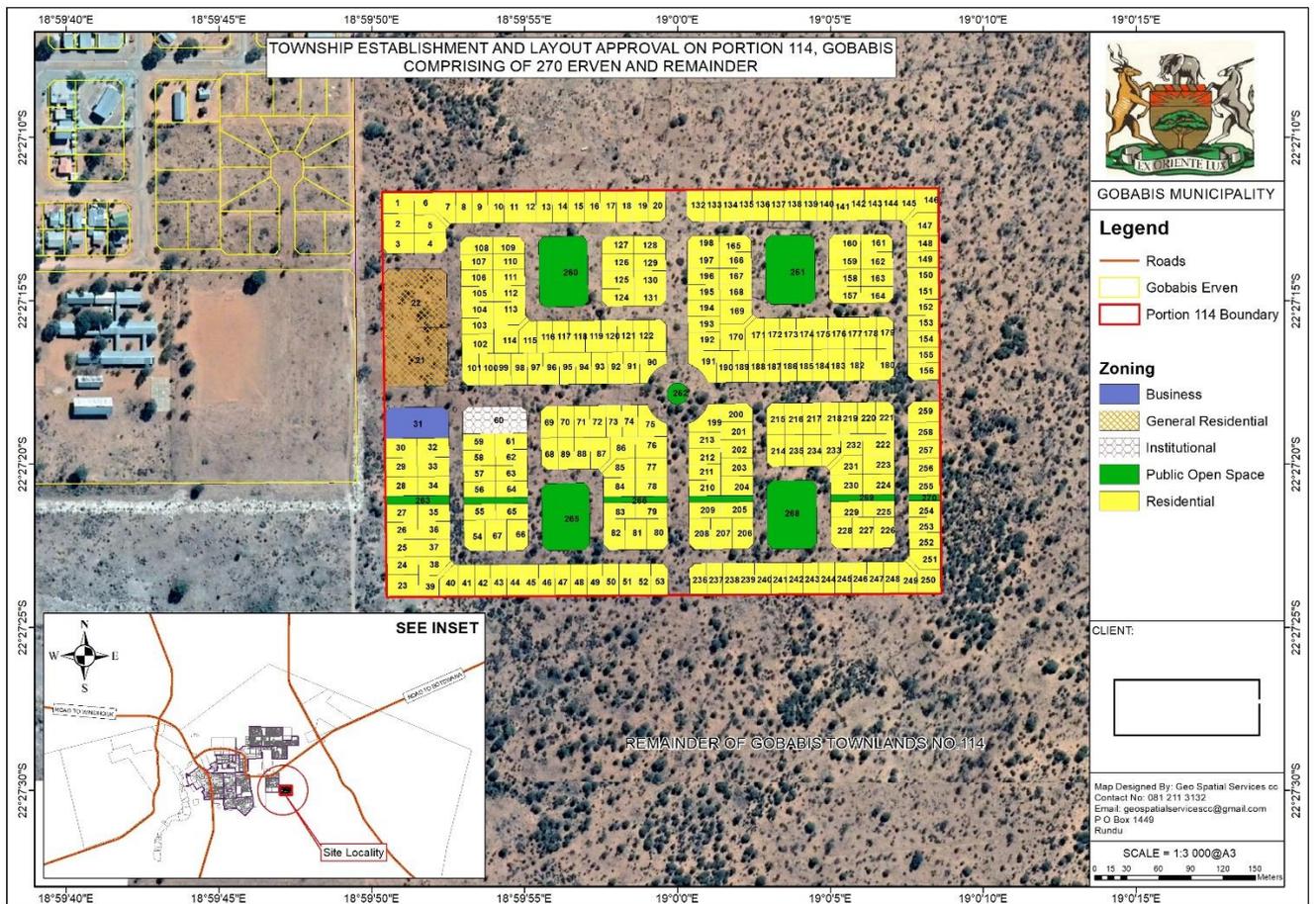


2021

EIA REPORT Proposed Township Establishment on a Portion of Portion 143 of Gobabis Town and Townlands No. 114, Nossobville, Gobabis, Omaheke Region



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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 |
| ESR | 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: DEA | Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs |
| MURD | Ministry of Urban and Rural Development |
| MWTC | Ministry of Works Transport and Communication |
| PPP | Public participation process |
| p/km ² | People per square kilometre |
| SADC | Southern African Development Community |
| USAID | United States Agency for International Development |

EXECUTIVE SUMMARY

1 INTRODUCTION AND BACKGROUND

Gobabis is the capital of the Omaheke Region, and is situated approximately 200 kilometers from the capital city Windhoek. As the gateway to Botswana and Namibia's major trading partner South Africa, Gobabis' location along the Trans-Kalahari Corridor serves it well, as goods transported from the mines in Botswana to the port of Walvis Bay and those transiting through Botswana from South Africa contribute greatly to the growth of the town. The town lies approximately 110 kilometers from the Buitepos border post. Agriculture is one of the main sources of income in the Omaheke Region coming second only to wages and salaries (NSA, 2011) and the importance of this role has been recognized as such in the Gobabis Structure Plan. Gobabis is also renowned as the 'Cattle Country' and the hub of agricultural activity in the region.

The above has led to Gobabis becoming a growth point in the region, and resultantly putting pressure on the local authority to provide basic services such as housing, water, sanitation and energy. According to the Executive Director in the Ministry of Urban and Rural Development at the 2nd National Land Conference (2018), the Urban Land and Housing Sector in Namibia is characterised by a huge backlog in the supply of and demand for serviced land and housing in urban areas in particular and the country in general. The property market has seen a practise where developers grab available erven or portions of land in local authorities where they service and build houses. They put up high mark-up on the cost and subsequently make it difficult for the ordinary resident to purchase property as only a few wealthy or highly subsidised individuals can afford to pay premium prices. The local authorities are placed in a difficult position because they cannot allocate unserviced erven to the residents.

Star Merchandising has thus proposed to the Municipality of Gobabis to make serviced land directly available to the residents, where they have an option to build their own houses. The Municipality has resolved to allocate a portion of Portion 143 of Gobabis Townlands No. 114 to Star Merchandising CC for the establishment of a township in Nossobville where it will provide bulk infrastructure services to the erven for sale to the residents.

The above activity is discussed in more detail in Chapter 4. The proponent appointed Environam Consultants Trading cc (ECT) to undertake the Environmental Impact Assessment (EIA) in order to obtain an Environmental Clearance Certificate (ECC) for the activity from the Office of the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

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) of 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 proposed development and related infrastructure and services.

The EIA process would also provide an opportunity for the public and key stakeholders to provide comments and participate in the process. It will also serve the purpose of informing the proponent's decision-making, and that of MEFT.

1.1 PROJECT LOCATION

The site is located on the eastern side of Gobabis, south of the main road to the Buitepos border towards Botswana. The site is adjacently east of the existing Nossobville proper. Refer to **Figure 1** for the locality map of Gobabis, and **Figure 2** for the locality map of the proposed development.

2 LEGISLATIVE FRAMEWORK

The principle environmental regulatory agency in Namibia is the Office of the Environmental Commissioner within the Directorate of Environmental Affairs of the Ministry of Environment, Forestry and Tourism. Most of the policies and legislative instruments have their basis in two clauses of the Namibian Constitution, i.e. Article 91 (c) and Article 95 (I); however, good environmental management finds recourse in multiple legal instruments. **Table 2** provides a summary of the legal framework considered to be relevant to this development and the environmental assessment process.

3 ENGINEERING SERVICES

The infrastructure needs of the proposed project can be categorised into two broad classifications namely:

- Basic infrastructure that includes electricity and roads.
- Environmental infrastructure that consist of water supply, sewage and drainage systems, solid waste management and landscaping.

The service infrastructure such as water, sewer, drainage, electricity and roads will be designed by registered professional engineers to integrate with the existing build-up area of Gobabis. These will be carried out in consultation with the Municipality as the relevant authority.

Access to the site is planned to be obtained from Farmer Street. The internal road network will be designed and the construction thereof supervised by professional engineers as part of the service infrastructure.

4 PUBLIC PARTICIPATION PROCESS

In terms of Section 21 of the EIA Regulations a call for public consultation with all I&APs during the EIA process is required. This entails consultation with members of the public and providing them an opportunity to comment on the proposed project. The Public Consultation Process does not only incorporate the requirements of Namibia's legislation, but also takes account of national and international best practises. Please see **Table 4** for the activities undertaken as part of the public participation process.

A public meeting would normally be held as part of the public consultation process, however due to the restrictions brought about as a result of the Covid-19 pandemic this was not possible. The comment period of the initial public participation process commenced on **25 June 2021** and ended on **16 July 2021**.

The second phase of the Public Consultation Process involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&AP for comment. Registered and potential I&APs were informed of the availability of the DESR for public comment. An Executive Summary of the DESR was included in the communication that went out to the registered I&APs. I&APs were given time until **06 August 2021** to submit comments or raise any issues or concerns they may have with regard to the proposed project.

5 POTENTIAL IMPACTS IDENTIFIED

The following planning and design phase impacts were identified:

- Surface and groundwater;
- Fauna and flora;
- Existing infrastructure;
- Traffic;

The following construction phase impacts were identified:

- Fauna and flora;
- Pressure on the existing infrastructure;
- Surface and groundwater;
- Health, safety and security;
- Air quality,
- Noise pollution,
- Traffic;
- Waste management;
- Hazardous substances;
- and Social impact.

The following operational phase impacts were identified:

- Surface and ground water;
- Air quality;
- Noise;
- Waste management;
- Infrastructure;
- Quality of life;
- And Visual impact.

6 CONCLUSION

The provision of basic services is not only important to ensure the health and progress of the Gobabis community, but also to promote local economic development. It is envisaged that

the establishment of the new Gobabis Township as well as the construction of bulk services in Gobabis will form the cornerstone of uplifting and expanding the town and create a more sustainable livelihood for the community socially and economically.

During the operational phase the impacts of surface and ground water; air quality; noise; and waste management were assessed to have a long-term negative effect without mitigation. The impacts will however be significantly reduced when the recommended mitigation measures in the scoping report and environmental management plan (EMP) are implemented.

Based on the evidence produced during the assessment process, it is very unlikely that this project will have any significant negative impacts on the environment. It is therefore recommended that a clearance certificate be issued for the project.

1. INTRODUCTION

1.2 Project Background

Gobabis is the capital of the Omaheke Region, and is situated approximately 200 kilometers from the capital city Windhoek. As the gateway to Botswana and Namibia's major trading partner South Africa, Gobabis' location along the Trans-Kalahari Corridor serves it well, as goods transported from the mines in Botswana to the port of Walvis Bay and those transiting through Botswana from South Africa contribute greatly to the growth of the town. The town lies approximately 110 kilometers from the Buitepos border post. Agriculture is one of the main sources of income in the Omaheke Region coming second only to wages and salaries (NSA, 2011) and the importance of this role has been recognized as such in the Gobabis Structure Plan. Gobabis is also renowned as the 'Cattle Country' and the hub of agricultural activity in the region.

The above has led to Gobabis becoming a growth point in the region, and resultantly putting pressure on the local authority to provide basic services such as housing, water, sanitation and energy. According to the Executive Director in the Ministry of Urban and Rural Development at the 2nd National Land Conference (2018), the Urban Land and Housing Sector in Namibia is characterised by a huge backlog in the supply of and demand for serviced land and housing in urban areas in particular and the country in general. The property market has seen a practise where developers grab available erven or portions of land in local authorities where they service and build houses. They put up high mark-up on the cost and subsequently make it difficult for the ordinary resident to purchase property as only a few wealthy or highly subsidised individuals can afford to pay premium prices. The local authorities are placed in a difficult position because they cannot allocate unserviced erven to the residents.

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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) of 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 proposed development and related infrastructure and services.

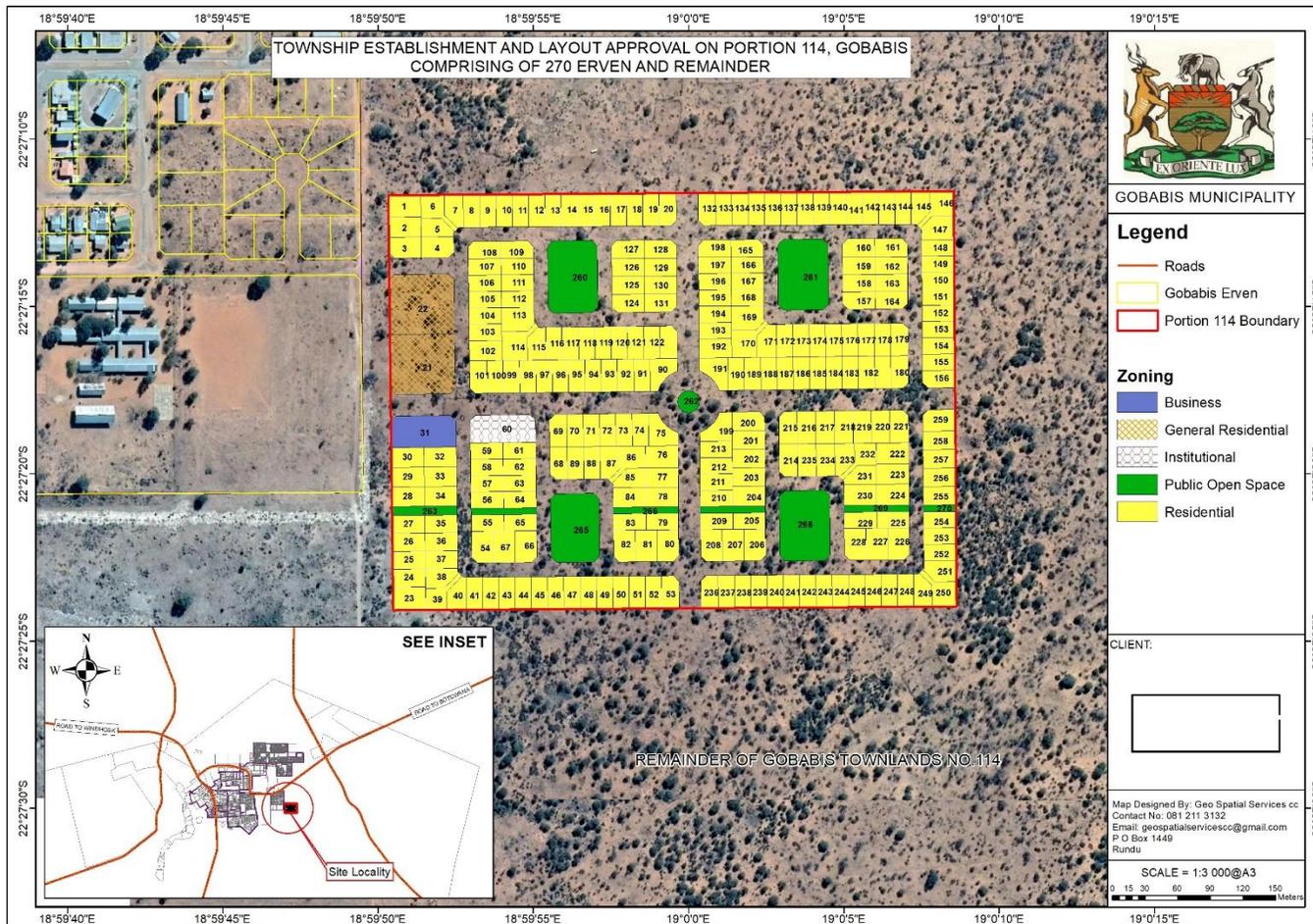


Figure 2: Locality map of the proposed development

1.4 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 Township Establishment on a Portion of Portion 143 of Gobabis Townlands No. 114, Nossobville, Gobabis and associated infrastructure as indicated in section 1.1 above. This includes consultations with client; site investigations and analysis; stakeholder consultations; impact analysis; mitigation formulation; report writing; and draft Environmental Management Plan.

1.5 Assumptions and Limitations

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

- Assumes the information provided by the proponent is accurate and discloses all information available.
- Various layout alternatives were initially considered by the proponent, having taken due regard of the natural and environmental constraints, and the unique character and appeal of Gobabis. The current designs thus present the most feasible results.

1.6 Content of Environmental Scoping Report

In terms of Section 8 of the gazetted EIA Regulations certain aspects must be included in a Scoping Report. **Table 1** below delineate, for ease reference, where this content is found in the Environmental Scoping Report.

Table 1: Contents of the Scoping / Environmental Assessment Report

| Section | Description | Section of ESR/ Annexure |
|---------|--|----------------------------|
| 8 (a) | The curriculum vitae of the EAPs who prepared the report; | Refer to Annexure E |
| 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 |

| Section | Description | Section of ESR/ Annexure |
|---------|--|---|
| 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; | Refer to Annexures A and B for site notices and advertisements respectively. |
| | (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; | Refer to Annexure D |
| | (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; | Refer to Annexure D |
| 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 disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity; | Refer to Chapter 4 |
| 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; | Refer to Chapter 1 |
| 8 (j) | An environmental management plan | Refer to Annexure F |

2. LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

The principle environmental regulatory agency in Namibia is the Office of the Environmental Commissioner within the Directorate of Environmental Affairs of the Ministry of Environment, Forestry and Tourism. Most of the policies and legislative instruments have their basis in two clauses of the Namibian Constitution, i.e. Article 91 (c) and Article 95 (l); however, good

environmental management finds recourse in multiple legal instruments. Table 2 below provides a summary of the legal framework considered to be relevant to this development and the environmental assessment process.

Table 2: Legislation applicable to the proposed development

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | 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.” 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. 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. GN 30 provides the regulations governing the environmental assessment (EA) process. | Activity 10.1 (a) The construction of Oil, water, gas and petrochemical and other bulk supply pipelines. Activity 10.1 (b) The construction of public roads. Activity 10.2 (a) The route determination of roads and design of associated physical infrastructure where - it is a public road. |
| 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 EIA 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 sought after commodities and must be regarded as valuable natural assets. | Care should be taken that the development does not lead to the degradation of the natural beauty of the area. |
| Water Act No. 54 of 1956 | Section 23(1) deals with the prohibition of pollution of | The pollution of water resources should be avoided during |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|---|--|---|
| | underground and surface water bodies. | construction and operation of the development. |
| The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS | MEFT has 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/s have to 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 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 proclaimed Local Authority area. | In terms of Section 19 such applications are to be submitted to the Townships Board |
| 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. Sections 34-47 make provision for the aspects of water and sewerage. | The development has to be comply with the provisions of the Local Authorities Act |
| Labour Act no 11 of 2007 | Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment. | Given the employment opportunities presented by the development, compliance with the labour law is essential. |
| Public Health Act no 36 of 1919 | Section 119 prohibits persons from causing nuisance. | Contractors and residents of the proposed extensions are to comply with these legal requirements. |
| Public and Environmental Health Act 1 of 2015 | This act provides a framework for a structured uniform public and environmental health system in Namibia. | Covid-19 protocols will be legislated by this provision, amongst others. |
| Nature Conservation Ordinance no 4 of 1975 | Chapter 6 provides for legislation regarding the protection of indigenous plants | Indigenous and protected plants have to be managed within the legal confines. |
| Atmospheric Pollution Prevention Ordinance (No. 11 of 1976). | The Ordinance objective is to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. | All activities on the site will have to take due consideration of the provisions of this legislation. |
| Roads Ordinance 17 of 1972 | This Ordinance consolidates the laws relating to roads. | The provisions of this legislation have to be taken into consideration in as far as access to the development site is concerned. |
| Roads Authority Act, 1999 | Section 16(5) of this Act places a duty on the Roads Authority to ensure a safe road system. | Some functions of the Roads Ordinance 17 of 1972 have been assigned to the Roads Authority. |
| Gobabis Town Planning Scheme | The town planning scheme has as its general purpose the co-ordinated and harmonious development of the | Procedures to manage zoning are stipulated in the Town planning Scheme. |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|----------------------|---|----------------------|
| | local authority area, or the area or areas situate therein. | |

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to Figure 4 below) provides an outline of the EIA process to be followed.

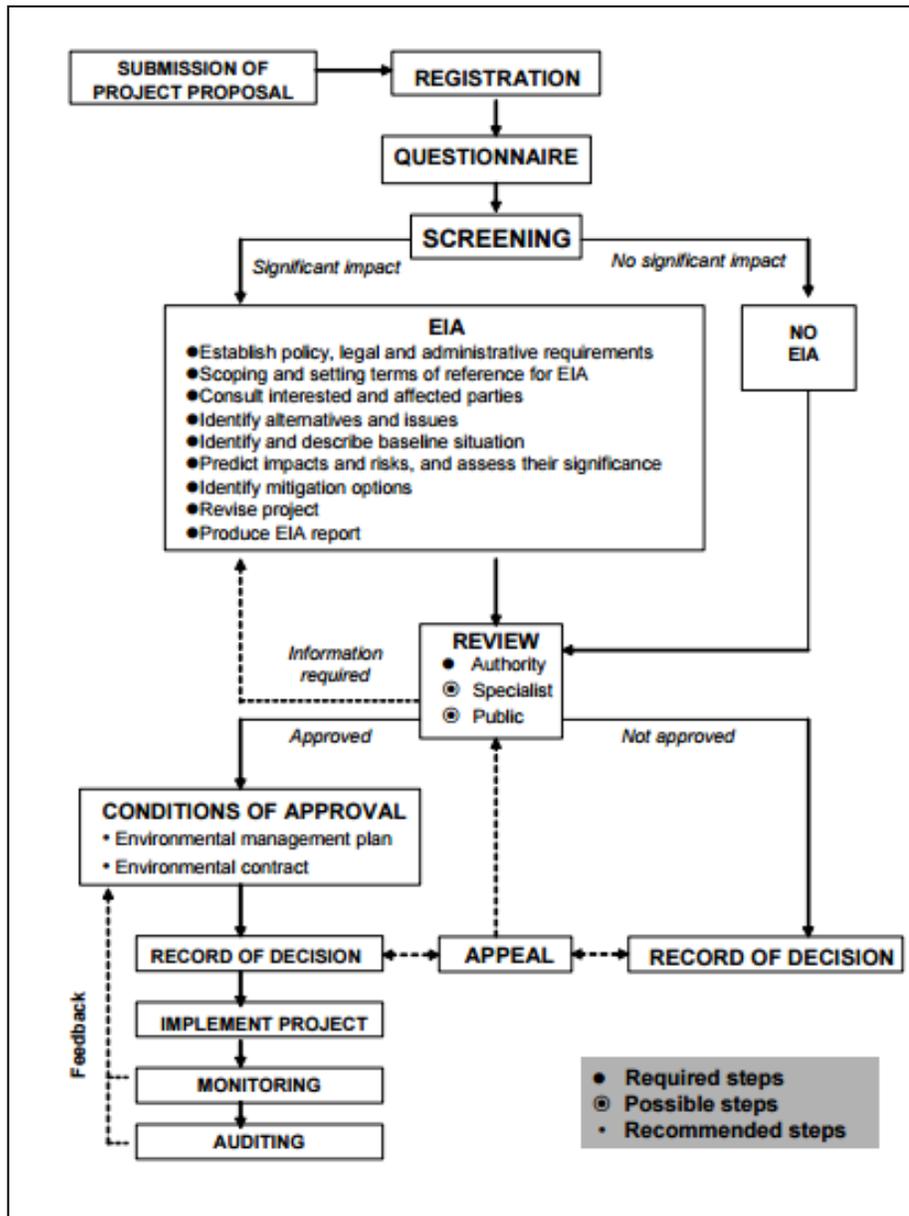


Figure 3: EIA Flowchart for Namibia (SELH, 2012)

3. ENVIRONMENTAL BASELINE DESCRIPTION

3.1. Social Environment

3.1.1. Socio-Economic Context

The statistics shown in Table 3 below are derived from the 2011 Namibia Population and Housing Census (NSA, 2011):

Table 3: Statistics of Gobabis Town and Omaheke Region

| GOBABIS | |
|--|------------------|
| ATTRIBUTE | INDICATOR |
| Population | 20,993 |
| Females | 10,671 |
| Males | 10,322 |
| Population under 5 years | 13% |
| Population aged 5 to 14 years | 22% |
| Population aged 15 to 59 years | 60% |
| Population aged 60 years and above | 5% |
| Female: male ratio | 100:97 |
| Literacy rate of 15 years old and above | 80% |
| People above 15 years who have never attended school | 21% |
| People above 15 years who are currently attending school | 11% |
| People above 15 years who have left school | 67% |
| People aged 15 years and up who belong to the labour force | 74% |
| Population employed | 60% |
| Homemakers | 19% |
| Students | 46% |
| Retired or old age income recipients | 35% |
| Income from pension | 9% |
| Income from business and non-farming activities | 10% |
| Income from farming | 3% |
| Income from cash remittance | 9% |
| Wages and salaries | 66% |
| OMAHEKE REGION | |
| ATTRIBUTE | INDICATOR |
| Population | 71,233 |
| Population under 5 years | 15% |
| Population aged 5 to 14 years | 24% |
| Population 15 to 59 years | 54% |
| Literacy rate of 15 years old and above | 73% |

3.1.2. Archaeological and Heritage Context

Omaheke Region like the rest of Namibia is home to many different cultural groups. There are not many heritage sites found within the confines of Gobabis, however a national monument known as German Lazaret is found in the area. This structure was built in 1896 on the highest hillock south east of the former Gobabis fort. It was initially used as a hospital until 1904, and turned into a dwelling for civil servants and civilians after the end of World War 1 (NHC, 2015). No known heritage sites are however located within the proposed development area. If any heritage or culturally significant artefacts are found during the construction phase, construction must stop and the National Heritage Council of Namibia immediately notified.

3.2. Bio-Physical Environment

3.2.1. Climate

Gobabis is characterised by a semi-arid climate with warm to hot summers and borders on a desert climate. The average maximum temperature varies between 20 and 30°C with the average minimum temperature between 2 and 17°C. Mean annual precipitation varies across the Omaheke Region, ranging from 250 mm per annum in the south (Aminuis Constituency) to 400 mm per annum in the north. The areas north of Gobabis show an average rainfall of 350-400 mm per annum (Lindholm, 2006). The only rains for Gobabis fall during the summer months and on average 96% of this rainfall is experienced from November to April. Gobabis receives annual rainfall of approximately 233 mm.

| Climate data for Gobabis, Namibia | | | | | | | | | | | | | [hide] |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-------------------|
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
| Average high °C (°F) | 31.4 (88.5) | 31.0 (87.8) | 30.1 (86.2) | 27.9 (82.2) | 25.6 (78.1) | 22.0 (71.6) | 21.9 (71.4) | 25.4 (77.7) | 29.0 (84.2) | 31.0 (87.8) | 32.1 (89.8) | 32.3 (90.1) | 28.3 (82.9) |
| Average low °C (°F) | 18.5 (65.3) | 17.6 (63.7) | 15.9 (60.6) | 12.4 (54.3) | 7.7 (45.9) | 3.8 (38.8) | 3.2 (37.8) | 5.6 (42.1) | 10.3 (50.5) | 14.0 (57.2) | 16.4 (61.5) | 18.1 (64.6) | 12.0 (53.6) |
| Average precipitation mm (inches) | 80.7 (3.177) | 86.8 (3.417) | 53.7 (2.114) | 37.0 (1.457) | 6.1 (0.24) | 2.7 (0.106) | 0.2 (0.008) | 0.5 (0.02) | 7.7 (0.303) | 16.2 (0.638) | 37.1 (1.461) | 40.6 (1.598) | 369.3 (14.539) |
| Average relative humidity (%) | 45 | 51 | 54 | 53 | 45 | 44 | 40 | 31 | 27 | 29 | 34 | 37 | 40.8 |

Figure 4: Climate data for Gobabis (MWT, 2020)

3.2.2. Topography, Geology and Hydrogeology

Omaheke Region is located in the eastern part of the country bordering Botswana. The most important biomes are the central Kalahari and southern Kalahari, which is characterised by sandy soils and acacia savannahs, consisting mainly of Camelthorn savannahs and mixed shrublands, with isolated forest and woodland savannahs (LAC, 2015; MET, 2011) this is evident from the observations on the development site. There are no perennial surface water sources within the region and the only prominent drainage channels are the Black and White Nossob Rivers and the shallow ancient river beds of Eiseb, Epukiro and Otjozondjou. It is only the Nossob Rivers that actively flow after exceptionally good rains, however almost all rainfall infiltrate immediately due to the porous Kalahari sands (LAC, 2015).

Groundwater in the Omaheke Region is of average quality, with moderately productive aquifers underlying the Kalahari sands. The water supply is mostly sourced from locally drilled boreholes (MET, 2011). The only notable surface water reservoirs are the Tilda Viljoen and Otjivero Dams that capture water from the ephemeral rivers and supply Gobabis with potable water; the inconsistent capacities of the dams however result in a continued reliance on groundwater and boreholes (Lindholm, 2006). In order to increase water supply security for the town of Gobabis, in the upper part of the Nossob Catchment, a wellfield has been established in Damara carbonate aquifers (NWRMR, 2000).

Due to scarcity of water and fertile land, Omaheke is regarded as having a low suitability for crop production; rain-fed agriculture is not very reliable due to poor soil quality and rainfall variability. Therefore, extensive cattle ranching dominate land-use patterns in Omaheke. Inhabitants of the region refer to it as the “cattle country” - it has some of the best grazing areas in Namibia” (Lindholm, 2006). The site earmarked for development is relatively flat with several trees and shrubs found across the area, dominated by *acacia* vegetation and grasslands.

3.2.3. Terrestrial Ecology

The southern part of Omaheke can be classified as falling within the Central Kalahari Camel Thorn Savanna which is characterised by bushes and trees, such as the characteristic bush tree species *Acacia erioloba*. The northern part falls within the Northern Kalahari Tree and Bush Savanna which has a more pronounced tree vegetation (Giess 1971). Some plant species are restricted to only one habitat while other plant species occur virtually over the whole range. In general, two larger vegetation mosaics can be distinguished within the two general savanna biotopes: the sandy substrate and the *omuramba*. The sandy substrate consists of three more or less distinct habitats in terms of soil characteristics and vegetation associations: the crest, the slope valley and the valley floor with compacted soils. The dune crests are characterised by coarse loose sand. While some trees may reach larger dimensions, generally they are stunted and closer to bushes in size. Grasses cover only about 20 % of the ground surface of the dune crests (Lindholm, 2006).

The mangetti tree (*Schinziophyton rautanenii*) is confined to the coarse loose soils of the dune crests. In the southern part of Omaheke, there are no trees, and in the Otjumunguindi area, trees are very rare. The mangetti tree, if found, does not grow in groves but rather as an individual, unlike further up north (Lindholm, 2006). The tambutti tree (*Spirostachys africana*) on the other hand seems restricted to the northern parts of the Omaheke Region. The tree is poisonous but the hard wood is used for crafts. The *Terminalia sericea* with its light green silvery foliage also favours the loose sandy soils. It is a frequently noted species and appears both as a shrub and as a small tree. A forest inventory crossing the two broader savanna biotopes of Omaheke indicated that the *Terminalia sericea* is the second most common tree in the area and based on crown coverage estimates it is the dominant tree species (Korhonen et al. 1997)

In the low shrubland surrounding the Terminalia, a series of other bushes and small trees e.g. *Rhus tenuinervis*, *Burkea africana*, *Bauhinia petersiana*, *Croton gratissimus*, *Pterocarpus angolensis*, *Lonchocarpus nelsii*, various *Combretum* species, *C. apiculatum*, *C. collinum* and *C. psidioides* can be noted (Lindholm, 2006).

In addition to the diversity of the plant species, the Omaheke environment contributes to a rich animal life, including several of the well-known southern African invertebrates, reptiles and amphibians, birds and mammals (Liebenberg, 1992). The following animals were amongst those observed in Omaheke Region during 2001-2004: Ungulates including Blue and Red Wildebeest; Gemsbok; Kudu; Eland, Common duiker; and Springbok. Carnivores seen in the region include: leopard; African wild dog; spotted hyena; black-backed jackal; and bat-eared fox. There have also been sightings of other animals such as elephant; spring hare; ground squirrel; warthog; and ostrich (Lindholm, 2006). The development site does not have large animals as the portion is situated in an area that has been anthropogenically influenced. There are no protected or red data listed plants or animal species found on the site. **Figure 5** below provides a view of the general area and surrounds of the proposed development site.



Figure 5: General area and surrounds of the proposed development site.

3.3. Surrounding Land Use

While the proposed site is mostly surrounded by undeveloped land that is earmarked for further residential developments, Nossobville Extension 1 is further off to the west.

3.4. Physical Environment

The infrastructure needs of the proposed project can be categorised into two broad classifications namely:

- Basic infrastructure that includes electricity and roads.

- Environmental infrastructure that consist of water supply, sewage and drainage systems, solid waste management and landscaping.

The service infrastructure such as water, sewer, drainage, electricity and roads will be designed by registered professional engineers to integrate with the existing build-up area of Gobabis. These will be carried out in consultation with the Municipality as the relevant authority.

Access to the site is planned to be obtained from Farmer Street. The internal road network will be designed and the construction thereof supervised by professional engineers as part of the service infrastructure.

4. PROJECT DESCRIPTION

4.1. Site Description

As previously outlined in Section 1.1, the proposed township comprises of ±270 erven and remainder (streets). The proposed township will primarily be residential. The predominantly residential nature of the development is evidenced by the fact that, of the ±175 erven, about 94% will be used for residential purposes.

The layout consists of erven with average sizes of ±450 to ±640m² for Residential with density zonings of 1 per 300m² or 1 per 600m², and for General Residential with average sizes of ±3279m² with density of 1 per 150m². Apart from “Residential and General Residential” erven, the layout further makes provision for “Local Business” erven with a bulk of 2, an Institutional erf, and “Public Open Space” erven.

4.2. Decision Factors

The following factors served as informants and were considered when preparing the layout designs for the proposed development:

- Respect natural vegetation;
- Provide for Public Open Spaces;
- Provide a well-defined road network.

4.3.No - Go Alternative

The no-go alternative would essentially entail maintaining the current situation, whereby residents of Gobabis and potential investors will not have access to affordable additional serviced erven offered by the new development. This will inhibit added growth of the town and empowerment of the residents and investors. In addition the potential job opportunities both during the construction and operational phases of the proposed development will not be realised. While the no-go alternative will not result in any negative impacts the potential positive impacts will be lost.

5. PUBLIC PARTICIPATION PROCESS

5.1. Public Consultation Process Phase 1

In terms of Section 21 of the EIA Regulations a call for public consultation with all I&APs during the EIA process is required. This entails consultation with members of the public and providing them an opportunity to comment on the proposed project. The Public Consultation Process does not only incorporate the requirements of Namibia’s legislation, but also takes account of national and international best practises. Please see **Table 4** below for the activities undertaken as part of the public participation process.

Table 4: Table of Public Consultation Activities

| ACTIVITY | REMARKS |
|---|-----------------------|
| Placing advertisements in two newspapers for two consecutive weeks, namely Confidante and Windhoek Observer | See Annexure B |
| Written notice to Interested and Affected Parties via Email | See Annexure D |

A public meeting would normally be held as part of the public consultation process, however due to the restrictions brought about as a result of the Covid-19 pandemic this was not possible. The comment period of the initial public participation process commenced on **25 June 2021** and ended on **16 July 2021**.

5.2. Public Consultation Process Phase 2

The second phase of the Public Consultation Process involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&AP for comment. Registered and potential I&APs were informed of the availability of the DESR for public comment. An Executive Summary of the DESR was included in the communication that went out to the registered I&APs. I&APs were given time until **06 August 2021** to submit comments or raise any issues or concerns they may have with regard to the proposed project. No comments were received by the end of the comment period.

6. ASSESSMENT METHODOLOGY

Impact assessments depend on the nature and magnitude of the proposed activity, as well as the type of environmental control envisaged for the particular project. Given the nature of the proposed activity, i.e. a construction project, the identification and assessment of the potential impacts will be based on the type and scale of the various activities associated with the project.

Assessment of the predicted significance of impacts for a proposed development is by its nature, inherently uncertain. To deal with such uncertainty in a uniform manner, standardised and internationally recognised methodologies have been developed. One 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 6**.

Table 5: Impact Assessment Criteria

| CRITERIA | CATEGORY |
|--|--|
| Impact | Description of the expected impact |
| Nature Describe type of effect | Positive: The activity will have a social / economical / environmental benefit. Neutral: The activity will have no effect Negative: The activity will have a social / economical / environmental harmful effect |
| Extent | Site Specific: Expanding only as far as the activity itself (onsite) |

| CRITERIA | CATEGORY |
|---|--|
| Describe the scale of the impact | <p>Small: restricted to the site's immediate environment within 1 km of the site (limited)</p> <p>Medium: Within 5 km of the site (local)</p> <p>Large: Beyond 5 km of the site (regional)</p> |
| <p>Duration Predicts the lifetime of the impact.</p> | <p>Temporary: < 1 year (not including construction)</p> <p>Short-term: 1 - 5 years</p> <p>Medium term: 5 - 15 years</p> <p>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)</p> <p>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</p> |
| <p>Intensity Describe the magnitude (scale/size) of the Impact</p> | <p>Zero: Social and/or natural functions and/ or processes remain unaltered</p> <p>Very low: Affects the environment in such a way that natural and/or social functions/processes are not affected</p> <p>Low: Natural and/or social functions/processes are slightly altered</p> <p>Medium: Natural and/or social functions/processes are notably altered in a modified way</p> <p>High: Natural and/or social functions/processes are severely altered and may temporarily or permanently cease</p> |
| <p>Probability of occurrence Describe the probability of the Impact <u>actually</u> occurring</p> | <p>Improbable: Not at all likely</p> <p>Probable: Distinctive possibility</p> <p>Highly probable: Most likely to happen</p> <p>Definite: Impact will occur regardless of any prevention measures</p> |
| <p>Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge</p> | <p>Unsure/Low: Little confidence regarding information available (<40%)</p> <p>Probable/Med: Moderate confidence regarding information available (40-80%)</p> <p>Definite/High: Great confidence regarding information available (>80%)</p> |
| <p>Significance Rating The impact on each component is determined by a combination of the above criteria.</p> | <p>Neutral: A potential concern which was found to have no impact when evaluated</p> <p>Very low: Impacts will be site specific and temporary with no mitigation necessary.</p> <p>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</p> <p>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.</p> |



| CRITERIA | CATEGORY |
|----------|---|
| | <p>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.</p> |

*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.

7. MITIGATION HIERACHY

The mitigation hierarchy is a tool aimed at helping to manage biodiversity risk, and is commonly applied in Environmental Impact Assessments. The most common reference point for banks providing project finance is mitigation measures; this provides the financial institutions with information on how environmental and social risks will be managed (See **Figure 6** below). These cover avoidance, minimization, restoration and compensation amongst other things. 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 further steps.

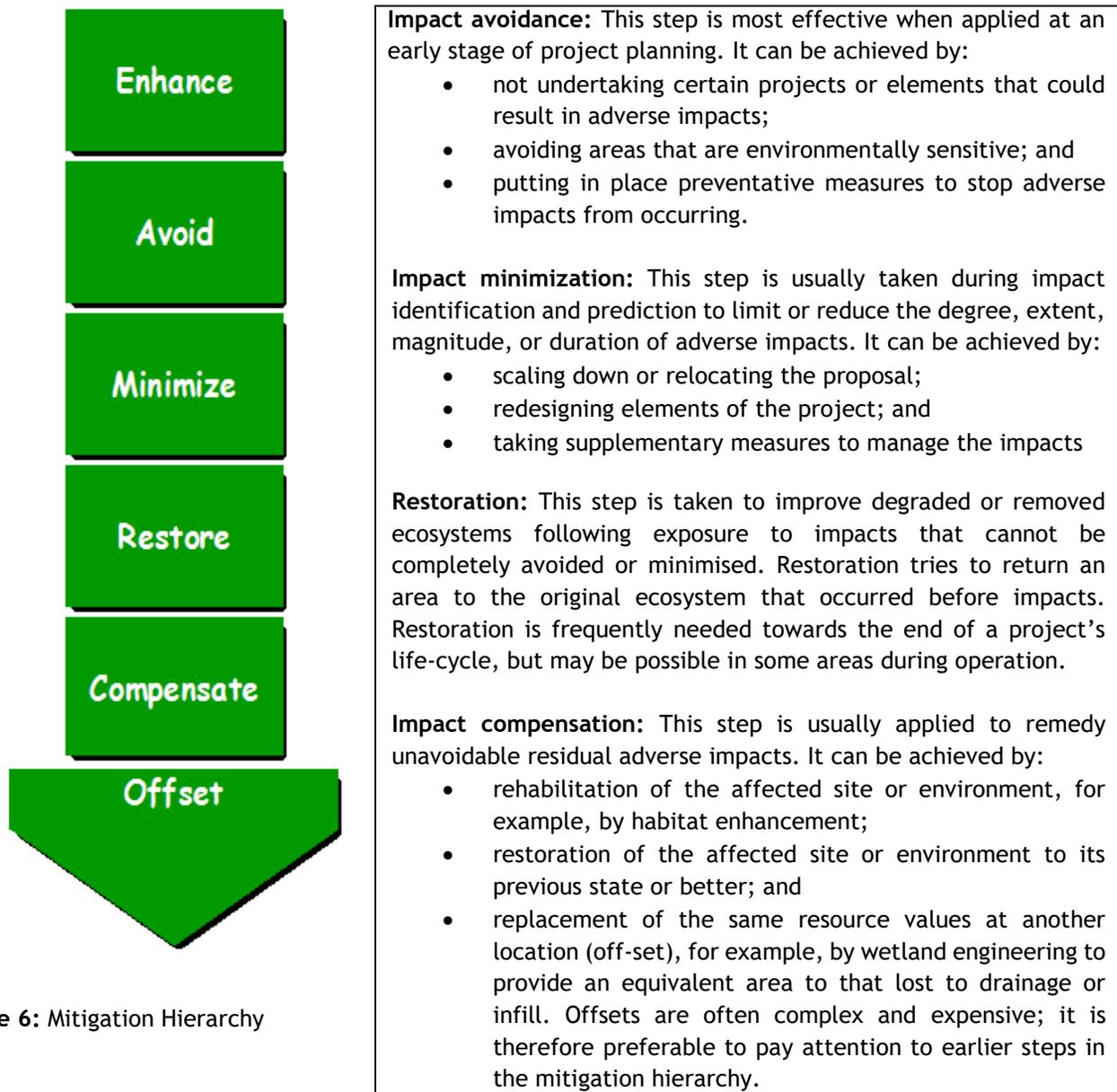


Figure 6: Mitigation Hierarchy

8. POTENTIAL IMPACTS

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities. These include potential impacts, which may arise during the planning and design phase, potential construction related impacts (i.e. short to medium term) as well as the operational impacts of the proposed development (i.e. long-term impacts).

The assessment of potential impacts will help to inform and confirm the selection of the preferred project plan and design to be submitted to MEFT: DEA for consideration. In turn, MEFT: DEA'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 Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with 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.

8.1. Planning and Design Phase Impacts

During the planning and design phase consideration is given to aspects such as surface and groundwater; fauna and flora; existing infrastructure; and traffic.

8.1.1. Surface and Groundwater

The Black Nossob River in the vicinity of Gobabis is an important water source, this puts the surface and ground water resources in the area at risk of pollution. This is likely to happen in the absence of a well designed and constructed storm water drainage infrastructure which appears to be the case as observed during a rain event which occurred while on a visit to the town in April 2017. Poorly constructed and maintained service infrastructure in general may also lead to seepage of waste water into the water bodies. Surface and ground water contamination may also result from nonpoint source runoff from commercial and residential developments (Sosiak and Dixon, 2006). Uncontrolled solid waste management is another potential pollutant of the surface water.

8.1.2. Fauna and Flora (Biodiversity)

The general area is relatively well populated with acacia trees and grassland. The surrounding area has been disturbed as a result of human activities. It can however be expected that the area will also support species of conservation in particular smaller vertebrates (reptiles, amphibians, mammals and birds); large wild animals are not found on the development site. Natural aquatic communities are absent from the region as a result of the absence of surface water flow due to the high infiltration rates, and the ephemeral river system in the area.

The proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would be relatively small and thus only have localised negative implications on the environmental and associated fauna and flora. The overall impact on the local fauna and flora and associated habitat would be relatively small. While the area has got good tree and grass cover, the general area is by no means pristine with various anthropogenic influences having affected the general area over an extended period.

8.1.3. Existing Service Infrastructure Impacts

There will not be any major impact on the existing infrastructure as far as water, sewerage, electricity etc. are concerned. In fact the new development is expected to enhance the existing infrastructure through the construction of service infrastructure that is professionally designed and constructed. It is important to note that the country in general is constrained and faced with a crisis in terms of water and electricity availability; and an increased demand for these amenities will further add to the predicament.

8.1.4. Traffic Impacts

Traffic is expected to increase during the operational phase of the project. Due to the nature of the development and the land use vehicles will frequent the area, these would mostly consist of vehicles used by residents and visitors.

8.2. Construction Phase Impacts

During the construction phase the following potential impacts have been identified: fauna and flora; pressure on the existing infrastructure; surface and ground water; health, safety and security impacts; air quality; noise, traffic; solid waste management; hazardous substances; and social impact.

8.2.1. Flora and Fauna

The site will be cleared substantially to make way for the development and the installation of bulk infrastructure services. It is recommended that the trees found on the proposed site be kept and maintained as far as possible to be part of the layout plan of the township development. The trees that are to be kept should be clearly marked with “danger tape” or a similar tool to prevent accidental removal, with regular inspection of the marking tool carried out. The very important trees should be “camped off” to prevent the unintended removal or damage to these trees.

8.2.2. Pressure on existing infrastructure

During the construction phase there will be an additional demand for basic municipal services such as water, electricity and sewer. The services will be used for both human consumption and for construction purposes. These impacts will however only be limited to the construction phase and will thus have minimal short term impact. The risk of wastage and pollution may occur if no proper management actions are implemented.

8.2.3. Surface and Ground Water Impacts

Surface and ground water impacts may be encountered during the construction phase, especially if construction takes place during 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; chemical contamination from construction materials such as cement, paint and mechanical fluids. This risk is minimised by the fact that the construction period will be a short term activity.

8.2.4. Health, Safety and Security Impacts

Due to a high demand of construction workers during this phase of the project, the deployment of a temporary construction workforce in Gobabis may be necessary. These types of projects, where construction workers have the opportunity to interact with the local community, create a significant risk for the development of social conditions and behaviors that contribute to the spread of HIV and AIDS, and Covid-19. The Ministry of Environment, Forestry and Tourism has initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.

8.2.5. Air Quality

During the construction phase fugitive dust and exhaust gases generated have a potential impact on the air quality of the area and its surroundings. Dust is a major component of air pollution and could negatively affect the health of nearby communities if not mitigated. Due to the proximity of the development site to the B6 Main Road, traffic on this road is also at risk of being impacted by dust. These are however short-term impacts. Dust is generated mainly from the following activities:

- Excavations and stockpiles during site clearance;
- Use of heavy vehicles, machinery and equipment;
- Procurement and transport of construction materials to the site.

8.2.6. Noise Impacts

Noise is perceived as one of the most undesirable consequences of a construction activity. The most common reported impacts are interference in oral communication and sleep disturbance. The construction of the services, will result in associated noise impacts. These noise impacts will mainly be associated with construction machinery and vehicles, concrete and mixing; and excavation for foundations. Given that some of the surrounding areas are inhabited these communities will be impacted. The impact is however limited to the construction period only.

8.2.7. Traffic Impacts

Traffic is expected to increase during the construction phase of the project. 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, it will also impact on the vehicular traffic in the area. The safety of road users need to be considered especially on the B6 Road Main Road.

8.2.8. Solid Waste Management

The construction activities will lead to the generation of significant amounts of solid waste mainly in the form of construction building rubble. This could have a negative environmental impact if not managed well. Therefore enough waste bins and skip containers should be availed to manage the solid waste. All solid waste should be disposed off at the designated landfill site of Gobabis as approved by the local authority.

8.2.9. 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 sensitizing or flammable nature or the generation of pressure in certain circumstances. It covers manufacture, sale, use, disposal and dumping as well as import and export. 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 impact on the surrounding environment, if these substances spill and enter the environment.

8.2.10. Social Impacts

The project will result in long-term positive impacts as far as the social welfare of the affected community is concerned. There is potential of an influx of migrant workers into the town of Gobabis. This would boost the local economic development of the town as a result of an increase in consumers of goods, spending power. The local community will benefit through preferential recruitment of local labour and procurement as far as possible.

8.3. Operational Phase Impacts

The operational phase impacts that have been identified are: surface and ground water; air quality; noise; waste management; infrastructure; quality of life; and visual impact.

8.3.1. Surface and Ground Water Impacts

Surface and ground water impacts may be encountered during the operational phase, especially if the infrastructure is poorly constructed and maintained. The provision of properly designed and constructed municipal services, which are regularly monitored and maintained, to the development will minimise the potential pollution of water sources.

8.3.2. Air Quality

The air quality in the area is considered to be fairly good. Various types of activities within the township extension will result in increased dust and emission impacts, if not managed correctly. Dust and emissions associated with the proposed new township development will mostly be

generated by vehicle movement; as well as from any commercial activity that generates emissions.

The entire township development needs to be controlled and managed as required by the Public Health Act (Act No. 36 of 1919) and Atmospheric Pollution Prevention Ordinance (No. 11 of 1976). Dust is likely to have a larger impact when the internal road network is not paved.

8.3.3. Noise Impacts

Operational noise associated with the proposed development is likely to be limited to general township noise levels. It is however important that mitigation measures are applied to bring noise levels to acceptable limits, which are generally addressed by applicable municipal by laws.

8.3.4. Waste Management

The operational activities will likely generate a reasonable amount of solid waste. An adequate number of refuse receptacles should be placed on all the properties for the collection of waste, which should be emptied frequently and taken to the designated landfill site. This should be fitted into the municipal waste collection programme.

8.3.5. Infrastructure

Once the properties have been developed, it is the responsibility of each new property owner, to apply for the appropriate services such as electricity and water. The proposed development will make use of added infrastructure specifically regarding electricity, sewer and water. This additional demand is expected to be fairly medium to low considering the type of activities envisaged. It is recommended that alternative and renewable source of energy be explored and introduced into the proposed development to reduce dependency on the grid. Solar geysers and panels should be considered to provide for general lighting and heating of water and buildings. Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy consumption. Water saving mechanisms should be incorporated within the proposed township development's design and plans in order to further reduce water demand.

8.3.6. Quality of Life

The development will serve as an important economic activity that provides jobs. It also serves as a critical factor that attracts people including professionals and investors to migrate to and invest in the town. These factors will in turn also have a positive impact on the quality of life of the residents in terms of household incomes.

8.3.7. Visual and Sense of Place Impacts

The new development will be visually prominent from many angles. While there are some existing structures in the surrounding area, the additional buildings and infrastructure to be erected on site will cause a higher visual impact to the natural area. The development will have

an impact on the sense of place of the local community. Therefore the aesthetics quality of the new structures has to be pleasing and designed to blend in with the natural surrounds.

9. SUMMARY OF POTENTIAL IMPACTS

A summary of the significance of the potential impacts from the proposed project assessed above is included in **Table 6**. The **Tables 7 - 9** provide a summary of the mitigation measures proposed for the impacts.

Table 6: Overview of potential impacts

| Impacts | Negative | | Positive | | No Impact |
|--|------------|-----------|------------|-----------|-----------|
| | Short Term | Long Term | Short Term | Long Term | |
| Planning and Design Phase | | | | | |
| 2. Surface and ground water | X | | | | |
| 4. Fauna and flora | X | | | | |
| 5. Existing infrastructure | | | | X | |
| 6 Traffic | X | | | | |
| Construction Phase | | | | | |
| 7. Fauna and flora | X | | | | |
| 8. Pressure on existing infrastructure | X | | | | |
| 9. Surface and groundwater | X | | | | |
| 10. Health, safety and security | X | | | | |
| 11. Air quality | X | | | | |
| 12. Noise | X | | | | |
| 13. Traffic | X | | | | |
| 14. Waste management | X | | | | |
| 15. Hazardous substances | | | X | | |
| 16. Social | | | | | |
| Operational Phase | | | | | |
| 16. Surface and ground water | | X | | | |
| 17. Air quality | | X | | | |
| 18. Noise | | X | | | |

| | | | | | |
|----------------------|--|---|--|---|--|
| 19. Waste management | | X | | | |
| 20. Infrastructure | | | | X | |
| 21. Quality of life | | | | X | |
| 22. Visual | | | | X | |

Table 7: Proposed mitigation measures for the planning and design phase

| PLANNING AND DESIGN PHASE IMPACTS | |
|-----------------------------------|---|
| Impact | Mitigation Measures |
| Surface and ground water | <ul style="list-style-type: none"> • Appoint professional engineers to develop a detailed storm water management design as part of the infrastructure service provision of the development. • The service infrastructure should be designed and constructed by suitably qualified engineering professionals. • Develop and implement a preventative maintenance plan for the service infrastructure. • No dumping of waste products of any kind in or in close proximity to any water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Wastewater should not be discharged directly into the environment. • Disposal of waste from the development should be properly managed. |
| Fauna and flora | <ul style="list-style-type: none"> • Adapt the proposed development to the local environment - e.g. small adjustments to the site layout to avoid potential features such as existing vegetation, large trees, etc. • Plant local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species. • 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 infestate the area further over time. |
| Existing Service Infrastructure | <ul style="list-style-type: none"> • It is recommended that alternative and renewable source of energy be explored and introduced into the proposed development to reduce dependency on the grid. • Solar geysers and panels should be introduced to provide for general lighting and heating of water and buildings. • Other 'green' technologies to reduce the proposed development's dependency on fossil fuel should be explored where possible. • Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy necessities. • Water saving mechanisms should be incorporated within the proposed development's design and plans in order to further reduce water demand. • Re-use of treated waste water should be considered wherever possible to reduce the consumption of potable water. • Adhere to water quality guidelines in terms of The Water Act, 1956. |
| Traffic | <ul style="list-style-type: none"> • Ensure that road junctions have good sightlines. |

| PLANNING AND DESIGN PHASE IMPACTS | |
|-----------------------------------|--|
| Impact | Mitigation Measures |
| | <ul style="list-style-type: none"> • Limit the type of vehicles to use the internal roads e.g. heavy trucks. • Adhere to the speed limit. • Implement traffic control measures where necessary. |

Table 8: Proposed mitigation measures for the construction phase

| CONSTRUCTION PHASE IMPACTS | |
|-------------------------------------|--|
| Impact | Mitigation Measures |
| Fauna and flora | <ul style="list-style-type: none"> • Prevent contractors from collecting wood, veld food, etc. during the construction phase. • Do not clear the entire development site, but rather keep the large individual trees and shrubs not directly affecting the development as part of the landscaping. • Transplant removed vegetation where possible, or plant new trees in lieu of those that have been removed. • The trees that are to be kept should be clearly marked with “danger tape” to prevent accidental removal. • Regular inspection of the marking tool should be carried out. • The very important trees should be “camped off” to prevent the unintended removal or damage to these trees. |
| Pressure on existing infrastructure | <ul style="list-style-type: none"> • Educate workforce on water saving measures. • Ensure all potable water points are metered and regularly read. • Ensure that the workforce is provided with temporary toilets during the construction phase. |
| Surface and Ground Water Impacts | <ul style="list-style-type: none"> • It is recommended that construction takes place outside of the rainy season in order to limit flooding on site and to limit the risk of ground and surface water pollution. • No dumping of waste products of any kind in or in close proximity to water bodies. • 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. • Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with. • Drip trays must be placed underneath construction vehicles when not in use to contain all oil and spillages that might be leaking from these vehicles. |

| CONSTRUCTION PHASE IMPACTS | |
|-----------------------------|--|
| Impact | Mitigation Measures |
| | <ul style="list-style-type: none"> Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies. All materials on the construction site should be properly stored. Disposal of waste from the site should be properly managed and taken to the Gobabis landfill site. Construction workers should be given ablution facilities at the construction site that are located at least 30 m away from any surface water and these should be regularly serviced. Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment this should be done at an area properly suited and prepared to receive and contain contaminated waters. |
| Health, Safety and Security | <ul style="list-style-type: none"> Construction personnel should not overnight at the site, except for security personnel. Ensure that all construction personnel are properly trained depending on the nature of their work. Provide for a first aid kit and a properly trained personnel to apply first aid when necessary. A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases and Covid-19. Provide free condoms in the workplace throughout the construction phase. Facilitate access to antiretroviral medication for construction personnel. Conform to the stipulated protocols related to Covid-19. Restrict unauthorised access to the site and implement access control measures. Clearly demarcate the construction site boundaries along with signage of no unauthorised access. Clearly demarcate dangerous areas and no go areas on site. Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures. The contractor/s must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment where appropriate. Adhere to the Covid-19 protocols as and when they are applicable. |
| Traffic | <ul style="list-style-type: none"> Limit and control the number of access points to the site. Ensure that road junctions have good sightlines. Construction vehicles' need to be in a road worthy condition and maintained throughout the construction phase. |

| CONSTRUCTION PHASE IMPACTS | |
|----------------------------|--|
| Impact | Mitigation Measures |
| | <ul style="list-style-type: none"> • Transport the materials in the least amount of trips as possible. • Adhere to the speed limit. • Implement traffic control measures where necessary. • Minimise the movement of heavy vehicles during peak time. • Minimise the movement of vehicles on or close to the B6 road. |
| Noise | <ul style="list-style-type: none"> • No amplified music should be allowed on site. • Inform neighbouring communities of construction activities to commence and provide for continuous communication between them and contractor. • Limit construction times to acceptable daylight hours. • Install technology such as silencers on construction machinery. • Do not allow the use of horns/hooters as a general communication tool, but use it only where necessary as a safety measure. • Provide protective equipment such as ear muffs and ear plugs to workers. |
| Air quality | <ul style="list-style-type: none"> • All loose material should be kept on site for the shortest possible time. • It is recommended that dust suppressants such as Dustex be applied to all the construction clearing activities to minimise dust. • Construction vehicles to only use designated roads. • During high wind conditions the contractor must make the decision to cease works until the wind has calmed down. • Cover any stockpiles with plastic to minimise windblown dust. • Ensure construction vehicles are well maintained to prevent excessive emission of smoke. |
| Waste | <ul style="list-style-type: none"> • It is recommended that waste from the temporary toilets be disposed of at the Gobabis Wastewater Treatment Works, on a regular basis. • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • The waste containers should be able to be closed to prevent birds and other animals from scavenging. • Solid waste will be collected and disposed off at an appropriate local landfill in Gobabis, in consultation with the local authority. |

| CONSTRUCTION PHASE IMPACTS | |
|----------------------------|--|
| Impact | Mitigation Measures |
| Hazardous Substances | <ul style="list-style-type: none"> • All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable. • Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff be trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication. • Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site. |
| Social | <ul style="list-style-type: none"> • Ensure locals enjoy priority in terms of job opportunities, to the extent possible, for skills that are available locally. • Ensure local procurement where commodities are available locally. |

Table 9: Proposed mitigation measures for the operational phase

| OPERATIONAL PHASE IMPACTS | |
|---------------------------|--|
| Impact | Mitigation Measures |
| Surface and Ground Water | <ul style="list-style-type: none"> • A no-go buffer area of at least 30 m should be allocated to any water bodies in the area. • No dumping of waste products of any kind in or in close proximity to any water bodies. • Contaminated runoff from the various operational activities should be prevented from entering any water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Wastewater should not be discharged directly into the environment. • Disposal of waste from the development should be properly managed. • The service infrastructure should be designed and constructed by suitably qualified engineering professionals. |

| OPERATIONAL PHASE IMPACTS | |
|----------------------------|---|
| Impact | Mitigation Measures |
| | <ul style="list-style-type: none"> • Develop and implement a preventative maintenance plan for the service infrastructure. |
| Visual and Sense of Place | <ul style="list-style-type: none"> • 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. • Natural colours and building materials such as wood and stone should be incorporated. • Visual pollutants can further be prevented through mitigations such as keeping existing vegetation, introducing indigenous trees; keeping structures unpainted and minimising large advertising billboards. |
| Noise | <ul style="list-style-type: none"> • Limit the types of activities that generate excessive noise. • Adhere to relevant municipal by laws. |
| Air quality | <ul style="list-style-type: none"> • Manage activities that generate emissions or dust. • Minimise the movement of vehicles in the area. • The township development needs to be controlled and managed as required by the Public Health Act (Act No. 36 of 1919) and Atmospheric Pollution Prevention Ordinance (No. 11 of 1976). • It is advised to pave the internal road network. |
| Waste management | <ul style="list-style-type: none"> • A sufficient number of waste bins should be placed on the properties for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for at appropriate sites. • The waste containers should be able to be closed to prevent birds and other animals from scavenging. • Solid waste will be collected and disposed off at an appropriate local land fill in Gobabis, this should be done in consultation with the local authority. |
| Quality of life | The township establishment and other related developments will greatly contribute to the well-being and quality of life of the Gobabis residents. |
| Infrastructure development | <ul style="list-style-type: none"> • Ensure that the infrastructure is designed and supervised by suitably qualified engineering professionals. |

10. CONCLUSION AND RECOMMENDATIONS

10.1. Construction Phase Impacts

With reference to **Table 8**, most of the construction phase impacts were deemed to have a negative impact without mitigation. However these were mostly short-term and can be significantly reduced with the mitigation measures proposed.

10.2. Operational Phase

During the operational phase the impacts of surface and ground water; air quality; noise; and waste management were assessed to have a long-term negative effect without mitigation. The impacts will however be significantly reduced when the recommended mitigation measures in the scoping report and environmental management plan (EMP) are implemented.

The impacts on the quality of life of the residents and on the infrastructure development are deemed to be high positive. This development is not only important to provide housing to the Gobabis community, but it also promotes local economic development.

10.3. Level of Confidence in Assessment

With reference to the information available at this stage, the confidence in the environmental assessment undertaken is regarded as being acceptable for decision-making, in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this ESR is adequate to allow MEFT: DEA to determine the environmental viability of the proposed project.

It is acknowledged that the project details may 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 ESR 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.

10.4. Mitigation Measures

With the implementation of the recommended mitigation measures in this report as well as in the EMP, the significance of the planning and design, 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 strongly advised that the proponent appoint a suitably qualified consulting engineer to design and supervise the construction of the service infrastructure, including storm water management.

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

10.5. 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, as the provision of basic services is not only important to ensure the health and progress of the Gobabis community, but also to promote local economic development. It is envisaged that the establishment of the new Gobabis Township as well as the construction of bulk services in Gobabis will form the cornerstone of uplifting and expanding the town and create a more sustainable livelihood for the community socially and economically.

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

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