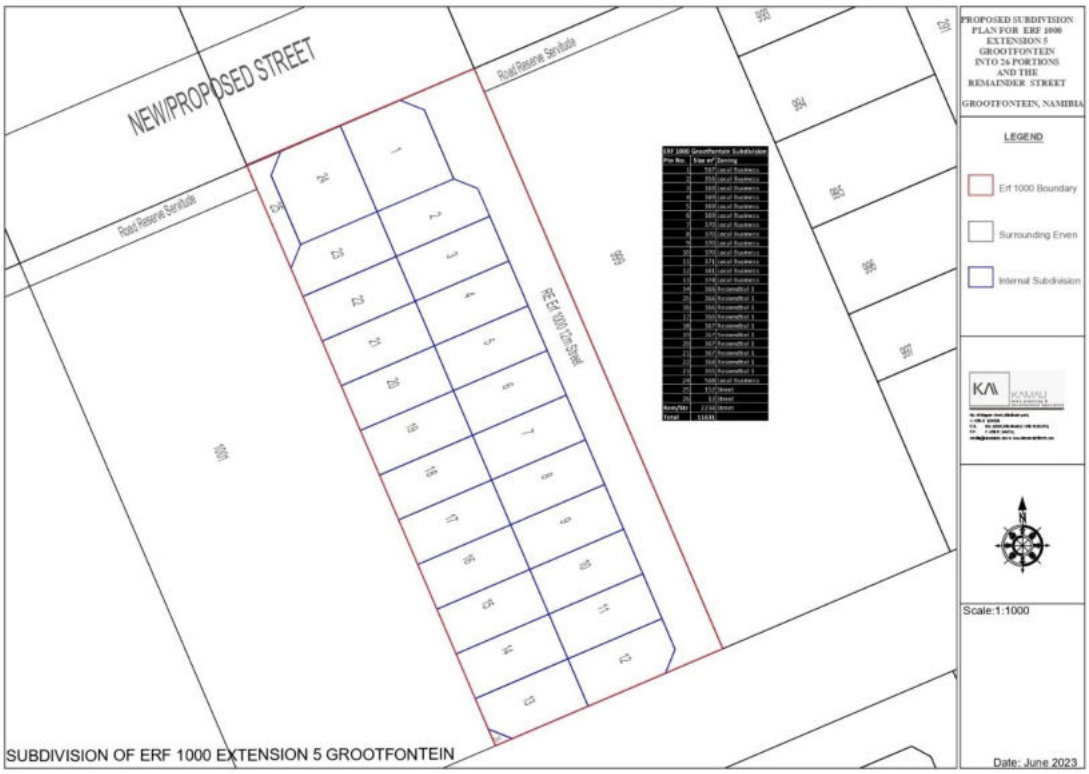

**Figure 4: Proposed Subdivision Plan of Erf 1000, (Kamau TPDS 2023)**

The proposed erf sizes range between 355m$^2$ and 568m$^2$ and a Remainder of 2403m$^2$ for street to provide access to the individual portions as indicated in Table 1 below. Although currently bordered by industrial zoned properties to the west, eastern and northern sides of the erf, the proposed residential land uses are compatible with the land uses to the south of the erf. The erven sizes assigned to the proposed erven are in line with the Ministry of Urban and Regional Development(s) Town Planning Standards and Urban Design Guidelines for Principle Layout Plans, they are comparable with the sizes of the residential erven to the south of the erf and do offer choice to prospective buyers of different income levels.

| ERF 1000 Extension 5 Grootfontein | | |
|---|---|---|
| **Portion No.** | **Size m²** | **Zoning** |
| 1 | 567 | Local Business |
| 2 | 356 | Local Business |
| 3 | 369 | Local Business |
| 4 | 369 | Local Business |
| 5 | 369 | Local Business |
| 6 | 369 | Local Business |
| 7 | 370 | Local Business |
| 8 | 370 | Local Business |
| 9 | 370 | Local Business |
| 10 | 370 | Local Business |
| 11 | 370 | Local Business |

| | | |
|---|---|---|
| 12 | 381 | Local Business |
| 13 | 374 | Local Business |
| 14 | 366 | Residential 1 |
| 15 | 366 | Residential 1 |
| 16 | 366 | Residential 1 |
| 17 | 366 | Residential 1 |
| 18 | 367 | Residential 1 |
| 19 | 367 | Residential 1 |
| 20 | 367 | Residential 1 |
| 21 | 367 | Residential 1 |
| 22 | 368 | Residential 1 |
| 23 | 355 | Residential 1 |
| 24 | 568 | Local Business |
| 25 | 152 | Street |
| 26 | 13 | Street |
| RE/Str | 2238 | |
| Total | 11631 | |

**Table 5: Portion sizes for Erf 1000 Extension 5 Grootfontein Subdivision**

### 4.3.3 Subdivision of Erf 1001 Extension 5, Grootfontein into 23 Portions and the Remainder of Erf 1001

Erf 1001 was subdivided into 23 Portions and the Remainder. The owner of the erven intends to develop dwelling units on some (Portions 2-10) and to use the rest (Portions 1,11-22 and) for business purposes and to reserve Erf 23 and the remainder for street. Hence, the need to rezone the respective properties from 'Industrial 1' to 'Residential 1', 'Local Business' and street to ensure alignment of the desired land use (residential and local business use) with the Grootfontein Zoning Scheme and to simultaneously subdivide the Erf into 23 portions and the remainder reserved for street measuring 12 meters in width.


**Figure 5: Subdivision Plan of Erf 1001, Grootfontein, (Kamau TPDS 2023)**

The proposed erf sizes range between 301m$^2$ and 323m$^2$ and a Remainder of 4230m$^2$ for street to provide access to the individual portions as indicated in Table 2 below. Although currently bordered by industrial zoned properties to the west, eastern and northern sides of the erf, the proposed land uses are compatible with the land uses to the south of the erf. The erven sizes assigned to the proposed erven are in line with the Ministry of Urban and Regional Development(s) Town Planning Standards and Urban Design Guidelines for Principle Layout Plans, they are comparable with the sizes of the residential erven to the south of the erf and do offer choice to prospective buyers of different income levels.

| ERF 1001 Extension 5 Grootfontein | | |
|---|---|---|
| **Portion No.** | **Size m²** | **Zoning** |
| 1 | 303 | Local Business |
| 2 | 301 | Local Business |
| 3 | 307 | Local Business |
| 4 | 315 | Local Business |
| 5 | 315 | Local Business |
| 6 | 315 | Local Business |
| 7 | 315 | Local Business |
| 8 | 315 | Local Business |
| 9 | 315 | Local Business |
| 10 | 315 | Local Business |
| 11 | 303 | Residential 1 |
| 12 | 309 | Residential 1 |
| 13 | 323 | Residential 1 |
| 14 | 323 | Residential 1 |
| 15 | 323 | Residential 1 |
| 16 | 323 | Residential 1 |
| 17 | 323 | Residential 1 |
| 18 | 323 | Residential 1 |
| 19 | 323 | Residential 1 |
| 20 | 323 | Residential 1 |
| 21 | 308 | Residential 1 |
| 22 | 312 | Residential 1 |
| 23 | 2114 | Street |
| RE/Str | 2116 | Street |
| Total | 11627 | |

**Table 6: Portion sizes of Erf 1001 Extension 5 Grootfontein Subdivision**

### 4.3.4 Proposed Zonings and Land Uses

The owner intends to rezone the properties to 'Local Business', 'Residential 1' and reserve for streets.

a) Portions 1-26 and the Re/ 1000 (Erf 1000)

i. Rezoning Of Portions 1-13 and 24 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'

According to the Grootfontein Town Planning Scheme, the primary uses of the local business zoning include business building, dwelling unit & units above ground floor, safari undertakings, shops, offices, bed and breakfast, guest house and home-based shop. While the consent uses may include, day care centres, self-catering apartments, guest house, place of assembly and shebeen.

ii. Rezoning Of Portions 14-23 (Of Erf 1000), Extension 5 Grootfontein From 'Industrial 1' to 'Residential'

The primary uses of the residential 1 zoning include dwelling unit/s and consent may be obtained for place of instruction, heritage use, day care centre, guest house, backpackers' accommodation, rest camp, self-catering apartments and the owner may obtain approval for resident occupation or for a home based business.

iii. Rezoning of Portions 25, 26 And the Re/1000 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to Street

Portions 25, 26 and the remainder are reserved for street measuring 12 meters in width.

The figure below presents the proposed zonings for the proposed erven as described above.

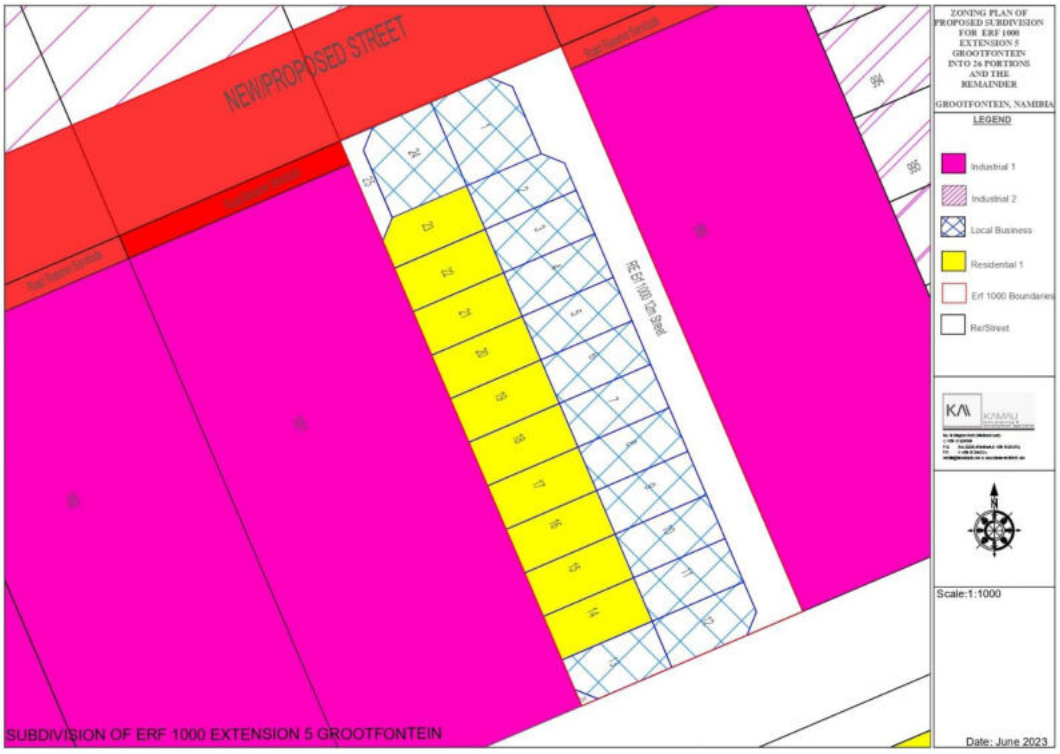


**Figure 6: Proposed Zoning Plan of Erf 1000, Extension 5, Grootfontein (Kamau TPDS 2023)**

b) Portion 1-23 the Re/1001 (Erf 1001)

i. Rezoning of Portions 1, 11-22 (of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'

According to the Grootfontein Town Planning Scheme, the primary uses of the local business zoning include business building, dwelling unit & units above ground floor, safari undertakings, shops, offices, bed and breakfast, guest house and home-based shop. While the consent uses may include, day care centres, self-catering apartments, guest house, place of assembly and shebeen.

ii. Rezoning of Portions 2-10 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Residential'

The primary uses of the residential 1 zoning include dwelling unit/s and consent may be obtained for place of instruction, heritage use, day care centre, guest house, backpackers' accommodation, rest camp, self-catering apartments and the owner may obtain approval for resident occupation or for a home-based business.

iii. Rezoning of Portion 23 and the Remainder of Erf 1001 (of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to Street

Portion 23 and the Remainder of Erf 1001 is reserved for street measuring 12 meters in width.

The figure below presents the proposed zonings for the proposed erven as described above.

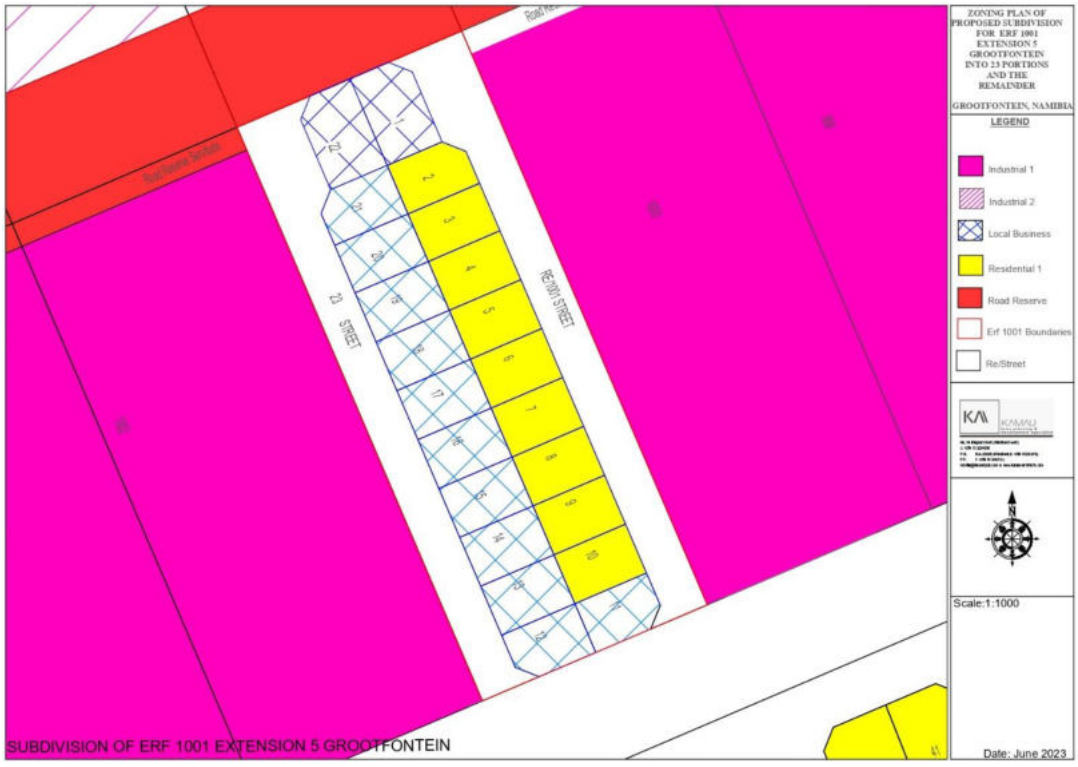


**Figure 7: Proposed Zoning Plan (Kamau TPDS 2023)**

## 5. Public Participation Process

### 5.1 Public Participation Requirements

In terms of Section 21 of the EIA Regulations a call for open consultation with all I&APs at defined stages of the EIA process is required. This entails participatory consultation with members of the public by providing an opportunity to comment on the proposed project. Public Participation has thus incorporated the requirements of Namibia's legislation, but also takes account of international guidelines, including Southern African Development Community (SADC) guidelines and the Namibian EIA Regulations. Public participation in this project has been undertaken to meet the specific requirements in accordance with the international best practice. Please see Table 7 below for the activities undertaken as part of the public participation process.

| **ACTIVITY** | **APPROACH/PROCESS** |
|---|---|
| Grootfontein Municipality | Submission of the subdivision and rezoning application to the Grootfontein Municipality |
| Identification of I & APs | A database was created for the proposed town planning development and the EIA process |
| Stakeholder meeting | A public meeting on the EIA was held on the **22 September 2023** |
| Newspaper advertisements | Advertisements were placed as follows:<br>- New Era: **29 September 2023 and 6 October 2023**<br>- Confidante: **29 September to 05 October 2023 and 06 October 2023 to 12 October 2023**<br>- Government gazette: **13 October 2023** |
| Site and Council's Board Notice | Concurrent with the placement of the advertisements in the newspapers, notices were placed on the site and the Municipality's notice board. |

**Table 7: Table of Public Participation Activities**

The closing date for comments was **26 October 2023**.

## 6. Assessment Methodology

### 6.1 Introduction

The purpose of this chapter is to describe the assessment methodology utilised in determining the significance of the construction and operational impacts of the proposed project, and where applicable the possible alternatives, on the biophysical and socio-economic environment.

### 6.2 Impact Assessment Criteria

Assessment of predicted significance of impacts for a proposed development is by its nature, inherently uncertain – environmental assessment is thus an imprecise science. To deal with such uncertainty in a comparable manner, a standardised and internationally recognised methodology has been developed. Such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in Table 8.

| **CRITERIA** | **CATEGORY** |
|---|---|
| **Impact** | Description of the expected impact |
| **Nature**<br><br>Describe type of effect | **Positive:** The activity will have a social / economical / environmental benefit.<br><br>**Neutral:** The activity will have no effect<br><br>**Negative:** The activity will have a social / economical / environmental harmful effect |
| **Extent**<br><br>Describe the scale of the impact | **Site Specific:** Expanding only as far as the activity itself (onsite)<br><br>**Small:** restricted to the site's immediate environment within 1 km of the site (limited)<br><br>**Medium:** Within 5 km of the site (local)<br><br>**Large:** Beyond 5 km of the site (regional) |
| **Duration**<br><br>Predicts the lifetime of the impact. | **Temporary:** < 1 year (not including construction)<br><br>**Short-term:** 1 – 5 years Medium term: 5 – 15 years<br><br>**Long-term:** >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference)<br><br>**Permanent:** Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary |

| | |
|---|---|
| **Intensity**<br><br>Describe the magnitude (scale/size) of the Impact | **Zero:** Social and/or natural functions and/ or processes remain unaltered<br><br>**Very low:** Affects the environment in such a way that natural and/or social functions/processes are not affected<br><br>**Low:** Natural and/or social functions/processes are slightly altered<br><br>**Medium:** Natural and/or social functions/processes are notably altered in a modified way<br><br>**High:** Natural and/or social functions/processes are severely altered and may temporarily or permanently cease |
| **Probability of occurrence**<br><br>Describe the probability of the Impact actually occurring | **Improbable:** Not at all likely<br><br>**Probable:** Distinctive possibility<br><br>**Highly probable:** Most likely to happen<br><br>**Definite:** Impact will occur regardless of any prevention measures |
| **Degree of Confidence in predictions**<br><br>State the degree of confidence in predictions based on availability of information and specialist knowledge | **Unsure/Low:** Little confidence regarding information available (<40%)<br><br>**Probable/Med:** Moderate confidence regarding information available (40-80%)<br><br>**Definite/High:** Great confidence regarding information available (>80%) |
| **Significance Rating**<br><br>The impact on each component is determined by a combination of the above criteria. | **Neutral:** A potential concern which was found to have no impact when evaluated<br><br>**Very low:** Impacts will be site specific and temporary with no mitigation necessary.<br><br>**Low:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures<br><br>**Medium:** Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project |

| | |
|---|---|
| | design or implementation of effective mitigation measures.<br><br>**High:** Impacts have a high magnitude and will be experienced regionally for at least the life span of the development or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented. |

**Table 8: Impact Assessment Criteria**

**NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified, and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.*
*For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision as to which combination of alternatives and mitigation measures to apply lies with the proponent, and their acceptance and approval ultimately with the relevant environmental authority.*
*The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e. the character and identity of the receptor of the impact.*

### 6.3 Mitigation Measures

There is a mitigation hierarchy of actions which can be undertaken to respond to any proposed project or activity. These cover avoidance, minimisation, restoration and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are included in the proposed activity or project. If negative impacts occur, then the hierarchy indicates the following steps.

**Impact avoidance:** This step is most effective when applied at an early stage of project planning. It can be achieved by:

- not undertaking certain projects or elements that could result in adverse impacts;
- avoiding areas that are environmentally sensitive; and
- putting in place preventative measures to stop adverse impacts from occurring.

Impact minimisation: This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- scaling down or relocating the proposal;
- redesigning elements of the project; and
- taking supplementary measures to manage the impacts.

**Restoration:** This step is taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Restoration tries to

return an area to the original ecosystem that occurred before impacts. Restoration is frequently needed towards the end of a project's life-cycle but may be possible in some areas during operation.

**Impact compensation:** This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- rehabilitation of the affected site or environment, for example, by habitat enhancement;
- restoration of the affected site or environment to its previous state or better; and
- replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

## 7. Assessment of Potential Impacts and Possible Mitigation Measures

### 7.1 Introduction

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 4. These include potential impacts, which may arise during the operation of the proposed development (i.e. long-term impacts) as well as the potential construction related impacts (i.e. short to medium term). The assessment of potential impacts will help to inform and confirm the selection of the preferred layouts to be submitted to MEFT: DEAF for consideration. In turn, MEFT: DEAF's decision on the environmental acceptability of the proposed project and the setting of conditions of authorisation (should the project be authorised) will be informed by this chapter, amongst other information, contained in this EA Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with potential mitigation measures recommended. Finally, comment is provided on the potential cumulative impacts which could result should this development, and others like it in the area, be approved.

### 7.2 Planning and Design Phase Impacts

During the planning and design phase consideration should be given on aspects such as impacts of existing municipal infrastructure and biodiversity.

#### 7.2.1 Existing Service Infrastructure Impacts

The subject area is expected to be connected to the existing municipal reticulation services of the town. The area is located in close proximity to the existing services and thus connections are not expected to be difficult. Increased installation of these services will place an additional load on the existing reticulation services of the town. It will thus have to be investigated by an engineer whether the existing services would be sufficient for the additional number of portions to the increased demand which is expected.

#### 7.2.2 Flora and Fauna (Biodiversity)

There are a few trees located on the subject erf. The trees located on the subject site should be accommodated in the proposed use for the erf. Trees protected under the Forestry Act 12 of 2001 should be protected within the development and may not be removed without a permit from the local Department of Forestry.

It is anticipated that the proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would have localised negative implications on the environment and associated fauna and flora should the proposed mitigation measures as outlined in the EMP be enforced.

### 7.3 Construction Phase Impacts on the Biophysical Environment

The construction phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the construction phase. These impacts are inherently temporary in duration but may have longer lasting effects.

#### 7.3.1 Flora and Fauna Impacts (Biodiversity)

Trees protected under the Forestry Act 12 of 2001 should be protected especially during site clearance for the proposed development. The trees located on the subject site should be accommodated in the layout and proposed use for the erf as far as possible. Trees to be protected should be marked with danger tape or paint to ensure that they are not removed during the construction activities.

It is anticipated that the proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would have localised negative implications on the environment and associated fauna and flora should the proposed mitigation measures as outlined in the EMP be enforced.

#### 7.3.2 Surface and Ground Water Impacts

Surface and groundwater impacts may be encountered during the construction and operation phase, especially if development takes place within the rainy season. The risk of contaminating such water sources can be increased by accidental spillage of oils and fuels and any other equipment used during construction. This risk is minimised by the fact that the construction phase will be a short-term activity.

#### 7.3.3 Soil Erosion Impacts

Given the characteristics of the proposed site, soil erosion is likely to be encountered especially if construction will take place during the rainy season, the removal of vegetation will render the soil vulnerable to erosion as they also serve the purpose of keeping the soils compacted.

### 7.4 Construction Phase Impacts on the Socio-Economic Environment

#### 7.4.1 Heritage Impacts

No archaeological and heritage resources are expected to be found on the site. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds.

#### 7.4.2 Health, Safety and Security Impacts

Working conditions on site need to ensure that the health and safety of construction workers are ensured at all times. The use of local labour during construction is strongly encouraged so as to reduce the need to migrant workforce. Health and Safety requirements need to comply

with the Labour Act No. 11 of 2007, local and international health and safety legislation and standards during construction.

### 7.4.3 Traffic Impacts

Traffic is expected to increase slightly during the construction phase of the project in areas where construction will take place. A number of trucks and other heavy machinery will be required to deliver, handle and position construction materials as well as to remove spoil material. Not only will the increase in traffic result in associated noise impacts, but it will also impact on the roads in the area.

### 7.4.4 Noise Impacts

Construction may result in associated noise impacts. These noise impacts will mainly be associated with construction machinery and construction vehicles. The impact is however limited mainly to the construction period only.

### 7.4.5 Dust and Emission Impacts

Excavation and stockpiles during the construction phase could result in dust impacts, if not managed correctly. Dust could impact negatively on the health of the nearby community if mitigation measures are not implemented. Dust impacts are primarily associated with the construction phase.

### 7.4.6 Municipal Services

The construction phase will result in additional people on-site, who will require provision of the following services:

- Potable water for domestic (ablution and drinking) and construction purposes.
- Temporary toilets during the construction phase.
- Solid waste management (domestic and construction waste).

These services if not managed well are likely to create an opportunity for water wastage; litter; solid and human waste pollution.

### 7.4.7 Storage and Utilisation of Hazardous Substances

Hazardous substances are regarded by the Hazardous Substance Ordinance (No. 14 of 1974) as those substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances. During the construction period, the use and storage of these types of hazardous substances, such as shutter oil, curing compounds, types of solvents, primers and adhesives and diesel, on-site could have negative impacts on the surrounding environment if these substances spill and enter the environment.

### 7.5 Operational Phase Impacts

The operational phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the operational phase of the proposed project and are inherently long-term in duration.

#### 7.5.1 Visual Impacts

The subject site is currently mostly undeveloped and as such there may thus be a change in visual characteristics of the site once it becomes developed particularly for those areas which are currently undeveloped. The extent of this disturbance will depend on how highly the interested and affected parties valued the initial aesthetic quality of the site. The change in sense of place is not expected to be significant as the proposed land use for the subject erven is in line with the surrounding land uses of the area.

#### 7.5.2 Noise Impacts

The operational activities may result in associated noise impacts, depending on the exact type of activities taking place on the properties. However due to the nature of the land uses proposed, which is mostly for residential and business use, it is expected that the noise levels will not be significant if managed well.

#### 7.5.3 Emission Impacts

The air quality in the area is considered to be fairly good. Additional emissions are not expected from the land uses that are intended for the site.

#### 7.5.4 Social Impacts

A number of residents from Grootfontein will benefit from employment during construction. Improved livelihoods are also expected for the residents who will be able to buy homes from the portions reserved for “Residential” purposes, and those who will be able to access business amenities, from the portions reserved for “Local Business” purposes.

### 7.6 Cumulative Impacts

The cumulative impact of the proposed developments in regard to the degradation of the project area is very difficult to rate. If all proposed mitigation measures are however in place to minimise the overall impacts, then the cumulative impact can be expected to be rated as Medium-Low (negative) for the proposed developments.

#### 7.6.1 Environmental Management Plan

An Environmental Management Plan (EMP) has been uploaded to the EIA portal, as a part of the Environmental Impact Assessment. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the construction and

decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

### 7.6.2 Summary of Potential Impacts

A summary of all the potential impacts from the proposed project assessed above is included in Table 9 and 10 below. The Tables 11 – 13 provide a summary of the mitigation measures proposed for the impacts. While some difference in magnitude of the potential impacts would result from the proposed alternatives this difference was not considered to be significant for any of the potential impacts. As such, the table below applies to all proposed alternatives.

| ASPECT | IMPACT TYPE | SIGNIFICANCE | |
|---|---|---|---|
| | | UNMITIGATED | MITIGATED |
| Dust | NEG | M | L |
| Noise | NEG | M | L |
| Safety and security | NEG | M | L |
| Traffic | NEG | L | L |
| Nuisance | NEG | L | L |
| Soil Erosion | NEG | M | L |
| Groundwater contamination | NEG | L | L |
| Surface water contamination | NEG | M | L |
| Waste generation | NEG | M | L |
| Cumulative impacts | NEG | M | L |
| Heritage impacts | NEG | L | L |
| Ecological impacts | NEG | L | L |

**Table 9: Potential Impacts during the Proposed Development's Construction Phase**

| IDENTIFIED IMPACT | IMPACT TYPE | SIGNIFICANCE | |
|---|---|---|---|
| | | UNMITIGATED | MITIGATED |
| Spillage | NEG | M | L |
| Fire and explosion hazard | NEG | M | L |

| | | | | |
|---|---|---|---|---|
| Surface water | NEG | | M | L |
| Groundwater | NEG | | M | L |
| Noise | NEG | | L | L |
| Air quality | NEG | | L | L |
| Health and safety | NEG | POS | H | L |
| Traffic | NEG | | M | L |
| Generation of waste | NEG | | L | L |
| Cumulative impacts | NEG | | M | L |
| Ecological impacts | NEG | | M | L |

**Table 10: Potential Impacts during the Proposed Development's Operation Phase**

| PLANNING AND DESIGN PHASE | |
|---|---|
| **Impact** | **Mitigation Measures** |
| **Existing Service Infrastructure** | • It is recommended that the subject area should be connected to the existing services.<br>• An investigation by an engineer is to be done to determine whether the existing services would be sufficient for the additional number of portions. |
| **Flora and Fauna (Biodiversity)** | • Do not clear cut the entire development site, but rather keep the few individual trees/shrubs not directly affecting the developments as part of the landscaping.<br>• Protected trees are not to be removed without a valid permit from the local Department of Forestry |

**Table 11: Proposed mitigation measures for the planning and design phase**

| CONSTRUCTION PHASE IMPACTS | |
|---|---|
| **Impact** | **Mitigation Measures** |
| **Flora and Fauna** | • Adapt the proposed developments to the local environment – e.g. small adjustments to the site layout could avoid potential features such as water bodies and vegetation.<br>• Prevent the destruction of protected and endemic plant species.<br>• Prevent contractors from collecting wood, veld food, etc. during the construction phase.<br>• Do not clear cut the entire development site, but rather keep the few individual trees/shrubs not directly affecting the developments as part of the landscaping.<br>• The plants that are to be kept should be clearly marked with “danger tape” to prevent accidental removal or damage. Regular inspection of the marking tool should be carried out.<br>• Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species. |

| | |
|---|---|
| | • Transplant removed plants where possible, or plant new plants in lieu of those that have been removed.<br>• Prevent the introduction of potentially invasive alien ornamental plant species such as; Lantana, Opuntia, Prosopis, Tecoma, etc.; as part of the landscaping as these species could infest the area further over time.<br>Protected trees are not to be removed without a valid permit from the local Department of Forestry. |
| **Surface and Ground Water Impacts** | • No dumping of waste products of any kind in or in close proximity to surface water bodies.<br>• Heavy construction vehicles should be kept out of any surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks.<br>• Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with.<br>• Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles.<br>• Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies.<br>• All materials on the construction site should be properly stored.<br>• Disposal of waste from the sites should be properly managed and taken to the designated landfill site.<br>• Construction workers should be given ablution facilities at the construction sites that are located at least 30 m away from any surface water and regularly serviced.<br>• Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment these should be done at an area properly suited and prepared to receive and contain polluted waters. |
| **Soil Erosion** | • It is recommended that construction takes place outside of the rainy season in order to limit potential flooding and the runoff of loose soil causing further erosion.<br>• Appropriate erosion control structures must be put in place where soil may be prone to erosion.<br>• Checks must be carried out at regular intervals to identify areas where erosion is occurring.<br>• Appropriate remedial actions are to be undertaken wherever erosion is evident. |
| **Heritage** | • The project management should be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds.<br>• In the event of such finds, construction must stop, and the project management or contractors should notify the National Heritage Council of Namibia immediately. |
| **Health, Safety and Security** | • Construction personnel should not overnight at the site, except the security personnel.<br>• Ensure that all construction personnel are properly trained depending on the nature of their work.<br>• Provide for a first aid kit and a properly trained person to apply first aid when necessary. |

| | |
|---|---|
| | • Restrict unauthorised access to the site and implement access control measures.<br>• Clearly demarcate the construction site boundaries along with signage of "no unauthorised access".<br>• Clearly demarcate dangerous areas and no-go areas on site.<br>• Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures.<br>• The contractor must comply with all applicable occupational health and safety requirements.<br>• The workforce should be provided with all necessary Personal Protective Equipment where appropriate. |
| **Traffic** | • Limit and control the number of access points to the site.<br>• Ensure that road junctions have good sightlines.<br>• Construction vehicles' need to be in a road worthy condition and maintained throughout the construction phase.<br>• Transport the materials in the least number of trips as possible.<br>• Adhere to the speed limit.<br>• Implement traffic control measures where necessary. |
| **Noise** | • No amplified music should be allowed on site.<br>• Inform immediate neighbours of construction activities to commence prior to commencing and provide for continuous communication between the neighbours and contractor.<br>• Limit construction times to acceptable daylight hours.<br>• Install technology such as silencers on construction machinery.<br>• Do not allow the use of horns as a general communication tool but use it only where necessary as a safety measure. |
| **Dust and Emission** | • It is recommended that dust suppressants such as Dustex be applied to all the construction clearing activities to ensure at least 50% control efficiency on all the unpaved roads and reduce water usage.<br>• Construction vehicles to only use designated roads.<br>• During high wind conditions the contractor must make the decision to cease works until the wind has calmed down.<br>• Cover any stockpiles with plastic to minimise windblown dust.<br>• Provide workers with dust masks where necessary. |
| **Waste** | • It is recommended that waste from the temporary toilets be disposed of at an approved Wastewater Treatment Works.<br>• A sufficient number of waste bins should be placed around the site for the soft refuse.<br>• A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site.<br>• Solid waste will be collected and disposed of at an appropriate local landfill or an alternative approved site, in consultation with the local authority. |
| **Hazardous Substances** | • Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater.<br>• Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant. |

**Table 12: Proposed mitigation measures for the construction phase**

| OPERATIONAL PHASE IMPACTS | |
|---|---|
| **Impact** | **Mitigation Measures** |
| **Visual and Sense of Place** | • It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape.<br>• Natural colours and building materials such as wood and stone should be incorporated as well as the use of indigenous vegetation in order to help beautify the development.<br>• Visual pollutants can further be prevented through mitigations (i.e. keep existing trees, introduce tall indigenous trees; keep structures unpainted and minimising large advertising billboards). |
| **Noise** | • Do not allow commercial activities that generate excessive noise levels.<br>• Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits.<br>• No activity having a potential noise impact should be allowed after 18:00 hours if possible. |
| **Emissions** | • Consider tarring of the internal road network.<br>• Manage activities that generate emissions. |
| **Social Impacts** | • No specific mitigation measures are required, only that the local community be consulted in terms of possible job creation opportunities and must be given first priority if unspecialised job vacancies are available. |

**Table 13: Proposed mitigation measures for the operational phase**

## 8. Conclusion

The purpose of this Chapter is to briefly summarise and conclude the EASR and describe the way forward.

### 8.1 Planning and Design Phase Impacts

None of the negative planning and design phase impacts were deemed to have a high significant impact on the environment. The construction impacts were assessed to a Medium to Low (negative) significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the planning and design phase impacts is likely to be reduced to a Low (negative).

### 8.2 Construction Phase Impacts

None of the negative construction phase impacts were deemed to have a high significant impact on the environment. The construction impacts were assessed to a Medium to Low (negative) significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a Low (negative).

### 8.3 Operational Phase

None of the negative operational phase impacts were deemed to have a high significance impact on the environment. The operational impacts were assessed to a Medium to Low (negative) significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the operational phase impacts is likely to be reduced to a Low (negative). The social impact was assessed to have Medium (positive) impact associated with possible job opportunities during construction and operation.

### 8.4 Level of Confidence in Assessment

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this FESR is adequate to allow MEFT: DEAF to be able to determine the environmental acceptability of the proposed project.

It is acknowledged that the project details will evolve during the detailed design and construction phases. However, these are unlikely to change the overall environmental acceptability of the proposed project and any significant deviation from what was assessed in this FESR should be subject to further assessment. If this was to occur, an amendment to the Environmental Authorisation may be required in which case the prescribed process would be followed.

### 8.5 Mitigation Measures

With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction and operational phase impacts is likely to be reduced to a Low (negative). **It is further extremely important to include an Environmental Control Officer (ECO) on site during the construction phase of the proposed project to ensure that all the mitigation measures discussed in this report and the EMP are enforced.**

It is noted that where appropriate, these mitigation measures and any others identified by MEFT: DEAF could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEAF issue a positive Environmental Authorisation.

### 8.5 Opinion With Respect to the Environmental Authorisation

Regulation 15(j) of the EMA, requires that the EAP include an opinion as to whether the listed activity must be authorised and if the opinion is that it must be authorised, any condition that must be made in respect of that authorisation.

It is recommended that this project be authorised because should the development not proceed the subject erven will remain undeveloped and underutilised. This would result in no additional erven being developed. None of the positive or negative impacts from the proposed development would be realised.

The “no go” alternative was thus deemed to have a High (negative) impact, as all the benefits resulting from the development would not be realised. The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of the EMP should be included as a condition of approval.

### 8.6 Way Forward

The FESR is herewith submitted to MEFT: DEAF for consideration and decision making. If MEFT: DEAF approves, or requests additional information / studies all registered I&APs and stakeholders will be kept informed of progress throughout the assessment process.

## 9. References

Mendelsohn, J. & el Obeid, S. 2005. Forests and Woodlands of Namibia. RAISON.

Mendelsohn, J., Jarvis, A., Roberts, C. & Roberston, T. 2002. Atlas of Namibia.

Ministry of Agriculture Water and Rural Development. 2011. Groundwater in Namibia an explanation to the Hydrogeological Map.

Namibia Statistics Agency. 2024. 2023 Population & Housing Census Preliminary Report. [Online], Available: https://nsa.org.na/wp-content/uploads/2024/07/Preliminary-Report-2023-Population-and-Housing-Census_compressed.pdf.