

## FINAL SCOPING REPORT

### EYE OF AFRICA RESIDENTIAL DEVELOPMENT

PORTIONS 37 AND 38 OF THE FARM ALEWYNSPOORT 145-IR  
MIDVAAL LOCAL MUNICIPALITY

REFERENCE: GAUT002/19-20/E0228



Prepared for:



Eye of Africa Developments (Pty) Ltd.

**MARCH 2020**

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## 1.0 INTRODUCTION

This section briefly describes the project and provides information on the applicant, the proposed activity, details of the environmental consultant and maps out the application process as provided for in the EIA Regulations, 2014 as amended.

### 1.1 Context and background

The applicant, Eye of Africa Developments (Pty) Ltd, proposes to establish an up market residential township that includes, among others, private open spaces and residential uses as well as associated infrastructure. The development constitutes the extension of the existing Eye of Africa Golf Estate situated immediately to the north of the proposed site.

The site is located at the edge of a built up area within geographic areas identified in Listing Notice 3 of the EIA Regulations, 2014 as amended. In terms of the Provincial C-Plan, the site is within a Critical Biodiversity Area and Ecological Support Areas which are potential habitat for red and orange listed plant species and has primary vegetation. Preliminary studies show that large portions of the study area have been disturbed and transformed mainly due to previous establishment of residential unit(s), military activities, quarrying, topsoil removal and agricultural activities among others.

To manage the Environmental Impact Assessment (EIA) application process, the applicant has appointed Nali Sustainability Solutions (Pty) Ltd (NSS) an independent Environmental Assessment Practitioner as required in by the EIA Regulations, 2014 as amended.

### 1.2 Project location

At a regional scale, the subject properties are situated approximately 15 kilometres south of the Johannesburg CBD and approximately 50 kilometres north of Vereeniging.

At a local scale the property is situated to the north-western side of the R554 and R550 intersection, and to the south-eastern side of the R554 and R82 intersection. The subject property is situated in an area bounded by the following roads:

- Kliprivier Road to the north and east;
- R82 to the west; and
- R550 to the south.

The locality of the development site is shown as Figure 1, while Table 1 provides the SG 21 Digit Code of the affected properties.

Table 1: SG 21 Digit Code

T	O	I	R	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	3	7
T	O	I	R	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	3	8

### 1.3 Surrounding land uses and zoning

The proposed development sites are largely vacant with the remnants of the old vandalised buildings and are abutted by well-established residential developments to the north and vacant land in other directions. There is a river to the western side of Portion 36 and other drainage channels on Portions 37 and 38.

The subject properties are still farm portions with the Agricultural zoning. Portions 115 and 116 are also earmarked for residential development.



Figure 1: Locality map

#### 1.4 Details of the applicant

Table 2: Details of the applicant

Project applicant:	<b>Eye of Africa Developments (Pty) Ltd</b>		
Responsible position:	Director		
Contact person:	Mark Mc Govern		
Postal address:	PO Box 545, Eikenhof		
Postal code:	1872	Cell:	0716243889
Telephone:	0105000400	Fax:	010 500 0400
E-mail:	mcgovern.mark@icloud.com		

#### 1.5 Details of the EAP

To ensure full compliance with the EIA Regulations (2014) promulgated under section 24 (5) of the National Environmental Management Act, 1998 NEMA (Act No. 107 of 1998) (NEMA) and environmental best practice, Eye of Africa Developments (Pty) Ltd appointed Nali Sustainability Solutions (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to manage the application process to obtain the Environmental Authorisation for the proposed project.

Table 3: Details of the EAP

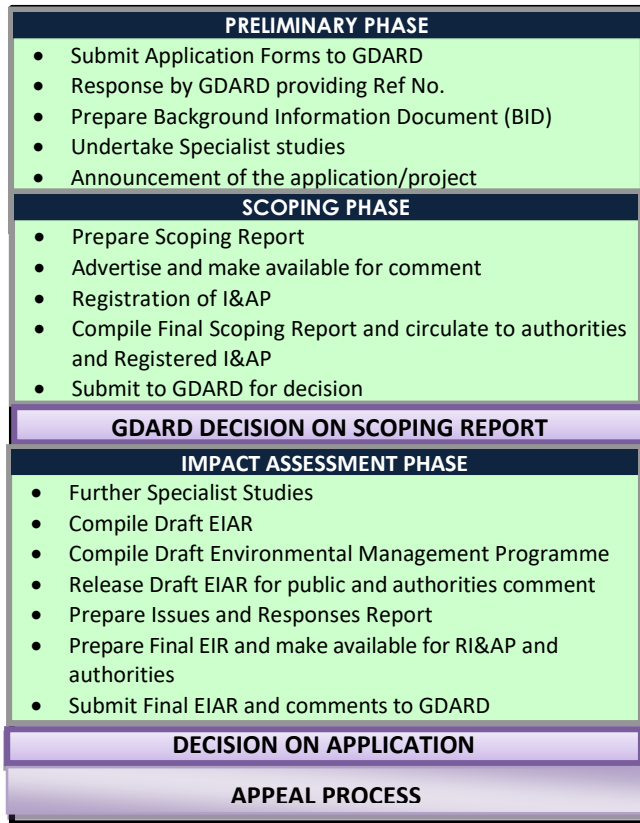
Aspect	Details
Name	Nali Sustainability Solutions (Pty) Ltd
Lead EAP	<b>Mr Pirate Ncube</b>
Physical Address	65 Country Club Drive, Irene Farm Villages, Centurion
Postal Address	P Bag X1, Stand 1829, Irene Farm Villages, Centurion, 0045
Other contact details	Tel: 0824517120; Fax: 086 694 1178; Email: <a href="mailto:ncube.nali@gmail.com">ncube.nali@gmail.com</a>
Expertise/experience	More than 26 years' experience in spatial planning, environmental planning & management, environmental compliance monitoring and reporting. Served/s in various bodies including the DFA Tribunal, Environmental Advisory Committee, MEC Appeals Advisory Panel. Qualified Town Planner with master's in real estate and MBA.

To ensure an effective environmental assessment process and availability of appropriate information for decision making, experts that are well known in their respective specialist fields have been appointed to provide expert information and recommendations in support of the application process.

**1.6 Overview of the application process**

The environmental assessment process will be undertaken in two phases namely:

- **Environmental Scoping Process** which includes the notification of the process and commissioning of specialists’ studies. This particular report details the outcome of this process; and
- **The Environmental Impact Assessment Study** resulting in the Environmental Impact Assessment Report (EIR) as well as an Environmental Management Programme (EMPr). The EMPr will be compiled based on the findings of the EIR, and will provide mitigation and management measures for the planning and construction phase of the project.



**1.7 Objectives of the Scoping Process**

The objective of the scoping process is to, through a consultative process:

- a) Identify policies and legislation relevant to the activity;
- b) Motivate the need and desirability of the proposed activity;
- c) Identify and confirm the preferred activity and alternatives through an impact and risk assessment and ranking process;
- d) Identify and confirm alternatives and the preferred site through a site selection process, which includes an impact and risk assessment inclusive of cumulative impacts and a ranking process;
- e) Identify the key issues to be addressed in the assessment phase;
- f) Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose through the life of the activity, including the nature, significance, consequences, extent, duration and probability of the impacts; and
- g) Identify suitable measures to avoid, manage or mitigate impacts and to determine the extent of the residual risks that need to be managed and monitored.

**1.8 Environmental Impact Assessment Report Phase**

This constitutes the second phase following the acceptance of the Scoping Report. A draft Environmental Impact Assessment Report (EIAR), which takes into consideration all the identified key issues and associated impacts from the Scoping Phase, together with a draft Environmental Management Programme, which specifies the manner in which the proposed mitigation measures are to be implemented, will be developed. The draft EIAR will be made available to registered I&APs, including the competent authority to review and comment for a period of 30 days. Once the comments have been collated, responded to and integrated into the final EIAR the report will be submitted to GDARD for consideration and decision making.

## 2.0 ACTIVITY DETAILS AND MOTIVATION

This section provides details of the proposed activity and associated infrastructure as well as motivation for the proposed development.

### 2.1 Details of the proposed activity

The activity entails the establishment of a residential township with associated infrastructure as well as Private Open Space system.

Access to and egress from the site will be gained via the exiting Eye of Africa Golf and Residential Estate as this development will be a new phase extension. One main access point will be situated to the north of the property gaining access from an existing private road on the southern boundary of the existing estate. All new access points and roads will be designed by traffic engineers and constructed in accordance to the satisfaction of the Local Authority. The internal access will be via internal roads developed in accordance with Council requirements and specifications. All roads will be private roads with access control. The said roads are private and will be transferred to the Eye of Africa Home Owner's Association.

The layout plan has been guided by the development constraints and opportunities presented by the site. Included among these were the shape of the land, nature of adjacent land uses, the need for efficiency in land allocation in relation to, infrastructure services, specialists' recommendations and the wetland areas.

### 2.2 Proposed Land Uses

The land use details are provided in table 2 below while the draft layout is provided as **Figure 4** below.

**Table 4: Proposed land use schedule**

ZONING	Erf No.	Erf size ranges	Total no. of Erven
Residential 1	1 –269	651 to 956m <sup>2</sup>	269
Private Road	270-279	N/A	10
Private Open Space	280-285	N/A	5

### 2.3 Zoning and development controls

The development controls in terms of the Midvaal Local Municipality land use management by-law, 2016 (Previous Peri Urban Town Planning Scheme, 1975) are as follows:

- **Proposed erven 1 to 269**

Use Zone	:	"Residential 1"
Height	:	2-3 storeys
Coverage	:	50%
FAR	:	1.0
Density	:	1 dwelling per erf
Building line	:	3m along all streets and 2m along all other boundaries.

- **Proposed erven 270-279**

"Private Roads" for access purposes and the provision of services and such other uses as the Local Municipality may approve by means of special consent applications.

- **Proposed erven 280-285**

"Private open space" for access purposes and the provision of services and such other uses as the Local Municipality may approve by means of special consent applications.

### 2.4 Proposed Layout Plan

The layout plan will undergo through various iterations to arrive at the preferred layout. Several alternatives will be considered and one such layout is shown below.





Figure 2: Preferred Layout Plan

## 2.5 Infrastructure services

### 2.5.1 Roads access and traffic

Access to the proposed township developments will be provided via the existing Eye of Africa golf estate. Regional accessibility to the development precinct will be from the R82, R59, R554 and R550.

Bulk contributions in respect of roads are to be offset against any required upgrade of other existing roads as may be required by Council and/or required road improvements required in terms of the Traffic Impact Study.

### 2.5.2 Road improvements

A suitably qualified Engineer will be appointed to undertake the Traffic Impact Study (TIS), for which the required road improvements as required from the applicant will be indicated.

### 2.5.3 Stormwater management

The specialist engineer will be appointed to address the stormwater management of the proposed development.

### 2.5.4 Water services

According to Nathoo Mbenyane Engineers (Pty) Ltd., water supply to the existing Eye of Africa Golf and Residential Estate is currently being supplied by Rand Water from a bulk line. This water is pumped to a 4ML reservoir which then feeds into the water reticulation system. This new development will increase the demand for water and a new reservoir will be required in order to allow for a 48-hour demand. This new demand will have to be included in Midvaal's future service planning.

According to the engineers, water demand calculations for the township was determined to be in the very high development level category and therefore the water demand of 1 350l/erf/day was determined using the average stand area of 800m<sup>2</sup>.

The following design criteria have been used:

- Average Annual Daily Demand (AADD) Res 1 : 1200-1500 l/day/unit
- Demand for this Development : 1350 l/day/unit
- Water Losses : 10%
- Daily Peak Factor : 3.0
- Fire Risk Category : Moderate

The water demand for the proposed development is:

- No of Unit : 280 @ 1350l/day
- Daily Demand (l/d/unit) : 391 500 l/day
- Peak Daily Demand : 1 134 000 l/day
- Water Losses : 113 400 l/day
- Total Peak Demand : 1 247 400l/day
- Peak Demand (l/s) : 14.43 l/s or 867 l/minute
- Design Peak Demand (l/s) : 16.59 l/s or 996 l/minute

The peak demand flows require a minimum 171.16mmØ pipe for the internal reticulation. It is proposed that a 200mmØ pipe be used for the development. The 200mmØ pipe at 100% or 67% will provide a capacity of 25.12l/s or 24.36l/s which is higher than the required capacity of 16.59 l/s.

Using the average water demand of 1 350l/erf/day and the peak factor of 3, the calculations above indicates that a peak water demand value of 1 247 400l/day or 1.25Ml/day is required for the new development phase.

### 2.5.5 Sewerage

According to Nathoo Mbenyane Engineers (Pty) Ltd, the current wastewater from the development is being processed by a 1.5ML Package Plant. The grey water is pumped into mini dams within the development and this grey water is used to irrigate all landscaped areas.

Alternatives to the provision of sewer services were considered. These included:

- Construction of reticulates system to connect to the available nearest services. This was considered not feasible due to the capacity, topography/distance and costs.
- Pumping of the sewer from the new development into the existing wastewater from the new phase to the existing package plant. This alternative was evaluated, see section 5 below and deemed to less than optimal.
- Construction of a new package plant (preferred) as described below.

The plant will be constructed approximately south east of the existing development at AMSL 1612m. The capacity of the plant will be designed to accommodate the proposed new development requirements and any other future phases.

The following design criteria have been used:

- No. of Units : 280
- Average Erven Size : 800m<sup>2</sup>
- Design Flow (Residential 1) : 1200 l/d/unit (336 000 l/d)
- Peak factor (Jhb Water Guidelines) : 2.5
- Infiltration : 15% - (2.25 l/s)
- Peak Design Flow : 996 000l/s (11.18l/s)
- Minimum velocity : 0.91m/s
- Maximum Velocity : 2.5m/s
- Design flow : 67%
- Peak Design flow Rate : 11.18 l/s
- Manning 'n' : 0.012
- Calculated Pipe Size : 155mmØ
- Design Pipe Size : 200mmØ

A value of 1000l/du/day was used and increased to 1200l/du/day as it was considered to be very conservative for sanitation flow for this type of development. A peak factor of 2.5 and an extraneous flow of 15% was applied to determine the required sanitation capacity requirement.

The calculations above indicate a peak design flow of 966 000l/day or 0.96ML/day. Therefore, a 1ML/day plant would adequately accommodate the expected peak flows for the new development. At the lowest section connecting into the package plant, a 200mmØ pipe will adequately handle peak flows. The 200mmØ pipe, at a capacity of 67% volume will be able to handle 24.37l/s versus the peak design flow rate of 11.18l/s.

### 2.5.6 Electricity supply

According to the town planning memo, electricity supply to the proposed development is available. All necessary upgrades and internal reticulation will be installed by the developer.

## 2.6 Listed Activities triggered

In terms of the NEMA EIA Regulations of 2014 as amended, the table below presents the list of activities that have to be authorised.

Table 5: List of activities triggered

Government Notice:	Activity No (s)	Describe each listed activity as per the wording in the listing notices:
7 April 2017	LN 1 Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
7 April 2017	LN 1 Activity 10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
7 April 2017	LN 1 Activity 11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is – (a) ...
7 April 2017	LN 1 Activity 12	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse, measured from the edge of a watercourse; (b) ... (c) If no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse excluding – (aa).... (bb)...
7 April 2017	LN 1 Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving soil, sand, shells, shell grit, pebbles or rocks of more than 10 cubic metres from a watercourse;  but excluding... (a) ...;

		<p>(b) Is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) ...</p> <p>(e) ...</p>
7 April 2017	LN 1 Activity 24	<p>The development of a road—</p> <p>(i) ...; or</p> <p>(ii) with a reserve wider than 13,5metres, or where no reserves exist, where the road is wider than 8 metres;</p> <p>but excluding a road-</p> <p>(a)....;</p> <p>(b) ...</p> <p>( c) ...</p>
7 April 2017	LN1, Activity 27	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <p>i. the undertaking of a linear activity; or</p> <p>ii. maintenance purposes undertaken in accordance with a maintenance management plan.</p>
7 April 2017	LN 2, Activity 15	<p>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-</p> <p>i. the undertaking of a linear activity; or</p> <p>ii. maintenance purposes undertaken in accordance with a maintenance management plan.</p>
7 April 2017	LN 3, Activity 4	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p><b>c. Gauteng</b></p> <p>i....;</p> <p>ii....;</p> <p>iii....;</p> <p>iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;</p> <p>v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</p> <p>vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority;</p> <p>vii....;</p> <p>viii....;</p> <p>ix....;</p> <p>x....;</p> <p>xi....; or</p> <p>xii....</p>
7 April 2017	LN3, Activity12	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p>

		<p><b>c. Gauteng</b></p> <ul style="list-style-type: none"> <li>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</li> <li>ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or</li> <li>iii. ...</li> </ul>
7 April 2017	LN3, Activity 14	<p>The development of—</p> <ul style="list-style-type: none"> <li>(i) ...; or</li> <li>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</li> </ul> <p>where such development occurs—</p> <ul style="list-style-type: none"> <li>(a) within a watercourse;</li> <li>(b) in front of a development setback; or</li> <li>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</li> </ul> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p><b>c. Gauteng</b></p> <ul style="list-style-type: none"> <li>i. ...;</li> <li>ii. ...;</li> <li>iii. ...;</li> <li>iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;</li> <li>v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</li> <li>vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority;</li> <li>vii. ...;</li> <li>viii....;</li> <li>ix....; or</li> <li>x...</li> </ul>

## 2.7 Motivation for the proposed activity

The proposed development will provide higher order socio-economic value to the area. This will complement development already approved as part of the Eye of Africa township (precinct). On the other hand, the development proposal will contribute to mixed use development within the area thereby contributing positively to the unlocking of the economic investments and developments in the region, employment opportunities created, general upliftment of the area and provision of housing opportunities.

### 2.7.1 Need and desirability

The area in which the subject properties are situated is fast becoming a popular mixed-use area in which up market residential typologies are on offer. Gauteng is in greater need of various typologies of housing fabric. The proposal of the applicant is to provide medium size stands for the development of up market residential houses which end to have less detrimental effects on the receiving environment.

As far as health, safety and good order may be concerned, these are matters already controlled by various environmental laws. It follows that considerations relevant to health, safety and good order will be adhered to throughout the different phases of the proposed township.

As far as desirability is concerned, the applicant has demonstrated that the proposal will be compatible with the prevailing land use trend in the area. Also, the proposal of the applicant aligns positively with the adopted policy of the municipality to the extent that this may be relevant. It follows that the consolidation of residential development will inherently be desirable from a land use and spatial planning context. There are no sensitive land use categories situated close to the subject property which may be incompatible with the proposal of the applicant. The desirability of the proposal is therefore self-evident.

## **2.8 Description of Alternatives**

The Integrated Environmental Management procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. The various alternatives will be assessed in terms of both environmental acceptability as well as economic feasibility. The preferred option is to be highlighted and presented to the authorities.

The following alternatives are examples of the different kinds of alternatives that may be considered and investigated for a particular development:

- Input alternatives;
- Activity alternatives;
- Layout alternatives
- Location alternatives;
- Status quo / no-go alternatives;
- Demand alternatives / Supply alternatives;
- Scheduling alternatives; and
- Process alternatives.

### **2.8.1 Input alternatives**

Various types of material can be used for the construction of the proposed Township and its associated structures. These include different brick types (face brick, cement brick, etc.), roof types (pitched or flat), finishes (paint colour, external lighting, landscape features, etc.) and road surfacing (asphalt, brick paving). The proposed development should enhance the status of the area, be aesthetically pleasing and present a high order node in the area.

Energy effective construction and orientation methods need to be considered. The following recommendations regarding building structures and designs are recommended:

- Use of building material that requires excessive amounts of energy to manufacture should be minimised;
- Use of building material originating from sensitive or scarce environmental resources should be minimised, e.g. no tropical hardwood may be used;
- Building material should be legally obtained by the supplier, e.g. wood must have been legally harvested, and sand should be obtained only from legal borrow pits and from commercial sources;
- Building material that can be recycled / reused should be used rather than building material that cannot;
- Use highly durable building material for parts of the building that is unlikely to be changed during the life of the building (unlikely to change due to e.g. renovation, fashion, changes in family life cycle) is highly recommended;
- Make use of recycled concrete (green concrete); and

- Make use of clay blocks for construction of buildings.

### **2.8.2 Activity alternatives**

These are sometimes referred to as project alternatives, although the term activity can be used in a broad sense to embrace policies, plans and programmes as well as projects. Consideration of such alternatives requires a change in the nature of the proposed activity.

For this proposed development, consideration was given to a mix of land uses rather than a single activity on site. However, the applicant decided to pursue the expansion of the existing residential township.

In addition, different approaches to the provision of sewer infrastructure were considered.

### **2.8.3 Site layout alternatives**

Site layout alternatives permit consideration of different spatial configurations of an activity on a particular site. This may include particular components of a proposed development or may include the entire activity. For example, siting of a particular structure either prominently to attract attention or screened from view to minimize aesthetic impacts.

### **2.8.4 Location alternatives**

No alternative sites have been considered by the proponent, as this site is owned by the proponent and is contiguous to areas/sites that have been developed by the applicant. Preliminary investigations concluded that the proposed site is the most suitable due to its ideal location in terms of the requirements for business, office and residential development. Moreover, this township forms part of the precinct that has already been authorised for development.

### **2.8.5 Demand alternatives**

The residential sector in Gauteng, South Africa, has performed very well over the last few years. This increased performance results from the abnormally long and severe slump in “construction fixed investments” during the 1980’s and 1990’s. A typical “construction fixed investment” cycle should be in the region of 15-20 years. In the 80’s/90’s period of stagnation in South Africa, this cycle was almost two decades. Subsequently, the country’s economic growth has been on a broad, accelerating path, since the early 1990’s. Hence, the demand for residential infrastructure has been established.

### **2.8.6 Assessment of alternatives considered**

Land uses choices as reflected in the layout, route alignment for the electrical cables and the no-go alternatives were evaluated for the site. Please refer to section 5 below where the different alternatives are assessed.

### **2.8.7 Status quo / No-go alternatives**

The no-go option was also considered. This entails leaving the site in its present state. The site is currently to a large extent vacant. Leaving it in its present state would mostly likely result in the site being unattended to, uncontrolled and unmanaged which could subject the site to abuse and degradation (which is already taking place), as no control mechanisms are likely to be implemented.

Vacant land within the Gauteng urban core in general is a valuable commodity and resource and even more so when such land falls within or is adjacent to a development corridor. It is imperative that such a resource is not left vulnerable to the effects of urban decay and its negative economic and social implications.

If development of the site is not approved the site will remain as is. Given that preliminary assessment does not point to any environmental fatal flaws and that the development is likely to contribute substantially to economic development, employment creation and that the ecosystem will not be adversely affected it is therefore considered proper that development of the site might be a better option from economic, social and



environmental perspectives. This shall be confirmed through the detailed assessment to be conducted through the EIR process.

### 3.0 LEGISLATIVE AND POLICY CONTEXT

This section serves to highlight key legislation and policy framework that has implications on the proposed activity. It must be noted that this list is not exhaustive but notes, at high level, the critical laws and policies that have been considered.

#### 3.1 The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)

All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment by virtue of the fact that environmental rights have been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management. An objective of local government is to provide a safe and healthy environment (Section 152) and public administration must be accountable, transparent and encourage participation (Section 195(1)(e) to (g)).

##### Implications for the proposed development:

- Obligation to ensure that proposed activity will not result in pollution and/or ecological degradation;
- Obligation to ensure that where possible conservation is promoted; and
- Obligation to ensure that the proposed activity is ecologically sustainable, while demonstrating economic and social benefits.

#### 3.2 The National Environmental Management Act, 1998 (Act No.107 of 1998)

The National Environmental Management Act (Act No. 107 of 1998) (NEMA) is South Africa's overarching framework for environmental legislation. The object of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state.

It sets out a number of principles that aim to give effect to the environmental policy of South Africa. These principles are designed to, amongst others, serve as a general framework for environmental planning, as guidelines by reference to which organs of state must exercise their functions and guide other laws concerned with the protection or management of the environment.

Chapter 5 of NEMA serves to promote integrated environmental management which must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. Development must be socially, environmentally and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors.

In terms of the NEMA and the EIA Regulations, 2014 as amended, an application for environmental authorisation for listed activities must be submitted to the competent authority for authorisation. The current EIA regulations, promulgated in terms of Sections 24(5), 24M and 44 of the NEMA commenced on 07 April 2017 consists of three Listing Notices where Listing Notice 1 lists those activities for which a Basic Assessment is required, Listing Notice 2 lists those activities requiring a full EIA (Scoping and Impact Assessment phases), and Listing Notice 3 lists certain activities and competent authorities in specific identified geographical areas. The Regulations defines the EIA processes that must be undertaken to apply for Environmental Authorisation. The listed activities that are applicable to this project are identified in Section 2 above.

##### Implications for the proposed development

- The principles espoused in NEMA serve as guidelines for decision makers to ensure the protection of the environment. Therefore, the proposed development must be consistent with these principles.
- Where this is not possible, deviation from these principles would have to be very strongly motivated;

- The activity may not take place without the required authorisation; and
- Both the Scoping and EIAR processes will have to be informed by these principles and include public participation. The outcomes of these are to be incorporated into the final reports to be submitted for decision making.

### **3.3 National Environmental Management: Waste Act, 2008 (Act No 59 of 2008)**

One of the main objectives of the NEMWA is to provide for the regulation of waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. The Act provides:

- National norms and standards for regulating the management of waste by all spheres of government;
- Specific waste management measures including:
  - The licensing and control of waste management activities;
  - The remediation of contaminated land;
  - to provide for the national waste information system; and
  - Compliance and enforcement mechanisms.

In terms of the NEMWA, certain waste management activities must be licensed and in terms of Section 44 of the Act, the licensing procedure must be integrated with an environmental impact assessment process in accordance with the EIA Regulations promulgated in terms of the NEMA. Government Notice 921, which was published in Government Gazette No.37083, on 29 November 2013 and implemented with immediate effect, lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment, and Category B activities, which require a full EIA (Scoping followed by Impact Assessment)

#### **Implications for the development:**

- Any activities listed in GN 718 of the Waste Act require an EIA.
- Waste generated by the activity must be managed in accordance with the provisions of the Act.

### **3.4 The National Environmental Management: Biodiversity Act (Act 10 of 2004)**

The Act provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. This Act allows for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute. Key elements of the Act are:

- The identification, protection and management of species of high conservation value;
- The identification, protection and management of ecosystems and areas of high biodiversity value;
- Biodiversity Initiatives such as the STEP (Subtropical Thicket Ecosystem Plan) and CAPE (Cape Action Plan for People and Environment) may become accepted as bioregional plans and are thus implemented as legislation;
- Alien invasive species control of which the management responsibility is directed to the landowner; and
- Section 53 of the Act identifies that any process or activity that is regarded as a threatening process in terms of a threatened ecosystem, requires environmental authorization via a full Environmental Impact Assessment (Government Notice No. 387).

#### **Implications for the current development:**

- Any areas on site confirmed to be of high biodiversity need to be protected;
- GDARD would have to be contacted in order to obtain a permit to remove any protected indigenous plants.

### 3.5 The National Water Act, 1998 (Act No.36 of 1998)

The National Water Act (The Act) provides for the management of South Africa's water resources. The purpose of the Act is to ensure that the Republic's water resources are protected, used, developed, conserved and controlled. It is concerned with the allocation of equitable access and the conservation of water resources within South Africa. The National Water Act of 1998 repealed many of the powers and functions of the Water Act of 1956. Key provisions include the following:

- Catchment Areas - Any disturbance to a watercourse such as the construction of a dam or weir type facility requires authorization from the Minister of Water Affairs.
- Water Supply - Under the National Water Act, a developer is required to obtain the necessary permits for water usage and the disposal of wastewater from the authority responsible for the administration of the Act.
- Any private well or borehole sunk for the abstraction of groundwater has to be reported and registered with the regulatory authority.
- Wastewater - The National Water Act is the principal piece of South African legislation governing wastewater management.

#### Implications for the proposed development:

- Any proposed water uses must be specified and registered and/or licensed;
- Any modifications to drainage lines on site must be investigated in terms of water use requirements;
- The developers are responsible for taking reasonable measures to prevent pollution of water resources that it owns, controls, occupy or uses on the land in question;
- The developers are required to remedy a situation where pollution of a water resource occurs following an emergency incident and where it is responsible for the incident or owns or is in control of the substance involved;
- The developers must take all reasonable measures to minimise the impacts of the incident, undertake clean-up procedures, remedy the effects of the incident and take measures as directed by the catchment agency; and
- Waste created during construction needs to be controlled adequately to negate the impacts on ground and surface water.

### 3.6 The National Heritage Resources Act, 1999 (Act 25 of 1999)

The Act aims to promote the good management of the national estate of South Africa. The national estate can include:

- Places, buildings, structures and equipment of cultural significance;
- Places to which oral traditions are attached or that are associated with living heritage;
- Historical settlements and townscapes;
- Geological sites of scientific or cultural importance;
- Archaeological and palaeontological sites;
- Graves and burial grounds, including:
  - Ancestral graves
  - Royal graves and graves of traditional leaders
  - Graves of victims of conflict
  - Graves of individuals designated by the Minister by notice in the Gazette
  - Historical graves and cemeteries
- Other human remains covered by the Human Tissue Act, 1983 (Act No 65 of 1983).
- Sites of significance relating to the history of slavery in South Africa.

In terms of Section 38 of the Act, the South African Heritage Resources Agency (SAHRA) must be notified during the early planning phases of a project for any development that includes the following activities:

- the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development

- or barrier exceeding 300m in length
- any development or activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent
  - involving three or more existing erven or subdivisions thereof
  - involving three or more erven or divisions thereof which have been consolidated within the past five years
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent, or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

**Implications for the proposed development:**

- Any artefacts uncovered during the construction phase must be reported to SAHRA;
- No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or palaeontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority. The age of the stable building on site needs to be determined; and
- SAHRA must be informed of the proposed development and provided an opportunity to comment. This may result in the need for a basic heritage assessment.

### **3.7 The Gauteng Provincial Environmental Management Framework, 2015**

The objective of the GPEMF is to guide sustainable land use management within the Province. The GPEMF, inter alia, serves the following purposes:

- To provide a strategic and overall framework for environmental management in Gauteng;
- Align sustainable development initiatives with the environmental resources, developmental pressures, as well as the growth imperatives of Gauteng;
- Determine geographical areas where certain activities can be excluded from an EIA process; and
- Identify appropriate, inappropriate and conditionally compatible activities in various Environmental Management Zones in a manner that promotes proactive decision-making.

According to the EMF, the site is located in Zone 4: Normal Control Zone. This includes all agricultural land outside the urban edge and not included in Zone 1 (High Control Zone). It includes activities like low density/rural residential, tourism and agri-industries in the agricultural areas.

**Implications for the proposed development:**

- The proposed land uses are not aligned with the primary uses proposed for this zone. However, cognizance is taken of the location of the site adjacent to the existing Eye of Africa development and surrounded by ridges. The proposal therefore promotes development infill, densification and concentration of urban development to establish a more effective and efficient land use pattern that will minimise urban sprawl.

### **3.8 Sedibeng District Municipality Spatial Development Framework 2019**

The main objective of the project is to develop a SDF for the entire Sedibeng District Municipality area of jurisdiction which includes the Emfuleni, Midvaal and Lesedi local municipalities. This SDF needs to address spatial, environmental and economic issues confronting both the urban and rural areas. The District Municipality is characterised by a dispersed spatial structure, with various towns and informal settlements spread across the entire municipal area, whilst the rural areas consist of a large number of farms, as well as agricultural holdings.

Further, the SDF responds to the policy and legislative parameters established by National and Provincial Government, and take cognisance of the municipal space economy in the context of the provincial and national space economies.

**Implications for the proposed development:**

- The SDF identifies the Eye of Africa Development as one of the Urban Footprint areas in the region. As a result, the proposed development could be seen as encouraging consolidation of urban uses in already established urban areas.

### 3.9 Midvaal Spatial Development Framework

The Midvaal Spatial Development Framework (2019) constitutes an update of the 2014 framework. It seeks to address spatial, environmental and economic issues confronting the urban and rural areas of the Municipality, and incorporate all new information and plans applicable to the Midvaal area. The SDF also serves to facilitate implementation of the IDP and all government intentions to fight poverty and facilitate rural development in the rural parts of the Midvaal Municipality.

The Eye of Africa development has been identified in the SDF as one of the key residential areas in the municipality.

**Implications for the proposed development:**

- The SDF identifies the Eye of Africa Development as an important low density development with less detrimental environmental impacts.
- The site falls within the extensive agricultural area (Normal Control Zone) in terms of the Environment Management Zone. This zone is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone. According to the municipality, development in these areas will be subject to conditions as determined by the MLM and will only be considered on very low potential agricultural land.

MIDVAAL SPATIAL DEVELOPMENT FRAMEWORK  
Composite

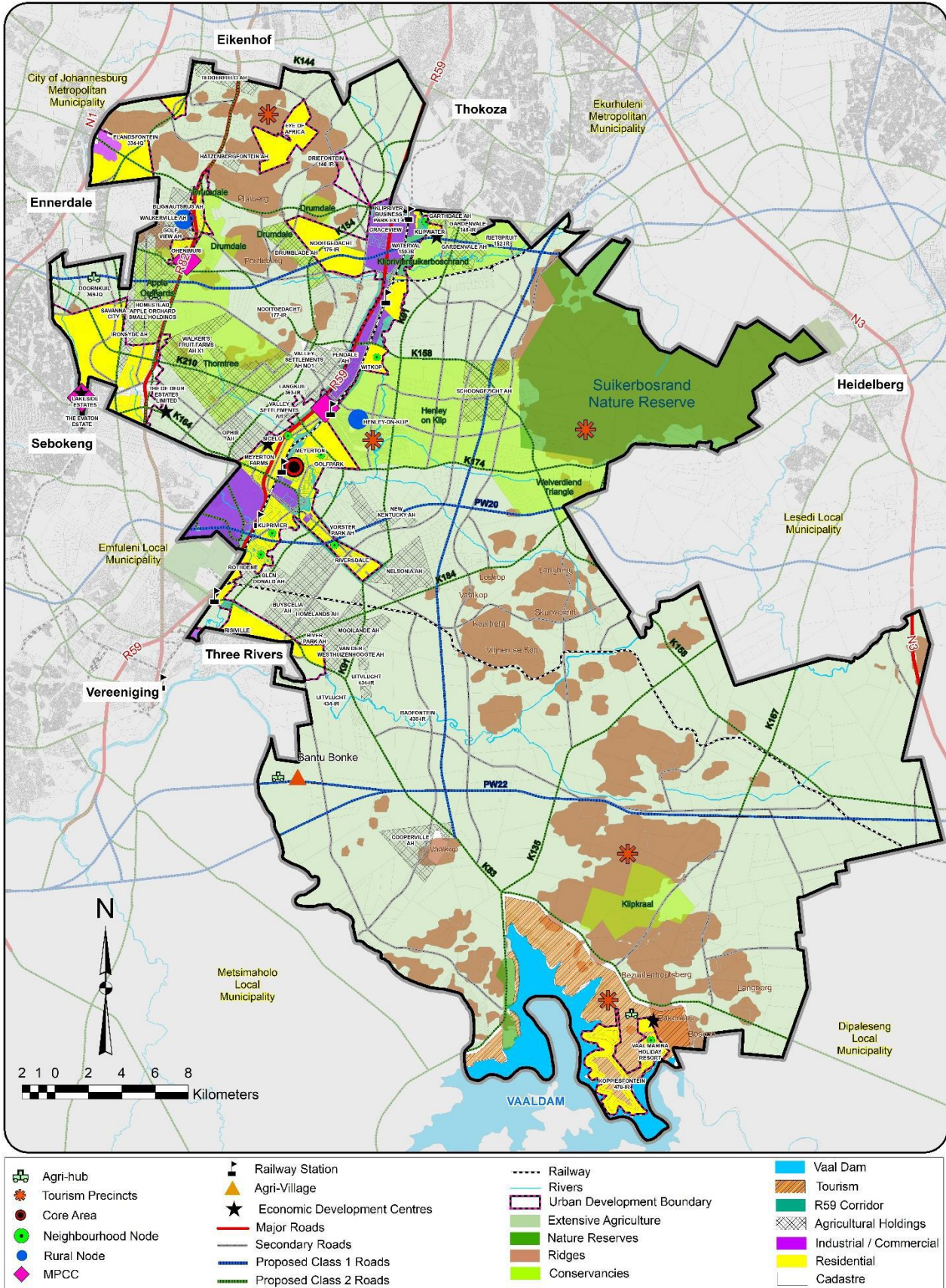


Figure 3: Midvaal Spatial Development Framework

### 3.10 Other policies, plans and guideline documents

Other policies, municipal plans and guideline documents that are relevant to the project are listed below:

- Guidelines published in terms of the NEMA EIA Regulations;
- Electricity Act (Act 41 of 1987);
- Civil Aviation Act (Act 13 of 2009) and Civil Aviation Regulations of 1997;
- Civil Aviation Authority Act (Act 40 of 1998);
- White Paper on Renewable Energy (2003);
- Conservation of Agricultural Resources Act (Act No. 43 of 1983);
- National Road Traffic Act (Act No. 93 of 1996).
- Gauteng Employment Growth and Development Strategy
- Gauteng 2055 (2014)
- Gauteng C-Plan Version 3.3



## 4.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section describes the biophysical and socio-economic environment that may influence or be affected by the development while establishing the baseline conditions of the site. This includes information obtained from literature sources and is described at a level deemed appropriate for a Scoping study. A summary of the affected environment is provided, and more detailed studies focused on significant environmental aspects of the development will be provided during the impact assessment phase. The three components to the environment are recognised as:

- Physical Environment
- Biological Environment
- Socio-Economic Environment.

Only those elements of the environment considered to have a bearing on the project are discussed.

### 4.1 Physical Environment

#### 4.1.1 Climate

According to Henning (2016), the Eikenhof area has a moderately dry subtropical climate, specifically a humid subtropical climate, with long hot and rainy summers and short cool and dry winters. Effectively three seasons occur annually, namely a cool, dry season from May to August, a hot, dry season from mid-August to October, and a hot, wet season from November to April.

Summer rainfall patterns predominate with the traditional heavy deluges in the afternoon (cumulonimbus induced thundershowers being the norm). December and January are the peak rainfall months with hail being prevalent. Frontal climatic systems bring soft soaking rains on occasion. Mean annual precipitation (MAP) varies between 600 and 800mm. During certain years large-scale flooding occurs in this catchment which wreaks tremendous damage on irrigation farming operations. The average annual temperature is 18.7°C, while the mean monthly maximum and minimum temperatures for the area are 35.3°C and -3.1°C for November and June, respectively.

#### 4.1.2 Air quality

No intensive air quality study has been commissioned. Thus the approach will be to investigating the potential impacts of dust associated with the construction phase activity, sulphur and carbon monoxide emissions from combustion of petroleum products from both construction equipment and machinery. Good housekeeping and Best Practicable Environmental Measures will be implemented to avert detrimental impacts on the air quality.

#### 4.1.3 Noise

Sensitive receptors are primarily residential areas close to the site. However, the receptors are buffered from the site by main roads and open spaces.

#### 4.1.4 Topography

The SANBI BGIS has classified the study area as falling within the Savanna biome characterized by varying slopes.

#### 4.1.5 Geology and Soils

No intensive geological survey has been done.

#### 4.1.6 Surface water

The project area is situated within the quaternary catchments, C22D. There is a watercourse to the western side of Portion 36, although this section of the river is non-perennial. The study area is drained mainly by surface run-off (i.e. sheetwash) with surface water flowing into non-perennial streams of the study area. It

must be noted that stream flow along the non-perennial drainage channels occurs only during and directly after heavy precipitation events and may continue for a short period directly after a particularly good rainy season.

## 4.2 Biological Environment

### 4.2.1 Terrestrial ecology

The ecological assessment undertaken by Cornerstone Consultants in May 2019 (which informs the details in this section), has found out that although the subject properties are transformed and degraded, there are still some species of conservation concern on site. The class 2 ridge has been noted and classified as undevelopable.

An important aspect relating to the proposed development should be to protect and manage sensitive biodiversity aspects including, where appropriate, the vegetation types on the proposed development site. Vegetation removal should be kept to the footprint areas of the proposed development. Considering the mostly degraded state of the ecosystem of the sites in general, the impact on the vegetation of the larger area would be Medium. Mitigation measures and monitoring should however reduce the impact from Medium to low.

### Biome

The project area lies within the Savanna Biomes as indicated in Figure 4. The Savanna Biome is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The environmental factors delimiting the biome are complex and include altitude, rainfall, geology and soil types, with rainfall being the major delimiting factor. Fire and grazing also keep the grassy layer dominant.

As the project area lies within the Savanna Biome, it forms an important ecotone between the two biomes. Ecotones are transitional areas between adjacent but different habitats, ecosystems, landscapes, biomes, or ecoclimatic regions. Ecotones that are unique entities in the context of climate change are transition zones between ecoclimatic regions. Ecotones have narrow spatial extent, a steep ecological gradient and hence high species richness a unique species combination, genetically unique populations and high intra-species genetic diversity.

### Vegetation Type

The site is classified as Gauteng Shale Mountain Bushveld consisting of slightly undulating plains. Species-rich grasslands form a complex mosaic pattern dominated by many species. Prominent grasses are *Loudetia simplex*, *Hyparrhenia hirta*, *Brachiaria serrata* and *Heteropogon contortus*, as well as scattered shrubs including *Euclea undulata*, *Searsia magalimontanum*, *Zanthoxylum capense* and *Diospyros lycoides*. The conservation status is "Vulnerable", with a small extent conserved. A big portion of savanna is already transformed for cultivation, by urban sprawl or by mining activity as well as the building of dams.

An important aspect relating to the subject properties is to protect and manage the biodiversity (structure and species composition) of the vegetation types represented on site. Future development activities should aim to remove minimal vegetation and only vegetation on the footprint areas should be removed during development constructions. The unnecessary removal of tall indigenous tree species (>3m) and indigenous vegetation during construction should be avoided as far as possible.

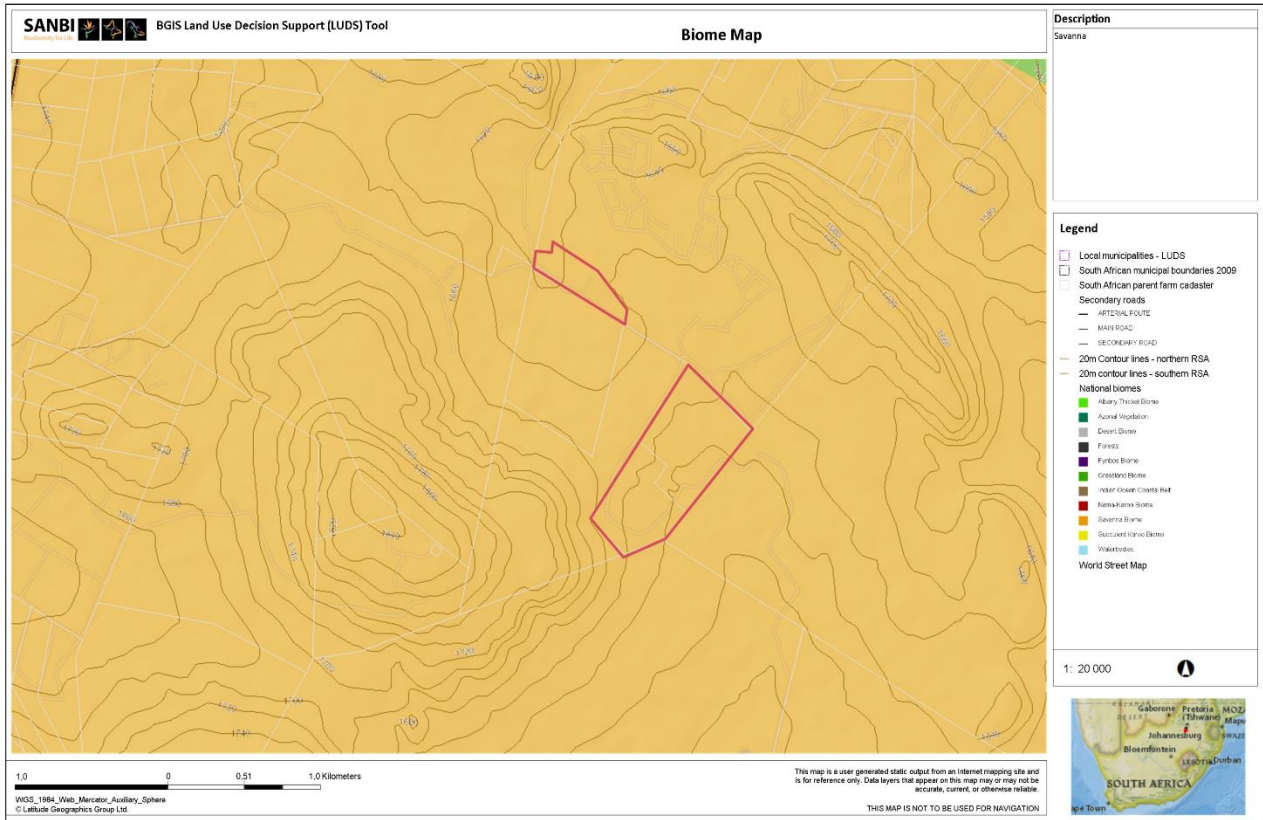


Figure 4: Vegetation Types

### Floral assessment

The study area is characterised by two major landscapes namely slightly undulating plains; and low-lying bottomlands. Vegetation units were identified during the ecological surveys according to plant species composition, previous land-use, soil types and topography. The state of the vegetation of the proposed development site varies from completely modified to highly degraded on the rocky outcrops and woodland sections.

The vegetation communities identified on the proposed development site during the ecological surveys are classified as physiographic-physiognomic units, where physiognomic refers to the outer appearance of the vegetation, and physiographic refers to the position of the plant communities in the landscape. The physiographic-physiognomic units will be referred to as vegetation units in the following sections. These vegetation units are classified according to the land-use and soil differences that had the most definitive influence on the vegetation units.

### Faunal assessments

Mammals are sensitive to disturbances and habitat destruction and degradation and as such the anticipated species diversity of the study area would be low. Settlement areas have negated the possibility of encountering any medium to large mammals. The presence of dogs as well as poaching activities, poses a threat to the presence of mammals on sites. The mammals are mostly represented by generalised species such as rodents, scrub hares and smaller antelope (steenbok, common duiker) that will move through the area while foraging.

No signs of the red data listed *Lutra maculicollis* (Spotted-necked Otter) was documented in the project area, especially considering the highly degraded state of the watercourse.

Three major bird habitat systems were identified within the borders of the study site, namely grassland, woodland (exotic and indigenous) and watercourse. The majority of the natural grasslands and woodland in the area have been transformed.

Most bird species identified within the study area are common species known to nest within or utilise the grassland, riparian woodland and microphyllous woodland habitat in the region and may be either permanently or occasionally present within the study area. In general terms these open grassland patches could attract the Secretary bird, White-bellied Korhaans, and White Stork and Abdim's Stork.

There is a potential presence of some toads and sand frogs in the watercourse areas on site, as they only need temporary pools for reproduction and the watercourse may provide suitable habitat. The dams that occur on the project area definitely improve conditions for dry-land amphibians. Amphibian species potentially occurring in the area include Common River Frog, Natal Sand Frog, Gutteral Toad, Raucous Toad and Bubbling Kassina. These species are non-threatened and widespread species, and as such the development will not have any impact on amphibian conservation within the region.

#### **Red List mammals**

- All suitable habitat for terrestrial Red List mammal species observed or potentially occurring on the site must be mapped and designated as sensitive.
- All suitable habitat for Red List mammal species associated with wet habitats observed or potentially occurring on the site must be mapped and designated as sensitive, including the appropriate buffers for wetlands and rivers.
- All caves, including a 500m buffer zone must be designated as sensitive.

#### **Red List birds**

- The sensitivity map must demarcate as sensitive areas of suitable habitat on the proposed development site and neighbouring properties for each priority Red List bird species, together with appropriate buffers and corridors. All sensitive habitats (e.g. wetlands) must be clearly demarcated using the appropriate techniques even where the probability of priority Red List species utilizing them is considered small.
- The species-specific spatial rules must be applied and relevant areas designated as sensitive.

#### **4.2.2 Aquatic ecology**

The watercourse on site can be classified as valley bottom and artificial depressions (man-made dams). The smaller stormwater canals represent watercourses and riparian woodland. The identification of the watercourses was done according to the aerial photograph and a field survey where the topography of the landscape and vegetation were used to delineate the watercourse or riparian zone.

The area in the southern section of the site represents valley-bottom watercourse. In terms of plant species composition, the watercourse represents moist grassland dominated by grasses such as *Setaria sphacelata*, *Sorghum bicolor* and *Sporobolus africanus*.

The valley bottom was found to provide a distribution route for weeds and invading species. Many of the usual weeds were recorded. Weeds and invaders should be removed, as well as destruction of such plants in a safe place and manner.

## 4.3 Human Environment

### 4.3.1 Socio-economic issues

The site is located within the Midvaal Local Municipality area. The Region borders on the area of jurisdiction of the City of Johannesburg Metropolitan Municipality, Ekurhuleni Metropolitan Municipality, Emfuleni Local Municipality, and Lesedi Local Municipality in the greater Gauteng region. According to the Midvaal Spatial Development Framework (SDF), the following are key features of the municipality:

- The municipality has strong regional linkages to major economic cores like Johannesburg, Ekurhuleni and the Vereeniging-Vanderbijlpark complex. These include routes R59 and R82, and the Vereeniging-Germiston railway line.
- The municipal area is predominantly rural, with urban development predominantly consolidated along routes R59 and R82 in the north-western parts of the municipal area.
- Meyerton is the highest order town in the area with a relatively large business and residential component. Smaller settlements and agricultural holdings in the surrounds act as service centres to the surrounding local communities.
- The local population is relatively well educated, and unemployment levels are low compared with provincial and national averages.
- The strongest economic drivers in Midvaal are: Manufacturing (29.5%), Financial and Business Services (18.5%), Trade (14.5%), and General Government Services (9.4%). There are indications that the Manufacturing sector is declining; there is thus a need to diversify the Midvaal economy.
- The urban areas and agricultural holdings exhibit the highest population growth rates.
- The official backlog with regards to informal settlements and backyard units (according to Census 2011) was determined to be 5546.
- The population is projected to grow between 3288 and 4681 people per annum for the next six (6) years. The related projected household growth is between 1034 and 1472 housing units per annum.
- The total housing supply of existing housing projects is calculated at 23 825 units comprising 8858 middle and high income units and 14 994 subsidised units which is sufficient to meet current and projected demand beyond the year 2020.
- The municipal area is surrounded by large concentrations of low income communities (especially in the City of Joburg area of jurisdiction), with very limited economic activity and job opportunities to serve them.
- Unlike urban areas in the MLM, rural communities have limited access to engineering infrastructure and social services.

### 4.3.2 Population

According to the SDF:

- The projected population of Midvaal in the period is 135 156 people (current = 107 072) based on the Historical Growth Trends Scenario of the Midvaal Migration Plan. This represents an increase of 28 084 people at a rate of 4681 people per annum.
- The households increase by 8830 at a rate of 1472 per annum to bring the total number of households by 2020 to 42 495 units.
- The population will be able to sustain approximately 229 765m<sup>2</sup> of retail floor space and 22 977m<sup>2</sup> of office floor space which should be mainly located in the nodal points identified.
- The incremental population will justify the construction of one new primary school and seven Educational Care Centres in the municipal area while secondary schools are sufficiently provided for. However, the spatial distribution of these and other facilities should also be considered to ensure that all communities are served within appropriate distance.
- As far as other community facilities are concerned, the Midvaal Municipality would require one more Primary Health Clinic and Local Library, as well as four additional Post Office/ICT Access Points.
- In general, however, the Midvaal Municipality is currently well-provided with a wide range of community facilities and services, and only a limited number of new facilities need to be provided up to 2020 (based on population growth forecasts).

#### **4.3.3 Archaeology and cultural heritage/sites of importance**

Site investigations were carried out by Cornerstone Consultants in May 2019 for the development found that the site was disturbed. General site modifications as a result of quarry, military activities, dwelling and agriculture were prevalent throughout.

In terms of heritage resources, the landscape around the project area has been altered extensively by recent and historical activities. The following recommendations were made based on general observations:

- Should fossil remains be exposed during construction, these objects should be safeguarded and the relevant heritage resources authority (SAHRA) notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- A monitoring process by an ECO is recommended during the construction process. Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction, all activities should be suspended and the archaeological specialist notified immediately. It should be noted that mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment.

#### **4.3.4 Visual aspects**

The site is currently undeveloped and slopes to the west, south and east at approximately 10°. The proposed development will feature buildings of up to 2 (three) storeys (general provisions of a Residential 1). It is not anticipated that the neighbouring developments will suffer any inconvenience associated with overlooking or impact on privacy and amenity given the proposed development nature and magnitude as well as the orientation of building, therefore a visual impact assessment will not be undertaken for the proposed development.

## 5.0 IMPACT ASSESSMENT METHODOLOGY AND ASSESSMENT OF IMPACTS

This section provides the methodology for assessing the significance of impacts associated with the activity. The criterion for determining impact significance has been defined in accordance with the criteria drawn from Appendix 3 of the Environmental Impact Assessment Regulations, 2014 as amended. The levels of detail described in the EIA regulations were fine-tuned by assigning specific values to each impact identified.

In order to establish a coherent framework within which all impacts could be objectively assessed, it is necessary to establish a rating system, to be applied consistently to all the criteria. For such purposes each aspect is assigned a value ranging from one (1) to four (4) depending on its definition. The tables below provide a summary of the criteria and the rating scales, which will be used in the assessment of the impacts.

### 5.1 Description of nature and scale of impacts

The table below provides a brief description of the terms used to assess the impact of the proposed activity on the environment.

**Table 6: Nature, extent, duration, probability and significance of impact**

<ul style="list-style-type: none"> <li>• <b>Nature:</b> classification of whether the impact is positive or negative, direct or indirect.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Extent:</b> spatial scale of impact and classified as: <ul style="list-style-type: none"> <li>○ <b>Site:</b> the impacted area is the whole or significant portion of the site (1).</li> <li>○ <b>Local:</b> Within a radius of 2 km of the construction site (2).</li> <li>○ <b>Regional:</b> the impacted area extends to the immediate, surrounding and neighbouring properties.</li> <li>○ <b>National:</b> the impact can be considered to be of national significance.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Duration:</b> Indicates what the lifetime of the impact will be and is classified as: <ul style="list-style-type: none"> <li>○ <b>Short term:</b> The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.</li> <li>○ <b>Medium term:</b> The impact will last for the period of the construction phase, where after it will be entirely negated.</li> <li>○ <b>Long term:</b> The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory.</li> <li>○ <b>Permanent:</b> Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Intensity:</b> Describes whether an impact is destructive or benign; <ul style="list-style-type: none"> <li>○ <b>Low:</b> Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.</li> <li>○ <b>Moderate:</b> Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.</li> <li>○ <b>High:</b> Natural, cultural and social functions and processes are altered to extent that they temporarily cease.</li> <li>○ <b>Very High:</b> Natural, cultural and social functions and processes are altered to extent that they permanently cease.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Probability:</b> Describes the likelihood of an impact actually occurring: <ul style="list-style-type: none"> <li>○ <b>Improbable:</b> Likelihood of the impact materialising is very low</li> <li>○ <b>Possible:</b> The impact may occur</li> <li>○ <b>Highly Probable:</b> Most likely that the impact will occur</li> <li>○ <b>Definite:</b> Impact will certainly occur.</li> </ul> </li> </ul>

- **Significance:** Based on the above criteria the significance of issues was determined. The total number of points scored for each impact indicates the level of significance of the impact, and is rated as:
  - **Low:** the impacts are less important.
  - **Medium:** the impacts are important and require attention; mitigation is required to reduce the negative impacts.
  - **High:** the impacts are of great importance. Mitigation is therefore crucial.
- **Cumulative:** In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
- **Mitigation:** Where negative impacts are identified, mitigation measures (ways of reducing impacts) have been identified. An indication of the degree of success of the potential mitigation measures is given per impact.

## 5.2 Criteria for rating of impacts

This describes the criteria to be used and the significance rating of the impacts.

Table 7: Criteria for rating of impacts

Criteria for the rating of impacts				
Criteria	Description			
Extent	National	Regional	Local	Site
Duration	Permanent	Long-term	Medium-term	Short-term
Intensity	Very high	High	Moderate	Low
Probability	Definite	Highly probable	Possible	Improbable
Points allocation	4	3	2	1
Significance Rating of identified impacts				
Impact	Points	Description		
Low	4-6	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.		
Medium	7-9	Mitigation is possible with additional design and construction inputs.		
High	10-12	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.		
Very high	13-16	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.		
Status	Perceived effect of the impact			
Positive (+)	Beneficial impact			
Negative (-)	Adverse impact			
Negative impacts are shown with a (-) while positive ones are indicated as (+)				

## 5.3 Preliminary issues and environmental sensitivities

The preliminary environmental issues and sensitivities relating to the physical, biological, economic social and institutional/legal framework have been identified in the body of the report. The following potential impacts were identified and will be investigated further during the EIR phase:

- Ground and surface water pollution;
- Destruction of the watercourse;
- Impact on geology and soils;
- Impact on fauna and flora including primary vegetation and grasslands,



- Topography and visual impacts;
- Socio-economic issues, such as employment creation, economic viability and other social impacts including security;
- Waste generation and management;
- Dust and noise impacts;
- Loss of heritage resources;
- Disruption of services in the area;
- Increase in traffic volumes;
- Safety and security;
- Access to open space.

5.4 Comparative assessment of alternatives to the provision of sewer services- before and after mitigation

Table 8: Comparative assessment of alternatives

Environmental Aspects L- Lower positive M- Medium positive H- Higher positive L- Lower negative M- Medium negative H- Higher negative N- Neutral	Physical				Biological		Socio-Economical								Institutional				Total of Impacts	
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services-Road	Economic Impact – Local Authority	Impact I&AP'	Increase development costs	Cultural and Historical	High agricultural potential land	In line with IDP	In line with SDF or other frameworks, and open space plans	In line with policies and guidelines	In line with Water Act	L=1;M=3; H=5; N=0 L=-1; M=-3; H=-5
<b>Pumping of sewer into and upgrading of existing plant vs construction of new package plant next to the township</b>																				
<b>Construction Phase</b>																				
<b>Alternative 1: Before Mitigation</b>	L	H	H	L	L	L	M	L	L	N	N	L	L	N	N	L	L	L	L	13
After Mitigation	L	L	L	N	L	L	L	L	L	N	N	H	L	N	N	L	L	L	L	12
<b>Alternative 2: Before Mitigation</b>	L	H	H	M	H	H	H	H	L	N	N	L	H	N	N	L	L	L	L	37
After Mitigation	L	M	L	N	L	L	L	L	L	N	N	M	H	N	N	L	H	M	L	2
<b>Operational Phase</b>																				
<b>Alternative 1: Before Mitigation</b>	L	H	M	N	L	L	M	L	M	N	L	L	L	N	N	L	L	L	L	9
After Mitigation	N	L	L	N	L	L	L	L	M	N	L	L	L	N	N	L	L	L	L	10
<b>Alternative 2: Before Mitigation</b>	M	H	H	N	M	M	H	L	M	N	L	L	H	N	N	L	L	L	L	20
After Mitigation	L	L	L	N	L	L	L	M	M	N	L	L	L	N	N	L	L	L	L	7
<b>Preferred Alternative</b>	Based on the comparative impact assessment <b>Alternative 1</b> (construction of dedicated package plant) is considered better than other.																			

5.5 Preliminary assessment of anticipated Impacts

The impacts/aspects (beneficial and adverse) of the proposed activity are identified in the body of the report. The specific preliminary impacts associated with the development on the study area (are identified under each environment of this report), and general construction and operational phase related impacts associated with development are listed in the Table below.

Table 9: Preliminary quantification of impacts during the construction phase

Environmental Component	Potential Impact	Environmental Significance Score						Possible Mitigation Measures
		E	D	I	P	Total	Ratin	
		<b>Physical Impacts</b>						
Ground and surface water pollution	<ul style="list-style-type: none"> <li>Contamination of surface and groundwater due to spillages, leakage, incorrect storage and handling of chemicals, oils, lubricants, cement, fuels and other hazardous material.</li> <li>Deposition of contaminated water into the watercourse,</li> <li>Erosion of the banks and siltation.</li> </ul>	3	3	3	4	13		<ul style="list-style-type: none"> <li>Adequate stormwater drainage should be constructed. Stormwater culverts and drains are to be located and covered with metal grids to prevent blockages;</li> <li>All hazardous substances must be stored on an impervious surface in a designated bunded area able to contain 110% of the total volume of materials stored.</li> <li>All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor lay-down areas or without precautionary measures implemented.</li> <li>An Emergency Preparedness and Response Plan will be developed and implemented should an incident occur.</li> <li>Establishment of stormwater diversion berms around the contractor laydown area and other potential contaminated areas (e.g. diesel storage tanks or refueling station).</li> <li>No contaminated water to enter the natural watercourse. Preventative measures including sumps from where contaminated water can be either treated in situ or removed to an appropriate waste site.</li> <li>Excess or spilled concrete should be confined within the works area and then removed to a waste site.</li> <li>Stream banks stabilization and prevention of further erosion to be implemented.</li> <li>Protect sloping areas and wetland banks that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas.</li> <li>Increased runoff due to removal of vegetation and increased soil compaction must be managed to ensure the prevention of siltation and the maximum stream bank stability</li> </ul>
	<ul style="list-style-type: none"> <li></li> </ul>	3	3	3	4	13		<ul style="list-style-type: none"> <li>Protect sloping areas and drainage channel banks that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas;</li> </ul>

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<b>Geology and soils</b>	<ul style="list-style-type: none"> <li>Destabilisation of surface geology as a result of excavations</li> <li>Potential erosion, degradation and loss of topsoil due to construction activities as well as stormwater runoff</li> </ul>	1	1	3	4	9		<ul style="list-style-type: none"> <li>All site disturbances must be limited to the areas where structures will be constructed. Cleared areas to be stabilised to prevent and control erosion. Excess rocks and boulders that are excavated from the site can be used for erosion protection work on site.</li> <li>Suitable excavated material is to be stockpiled next to excavations for use as backfill. Excess material as a result of excavation and construction rubble must be removed, and appropriately disposed of.</li> <li>Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent protective materials.</li> <li>Any tunnels or erosion channels developing during the construction period shall be backfilled and compacted, and affected areas restored to proper conditions.</li> <li>Soil stockpiling areas must be sufficiently situated away from the drainage areas.</li> </ul>
<b>Topography</b>	<ul style="list-style-type: none"> <li>Alteration of topography due to removal of trees, excavations stockpiling of soil, building material, debris and waste material on site.</li> </ul>	1	1	1	2	5		<ul style="list-style-type: none"> <li>Limit excavations to areas required for construction purposes.</li> <li>Avoid placing of stockpiles and other services on areas likely to pose obtrusive visual impact</li> <li>Precautionary measures and design from the engineer must be implemented.</li> <li>Re-vegetation of re-profiled slopes;</li> <li>Temporary stabilisation of slopes using geotextiles; and Installation of gabions and reno mattresses.</li> </ul>
<b>Air quality</b>	<ul style="list-style-type: none"> <li>Dust pollution affecting adjacent developments as a result of construction activities and vehicles on site.</li> </ul>	2	1	2	4	9		<ul style="list-style-type: none"> <li>Enforcement and adherence to speed limits on onsite roads to prevent the liberation of dust.</li> <li>Dust suppression measures including regular application of water must be implemented. Water used for this purpose must be used in quantities that will not result in the generation of run-off.</li> <li>All site workers to wear PPE to avoid any exposure to contaminated dust particles.</li> </ul>
<b>Biophysical Impacts</b>								
<b>Flora</b>	<ul style="list-style-type: none"> <li>loss of individual plants such as grasses, forbs, trees and shrubs that will be cleared on the footprint area.</li> <li>loss of species diversity and habitat characteristics</li> </ul>	1	4	1	2	8		<ul style="list-style-type: none"> <li>The removal of plant species should only occur on the footprint area of the development and not over the larger area;</li> <li>Conduct flora species search and rescue efforts before ground clearing begins in order to reduce negative impacts on species of concern;</li> <li>Remove and relocate any plants of botanical or ecological significance as indicated by the ecologist or Environmental Control Officer (ECO);</li> <li>Clearly demarcate the entire development footprint prior to initial site clearance and prevent construction personnel from leaving the demarcated area.</li> </ul>

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	<ul style="list-style-type: none"> <li>Loss of riparian habitats where the development will impede into smaller streams</li> <li>Changes in the community structure</li> </ul>							<ul style="list-style-type: none"> <li>The ECO should advise the construction team in all relevant matters to ensure minimum destruction and damage to the environment. The ECO should enforce any measures that he/she deem necessary. Regular environmental training should be provided to construction workers to ensure the protection of the habitat, fauna and flora and their sensitivity to conservation;</li> <li>Limit pesticide use to non-persistent, immobile pesticides and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.</li> </ul>
Fauna	<ul style="list-style-type: none"> <li>Site clearing for construction activities leading to loss of species diversity and habitat characteristics</li> </ul>	2	3	2	3	10		<ul style="list-style-type: none"> <li>Where trenches pose a risk to animal safety, they should be adequately cordoned off to prevent animals falling in and getting trapped and/or injured. This could be prevented by the constant excavating and backfilling of trenches during pipeline construction;</li> <li>Poisons for the control of problem animals should rather be avoided since the wrong use thereof can have disastrous consequences for the raptors (refer to Appendix C) occurring in the area. The use of poisons for the control of rats, mice or other vermin should only be used after approval from an ecologist;</li> <li>Limit vehicular movement and impact on the wetland area</li> </ul>
<b>Socio-economic Impacts</b>								
Noise pollution	<ul style="list-style-type: none"> <li>Increase in noise pollution due to, excavations, site clearing, construction vehicles and personnel, operation of cement mixer machine, blasting and/or drilling</li> </ul>	1	1	2	3	7		<ul style="list-style-type: none"> <li>Locate noisy machines and equipment maintenance areas as far away from sensitive receptors as possible</li> <li>All equipment and activities to comply with noise regulations</li> <li>Adherence to acceptable working hours</li> <li>Adherence to Occupational Health and Safety Act</li> <li>Ear protection for workers that may be affected by noise</li> </ul>
Visual integrity	<ul style="list-style-type: none"> <li>Visibility of dust, waste pollution and construction activities from surrounding roads and properties</li> </ul>	2	2	3	3	10		<ul style="list-style-type: none"> <li>Apply dust control measures diligently, especially on provincial roads</li> <li>Apply recommendations of specialist regarding colour and construction of site structures during the Construction Phase</li> <li>Indigenous plants or trees must be retained where appropriate to provide screens to make the construction site less visually intrusive.</li> <li>Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents or disturb wildlife</li> <li>No litter or unsightly waste storage on site</li> </ul>
Sites of cultural significance	<ul style="list-style-type: none"> <li>Destruction of areas or features of cultural significance</li> </ul>	1	4	2	1	8		<ul style="list-style-type: none"> <li>Should any other potentially culturally significant artifacts or graves, etc be found during construction activities all activities should be stopped until an assessment by a Cultural Heritage practitioner has been completed</li> </ul>

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<b>Safety and security</b>	<ul style="list-style-type: none"> <li>Compromised safety of public due to construction works,</li> <li>Increase in crime resulting from influx of construction personnel.</li> </ul>	1	2	1	2	6		<ul style="list-style-type: none"> <li>Proper management and planning</li> <li>Only security guards will be allowed to sleep on site, however within a cordoned-off secure area.</li> <li>All staff will carry identification, access control will be enforced and the site will be swept and a search will be done each night</li> <li>The development will have 24-hour access control and security.</li> <li>If necessary, a Community Liaison Officer can be appointed. The CLO (Community Liaison Officer) to be consulted regarding employment of members of the surrounding communities</li> </ul>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>Impeded flow of traffic due to presence of construction vehicles.</li> <li>Increase in traffic on roads due to presence of construction vehicles</li> </ul>	2	2	2	3	9		<ul style="list-style-type: none"> <li>The access of large trucks will be investigated to provide a suitable access route that does not become a nuisance to existing residents</li> <li>Construction vehicles and activities must aim to avoid peak hour traffic times (weekdays 7-8am and 5-6pm)</li> <li>Establish an all-weather site access and wheel wash or shake down to prevent soil and materials from being trekked onto the road.</li> <li>Effective barriers and signage implemented.</li> </ul>
<b>Employment opportunities</b>	<ul style="list-style-type: none"> <li>Formal employment opportunities created.</li> <li>Decrease in unemployment and crimes related to unemployment.</li> </ul>	2	2	3	3	10		<ul style="list-style-type: none"> <li>Local labour to be used as far as possible for the installation of services and the construction activities;</li> <li>Contract requirements to involve BEE companies</li> <li>Local products, goods and services to be utilised as far as possible during the construction phase</li> </ul>

**Table 10: Preliminary quantification of impacts during the operation phase**

Environmental Component	Activity Potential Impact	Environmental Significance Score						Possible Mitigation Measures
		E	D	I	P	Total	Rating	
<b>Physical Impacts</b>								
<b>Geology and soils</b>	Loss of soil due to soil erosion of the banks of the stream and stormwater discharge points.							<ul style="list-style-type: none"> <li>Found lightly loaded structures conventionally on the strongly cemented ferricrete present at a depth of between 0.5m and 1.5m.</li> <li>Bearing pressure of 350kPa is allowable on the strongly cemented ferricrete.</li> <li>Heavily loaded structures will need to be founded on the very soft to soft rock shale, indicated as being present below the ferricrete.</li> <li>All foundation trenches to be inspected to verify presence of rock and bearing capacity.</li> </ul>

		1	1	1	2	5		<ul style="list-style-type: none"> <li>All surfaces susceptible to erosion shall be covered with a suitable vegetative cover as soon as construction is completed.</li> <li>During construction, sensitive soils with high risk of compaction (e.g. clayey soils) must be avoided by construction vehicles and equipment, wherever possible, in order to reduce potential impacts. Only necessary damage must be caused and, for example, unnecessary driving around in the veld or bulldozing natural habitat must not take place.</li> </ul>
<b>Ground and surface water</b>	<ul style="list-style-type: none"> <li>General usage of water (household, industries business, etc).</li> <li>Water pollution.</li> <li>No operational activities should impact on the quantity of groundwater available to surrounding borehole users.</li> </ul>	2	2	1	2	7		<ul style="list-style-type: none"> <li>Waste water to be recycled and re-used as far as possible</li> <li>Good monitoring and management measurements to be set in place by facilities managers</li> <li>Adequate measures to be put in place to prevent surface and groundwater contamination of any kind – responsibility of civil engineers.</li> <li>All sewage infrastructure is to be maintained and checked at yearly intervals. No French drains allowed.</li> </ul>
<b>Air quality</b>	<ul style="list-style-type: none"> <li>Emissions from vehicles and operations affecting ambient air quality</li> </ul>	2	2	1	2	7		<ul style="list-style-type: none"> <li>Trucks and vehicles to be properly maintained;</li> <li>Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices.</li> <li>Operations to meet air quality standards</li> <li>Roads will be paved and thus eliminate dust.</li> </ul>
<b>Biophysical Impacts</b>								
<b>Flora</b>	<ul style="list-style-type: none"> <li>General human interference and impact leading to loss of species diversity and habitat characteristics</li> </ul>	1	1	1	1	4		<ul style="list-style-type: none"> <li>Walkways throughout the open spaces and buffer zones will be strategically placed.</li> <li>Landscaping guidelines which include an allowable indigenous vegetation list that attracts fauna is to be formulated and implemented.</li> <li>Minimal to no exotic vegetation will be allowed</li> </ul>
<b>Fauna</b>	<ul style="list-style-type: none"> <li>General human interference and impact leading to loss of species diversity and habitat characteristics</li> </ul>	1	1	1	1	4		<ul style="list-style-type: none"> <li>Walkways throughout the open spaces and buffer zones will be strategically placed.</li> <li>Landscaping guidelines which include an allowable indigenous vegetation list that attracts fauna is to be formulated and implemented.</li> <li>Minimal to no exotic vegetation will be allowed</li> </ul>
<b>Environmentally sensitive area or wetland areas</b>	<ul style="list-style-type: none"> <li>Loss of valuable landscape and habitat associated streams</li> </ul>	2	2	1	2	7		<ul style="list-style-type: none"> <li>Buffer zone to be fenced off and only walkways that are strategically placed and infrastructure services properly designed and implemented allowed.</li> </ul>

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Socio-economic Impacts								
<b>Noise pollution</b>	<ul style="list-style-type: none"> <li>Noise from development and road infrastructure on proposed and existing residential areas</li> </ul>	1	2	1	2	6		<ul style="list-style-type: none"> <li>Noise abatement measures will be implemented</li> </ul>
<b>Visual integrity</b>	<ul style="list-style-type: none"> <li>Higher density development and change in land use</li> <li>Change in sense of place as a result of conversion of land which is currently vacant.</li> </ul>	1	3	2	3	9		<ul style="list-style-type: none"> <li>Architectural guidelines (including aspects of roof and wall finishes, colours, heights of buildings, and lighting), as well as Landscape Architectural guidelines (screening, buffering, functioning, aesthetics etc) for the development will be developed to promote the enhancement of this urban area and therefore creating new and valuable places with a modified and positive urban mixed-use sense of place that is vibrant and diverse.</li> </ul>
<b>Sites of cultural significance</b>	<ul style="list-style-type: none"> <li>Destruction of areas of cultural/historic significance</li> </ul>	1	1	1	1	4		<ul style="list-style-type: none"> <li>Should any potentially culturally significant artefacts or graves, etc be found during the operational phase, the development management is to be informed and a Cultural Heritage practitioner is to be contacted to decide on a way forward</li> </ul>
<b>Safety and security</b>	<ul style="list-style-type: none"> <li>Active operational phase with a variety of functions (residential, business and commercial) leading to a decrease in crime due to the creation of a more secure</li> </ul>	1	2	1	1	5		<ul style="list-style-type: none"> <li>Security provided via passive surveillance</li> <li>Appropriate environmental design to address safety and security issues (CSIR publication)</li> <li>Good accessibility for emergency and police services</li> </ul>
<b>Traffic increase</b>	<ul style="list-style-type: none"> <li>Increase of residents and users of the area</li> <li>Additional vehicles on road servicing industrial and commercial uses</li> </ul>	2	2	2	2	8		<ul style="list-style-type: none"> <li>All requirements of the municipality to be adhered to</li> <li>All improvements to road infrastructure as recommended by traffic engineer to be adhered to</li> </ul>
<b>Local services</b>	<ul style="list-style-type: none"> <li>Availability of services in the area</li> </ul>	1	2	3	3	9		<ul style="list-style-type: none"> <li>The engineers to ensure that adequate measures are in place for adequate service delivery that does not impact negatively on surrounding areas</li> <li>All requirements of the municipality to be adhered to regarding service reticulation and</li> </ul>



<b>Fires</b>	<ul style="list-style-type: none"> <li>There are no expected operational related occurrences other than normal urban activities that may result in site</li> </ul>	1	1	1	1	4		<ul style="list-style-type: none"> <li>Adequate positioning of fire hydrants according to City of Tshwane standards.</li> </ul>
<b>Employment and improved tax base for municipality</b>	<ul style="list-style-type: none"> <li>Employment of local workers during the operational phase–.</li> <li>Decrease in unemployment and crimes related to unemployment</li> <li>Employment and opportunities for BEE</li> </ul>	2	3	2	3	10		<ul style="list-style-type: none"> <li>Local labour and employees to be made use of as far as possible for all aspects of the operational phase</li> <li>BEE companies to be trained and involved in during the operational phase of the development – e.g. Management of retail facilities, maintenance, landscaping, etc.</li> </ul>
	<ul style="list-style-type: none"> <li>Increase in demand for local goods and services</li> <li>Decrease in unemployment and empowerment of local</li> </ul>	2	2	2	3	9		<ul style="list-style-type: none"> <li>Local products, goods and services to be utilised as far as possible during the operational phase.</li> </ul>
	<ul style="list-style-type: none"> <li>Increase in service delivery and number of erven</li> <li>Increase in taxes raised on property.</li> </ul>	2	2	2	3	9		<ul style="list-style-type: none"> <li>None required</li> </ul>

## 6.0 PUBLIC PARTICIPATION PROCESS

This section provides an overview of the public participation process undertaken to date and that to be undertaken during EIR phase.

### 6.1 Objectives of public participation

The public consultation process is designed to provide information to and receive feedback from interested and affected parties (I&AP). That feedback is in turn fed into the EIA process. This provides organisations and individuals with the opportunity to raise concerns and make comments and suggestions regarding the proposed activity. By being part of the assessment process, stakeholders have the opportunity to influence the Project Layout, design and the Plan of Study for the EIA.

The approach to communication with the community is aligned with the principles of the NEMA as elaborated upon in General Notice 657, titled *“Guideline 4: Public Participation”* (Department of Environmental Affairs and Tourism, 19 May, 2006), which states that: *“Public participation process means a process in which potential interested and affected parties (I&APs) are given an opportunity to comment on, or raise issues relevant to specific matters.”*

Public participation is an essential and regulatory requirement for an environmental authorisation process and must be undertaken in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended. Public participation is a process that is intended to lead to a joint effort by stakeholders, technical specialists, the authorities and the proponent/developer who work together to produce better decisions than if they had acted independently.

During the Scoping Phase the public participation process enables Interested and Affected Parties to:

- Understand the context of the EIA;
- Become informed and educated about the proposed project and its potential impacts;
- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their comments, issues of concern and suggestions have been recorded;
- Assist in identifying reasonable alternatives; and
- Contribute relevant local information and traditional knowledge to the environmental impact assessment process.

During the EIR phase, the public participation process assists I&AP to:

- Contribute relevant information and local and traditional knowledge to the environmental impact assessment process;
- Verify that their issues and suggestions have been evaluated and considered in the environmental investigations and feedback has been provided;
- Comment on the findings of the EIA; and
- Identify further issues of concern from the findings of the EIA.

During the decision-making phase the process enables I&AP to be advised of the outcome, i.e. the authority decision and how the decision can be appealed.

### 6.2 Identification of I&APs

I&APs were initially identified through liaison with potentially affected parties in the study area through newspaper advertisements, placement of site notices and distribution of BID sheets along with a registration process involving completion of a registration and comment sheet.

### **6.3 Notification process**

In order to facilitate the identification of potential interested and affected parties as well as government departments that administer laws that might impact on the activity, the following was undertaken:

- Advertising in a local newspaper notifying potential interested and affected parties to register and to submit comments on the proposed activity;
- Distribution of notices to land owners and occupiers adjacent to the site notifying them of the proposed activity;
- Distributing email notifications to government departments;
- Notifying the councillor of the area about the proposed project;
- Affixing site notices within and at the boundaries of the site to notify potential interested and affected parties of the proposed activity.
- Inviting potential I&AP as well as government departments to access the website for additional information.

### **6.4 Register of I&APs**

The NEMA Regulations distinguishes between I&APs and registered I&APs. I&APs, as contemplated in NEMA include: “(a) any person, group of persons or organisation interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity”.

In terms of the Regulations an EAP managing an application must open and maintain a register which contains the names, contact details and addresses of:

- All persons who have submitted written comments or attended meetings with the applicant or EAP;
- All persons who have in writing requested the applicant or EAP managing the application, for their names to be placed on the register; and
- All organs of state which have jurisdiction in respect of the activity to which the application relates.

Following the notification process, a Register for I&APs will be opened. All stakeholders were invited to review the Scoping Report. As per the EIA Regulations, future consultation during the Impact Assessment phase will only take place with registered I&APs. All stakeholders who were involved in the consultation process will be added to the register as the I&AP register will be updated throughout the EIA process.

### **6.5 Public participation during Scoping**

This section provides a summary of the public participation process followed during the Scoping Phase of the EIA. The availability of the Draft Scoping Report (DSR) for public review for 30 days was announced via an advert in a Newspaper circulating nationally and email communication to interested and affected parties including government departments. Briefly, the process included the following:

- Delivery of the Draft Scoping Report (DSR) to organs of state;
- Placing of hard copy reports at accessible venues near the site for public review;
- Notifying adjacent occupiers/landowners of the availability of the report;
- Placing of the BID and scoping report on the EAP website for review;
- All comments received were incorporated into the Scoping Report.
- The final report will be published on the EAP’s website at the time of submission to GDARD.

Details pertaining to the public participation information and the comments received are provided in Appendix 5.

## **6.6 Competent authority's decision on the scoping report**

According to the Regulations, GDARD is expected to decide on the scoping report within 44 days of receipt of the report. Should the report be accepted with or without conditions, the plan of study for environmental impact assessment will be implemented. If the scoping report is considered inadequate, then an opportunity will be provided for the report to be amended to comply with the Regulations.

## 7.0 PLAN OF STUDY FOR EIR

The Environmental Impact Assessment Report (EIR) Phase will follow completion of the Scoping Phase (this phase). During the EIR phase, specialist studies will be conducted that will inform the impact assessment. Issues raised by I&APs and the potential physical, biological and socio-economic impacts of the establishment on the fabric of the area will be examined in detail. In this way stakeholder issues will assist to drive the EIA process.

When completed, the findings of the specialist studies will be integrated into a single report, the Draft EIA report, for comment by I&APs. This report will be presented for comment towards the end of 2019.

The Draft EIR will be finalised by incorporating any additional comments received from I&APs and an Environmental Management Programme (EMPr) will be developed from the findings and recommendations of the impact assessment studies. The Final EIA Report and EMP will be presented to the authorities for decision-making.

### 7.1 Objectives of the EIA process

The objectives of the EIA process, as per the NEMA EIA Regulations 2014, as amended are to, through a consultative process:

- a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- d) determine the
  - nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
  - degree to which these impacts can be reversed, may cause irreplaceable loss of resources, and can be avoided, managed or mitigated;
- e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- g) identify suitable measures to avoid, manage or mitigate identified impacts; and
- h) Identify residual risks that need to be managed and monitored.

### 7.2 Key tasks during the EIR phase

The findings of the environmental and socioeconomic baseline information inform the scope of work to be undertaken during the EIR phase. The plan of study for the EIA will meet the objectives of an EIA report as described above. The key tasks associated with the EIA Phase include:

- Reviewing the Scoping Report and Plan of Study for EIA comment and subsequent approval by GDARD;
- Conducting specialist investigations as required, on the significant issues identified in the Scoping Process;

- Undertaking a detailed impact assessment process, assessing alternatives, options and potential mitigation measures;
- Documenting the findings of the Impact Assessment into an Environmental Impact Report (EIR);
- Compiling a draft environmental management programme (EMPr).

The plan of study therefore includes the following:

- Aspects to be assessed to inform the Environmental Impact Report;
- A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;
- A description of the proposed method of assessing the duration and significance of impacts;
- An indication of the stages at which the competent authority will be consulted;
- Particulars of the public participation process that will be conducted during the environmental impact assessment process; and
- A description of the tasks that will be undertaken as part of the environmental impact assessment process;
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

The impact assessment component of the EIA will entail several environmental aspects to be studied as detailed below. Specialists to undertake the studies have been appointed and will be required to deliver their assessment as per the terms of reference for the specialist investigations provided in the NEMA EIA Regulations 2014, Appendix 6 Specialist Reports and as set out below. The description is presented in fairly general terms, but all the issues that need to be addressed by the studies are captured.

## **7.3 Specialist studies for the EIR**

### **7.3.1 Ecological Assessment**

A terrestrial ecological assessment that fulfils the requirements of the EIA in terms of the NEMA (1998) and the associated regulations will be compiled. The provisions of all relevant databases such as the NFEPA, SANBI and GDARD C-Plan V3 will be consulted. Below is a brief presentation of the approaches and methodology for the various assessments.

#### **7.3.1.1 Floral assessment**

A detailed assessment of the development site as well as the surrounding zone of influence will be undertaken. The field assessment will aim to identify or confirm:

- The various habitat types and the conservation importance and present ecological state;
- Floral species associated with each habitat component
- Habitat types and associated vulnerability
- Areas of severe alien and invader encroachment;
- Veld conditions which will be compared to the typical vegetation for the vegetation type of the area according to Mucina & Rutherford (2006);
- Sensitive areas and detailed description of the ecological integrity of each sensitivity zone;
- The general impacts as well as cumulative impacts on floral assemblages.
- The presence of RDL and protected plants as listed within the National Forest Act, (Act 84 as amended) and any relevant provincial legislation and guidelines.

#### **7.3.1.2 Faunal assessments**

Faunal assemblage will be determined using the following methods:

- The ecological importance and sensitivity (EISC) of the study area according to the relevant conservation databases. The relevant databases for the QDS will be consulted;
- Visual observations of actually occurring species;
- Identification of evidence of occurrence, e.g. call spoor, droppings etc;
- The reports produced include sensitive habitat types and impacts from habitat disturbance, faunal assemblages at risk (especially avifauna) and an assessment of impacts on migratory routes;
- An assessment of cumulative impacts on faunal assemblages in the region was made, with specific emphasis on avifauna;
- Consideration of the RDSIS index to quantify the importance of the study area in terms of RDL faunal conservation;
- Recommendations on management and mitigation measures with regards to the construction and operation of the proposed activities in order to manage and mitigate impacts on the faunal assemblage of the area.

The following field assessment methodologies will be followed as deemed necessary:

- **Avifauna:**
  - The Southern African Bird Atlas Project 2 species list for the quarter degree square will be compared with the database of birds identified on the study area during the field surveys. Field surveys will be undertaken utilising a pair of binoculars and birdcall identification techniques will also be utilised during the assessment in order to accurately identify avifaunal species;
  - Potential biodiversity list;
  - Habitat evaluation for RDL species and areas of avifaunal importance.
  - Extensive consideration will be given to impacts on avifaunal ecology with specific mention of impacts on migratory species and migratory corridors.
- **Mammals:**
  - A potential biodiversity list will be compiled from available literature sources;
  - Short habitat descriptions of all habitat types pertaining to RDL species will be given;
  - The habitat types will be evaluated for potentially supporting RDL species;
  - If deemed necessary, field assessments will employ trapping techniques (aimed at determining the small mammal species community structure);
  - The field assessment will identify the presence of various mammalian species through direct (visual observations) and indirect (spoor, burrow and scat identifications);
  - A species list, detailing their specific conservation status will be compiled from the field observations;
  - If considered necessary, the survey will be extended to a nocturnal survey to potentially enable augmentation of the data. The use of surveillance techniques such as automated camera traps will then be considered;
- **Herpetofauna:**
  - A complete potential biodiversity list will be provided;
  - The conservation status of each species listed will be determined.

The potential species list in accordance to the habitat availability will also be compiled;

- The species recorded during the field survey will be listed;
- Habitat evaluations will be undertaken for suitability for supporting various RDL species recorded from the region;
- Identification through call identification and direct observation;
- Site searches within the various habitat type units will be employed for determining the species community structures within the site with special mention of searching of target areas including rocky outcrops and wetland areas;

### 7.3.2 Wetland delineation and assessment

Delineation of the wetland and riparian features will take place according to “DWAF, 2005: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones”. Aspects such as soil morphological characteristics, vegetation types and wetness were used to delineate the various zones of the wetland (permanent and temporary) according to the guidelines. Other requirements will be met as follows:

- The wetland classification assessment will be according to the *Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland systems* (Ollis et al., 2013);
- The wetland EIS will be defined based on the DWA 1999 method;
- The wetland services provided by the resources on the subject property will be assessed according to the Method of Kotze et al (2009) in which services to the ecology of the site was defined and services to the people of the area defined;
- The wetland Health/IHI will be assessed according to the resource directed measures guideline as advocated by Macfarlane et al., (2008) and DWA (2007), respectively;
- The wetland areas will be mapped according to the ecological sensitivity of each wetland hydrogeomorphic unit in relation to the study area. In addition to the wetland boundaries wetland buffers were generated as applicable.

The study already undertaken is considered adequate and no further wetland studies will done for the site.

### 7.3.3 Noise impact assessment

Given the nature of the proposed development, no noise impact assessment will be undertaken. Although the potential noise-sensitive receptors as well as noise generators will be identified as part of the general impact assessment, no specific study or noise propagation modelling will be undertaken for the activity.

### 7.3.4 Visual Impact Assessment

It is not anticipated that the proposed development will cause any significant visual impact. Unless directed otherwise, a visual assessment will not be completed. Although the proposed maximum height of the residential development will be 3 storeys, these are not expected to be visually intrusive in the area.

### 7.3.5 Cultural and Heritage Resources

As required in terms of Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), the South African Heritage Resources Agency (SAHRA) will be notified of the intended development. A preliminary Archaeological Impact assessment that fulfils the requirements of the EIA in terms of the NEMA (1998) and the associated regulations will be compiled. The study will include:

- Review of existing heritage information on the site.
- Conducting a site visit of the project area with specific focus on the project footprint.
- Phase 1 Heritage Impact Assessment Report that includes:
  - A description of the methodology adopted in preparing the report or carrying out the HIA;
  - Identification of and sensitivities of the site related to the solar development including associated infrastructure;
  - Identification of any areas to be avoided, including buffers;
  - Indication of sensitive areas that cannot be avoided and where potentially a destruction permit may need to be applied for should additional middle stone age flakes or other artefacts be discovered in the site assessment;



- A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided and buffers. Map will include GPS coordinates of heritage features discovered in the site visit;
- Description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;
- mitigation measures for inclusion in the EMPr and in the environmental authorisation;
- Any monitoring requirements for inclusion in the EMPr or environmental authorisation;
- A reasoned opinion as to whether the proposed activity or portions thereof should be authorised; and if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr;
- Description of any consultation process that was undertaken during the course of preparing the HIA;
- A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and
- Any other information requested by the competent authorities.

The findings of this study will be included in the Draft EIR. As the study conducted is considered comprehensive and adequate for the proposed activity, no further study will be conducted on site.

#### **7.3.6 Other specialists' inputs**

Other specialist assessments or inputs to be undertaken and findings incorporated into the EIR include the following:

- Geotechnical assessment;
- Engineering services report;
- Town planning motivation;
- Traffic impact assessment including roads infrastructure;
- Electricity infrastructure, etc.

### **7.4 Impact Assessment Methodology**

The impact assessment methodology and aspects to be assessed has been discussed in Section 5.0 above. Further, **section 5** provides the preliminary list of environmental aspects considered significant in terms of the proposed development. In addition, preliminary list of measures to avoid, mitigate or manage the identified impacts have also been suggested under the same section.

### **7.5 Public participation during the EIR phase**

The Public Participation Process is being conducted as an essential component of the Environmental Impact Assessment Process in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014.

#### **7.5.1 Notification of Interested and Affected Parties**

- **Newspaper Advert**-A Newspaper Advertisement will be published in the relevant newspaper(s) as required by the Regulations.
- **Written notices**-written notices will be given to any organ of state having jurisdiction in respect of any aspect of the activity as well as the Midvaal Local Municipality.
- **Basic Information Document**- A Background Information Document (BID) will be posted,

faxed, emailed or hand delivered to I&APs. Written acknowledgement will be gathered from each of these landowners. The BID document provides information concerning the proposed development. Interested and affected parties will be invited to submit written comments concerning the proposed development and become part of the process.

- **Site Notices** - Detailed site notices prepared in accordance with the requirements of the Regulations and will be placed at strategic and visible places alongside the property on which the proposed development will be located.
- **Public Meeting** - If required, a public meeting will be arranged with stakeholders that would have been identified to ensure that available information can be provided to Interested and Affected Parties.
- **Ward Councillor** - The Ward Councillor is one of the key community representatives within the area of development. Therefore, he/she should be informed, and be given an opportunity to provide comments and input into the process.

#### **7.5.2 Written Correspondence from IAPs**

Comments received from I&AP's will be incorporated in the comments and response register that will be incorporated in the Final Scoping Report. Written comments are welcome throughout the process and will be included as part of the report as the process continues.

#### **7.5.3 Issues and Concerns**

A list of issues and concerns submitted will be drawn up and consolidated into a report. This will be submitted as part of the documentation submitted to the competent authority.

### **7.6 GDARD decision on the application**

Once the GDARD has taken a decision on the proposed project, registered I&APs will be notified of this decision and of the opportunity to appeal. This notification will be provided through a letter or email to all registered I&APs, summarising the authority's decision and explaining how to lodge an appeal should they wish to.

## 8.0 SUMMARY AND CONCLUSION

The construction and operation of a residential township and associated infrastructure can pose various risks to the environment as well as the residents in the vicinity of the proposed development. The issues related to the development will be identified, discussed and assessed in terms of various criteria such as extent, duration, intensity and significance.

This report serves to provide authorities with sufficient information on the aspect that may affect or be affected by the proposed development, so that an informed decision can be made with regards to the processes and subsequent authorisation of the proposed development. Potential impacts were identified based on the preliminary specialists' assessment of the site as well as through the technical expertise and experience of the EAP.

It is believed that the methodology and plan of study that will be used to assess the current state of the environment will be sufficient to identify potential impacts. The data will assist in the compilation of the Environmental Impact Assessment as an instrument in the decision making process. Mitigation measures for the impacts identified in this Scoping Report will be described in detail in the EIR and management measures provided in the EMPr.

**9.0 EAP DECLARATION AND UNDERTAKING**

*I, Pirate Ncube, hereby confirm that the information provided in this report is correct at the time of compilation and the report was compiled with inputs provided by the applicant and some of the specialists appointed for the project.*

*I hereby also confirm that:*

- all relevant information pertaining to the project has been submitted to potential interested and affected parties;*
- all comments received from I&APs will be attended to and/or included in the final Scoping Report that will be submitted to the GDARD;*
- a record will be kept of any subsequent comments received and submitted with the final EIA. This will be in the form of a Comments and Responses Report (CRR);*
- the Plan of Study for the EIA will be implemented, and the findings of specialist studies will be presented in the EIA report.*

.....  
Signature

.....  
Date

.....  
Commissioner of Oaths

.....  
Date

Stamp

## 10.0 REFERENCES

Cornerstone Consultants. April 2019. Ecological Assessment and Wetland Delineation Report for the proposed Residential Development on Portions 36, 37 and 38 Alewynspoort 145 IR, Midvaal, Gauteng Province: Eye of Africa Development.

Econ Solutions Town Planning. May 2019. Motivational Memorandum. Meyerton.

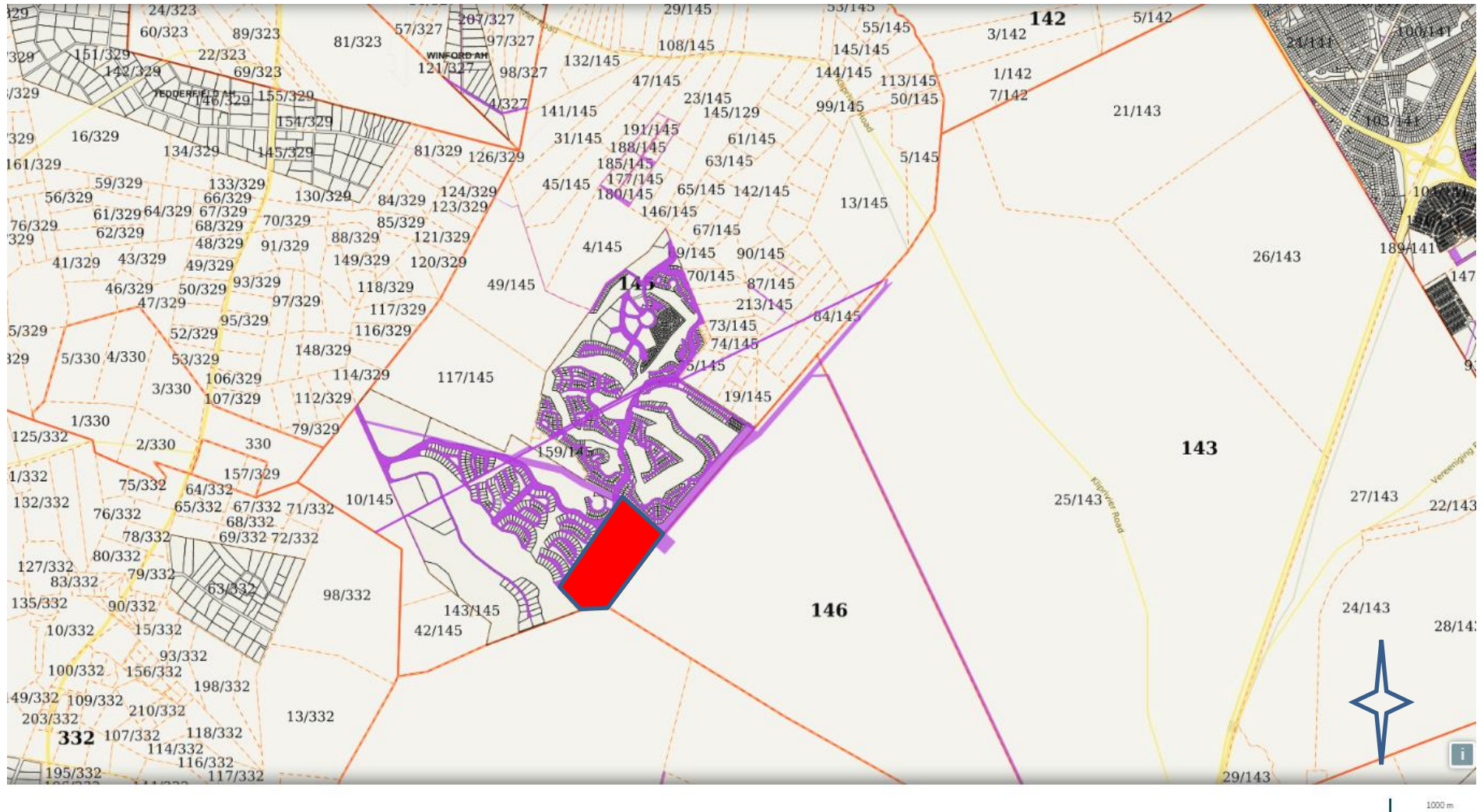
Jogi, D. 2018. Planning Report for the Eye of Africa Development to Midvaal Local Municipality for a Proposed Residential Development on Portion 37 and 38 Eikenhof, for Eye of Africa Developments. Nathoo Mbenyane Engineers (Pty) Ltd. November 2018.

## APPENDICES

Appendix 1: Locality Map



Appendix 2: Site Context





Appendix 3: Proposed Layout Plan



## Appendix 4: Public Participation Information

To be included in the final Scoping Report

Appendix 5: Comments from Authorities

To be included in the final Scoping Report



Appendix 6: Comments from Midvaal Local Municipality

No comments received