



FINAL SCOPING REPORT

FOR

**PROPOSED REIGER PARK EXTENSION 25
(PORTION 17 OF THE FARM KLIPPOORTJE 112 IR
PREVIOUSLY KNOWN AS REMAINING EXTENT OF PORTION 4 OF THE FARM
KLIPPOORTJE 112 IR)**

REF: GAUT 002/19-20/E2490

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Executive Summary

Amendments have been underlined for ease of reference

1. Introduction

Lokisa Environmental Consulting CC was appointed by Rand Leases Properties (Pty) Ltd to submit an application for the Proposed Reiger Park Extension 25 to the Gauteng Department of Agriculture and Rural Development (GDARD) in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, published on 4 December 2014, as amended.

The Scoping report was prepared in terms of Appendix 2 of Regulation 982 (Regulations in terms of Chapter 5 of the NEMA) published on 4 December 2014 (as amended) and aims to provide all the information necessary for proper understanding of the nature of issues identified during the scoping process.

2. The EIA Process

Two processes; being the Scoping and the Environmental Impact Assessment form part of the EIA process. The Scoping Report presents the outcome of the first phase being the Scoping process which describes the following:

- Nature of the proposed project,
- Receiving environment,
- Legislation and standards,
- Potential issues or impacts that should be addressed in the EIA phase,
- Feasible alternatives that must be assessed in the EIA phase,
- Plan of Study (POS) for the EIA phase.

3. Project Description

The development entails the establishment of a mixed development township that includes; residential, business, educational, institutional and public open space components and its associated facilities including services and road infrastructure.

4. Description of the Locality and Environment

The study site (Portion 17 of the Farm Klippoortje 112 IR) is situated approximately 740m to the south of Commissioner Street, to the east of Elsburg Road and north of the existing Reiger Park residential area within the jurisdiction of the City of Ekurhuleni, Gauteng Province.

The site is vacant with several scattered trees present and anthropogenic disturbances have occurred that include mining activities and the construction of a pipeline and a trench that traverse the site. A pipeline and a trench traverse the site. A substation is situated on the northern portion of the site and power lines traverse the site from north to south. Illegal dumping of waste has taken place on the western and eastern portions of the site.

Informal settlements are situated to the east (70m) and west (140m) of the site. Formal residential areas are situated directly to the south of the site. Mining related uses are situated to the north of the site and a pan is situated approximately 80m directly east of the mining uses.

5. Public Participation

The Public Participation Process (PPP) is critical to the Scoping process and allows Interested and Affected Parties (I&AP's) to voice their concerns and issues regarding the project.

All identified I&AP's were notified of the proposed project on 14 November 2019 by e-mail and registered letters were sent out containing the Background Information Document (BID). The BID provided basic information on the proposed project, the EIA process and the details on how to register as an I&AP. Notices were hand delivered to properties where registered addresses were not available. The intended activity was furthermore advertised in the "Daily Sun Newspaper" on 14 November 2019. Notices were also placed on and around the site.

6. Issues and concerns

The purpose of the Scoping Report is to identify and report on the issues, concerns and comments made by the I&AP's during the PPP. The issues and concerns raised during the Public Participation Process will be discussed in detail in the scoping report.

7. Identification of alternatives

The identification and consideration of alternatives is a critical step in the EIA process. The goal of considering alternatives is twofold – it identifies other possible development options for a site or tries to modify the development so as to minimise negative impacts on the environment. The following options will be investigated during the EIA phase:

- property on which or location where the activity is proposed to be undertaken;
- type of activity to be undertaken;
- design or layout of the activity;
- technology to be used in the activity; or
- operational aspects of the activity;
- No-go Option

8. Way forward – The EIA Phase

This report includes a Plan of Study (PoS) for the EIA phase which includes a Terms of Reference (ToR) for specialist studies, the assessment of impacts, the rating of the significance of impacts, as well as the continuation of the PPP. As defined by the PoS, some of the key tasks that are mandated in the EIA phase include:

- Undertake a Public Participation Process.
- Undertake Specialist Studies.
- Assess the Significance of Impacts.
- Provide Mitigation Measures and Recommendations.
- Produce an Environmental Impact Assessment Report (EIAR).
- Produce an Environmental Management Programme (EMPr).

A critical outcome of the EIA phase will be the Environmental Impact Assessment Report (EIAR) and Environmental Management Programme (EMPr). These reports will be released for public comment before being finalised and presented to the relevant authorities. An Environmental Authorisation may be granted or rejected by the authority based on the review of these reports.

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Definitions

Activity	Means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Alternatives	In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the – (a) property on which or location where the activity is proposed to be undertaken; (b) type of activity to be undertaken; (c) design or layout of the activity; (d) technology to be used in the activity; (e) operational aspects of the activity; and includes the option of not implementing the activity (GN R.982 of NEMA, 1998 (Act No. 107 of 1998)); See 'Proponent'
Applicant	
Biodiversity	The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.
Construction	The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.
Cumulative Impact	In relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Decommissioning	Means to take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned (GN R.983 of NEMA, 1998 (Act No. 107 of 1998));
Development	Means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, including any associated post development monitoring but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint (GN R.983 of NEMA, 1998 (Act No. 107 of 1998));
Direct Impact	Impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.
Ecosystem	A dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous
Environment	Means the surroundings within which humans exist and that are made up of - (i) the land, water and atmosphere of the earth;

	<ul style="list-style-type: none"> (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) of (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing (NEMA, 1998 (Act No. 107 of 1998));
Environmental Assessment Practitioner (EAP)	Means the individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instrument introduced through regulations (NEMA, 1998 (Act No. 107 of 1998) as amended);
Environmental Authorisation	Means the authorisation by a competent authority of a listed activity in terms of the Act (NEMA, 1998 (Act No. 107 of 1998) as amended);
Environmental Impact	Change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.
Environmental Impact Assessment	Means a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Environmental Issue	A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.
Environmental Management	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
Environmental Management Programme (EMPr)	A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.
Fatal Flaw	Issue or conflict (real or perceived) that could result in developments being rejected or stopped. In the context of an environmental impact assessment a fatal flaw can be termed as an environmental issue that cannot be mitigated by any means
Gauteng Conservation Plan	Means a systematic conservation planning tool delineating biodiversity priority areas representative of biodiversity pattern, process and species of special concern, which areas have been identified in three broad categories; namely, Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs) and Protected Areas (GN R.985 of NEMA, 1998 (Act No. 107 of 1998));
General Waste	Means waste that does not pose an immediate hazard or threat to health or to the environment, and include – <ul style="list-style-type: none"> (a) domestic waste; (b) building and demolition waste; (c) business waste; and (d) inert waste (NEM:WA, 2008 (Act No. 59 of 2008));
Groundwater	Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.
Hazardous Waste	Means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment (NEM:WA, 2008 (Act No. 59 of 2008));
Hydrology	The science encompassing the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground.
Important areas	Sites that are important for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3.3)
Indigenous Vegetation	Refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years (GN R.983 of NEMA, 1998 (Act No. 107 of 1998));
Indirect Impacts	Indirect or induced changes that may occur as a result of the activity.

Integrated Environmental Management	<p>These types of impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.</p> <p>A philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity - at local, national and international level – that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).</p>
Interested and Affected Party (I&AP)	Any person, group of persons or organisation interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
Linear activity	Means an activity that is arranged in or extending along one or more properties and which affects the environment or any aspect of the environment along the course of the activity, and includes railways, roads, canals, channels, funiculars, pipelines, conveyor belts, cableways, power lines, fences, runways, aircraft landing strips, and telecommunication lines (GN R.983 of NEMA, 1998 (Act No. 107 of 1998));
Maintenance	means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint (GN R.983 of NEMA, 1998 (Act No. 107 of 1998));
Mitigation	Means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
No-Go Option	In this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.
Proponent	Means a person intending to submit an application for environmental authorisation and is referred to as an applicant once such application for environmental authorisation has been submitted (GN R.985 of NEMA, 1998 (Act No. 107 of 1998));
Public Participation Process	A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.
Rehabilitation	A measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.
Sensitive Environments	Any environment identified as being sensitive to the impacts of the development.
Significance	Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).
Significant Impact	Means an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Specialist	Means a person that is generally recognised within the scientific community

	as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socio-economic studies (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Stakeholder Engagement	The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.
Sustainable Development	Development which meets the needs of current generations without hindering future generations from meeting their own needs.
The Act	Means the National Environmental Management Act, 1998 (Act No. 107 of 1998) (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Urban Areas	Means areas situated within the urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of built-up areas (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Waste	Means any substance whether or not that substance can be reduced, re-used, recycled and recovered – <ul style="list-style-type: none"> (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for the purpose of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette; and includes waste generated by the mining, medical or other sector, but – <ul style="list-style-type: none"> (i) a by-product is not considered waste; and (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste (NEM:WA, 2008 (Act No. 59 of 2008));
Watercourse	Means - <ul style="list-style-type: none"> (a) a river or spring; (b) a natural depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));
Wetland	Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil (GN R.982 of NEMA, 1998 (Act No. 107 of 1998));

Abbreviations

BID	Background Information Document
CC	Close Corporation
CoE	City of Ekurhuleni
C-Plan	Gauteng Conservation Plan Version 3.3
CBA	Critical Biodiversity Area
DWS	Department of Water and Sanitation
GDARD	Gauteng Department of Agriculture and Rural Development
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
ESA	Ecological Support Area
Ha	Hectares
I&AP's	Interested and Affected Parties
IDP	Integrated Development Plan
Km	Kilometres
LDO	Land Development Objectives
m	Metres
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NNR	National Nuclear Regulator
PoSEIA	Plan of Study for Environmental Impact Assessment
PPP	Public Participation Process
(Pty) Ltd	Proprietary Limited
SAHRA	South African Heritage Resources Agency
ToR	Terms of Reference

1 Introduction

1.1 Background

Lokisa Environmental Consulting CC was appointed by Rand Leases Properties (Pty) Ltd during 2019 to submit an EIA application for the Proposed Reiger Park Extension 25 to the Gauteng Department of Agriculture and Rural Development (GDARD) in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, published on 4 December 2014, as amended

1.1.1 Background of the project dating between 2013 and 2017

During 2013, Lokisa Environmental Consulting CC was appointed by Bigen Africa (Pty) Ltd, on behalf of the City of Ekurhuleni, to obtain Environmental Authorisation from the Gauteng Department of Agriculture and Rural Development (GDARD) for the proposed development of a mixed uses development to be known as Reiger Park Extension 25 on the Remaining Extent of Portion 4 of the Farm Klippoortje 112 IR (now known as Portion 17 of the Farm Klippoortje 112 IR). The application lapsed during 2017.

An application form was submitted to GDARD on 28 June 2013 and the acknowledgement of the application form was received on 20 August 2013. The Final Scoping Report was submitted to GDARD on 10 November 2014 and subsequently accepted on 1 January 2015.

The Draft Environmental Impact Assessment (DEIAR) was submitted to GDARD on 23 July 2015 and the Final Environmental Impact Assessment Report (FEIAR) was submitted to GDARD on 08 November 2015. GDARD requested additional information on 08 March 2016 to assess the following:

- Impact identification, evaluation and significance in relation to mining activities situated to the north of the site. The letter further stated that the amended report should contain information regarding how the mining activities might impact on the proposed residential development.
- A Radon study as recommended by the EMM: Environmental Resources Management needed to be undertaken and the study submitted to the National Nuclear Regulator (NNR) for a clearance certificate and permission from the NNR indicating that the site is safe for the proposed development. This clearance certificate had to be attached to the amended EIAR to be submitted to GDARD.
- All cumulative impacts (inclusive of mitigation) posed by the proposed activity throughout all phases of the project needed to be identified, assessed and mitigation measures proposed.
- The alternatives had to include source of energy and water supply.

An amended Final EIA Report was submitted to GDARD on 20 February 2017 inclusive of a Radon Study however a Clearance Certificate from the NNR was not yet available. The amended Final EIAR was sent to GDARD without the Clearance Certificate as no further extension was attainable.

On 31 March 2017 the Final EIA was rejected by GDARD on the following grounds:

- Although a Radon study was undertaken comments from the NNR as well as the adjacent Mine's Closure and Rehabilitation to the satisfaction of the respective Department of Mineral Resource were not included in the amended EIA report;
- Phases of the proposed development were not provided;
- Cumulative impacts posed by the proposed development, throughout all the phases, should be identified, assessed and accommodated;
- Public participation that allows I&APs to comment on the amended report should have been 30 days;
- Approval of the Storm Water Management Plan and Traffic Impact Study.

GDARD requested that the amended Final EIAR to be inclusive of all the amendments made.

On 15 May 2017 the Clearance Certificate was received from the NNR, which released the property from any further regulatory control. In order to provide GDARD with the Clearance Certificate of the adjacent mine, the mine was contacted and Mr Greg Ovens of DRD Gold Mining confirmed that no mine closure was intended.

In response a meeting was held with GDARD, City of Ekurhuleni, Bigen Africa Services (Pty) Ltd and Lokisa Environmental Consulting on 08 June 2017 to provide a background to the mining activities north of the site which was not operational during 2013 and was to be decommissioned due to the low commodity prices at the time.

During 2017 the mine was again operational due to the financial improvement in the mining sector.

- However new information came to light in 2017 that the mine was again operational due to the financial improvement in the mining sector.

In light of the abovementioned GDARD provided the following possible solutions:

- A Category 2 Industries buffer (500m in extent) in terms of the Gauteng Pollution Buffer Zones Guideline March 2017 was to be applied to the site.
- An Air Pollution study and a Noise Impact study to be undertaken that prescribe the appropriate buffer.

The 500m buffer, applied to the site, rendered the entire site undevelopable, necessitating the undertaking of Air Pollution and Noise Pollution Studies. The findings of the abovementioned have been discussed in Section 8 of this EIA report. It is due to the findings of these studies that the applicant has decided to unlock the potential of the land by undertaking a new EIA application.

1.2 Terms of Reference

The Scoping report was prepared in terms of Appendix 2 of Regulation 982 (Regulations in terms of Chapter 5 of the NEMA) published on 4 December 2014 (as amended) and aims to provide all the information necessary for proper understanding of the nature of issues identified during the scoping process.

The Scoping Report is the critical outcome of the Scoping phase and it provides a synthesis of the natural and social setting of the proposed project, as well as a description of the project itself. Furthermore this report summarises the steps and processes undertaken during the Scoping phase including the Public Participation Process (PPP), and the issues and concerns raised during the PPP. Finally this report will provide a Plan of Study for the EIA phase.

As per Section (1) of Appendix 2 of Regulation 982 of the Environmental Impact Assessment Regulations, 2014 (as amended) the objective of the scoping process is to, through a consultative process –

- (a) identify the relevant policies and legislation relevant to the activity;
- (b) motivate 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 and confirm the preferred activity and technology alternative through an identification of impacts and risks and ranking process of such impacts and risks;
- (d) identify and confirm the preferred site, through a detailed site selection process, which includes an identification of impacts and risks inclusive of identification of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- (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 on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- (g) identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

1.3 Structure of the Report

The report contains a description on the following:

Table 1: Requirements for Scoping in terms of Appendix 2 of GNR 982 (as amended)

Requirements according to Appendix 2 of GNR 982 (as amended)	Section in report
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(2)(1)(a) details of – (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Section 2 Annexure 12
(2)(1)(b) the location of the activity, including – (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 3
(2)(1)(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 3
(2)(1)(d) a description of the scope of the proposed activity, including – (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Sections 4 & 7
(2)(1)(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 5
(2)(1)(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 6
(2)(1)(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including – (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and (xi) a concluding statement indicating the preferred alternatives, including	Sections 8, 9, 10, 11, 12 and 13

preferred location of the activity;	
(2)(1)(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including – (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; (ii) a description of the aspects to be assessed as part of the environmental impact assessment process; (iii) aspects to be assessed by specialists; (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists; (v) a description of the proposed method of assessing duration and significance; (vi) an indication of the stages at which the competent authority will be consulted; (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process; (ix) 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.	Section 12
(2)(1)(i) an undertaking under oath or affirmation by the EAP in relation to – (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Section 14
(2)(1)(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Section 14
(2)(1)(k) where applicable, any specific information required by the competent authority; and	-
(2)(1)(l) any other matter required in terms of section 24(4)(a) and (b) of the Act.	-

2 The EIA Team

2.1 Information on the Environmental Assessment Practitioner

In terms of the NEMA (as amended), an EAP is defined as “...the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental management instruments introduced through regulations.” The EAP must be independent, objective and have expertise in conducting environmental impact assessments. Such expertise should include knowledge of all relevant legislation and of any guidelines that have relevance to the proposed activity.

In order to be independent an EAP or person compiling a specialist report or undertaking a specialised process is to perform the work relating to the application in an objective manner, even if this results in views

and findings that are not favourable to the applicant. All material information in the possession of the EAP or person compiling a specialist report /undertaking a specialised process that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority in terms of these regulations are to be disclosed to the applicant and competent authority. Furthermore the objectivity of any report, plan or document to be prepared by the EAP or person compiling a specialist report or undertaking a specialised process, in terms of these regulations for submission to the competent authority should furthermore also be disclosed to the applicant and competent authority.

In order to comply with this requirement an Information Sheet was provided that provides information on the author of this report being; Faith Makena (Environmental Consultant) and Elaine Minnaar, Senior (Environmental Consultant) both of Lokisa who reviewed the report.

Lokisa Environmental Consulting CC is an Environmental Consulting Company based in Pretoria that provides a broad range of environmental consulting services to the private and public sector since 2001.

Faith Makena is an Environmental Assessment Practitioner and has been with Lokisa Environmental Consulting for six years. She has gained experience in the environmental field which includes Environmental Impact Assessments, Environmental Management Programmes, Environmental Auditing and Monitoring, Public Participation, and Environmental Mitigation and Control. (Refer to Annexure 12 for Curriculum Vitae).

All reports are reviewed and approved by Elaine Minnaar of Lokisa Environmental Consulting CC

Elaine Minnaar has been involved in environmental consulting since 1998 and has expertise in a wide range of environmental disciplines including Environmental Impact Assessments, Environmental Management Plans/Programmes, Auditing and Monitoring, Public Participation and Facilitation. (Refer to Annexure 12 for Curriculum Vitae).

3 Description of the site

3.1 Location of the Activity

The project entails the development of the proposed Reiger Park Extension 25 for mixed uses and the study site is situated to the north of the existing Reiger Park Township in the City of Ekurhuleni, Gauteng Province. The study site (Portion 17 of the Farm Klippoortje 112 IR) is situated approximately 140m to the east of Elsburg Road and 740m to the south of Commissioner Street and directly south of Angelo Pan. (Refer to Annexure 1 for Locality Map).

The coordinates for the proposed site are as follows:

26°13'37.36"S; 28°13'5.77"E

-26.227044 28.218269

21 digit Surveyor General code: T0IR00000000011200017

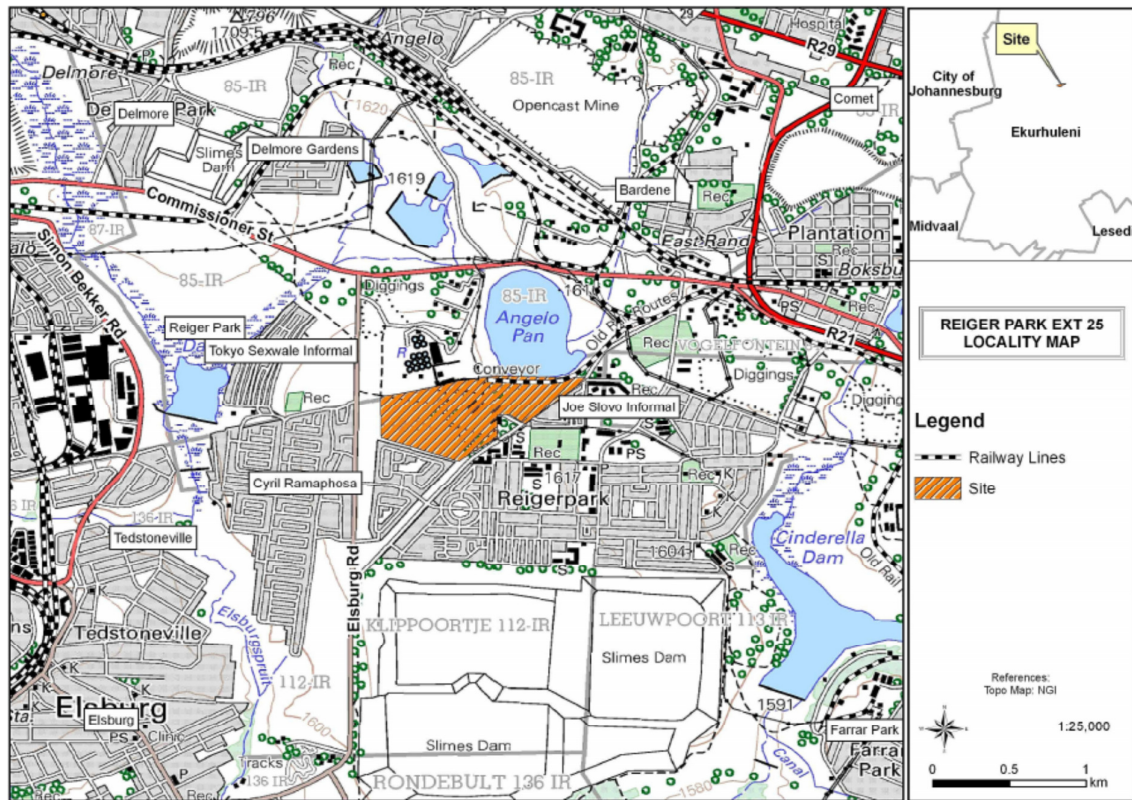


Figure 1: Locality Map

3.2 Surrounding Land Uses

The site is situated north of Reiger Park Extension 2, that is mainly residential in nature, but that also accommodates social and recreational facilities as well as business uses. Reiger Park Extension 1 has a commercial component that abuts the eastern portion of the site, additionally there are informal settlements to the east and west of the site. Mining related uses are situated directly north of the site and a pan is situated directly adjacent to these mining uses.

4 Project Description

4.1 Nature of the development

The development entails the establishment of a mixed development township that includes residential, business, educational, institutional and public open space components and its associated facilities including services and road infrastructure.

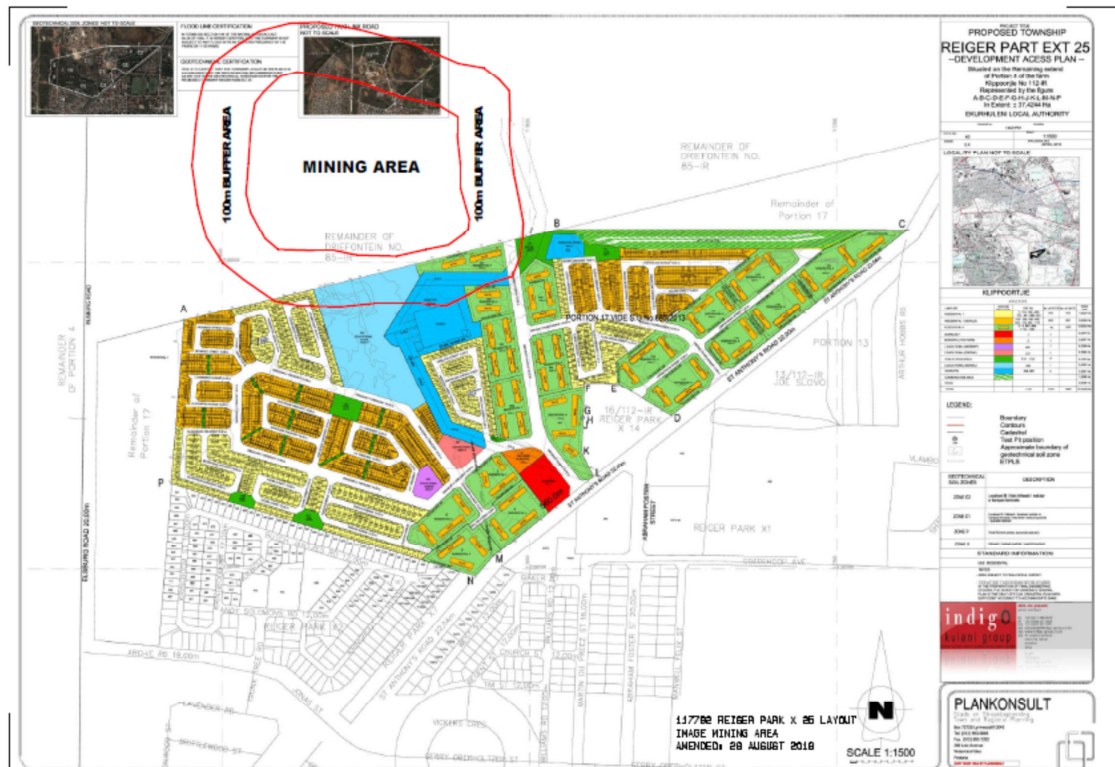


Figure 2: Layout Plan

It is understood that one of the recommendations from the Air Pollution Study was that a 100m buffer had to be applied to the existing mining area. This has subsequently impacted on the northern land uses. The amended Layout Plan will be provided in the EIA Report.

4.2 Internal Infrastructure

4.2.1 Sewage

According to the Outline Scheme Report undertaken by Bigen Africa Services (Pty) Ltd in 2015, the proposed development is situated partly within the Rondebult Waste Water Treatment Plant that has a design capacity of 36MI/d and the Vlakplaats Waste Water Treatment Plant has a design capacity of 80MI/d.

It is understood that in the future both the abovementioned Waste Water Treatment Plants will be abandoned and all sewage flows will be accompanied at the Alberton Waste Water Treatment Plant that will be upgraded to a capacity of 450Ml/d plant (Reiger Park Extension 25 Outline Scheme Report and Storm Water Management Plan, Bigen Africa Services (Pty) Ltd, June 2015).

The majority of the proposed development is draining towards the north-eastern side of the boundary where a proposed 250mm uPVC pipe is required that will connect to an existing 375mm uPVC pipe at the corner of Pertunia and Excelsior Avenue. The bulk sewer supply pipelines have sufficient capacity for the proposed development and no further upgrades are required (Reiger Park Extension 25 Outline Scheme Report and Storm Water Management Plan, Bigen Africa Services (Pty) Ltd, June 2015).

The Civil Services reports (Water, Sanitation, Roads and Stormwater) will be updated where necessary to take into account the new developments and associated increase in demand in the area. Civil services will be discussed in detail in the EIA Report.

4.2.2 Water

The proposed development site and its environs fall under the Madeley Reservoir Water Distribution Zone and the source of supply to the development site will not change in the future.

Bulk water supply pipelines in the area do not have sufficient capacity for the proposed development.

Network pipelines in the vicinity of the proposed development have sufficient capacity and will not require any upgrading. (Reiger Park X 25 Outline Scheme Report and Storm Water Management Plan, Bigen Africa Services (Pty) Ltd, June 2015).

The provision of bulk water services is being investigated by the applicant and will be addressed in the EIA Report.

4.2.3 Roads

The proposed development is located in the vicinity of the following roads:

- St Anthony Street, a Class 4 road which forms the south eastern boundary of the development, with a single carriageway with one lane per direction.
- Elsburg Road (K92), a Class 2 single carriageway road with one lane per direction which forms the western boundary of the site (Reiger Park X 25 Outline Scheme Report and Storm water Management Plan, Bigen Africa Services (Pty) Ltd, June 2015).

According to the Traffic Impact Study conducted by ITS Engineers (Pty) Ltd in 2015, the proposed development is expected to generate the following vehicle trips:

- AM Peak hour trips - 1,010 vehicle per hour (vph)
- PM Peak hour trips - 840 vph

The report advised that access to the proposed development should take place via two proposed new access points off St Anthony's Street. Both accesses will be two-way stop control intersections.

External road upgrades are proposed for the developments of Reiger Park Extensions 24 and 25:

- Public Transport facilities and non-motorised transport facilities. This involves the provision of a public transport bay which should be served with adequate sidewalks which should be at least 1.5m wide.
- Intersection upgrades, consisting of the following:
 - Lower Boksburg Road (K110)/Simon Bekker Road;
 - Lower Boksburg Road (K110)/Wit Deep Road;
 - Lower Boksburg Road (K110)/Haupt Street;
 - Commissioner Street (K110)/Elsburg Road (K92);
 - St Anthony's Road/Jonas Street;
 - Elsburg Road (K92)/Archie Road; and
 - Commissioner Street/Access No. 1.

The report provided the typical road cross sections to be adopted for the proposed development. The typical cross sections and criteria provides for the installation of asphalt surfaced roads with mountable, semi-mountable or non-mountable precast kerbing.

The Civil Services reports (Water, Sanitation, Roads and Storm Water) will be updated where necessary to take into account the new developments and associated increase in demand in the area. Civil services will be discussed in detail in the EIA Report.

As per the comment from the City of Ekurhuleni, an enquiry email was sent to the City's Department of Roads and Storm Water to regarding the validity of the Traffic Impact Study conducted in June 2015, the response is yet to be received.

4.2.4 Storm Water

No existing formal bulk storm water infrastructure is present on site or in the vicinity of the development site. The applicant is investigating storm water management measures to be implemented for the development and that will be included in the EIA report.

4.2.5 Electricity

According to the Motivation Memorandum compiled by Plankonsult Incorporated in 2014, all relevant Civil and Electrical Engineering services are to be designed after approval of the said township has been obtained from the City of Ekurhuleni. All bulk services will be upgraded should it be required to meet the peak demand.

4.2.6 Solid Waste

The City of Ekurhuleni will be responsible for waste collection.

5 Relevant Environmental Legislation and Standards

This section provides a description of the policy and legislative context within which the development is proposed. The policy and legislative context discussed are to be considered in the assessment process.

It is particularly of relevance as it illustrates to the relevant adjudicating authority that the EAP and the applicant are both aware of the legal requirements and will comply with the necessary legislation.

5.1 The Constitution of South Africa

The development has to comply with environmental right in the Bill of Rights in the Constitution of the Republic of South Africa (Act 108 of 1996), which reads as follows (Chapter 2, section 24): “Everyone has the right a) to an environment that is not harmful to their health or well-being; and b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

- i) prevent pollution and ecological degradation;
- ii) promote conservation; and
- iii) secure sustainable development and use of natural resources while promoting justifiable economic and social development.”

5.2 National Environmental Management Act (Act 107 of 1998) as amended (NEMA)

NEMA establishes the basis for environmental governance and sets out the principles for decision-making on matters affecting the environment. The principles of the Act are provided in Section 2 and it is the responsibility of all organs of state to take these principles into account when making decisions that could affect the environment.

Sustainable development requires the integration of social, economic and environmental practices in the planning, implementation and evaluation of decisions. This integration will ensure that development serves present and future generations. Development has to be done in the manner provided for in the National Environmental Management Act and based on the following environmental management principles:

- Prevention of pollution and ecological degradation,
- Promotion of conservation;

- Secure ecologically sustainable development and use of natural resources;
- Promotion of justifiable economic and social development.

5.2.1 EIA Regulations, 2014 (as amended, 2017)

The NEMA EIA Regulations (2014), which replaced the EIA Regulations (2010), were promulgated and came into effect on 04 December 2014. These Regulations regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.

The nature of the proposed project triggers activities listed in GNR 983, 984 and R985 (Listing Notices 1, 2 and 3) of the EIA Regulations (2014), as amended, and is described in Section 7.

5.2.2 National Screening Tool Report

The National Web based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment Regulations (2014), as amended to screen their proposed site for any environmental sensitivity.

Objectives of the screening tool:

- The National Development Plan calls for an efficient and effective environmental legislative process including the Environmental Impact Assessment Process.
- The development of the National Web based Environmental Screening Tool forms part of ensuring on-going improvement of the EIA process to ensure efficiency and effectiveness.
- The Screening Tool aims to flag areas of potential environmental sensitivity in relation to a proposed site and development footprint.
- The tool enables the applicant to manipulate the development footprint on a site to avoid environmental sensitivities.
- The report generates a list of specialist assessments that should form part of the assessment reports to be submitted with the EIA application based on the national sector classification and the sensitivity of the site.
- Supports the implementation of the Assessment Protocols.
- Assessment Protocols provide minimum information to be included in a specialist report to facilitate the decision making process.
- The tool identifies any specific exclusions, restriction, prohibitions or any exceptions to the EIA process that ply to a particular site as well as any site specific information that must be consulted in relation to the site.

- In time to provide a mechanism to collect new environmental information surveyed or compiled by the specialists through the preparation of assessment reports for verification by data custodians for incorporation into relevant national data sets.

The Screening Tool also provides site specific EIA process and review information. Further to this, the Screening Tool identifies related exclusions and/or specific requirements including specialist studies applicable to the proposed site and or development, based on the national sector classification and the environmental sensitivity of the site.

Finally the Screening Tool allows for the generating a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended, whereby a Screening Report is required to accompany any application for Environmental Authorisation. In light of the above mentioned, a Screening Tool Report was prepared for the site and will be attached to the Application form.

According to the report the site falls in an area where three wind and solar developments with an approved Environmental Authorisation or applications under consideration are within a 30km radius of the proposed site.

The site falls within the Gauteng Provincial Environmental Management Framework.

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to the proposed site are indicated below:

- Strategic Transmissions Corridor Central corridor;
- Gauteng EMF-Urban development zone 1;
- Air Quality Highveld Priority Area.

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm the list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the footprint situation.

Table 2: Specialist Assessment Identified

Specialist Assessment	Motivation
1. Landscape / Visual Impact Assessment	<p>According to (Barnard, 1999) a new development should aim to be attractive and visually pleasing. It should preferably improve the visual quality of the area and at the very least avoid visual degradation of the area.</p> <p><u>The</u> proposed development site is vacant and has been disturbed by anthropogenic activities leading to an unattractive visual appearance of the site. A development of this nature will thus</p>

	improve the appearance of the site and as such the Visual Impact Assessment was not deemed necessary.
2. Archaeological and Cultural Heritage Impact Assessment	A Heritage Impact Assessment was undertaken for the site during 2015 by Archaetnos Culture and Cultural Resource Consultants. The findings of the study have been discussed in Section 8 of this report.
3. Palaeontology Impact Assessment	The Heritage Impact Assessment undertaken by Archaetnos Culture and Cultural Resource Consultants in 2015 concluded that no sites of cultural heritage significance were identified, therefore it was not deemed necessary to undertake a Palaeontology Impact Assessment.
4. Terrestrial Biodiversity Impact Assessment	A Wetland and Vegetation Assessment was undertaken by Spatial Ecological Consulting CC (SPEC) in 2014. The findings of the assessment have been discussed in Section 8 of this report.
5. Aquatic Biodiversity Impact Assessment	A Wetland and Vegetation Assessment was undertaken by Spatial Ecological Consulting CC (SPEC) in 2014. The findings of the assessment have been discussed in Section 8 of this report.
6. Avian Impact Assessment	This study was not undertaken since, according to the Wetland and Vegetation Assessment that was undertaken in 2014, no threatened or protected species were observed on site or are expected to be present on site. Due to the level of disturbance on site it is highly unlikely that any species of conservation concern will be present on site.
7. Socio – Economic Assessment	The Socio-Economic Environment has been discussed in Section 8 of this report therefore it was not deemed necessary to undertake the study.
8. Plant Species Assessment	This study was not undertaken since, according to the Wetland and Vegetation Assessment that was undertaken in 2014, no threatened or protected species were observed on site or are expected to be present on site. Due to the level of disturbance on site it is highly unlikely that any species of conservation concern will be present on site.
9. Animal Species Assessment	This study was not undertaken since, according to the Wetland and Vegetation Assessment that was undertaken in 2014, no threatened or protected species were observed on site or are expected to be present on site. Due to the level of disturbance on site it is highly unlikely that any species of conservation concern will be present on site.

5.3 National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

The objectives of this Act are-

Within the framework of the National Environmental Management Act, to provide for –

- (i) the management and conservation of biological diversity within the Republic and of the components of such biological diversity;
- (ii) the use of indigenous biological resources in a sustainable manner and
- (iii) the fair and equitable sharing among stakeholders of benefits arising from bio prospecting involving indigenous biological resources.

5.4 National Environmental Management: Waste Act (Act No. 59 of 2008)

(NEM:WA)

The objective of this act is to protect health, well-being, and the environment by providing measures for-

- Minimising consumption of natural resources;
- Avoiding and minimising the generation of waste;
- Reducing, reusing, recycling and recovering waste;
- Treating and safely disposing of waste as last resort;
- Preventing pollution and ecological degradation;
- Securing ecologically sustainable development while promoting justifiable economic and social development.

5.5 National Water Act (Act No. 36 of 1998)

The purpose of this act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which takes into account amongst other factors:

Meeting the basic human needs of present and future generations,

- Promoting equitable access to water;
- Redressing the results of past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water;
- Protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations;
- Promoting dam safety;
- Managing floods and drought.

5.6 National Heritage Resources Act (Act No. 25 of 1999)

Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and, as they are valuable, finite, non-renewable and irreplaceable, they must be carefully managed to ensure their survival.

Every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interest of all South Africans.

The Act stipulates that any person who intends to undertake a development “must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with detail regarding the location, nature and extent of the proposed development”.

5.7 Occupational Health & Safety Act (Act No. 85 of 1993) (OHSA) as amended in July 2001, Including Major Hazard Installation Regulation, GNR 692, 30 July 2001.

The main objective of the Act is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected herewith.

5.8 Conservation of Agricultural Resources Act (Act No. 43 of 1983)

The purpose of the Act is to provide control over the utilisation of natural resources in South Africa such as soil, water sources and vegetation.

The objective is to maintain the production potential of land, combat and prevent erosion and weakening or destruction of water resources and protect the vegetation and combat weeds and invader plants.

Control measures are specified in terms of Regulation 1048 of 25 May 1984 being:

- Cultivation of virgin soil;
- Cultivation of land with a slope;
- Protection of cultivated land against wind and water erosion;
- Prevention of water logging and salination of land;
- Utilization and protection of wetlands, marshes, water sponges and water courses;
- Regulating the flow pattern of run-off water;
- Utilization and protection of veld;
- Grazing capacity of veld;
- Number of animals that may be kept on veld;
- Prevention and control of veld fires;
- Restoration and reclamation of eroded land;
- Restoration and reclamation of disturbed or denuded land.

5.9 National Road Traffic Act (Act No. 93 of 1996)

The Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith

5.10 Gauteng Conservation Plan (C-Plan Version 3.3)

Conservation planning was started in Gauteng in the year 2000 and the aim was to revise the C-Plan at least every 5 years. C-Plan Version 1 was produced in 2001 and was followed by version 2 in 2005. Version 2 was refined in 2007 and was named Version 2.1. The small size of the province made it feasible to conduct an extensive biodiversity survey, named BGAP, which aimed to provide the information on spatial occurrence of biodiversity necessary for rigorous conservation planning. C-Plan 3 represents priority areas for biodiversity conservation in the Gauteng province.

Knowledge of the distribution of biodiversity, the status of species, approaches for dealing with aspects such as climate change, methods of data analysis, and the nature of threats to biodiversity within a planning region are constantly changing, especially in the Gauteng province which is developing at an extremely rapid rate. This requires that the conservation plan be treated as a living document with periodic review and updates.

According to GDARD's conservation plan (C-Plan version 3.3) the proposed project site does not fall within any priority areas. The site falls within the Soweto Highveld Grassland vegetation type, a threatened ecosystem according to the GDARD C-plan. This vegetation type is considered endangered according to Mucina & Rutherford 2006. According to GDARD's C-Plan the area directly north east of the site is affected by a pan. The pan falls within an Ecological Support Area.

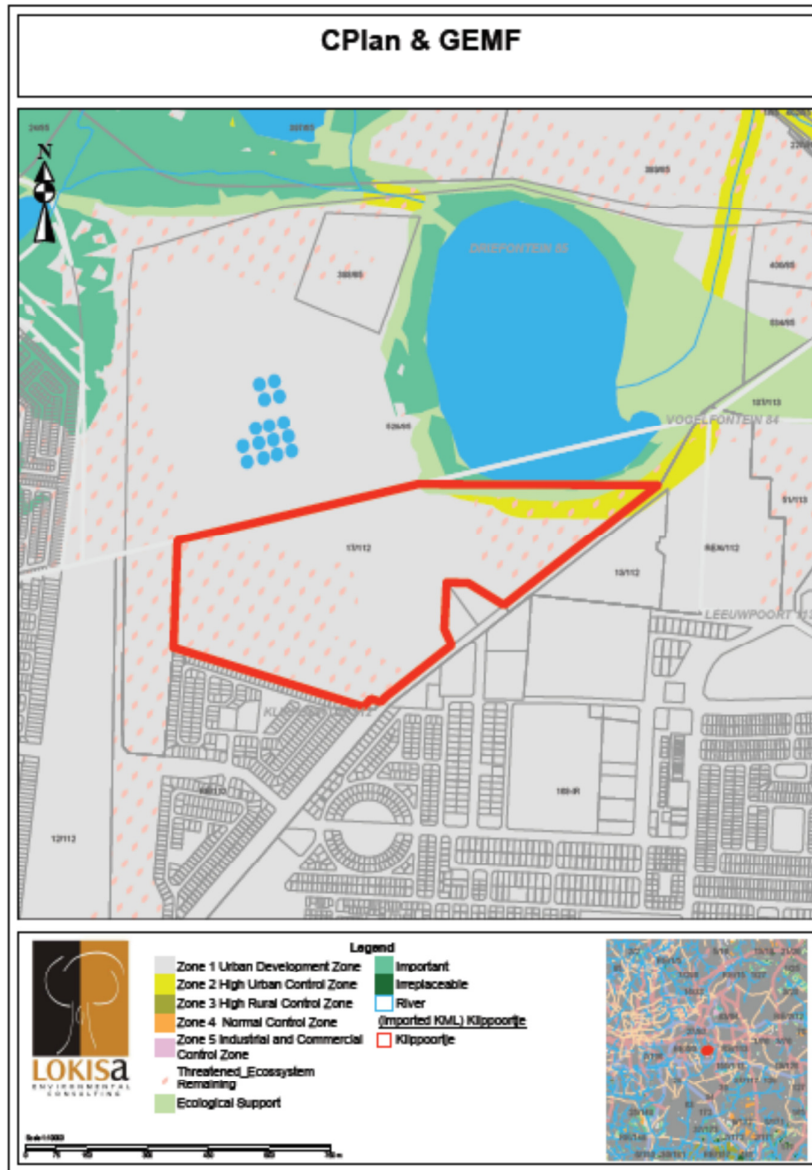


Figure 3: C-Plan and GPEMF Map of the site

5.11 Gauteng Provincial Environmental Management Framework

The guiding objectives that emerged during the course of the developed of the GEMF are:

- To facilitate the optimal use of current industrial, mining land and other suitable derelict land for the development of non-polluting industrial and large commercial developments.
- To protect Critical Biodiversity Areas (CBAs as defined in C-Plan 3.3) within urban and rural environments.
- To ensure the proper integration of Ecological Support Areas (ESAs as defined in C-Plan 3.3) into rural land use change and development.

- To use ESAs as defined in municipal bioregional plans in spatial planning of urban open space corridors and links within urban areas.
- To focus on the sustainability of development through the implementation of initiatives such as:
 - Energy efficiency programmes, plans and designs;
 - Waste minimisation, reuse and recycling;
 - Green infrastructure in urban areas; and
 - Sustainable Drainage Systems (SuDS).

The Environmental Management Zones (EMZ) were derived from the desired state, the environmental sensitivity as well the unique control areas as identified in sections 1, 2 and 3. The EMZs were also presented to the Gauteng Planning Forum 6 where it was generally accepted as a suitable contribution to facilitate appropriate development in Gauteng. The EMZs also took the Gauteng Growth and Management Perspective, 2014, into account and is therefore aligned to the general development policy for Gauteng.

According to the Management Zones of the EMF the majority of the study site is situated within Zone 1: Urban Development Zone and a very small part of the site is situated within Zone 2: High Urban Control Zone. The intention of Zone 1 is to streamline urban development activities in order to establish a more effective and efficient city region. The intention of zone 2 is to ensure that sensitive areas within the urban development zone are conserved and where linear development (roads) cannot avoid these areas, a proper assessment and implementation of alternatives must be undertaken.



Figure 4: The site in terms of the GPEMF Environmental Management Zones

5.12 The Gauteng Department Pollution Buffer Zones Guideline 2017

The Gauteng Pollution Buffer Zones Guideline was developed to ensure that pollution buffer areas are created between the pollution sources and the nearest human settlements. Over the years of using the buffer zone guideline, GDARD has realised that due to the constantly changing landscape in the province, as influenced by factors such as development pressure and technological changes, the sole reliance on just the buffer areas stipulated in the authorisations, permits and licences to protect the receiving environment from the effects of pollution, needs to be periodically enhanced.

The Guideline was initially developed in 2002 and reviewed in 2006. GDARD revised the guideline in 2017 to determine its effectiveness, relevance and applicability to the current operating environment in the province. The revision did not make changes on the buffer sizes and categorisation of the industries. The department adopted the approach of integrated management of the buffer zones inclusive of stakeholders such as municipalities and the industries. The outcome of this approach will include a thorough identification of the pollution sources and data verification with each municipality to ensure that the data is refined to the local scale. This process will include the demarcation of the buffer areas around pollution sources with a list of compatible NEMA listed activities that can be undertaken in those areas to ensure that the vast expanses of land is not left sterile.

Purpose of the guideline

The purpose of the guideline is to ensure that the residents of the Gauteng province are protected from emissions from pollution generators. The guideline aims to spatially document and categorise industrially affiliated activities and establish buffers around them to ensure that only the compatible land uses are allowed in the buffer areas. Care should be taken in the placement of incompatible land uses with an emphasis on mitigation measures that will be implemented; this should not be a norm but a consideration on a case by case basis. The primary concern is to ensure that the people who live in Gauteng are protected from the negative health impacts of such activities.

Classification of industry and pollution sources

The guideline defines pollution as the unwelcome concentration of substances that exceeds the capacity of the environment to handle it (Nel, 1999). The guideline focuses on the classification of industry in order to determine appropriate buffer zones around it. The classification considered pollution of natural elements such as air, water and soil (land-based pollution), as well as pollution by noise. Air pollution, noise pollution, water pollution and land-based pollution are listed as types of pollution in the guideline.

Classification of pollution sources

Industries and other pollution sources identified in Gauteng were classified based on the department's brief and the release or potential for the release of harmful effluent or emissions and associated nuisance factors like noise. The classification is made on the basis of the nature and level of pollution or potential release of effluents or emissions associated with particular industrial areas.

Industrial areas with pollution risks that can have potentially serious health effects on a large scale have been placed in Category 1. Industrial areas with pollution risks that may cause minor health effects or with activities that result in nuisance rather than actual health impacts were placed in Category 2. Industrial areas that pose little or no health impacts and that may result in a nuisance on a localised scale have been placed in Category 3.

Category 1 industries

Category 1A industries include those associated with:

- Large volumes of air pollution;

- Producing effluent and / or solid waste;
- Excessive noise, including those with railway infrastructure incorporating shunting yards; and
- Power generation sources.

Where areas around these industries are irrigated with industrial effluent, it is indicated as such. Examples of this category include heavy industries like steel mills, (e.g. Arcelor Mittal SA Vanderbijl park Works), petrochemical plants (e.g. Sasol and NATREF in Sasolburg) and power stations (e.g. Kelvin).

Category 1B waste facilities include those associated with:

- Potential to produce high toxic air emission or effluent
- Leachate generation causing ground water pollution
- Producing effluent and / or solid waste

Examples of this category include hazardous waste treatment facilities (e.g. A-Thermal, Cape Gate), hazardous waste disposal sites (e.g. Holfontein landfill site), and tanneries.

Category 2 industries

Category industries include:

- General manufacturing with less significant emissions;
- Noisy operations;
- Noisy service industries; and
- Certain agricultural industries.

Examples of this category include container depots (e.g. City deep), panel beater workshops (concentrations of which are found in Pretoria West and elsewhere) and tanneries (e.g. Oryx Tannery, Gatstrand).

Category 3 industries

Category 3 industries include:

- Clean manufacturing processes with little effluent or other nuisance factors;
- High-technology research and development activities;
- Industries centred around warehousing and distribution operations with low noise levels; and
- Industries centred on packaging operations.

Examples of this category include general warehousing and distribution operations (distribution warehouses of courier companies in Jet Park and Centurion) and information technology research laboratories (as found in Highveld TechnoPark, Centurion).

As per the meeting undertaken for this proposed development in 2017, the study site was classified under Category 2 industries. The Best-case buffer of 500m was then applied to the site which rendered the entire site undevelopable. It is due to reason as previously stated, that a Noise Impact Study and an Air Pollution study were undertaken, to investigate the possibility of reducing the 500m buffer. The findings and recommendations of these studies have been discussed in Section 8 of this report.



Figure 5: Layout with 500m buffer

5.13 The Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3)

The document provides guidelines for the minimum requirements for all biodiversity assessments when development is proposed.

5.14 Gauteng Spatial Development Framework (GDSF)

The GDSF is in pursuit of planning for shared, equitable, sustainable and inclusive growth and development in the country. The Gauteng Provincial Government (GPG) seeks to:

- Provide a clear future provincial spatial structure that is robust to accommodate growth and sustainability;
- Specify a clear set of spatial objectives for municipalities to achieve in order to ensure realization of the future provincial spatial structure;
- Propose a set of plans that municipalities have to prepare in their pursuit of these objectives;

- Provide a common language and set of shared planning constructs for municipalities to use in their planning processes and plans and
- Enable direct growth

5.15 City of Ekurhuleni: Integrated Development Plan (IDP) and Budget 2018/19 – 2020/21

According to Section 25 of the Local Government: Municipal Systems Act, 2000 (Act 32 of 2000), each Municipal Council must, after the start of its elected term, adopt a single, inclusive and strategic plan (Integrated Development Plan or IDP) for the development of the municipality which links, integrates and coordinates plans and takes into account proposals for the development of the municipality and which aligns the resources and capacity of the municipality with the implementation of the said plan.

An Integrated Development Plan is a super plan for an area that gives an overall framework for development. It aims to co-ordinate the work of local and other spheres of government in a coherent plan to improve the quality of life for all the people living in an area. It takes into account the existing conditions and problems and resources available for development. It looks at economic and social development for the area as a whole. It is used by municipalities as a tool to plan short and long term future development.

The 2018/19 – 2020/21 IDP represents the first review of the 2016/2017 – 2020/2021 Integrated Development Plan for the City of Ekurhuleni. Section 34 of the Municipal Systems Act, 2000 requires that an IDP of a municipality be reviewed annually on the basis of an assessment of its performance measures and to the extent that changing circumstances so demand.

The review of the IDP does not imply any changes to the strategic focus areas of the current Council but merely seeks to reinforce and fast-forward the implementation of the 5 year priorities of the current council by ensuring that the budget of the municipality funds these priorities over the 5 year term. The “Pro Poor” Agenda remains central to the strategic plan of the municipality.

The Mayoral Lekgotla held in September 2017 reinforced the “Pro Poor” agenda as well the objectives that were determined in the first Mayoral Lekgotla that was held in September 2016 to set the agenda and pronounce on the development priorities for the term of Council (2016/17-2021). The Lekgotla resolved that the focus areas and priorities as agreed upon in the first Lekgotla must guide and inform the review of the IDP and the MTREF and the subsequent annual plans (SDPBIP's).

The Pro Poor agenda will continue to focus on:

- Short and medium term priorities meant to support improved and impactful service delivery; and

- Accelerating and broadening access to quality municipal services to the poor while maintaining quality service levels in affluent areas.

The key focus areas/priorities for the term that continue to guide planning and budgeting in the municipality are outlined below:

- Improve service delivery through visible and impactful programmes supported by Capex spending;
- Electrification of all informal settlements;
- Construction of 100 000 housing units;
- Provision of 59 000 serviced stands;
- Making informal settlements more habitable through up-scaling of services;
- Promote preservation of water usage and continue investing in water infrastructure to ensure security of supply;
- Making land available for development;
- Improved Organizational culture, relations between staff and employer;
- Ekurhuleni University;
- Establish commission to fight fraud and corruption;
- Ekurhuleni Power Station to broaden accessibility and ensure security of supply;
- Building capacity to minimise outsourcing of key municipal services;
- Increase the number of local clinics piloting the 24 hour health care programme;
- Accelerate Wi-Fi rollout;
- Create a signature mega arts and culture festival for the City; and
- Implementation of the 10-point economic revival plan which include following:
 - Implementation of the aerotropolis master plan;
 - Revitalisation of the manufacturing sector;
 - Enabling public transport system;
 - Acceleration of IDZ/SEZ programme;
 - Land availability for strategic development;
 - Implementation of Township Economy Strategy;
 - Empowerment and support of SMMEs through public procurement;
 - Massive infrastructure investment;
 - Promote support of local products (Buy Local); and
 - Skills and capacity development.

The reviewed IDP will continue to facilitate the implementation of the City's long term planning framework - the Growth and Development Strategy (DGS 2055). The objectives of GDS 2055 are about establishing a high performing metropolitan government that is proactive in character and posture, to enhance the commitment towards building a social inclusive, locally integrated and competitive global player as reflected in the model of Gauteng City Region.

5.16 Ekurhuleni Growth and Development Strategy 2055

The Ekurhuleni Growth and Development Strategy 2055 is a follow-on or update of its 2025 Growth Development Agenda, defining a new path for the long-term future. The report is a strategy and not a spatial development framework, and hence it serves to provide development guidelines and principles directing future development. The report provides three intermediate visions for the Metropolitan Area, viz:

- 2012-2020 – the Delivering City: delivering services and meeting immediate demands.
- 2020 – 2030 – the Capable City: facilitating a thriving economy with meaningful reduction in unemployment, having an efficient, integrated and regionally well-connected spatial structure and having collaborative partnerships with civil society and communities.
- 2030 – 2055 – the Sustainable City: Being sustainable in every sense (economic growth, unemployment, green technology, etc.)

It evidences that the success of the one vision within its timeframe is chief in steering the ensuing vision and timeframe. The former provides a necessary platform for the next to reach its vision within its timeframe. It is therefore important for planning and development occurring in the current timeframe to be cognisant of the visions to follow.

Supporting these vision statements five development imperatives for 2055 have been formulated, these are:

- Sustainable urban integration
- Job creating economic growth
- Environmental well-being
- Effective co-operative governance

5.17 City of Ekurhuleni Bioregional Plan (March 2014)

The Ekurhuleni Metro is the developer and primary implementing agent of the Bioregional Plan. The spatial component of the Bioregional Plan is based on the systematic biodiversity planning that was undertaken by the Gauteng Department of Agriculture and Rural Development.

Bioregional plans are one of a range of tools provided for in the National Environmental Management; Biodiversity Act (Act No 10 of 2004) that can be used to facilitate the management and conservation of biodiversity priority areas outside the protected area network. The purpose of a bioregional plan is to inform land-use planning, environmental assessment and authorisations, and natural resource management by a range of sectors whose policies and decisions impact on biodiversity.

The bioregional plan is the official reference for biodiversity priorities to be taken into account in land use planning and decision making by all sectors. The bioregional plan has three main uses;

1. Proactive forward planning, serving as an input into mechanisms such as EMFs, SDFs, IDPs, Metropolitan Open Space Systems and Zoning Schemes.;
2. Reactive decision making, providing guidance for evaluating environmental impact assessments, agricultural land and water licensing decisions, and development control decisions through land use legislation (e.g. rezoning, subdivision and planning approvals).
3. Proactive conservation, providing an input into decisions on the expansion of protected areas through land acquisition by the state and biodiversity stewardship agreements with private or communal landowners.

According to the comments received from the City of Ekurhuleni the proposed development site is located within the Critical Biodiversity Area (CBA), Ecological Support Area (ESA), Other Natural Area and No Natural Area Remaining.

5.18 City of Ekurhuleni By-Laws

The proposed development will be constructed to comply with the City of Ekurhuleni By-Laws.

6 Need and Desirability

The human settlements sector in South Africa remains one of the most challenging areas in the social and economic environment. This mirrors worldwide trends as population explosions continue to create an increasing demand within the property market for well-located land and housing.

The proposed township development is situated to the north of the existing formal Reiger Park Township. The area is bordered by informal settlements to the east and west which indicates the need for housing in the area. The proposed development will therefore address the need for residential properties in an area where the demand exceed the supply.

Furthermore, eradicating hunger requires increasing the access to food of a person or family. The extent to which individuals and families are able to be food-secure depends in large part on the opportunities they have to increase their access to assets such as land, as well as access to markets and other economic opportunities. People who have extensive rights to land are generally more able to enjoy a sustainable livelihood than those who have only limited rights to land; those who have limited rights are, in turn, often better off than those who are landless.

Land tenure is also important in rural development interventions which place an emphasis on building people's endowments of assets so they can enjoy sustainable livelihoods. A livelihood is sustainable when it can cope with, and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. In this context, a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. Property rights to land, together with labour, form the most common endowments used to

produce food for home consumption as well as cash crops that allow the family or individual to pay for other needs such as health and education. Property rights to land are thus one of the most powerful resources available to people to increase and extend their collection of assets beyond land and labour to the full portfolio necessary for sustainable livelihoods.

7 The EIA Process – Terms of Reference

This section provides a brief description of the EIA process, based on the National Environmental Management Act, No 107 of 1998 and relevant amendments that are to be undertaken.

7.1 Legal Framework for EIA

The EIA process, applicable to this application, is determined by the Environmental Impact Regulations published in Government Notice R982 in Government Gazette No 38282 of 4 December 2014, as amended, promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

The EIA regulations inter alia describe the procedure for EIA and provide a description of activities that would require authorisation through either 1) a Basic Assessment (in terms of Government Notices R983 and R985 of 2014) or 2) Scoping and Environmental Impact Assessment (in terms of Government Notice R984 of 2014).

The following activities are triggered by the proposed development:

Table 3: Listed activities triggered by the proposed development

Number and date of the relevant notice	Activity no (s)	Description of listed activity
GN. R 983, 8 December 2014 (as amended 2017)	Listing Notice 1 Activity 9	The development of infrastructure exceeding 1000 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.
GN. R 983, 8 December 2014 (as amended 2017)	Listing Notice 1 Activity 10	The development and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, 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, waste water, 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.
GN. R 984, 8 December 2014 (as amended 2017)	Listing Notice 2 Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
GN. R 985, 8 December 2014 (as amended 2017)	Listing Notice 3 Activity 12	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. (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; (ii) Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans.

As the proposed development triggers activities that require a full Scoping/ EIA, an application is submitted in terms of Chapter 4 of the EIA Regulations.

7.2 The EIA Process

The Scoping and Environmental Impact Assessment process comprise two phases being the Scoping phase and the Environmental Impact Assessment phase and are described below.

7.2.1 The Scoping Phase

The Scoping phase is the first step of the EIA process and is considered as the 'scouting' part of the EIA. The Scoping phase allows for all role players to gain a better understanding of the project. It is also critical as it allows for the early identification of important bio-physical and social issues that will need consideration.

7.2.1.1 The preliminary phase

Often the consultant will provide a preliminary assessment of the project in the Scoping Phase based on his/her expert knowledge called either a risk assessment or fatal flaws analysis. This assessment identifies major risks to the project receiving environment.

7.2.1.2 Public Participation Process

The Public Participation Process (PPP) allows all I&AP's to voice their concerns and issues regarding the project. The manner of undertaking the PPP is varied and is dependent on the nature of the project. Some of the most common features of the PPP include:

- Notification through newspaper adverts, notice boards, letters, etc.,
- Holding public meetings,

- Focus workshops with key organisations or sectors,
- Opportunity to review and comment on all reports.

7.2.1.3 Identify Key Environmental and Socio Economic Issues

The key biophysical and social-economic issues related to the project are identified during the Scoping phase. The Scoping phase includes input from a range of stakeholders such as local authorities, local people, and specialists.

7.2.1.4 Identify Alternatives

During the Scoping phase possible alternatives to the proposed development that may include fundamental alternatives such as maintaining the current land use rather than the proposed development should be identified. Design options attempt to modify certain aspects of the proposed project so as to minimise negative impact on the environment.

The identification of alternatives must be reasonable and practical.

7.2.1.5 Plan of Study for the EIA phase

The information and comments received during the Scoping phase inform the large and more comprehensive EIA phase. This is usually accomplished through the development of the Plan of Study (PoS) for the EIA. The PoS defines the actions, steps, and studies that must be undertaken in the EIA phase.

7.2.1.6 Scoping Report

The Scoping Report is a summary of all the above steps. In line with NEMA regulations, all I&AP's have the right to view and comment on a Scoping Report. All comments on the report must be considered in the Scoping Report before it is submitted to the authorities for review.

7.2.2 The Environmental Impact Assessment

The Environmental Impact Assessment (EIA) is a comprehensive evaluation and study phase that addresses all the issues raised in the Scoping phase.

7.2.2.1 Specialist Studies

Specialist studies are to be undertaken where necessary/required to provide a detailed and thorough examination of key issues and environmental impacts. Specialists will gather relevant data to identify and assess environmental impacts that might occur on the specific component of the environment that they are studying (e.g. vegetation, water quality, and pollution). These studies will be discussed in the Environmental Impact Assessment Report (EIAR).

7.2.2.2 Public Participation Process

The PPP initiated during the Scoping Phase continues into the EIA Phase. Once again the PPP will provide a forum within which all I&AP's will be able to voice concerns and issues regarding the project.

7.2.2.3 Assessment of the Significance of Impacts

It is necessary to determine the significance, or seriousness, of any impact on the natural or social environment. The EIA phase will adopt a significance rating scale that determines the special, temporal, severity and certainty of any impact occurring which will allow the determination of the overall significance of an impact or benefit.

The overall intent of undertaking a significance assessment is provided to the relevant authority with information on the potential environmental impacts and benefits, thus allowing them to make a balanced and fair decision.

7.2.2.4 Assessment of the Impact Significance

The process noted above will also be used to determine the significance of impacts that may occur from any project alternatives. Once again, this will allow decision-makers to compare different project alternatives in order to determine the best possible development option.

7.2.2.5 Mitigation measures and recommendations

Critical to an EIA is the provision of practical and reasonable mitigation measures and recommendations that establish the actions that are needed in order to avoid or minimise any negative impacts from the development.

7.2.2.6 Planning Input

An effective EIA process should actively engage and contribute to the planning process so as to mitigate environmental impacts through improved design and layout.

7.2.2.7 Environmental Impact Assessment Report

The tasks as described above will be combined in an Environmental Impact Assessment Report (EIAR). This will allow the assessment of the relationship of the environmental impact to project actions, as well as to assess the overall significance of these impacts. The EIAR will also provide sufficient information to allow the relevant authorities to make an informed decision.

7.2.2.8 Environmental Management Programme

An Environmental Management and action programme will be based on the findings and recommendations set out in the EIAR. The Environmental Management Programme (EMPr) consists of a set of practical and actionable mitigation, monitoring and institutional measures to be taken into account during construction and operation of a development. The aim is to eliminate adverse

environmental and social impacts, offset them, or reduce them to acceptable levels. These plans will include:

- The standards and guidelines that must be achieved in terms of environmental legislation,
- Mitigation measures and environmental specifications which must be implemented at 'ground level' (i.e. during construction and operation),
- Provide guidance through method statements to achieve the environmental specifications,
- Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPr,
- Prevent long-term or permanent environmental degradation.

7.2.2.9 Environmental Authorisation and Appeals Process

Upon thorough examination of the EIAR, the authority will issue an Environmental Authorisation or reject the application. Should authorisation be granted, it usually carries Conditions of Approval.

The proponent is obliged to adhere to these conditions.

I&AP's will be notified of the decision in terms of the NEMA Regulations and should an I&AP wish to appeal any aspect of the decision, they must within twenty (20) days of the date of notification of the decision, submit their appeal including supporting documents to the appeal administrator.

8 Description of Receiving Environment

This section provides a description of the natural and socio-economic environment which could be potentially impacted on by the proposed development. It includes a brief overview of the physical environment, biological environment and cultural and social features.

8.1 The Physical Environment

8.1.1 Topography

The site is flat with no prominent topographical features on site. The general elevation of the site is approximately 1620m mean sea level and the site slopes gently to the southwest.

8.1.2 Climate

The climate of the area is warm-temperate with summer rainfall. Summer temperatures are high whilst severe frost frequently occurs in winter (Mucina & Rutherford, 2006).

8.1.3 Geology and Soils

According to the Geological report compiled by Crossman, Pape & Associates Consulting Geotechnical Engineers & Engineering Geologists in 2013, the site is underlain by quartzite of the Turfontein Subgroup, Central Rand Group, Witwatersrand Supergroup. Residual soils have

developed from weathering of the quartzite bedrock. The soil/rock profiles are classified according to the following zones namely, Zone C1, Zone C2, Zone P and Zone S and described below.

Zone C1: An area characterized with localized fill overlying hillwash overlying localized nodular/ hardpan ferricrete overlying reworked residual quartzite overlying quartzite bedrock. The intermediate excavation material could be removed using medium to heavy earthmoving equipment and/or power tools. The fill and hillwash across Zone C1 are considered to be highly collapsible and thus unsuitable for uses as founding layers, even for proposed lightly loaded structures. The founding layers occur at depths varying between 0.4m and 1.9m (average depth of 0.95m). Consideration must be given utilizing suitably designed reinforced concrete raft foundations for the housing structures across Zone C1. The quartzite bedrock would essentially require removal by blasting. (Geotechnical Investigation for proposed Klippoortjie Housing Development, Crossman, Pape & Associates Consulting Geotechnical Engineers & Engineering Geologists, August 2013).

Zone C2: An area characterized by Local fill overlying thick hillwash overlying nodular/ hardpan ferricrete. The fill, hillwash and loose nodular ferricrete across Zone 2 are considered to be highly collapsible. The soil layers are thus unsuitable for use as founding layers, even for proposed lightly loaded structures. The intermediate excavation material could be removed using medium to heavy earthmoving equipment and/ or power tools. Based on the above findings it is proposed that special foundation procedures have to be implemented for the proposed development on Zone C2. It is therefore proposed that suitably designed reinforced concrete raft foundations should be the optimal foundation type (Geotechnical Investigation for proposed Klippoortjie Housing Development, Crossman, Pape & Associates Consulting Geotechnical Engineers & Engineering Geologists, August 2013).

Zone P: Area described with thick fill (mine slimes, ash and dump rock) that can be found to the northern area of the site. The soil types are considered to be highly collapsible and are also highly corrosive and could cause health related risks to nearby residents. The mine slimes can be removed across the western portion of Zone P. The central and eastern areas of the site comprises of ash, rock dump and silty sand. The materials are considered to be highly collapsible/compressible; these soil layers are thus unsuitable for use as founding layers, even for proposed light loaded structures. It is proposed that the material be removed in its entirety to spoil. Once the fill material has been removed the in situ soils could be re-evaluated to determine geotechnical zones and suitable foundation types (Geotechnical Investigation for proposed Klippoortjie Housing Development, Crossman, Pape & Associates Consulting Geotechnical Engineers & Engineering Geologists, August 2013).

Zone S: Hillwash overlying residual quartzite overlying quartzite bedrock. The hillwash is considered to be highly collapsible. The quartzite bedrock would essentially require removal by blasting. The soil layer is thus unsuitable for use as a founding layer, even for proposed lightly loaded structures. Conventional strip/spread foundations could be employed as suitable foundation types (Geotechnical Investigation for

proposed Klippoortjie Housing Development, Crossman, Pape & Associates Consulting Geotechnical Engineers & Engineering Geologists year, August 2013).

The above-mentioned zones indicate that the proposed development has to be supported with modified foundation types.

The Council for the Geosciences previously confirmed that the site falls outside the area considered “dolomitic land”.

8.1.4 Surface Water and Wetlands

Spatial Ecological Consulting CC (SPEC) undertook a Wetland and Vegetation Assessment for the proposed development during 2014.

According to the assessment no wetlands are present on the site although some of the depressions on site contain some wetland species. A large pan is located adjacent to the site to the north east. The pan is indicated as an Ecological Support Area with a few patches indicated as Important Area. During the time of the study, the pan was found to be very disturbed and less important as an Ecological Support Area and as an Important Area.

The study concluded that although the pan was found to be very disturbed, all wetlands are considered to be of conservative importance. The report suggested, as per GDARD's buffer requirements (2014), a 30m buffer be applied around wetlands within the urban edge.

8.2 The Biological Environment

8.2.1 Vegetation

According to the vegetation classification of Mucina & Rutherford (2006) the study site is situated within the Soweto Highveld Grassland vegetation type. The vegetation is described as gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothrix*. In places not disturbed, only scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grass cover.

According to Mucina & Rutherford 2006, the Soweto Highveld Grassland vegetation type is Endangered. Only a handful of patches statutorily conserved (Waldriff, Krugersdorp, Leeuwkuil, Suikerborsrand, Rolfe's Pan Nature Reserves) or privately conserved (Johanna Jacobs, Tweefontein, Gert Jacobs, Nikolaas and Avalon Nature Reserves, Heidelberg Natural Heritage Site). Almost half of the area already transformed by cultivation, urban sprawl, mining and building of road infrastructure.

Some areas have been flooded by dams (Grootdraai, Leeukuil, Trichardsfontein, Vaal, Willem Brummer). Erosion is generally low.

According to the Wetland and Vegetation Assessment undertaken by SPEC in 2014 the pan adjacent to the site falls within the Eastern Temperate Freshwater Wetland Vegetation type. The vegetation type is present in flat landscapes, in shallow depressions, temporarily flooded grasslands and temporary water bodies. The vegetation type is dominated by aquatic or hygrophilous vegetation, often with different zones. The vegetation type is classified as Vulnerable in the NEMBA list (2011).



Figure 6: Vegetation on site

8.2.2 Fauna

During the site visit undertaken no faunal species of conservation concern were encountered. The Specialist said that the general habitats present in the study area would not be suitable for most priority species.

The Wetland and Vegetation Assessment undertaken by SPEC in 2014 also stated that there were no threatened or protected species observed on site nor are expected to be present on site. Due to the level of disturbance on site, it is unlikely that any species of conservation importance will be present on site.

8.3 Cultural and Social Features

8.3.1 Historic, pre-historic features and archaeological

A Heritage Impact Assessment of the site was undertaken during April 2015 by Archaeos Culture and Cultural Resource Consultants.

The aim of the study was to identify all heritage sites, document, and assess their importance within Local, Provincial and National context. To assess the impact of the proposed project on non-renewable heritage resources and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The study concluded that no sites of cultural heritage significance were identified. The survey of the area was completed successfully.

8.3.2 Visual Quality

One of the potential impacts of a development is its aesthetic impact. The aesthetic quality of an area is important for several reasons and could be an important contributor to the well-being and quality of life for people (Barnard, 1999).

A new development should therefore aim to be attractive and visually pleasing. It should preferably improve the visual quality of the area and at the very least should avoid visual degradation of the area (Barnard, 1999).

8.3.3 Safety and Security

It is a general concern that crime increases during the construction phase due to the transient nature of the labourers and this will have to be addressed in the Environmental Management Programme that is to be submitted with the EIA report.

Mining

There is a large pan situated to the north-east of the site and a mining plant is situated to the west of the pan and approximately 250m north of the site.

According to "*Housing and population sprawl near tailings storage facilities in the Witwatersrand: 1952 to current*"; a research by Melanie A. Kneen, Matthew E. Ojelede and Harold J. Annegarn, mining, tailings storage facilities (TSF's), dust pollution and growth in residential areas are synonymous in the Witwatersrand, South Africa. Housing onto land close to TSFs (areas rendered marginal because of the dust hazard and risk of structural failure) has continued unabated for

decades, intensifying human exposure to windblown mineral dust. The study concluded that inhalable dust around TSFs sites requires continued monitoring, quantification and mitigation methods.

According to an article by Wilma Stassen “*Gauteng’s mine dumps brimming with radioactive uranium, October 2015*”, Gold and Uranium occur in the same geological environment and with gold mining, uranium is often also brought to the surface. Uranium is passed on to humans either through the inhalation of fine dust particles from tailings and can be blown away as far as 20km on a windy day. In order to limit the risk of exposure to Radioactive material, the South African Chamber of mines has set the guideline that each tailing dump should have a buffer of 500m buffer zone surrounding it where no human settlement is allowed.

The above however apply to tailings dumps and very little information is available regarding buffer zones between residential areas and mining plants.

Three main issues relating to Mine Residue Areas (MRAs) located in Gauteng have been identified by the report *The Mine Residue Areas Strategy and Implementation Plan, Department of Agriculture and Rural Development, Gauteng Province, 2012*, namely:

- Air quality, with particular reference to dust and fine particulate matter.
- Water flux and water quality with special note of the current initiatives around acid mine drainage and the transport of radioactive materials associated with the exposed uranium ore.
- Geotechnical safety concerns related to the dangers of sinkholes, ground instability and collapse above abandoned mine workings and also around open, unsealed mine shafts that present a danger to nearby settlements.

According to the database compiled during phase 1 of the project it was assumed that all gold MRAs are radioactive in Gauteng.

The report concluded that a way forward needs to be coordinated by a structure comprised of a multi institutional representative that cuts cross spheres and departments of government and cannot be confined within any existing structures. A fresh structure is required with the fullest possible stakeholder representation and will be responsible for amongst many others the following:

- Extension of air quality monitoring around mine residue areas to include fine particulate matter (PM10 and PM2.5) monitoring and regular measurements of the chemical composition of the particulate matter and dust to determine the health impacts of toxic and radioactive elements.
- Groundwater monitoring and environmental isotope sampling of pre-selected hydrocensus boreholes based on available data sets (etc.).

A Radon Study was undertaken by Malepa Holdings (Pty) Ltd and the results and conclusions of the survey are provided below.

The purpose of the survey was to provide a Radiological Safety Assessment of the proposed Reiger Park X 25 site, to ascertain if the specific activity levels on this site are; below or above, the set regulatory limits. The survey was conducted to validate the radiation levels on site against the regulatory standard of 500 Bq (per nuclide)/kg.

The survey was conducted by the Radiation Protection Monitor, assisted by a Radiation Protection Specialist using NNR approved instrumentation.

The methods used in the site gamma survey to assess the radioactivity content entails gamma assaying of the surface with an RS-230 spectrometer. The RS-230 was used at a height of 1m above the soil surface. Calibration factors from pads of material containing known amounts of Uranium, Thorium and Potassium (K-40) are used to infer Uranium and thorium content from the measured gamma counts.

The survey conducted on the proposed development site indicates that 0% of the site requires remediation since there are no results that are above the reference level of 500 Bq/kg for which a nuclear authorisation is not necessary. Furthermore as indicated in the table below, all the scenarios (residential, industrial, and recreational) indicate a total dose less than 0.25 mSv per annum.

The table below presents a summary of the total dose results for the residential, industrial and recreational scenarios. The maximum values from the NECSA analysis report were used in all the calculations.

Table 4: Summary of total dose

	Pathway	Adult	15 year old	10 year old	5 year old	Infant
Residential Scenario	Inhalation	0.080	0.090	0.063	0.032	0.026
	Soil Ingestion	3.719	17.836	30.070	15.868	15.265
	External	217.015	145.273	158.142	130.680	112.239
	Radon	26.310	26.310	26.310	26.310	26.310
	Total (μSv/yr)	247.12	189.51	214.59	172.89	153.84
Pathway		Adult	15 year old	10 year old	5 year old	Infant
Industrial Scenario	Inhalation	0.094	0.000	0.000	0.000	0.000
	Soil Ingestion	3.719	0.000	0.000	0.000	0.000
	External	165.837	0.000	0.000	0.000	0.000
	Radon	26.310	0.000	0.000	0.000	0.000
	Total (μSv/yr)	195.96	0.000	0.000	0.000	0.000
Pathway		Adult	15 year old	10 year old	5 year old	Infant
Recreational Scenario	Inhalation	0.080	0.090	0.063	0.032	0.026
	Soil Ingestion	3.179	17.836	30.070	15.868	15.265
	External	30.265	54.395	54.395	48.424	14.594
	Radon	26.310	26.310	26.310	26.310	26.310
	Total (μSv/yr)	60.37	98.63	110.84	90.63	56.19

It was concluded that; based on the survey results, the RGM and the (South African Nuclear Energy Corporation SOC Limited) NECSA analysis results, that a submission be made to the NNR for the removal of the Reiger Park Extension 25 site from the scope of the Certificate of Registration issued

to land owner and that the developer may proceed with the residential development on the property. (Reiger Park Extension 16, 17 & 18 Survey Report, Malepa Holdings (Pty) Ltd).

The report was submitted to the National Nuclear Regulator during December 2016 for approval and clearance. A clearance certificate was received and stated the following:

"The NNR releases Reiger Park Ext 16, 17 and 18 sites from any further regulatory control". Since the site is earmarked for development the following clause must be incorporated in every deed of transfer/certificate or registered Title to be prepared for registration at the relevant Deed Registry"

"As this erf (stand, land, etc.) forms part of an area which may be subject to dust and noise pollution as a result of the location and which may be liable subsistence, settlement, shock and cracking due to mining operations, the owner thereof accepts all liability of any damage thereto or any structure thereon which may result from such subsistence, settlement, shock or cracking."

8.3.4 Air Quality

An Air Quality Assessment was conducted by Gondwana Environmental Solutions (Pty) Ltd during 2017 in order to comply with the requirements at GDARD.

Typically, an Air Quality Assessment is conducted to determine the potential impacts a proposed development will have on the surrounding environment, through dispersion modelling and a comparison to the National Ambient Air Quality Standards (NAAQS) of South Africa (South Africa 2009, 2012b). However the assessment undertaken considered an alternative scenario, which was to determine the impacts of the surrounding environment on the proposed development. The assessment did not use emission inventories or dispersion modelling to develop this understanding. Instead, existing public information, such as Air Quality Management Plans (AQMP's) and air quality data from ambient air quality monitoring stations (AQM station), combined with on site monitoring data was utilised.

Reiger Park Air Quality

The expected air quality of Reiger Park Extension 25 is based on the extrapolation of the information gathered through the review of AQMP's, AQM station data and on-site dust fall monitoring.

Summary of Air Quality Management Plans

Based on the review of AQMP's, the air quality at the site is expected to be poor. The poor air quality results from the high industrial and mining activities, high population density and high motor vehicle usage that occur within the Ekurhuleni Metro. These sources of emissions have the ability for long-range dispersion. In addition, there are mining activities that occur in close proximity to the proposed site, which results in more localised emissions. The primary pollutants identified from the AQMP's that could have a negative impact on the proposed development are SO₂ and PM₁₀.

Summary of Air Quality Monitoring Stations

Monitored data obtained from the three AQM stations, indicate that SO₂, PM₁₀ and CO are the primary pollutants of concern for the region. The number of exceedances of the 24-hr avg. SO₂, 1-hr avg. CO and 8-hr avg. CO are significantly above the permissible number of exceedances. Whilst PM₁₀ recorded one exceedance less than the permissible number, the three exceedances were obtained from a largely incomplete dataset (below 60% data recovery). In addition, all three pollutants are expected to have elevated concentrations during the winter periods, for which data was unavailable.

Gaseous and particulate pollutants have the ability to disperse over large distances. The findings from the two stations located to the west (Germiston) and east (Wattville) of the proposed development, suggest that there are a number of sources of pollutants in the greater Boksburg / Germiston area. It is likely that similar conditions may exist at the proposed site. The proposed site is located in an area with a number of industrial nodes to the South-west, West, North and North-east. These areas may affect the proposed area. There are several mining activities over and above the mining activity located on the immediate northern boundary of the proposed site, which may contribute to dustfall and PM₁₀ concentrations. Informal settlements occur to the immediate west of the proposed study site. The settlements typically emit low-level pollutants primarily from domestic fuel burning activities for light, heat and cooking.

Summary of Dustfall Monitoring

The dustfall may result in a nuisance for the proposed Reiger Park Ext. 25 development as the rates, on average are above 600 mg/m²/day. One site did exceed the Non-Residential Standard, which indicates that the mining operations has the potential for high dustfall emissions, especially during the spring period. It is anticipated that higher dustfall rates are experienced between August and November (late winter to early summer).

The proposed development is within approximately 50 m of the mining operations, which suggests that the dustfall from the mining operations could be dispersed into the residential area. Dustfall particles (large particulates) are typically dispersed over shorter distances and settle through gravitational forces due to the particle size. The dustfall rates from the monitoring DRD Gold Ergo sites and the current monitoring study, suggest that the dustfall should be reduced in short distances from the current mining activity. This is however, dependant on the mining activities themselves combined with meteorological conditions. Increased mining activities, particularly material handling close to the southern boundary of the mine, could increase dustfall being dispersed southwards.

Recommendations

The following recommendations were made based on the study undertaken:

- The mining operation should be consulted extensively:

- To monitor dustfall along their southern boundary and sampling points within the proposed residential area to monitor the potential impact of the mining operations on the residential development (if approved).
- To implement dust suppression measures (e.g. water suppression) during periods of anticipated high wind speeds.
- To manage material sources and vehicle movement especially along the southern boundary, to mitigate against dispersion of high dustfall rates into the residential area.
- The residential development
 - Should not be located within 100 m of the mining activity
 - Should put a communication channel in place to allow residents to voice their concerns on nuisance dustfall that may occur during occupation.

Final Air Quality Statement

The air quality in Ekurhuleni Metro is typically poor. The high population density, industrial and mining activities in the region contribute the poor air quality. The findings for the study, for the proposed development, do not suggest that the development will be impacted greater than in other areas of the Ekurhuleni Metro. The mining activity due north of the proposed development could pose a nuisance to the development; however, proactive engagement could mitigate this impact. The proposed development will be in a position to improve the area and potential reduce the number of informal settlements. This in itself can significantly impact the local air quality through the reduction of solid fuels for domestic fuel burning. In addition, improved infrastructure can improve the economic potential of the local area, which is beneficial

The proposed development should be approved from an air quality perspective providing that the development does not encroach closer than 100m of the mining activity.

Dust Fall Monitoring

As per the recommendations of the Air Quality Assessment, Rand Leases appointed Gondwana Environmental Solutions (Pty) Ltd to conduct dustfall monitoring at Reiger Park for a period of six months to complement the one-month monitoring that was conducted during October 2017. The objective of conducting longer-term monitoring is to develop a better understanding of dustfall emissions.

The Dustfall monitoring in results suggest that the mining activities have the potential to generate dustfall rates that are above the Residential and Non-Residential Standards. While these occurrences are infrequent, they are more likely to occur in the winter (June to August) and spring (September to November) periods. In addition, higher dustfall rates have occurred in late summer (February) and early autumn (March). Environmental and operational factors may be responsible for the higher dustfall rates. Increased operations with increased vehicle movement can entrain dust. Periods of

gusty winds or generally consistent windy periods, especially combined with drier conditions and increased operations, can increase entrained dust.

Dustfall in the vicinity of the proposed Reiger Park development may be a nuisance for the occupants, as the dustfall could be entrained and dispersed into the proposed location. Unfortunately, there are no studies, to the best of knowledge of Gondwana, that details the expected dispersion potential of dustfall, especially from similar operations as the mining activity. Furthermore, dustfall monitoring can indicate the presence of smaller particulates. While the larger particulates are typically deposited close to the source, smaller particulates (PM10 and smaller) can be entrained and dispersed much greater distances and for a longer period. The higher the gravitational settled particulate rates (dustfall monitoring) the greater the likelihood that smaller particulates are present. Large and small particulate could pose health risks, through absorption and inhalation.

Recommendations

It is the opinion of Gondwana that all the recommendations initially provided in the Air Quality Assessment Report remain relevant.

8.3.5 Noise

dBAcoustics was appointed to determine the prevailing noise levels at the proposed residential development which is situated south of a gold reclaiming plant and other residential developments during 2017.

The noise survey was done to identify noise sources in and around the proposed development, which may have an impact on the proposed development and to recommend mitigatory measures for compliance to the Noise Control Regulations and the South African National Standards SANS 10103 of 2008 - The measurement and rating of environmental noise with respect to annoyance and to speech communication. The gold reclaiming plant is a wash plant and not a smelter and product is hauled to and from the plant from the north. The plant was operational during the time of the noise survey on 11 September 2017.

Discussion

Two aspects are important when considering potential noise impacts of a project and it is:

- The increase in the noise level, and;
- The overall noise level produced during the construction and the operational phase of the project.

The following activities will generate noise during the construction phase of the development:

- Ground works/Excavation;
- Transportation of waste soil/rock from the site
- Foundations;
- Building activities;

- Transportation of building material to and from the construction site
- Assembling of equipment/machinery and buildings.

The noise sources at the two different project areas which may create an increase in the noise levels in the near field on a temporary and/or permanent basis during the operational phase of the project:

- Increase in the traffic noise along feeder roads;
- Traffic noise impact from the mine activities north of the proposed development.

The impact assessment during the construction and operational phases is described in the table below:

Table 5: Impact rating during the construction phase

ASPECT	Impact (Cons+Li likelihood)	Significance Rating	Mitigation	Impact mitigation measures	Significance rating after mitigatory measures (Extreme, High, Low)
Ground works/Excavation	11	Medium	Machinery with low noise levels to be used. Must take place during daytime period only.	5	Low
Transportation of waste soil/rock from the site	11	Medium	Tip trucks with low noise levels to be used. Must take place during daytime period only.	5	Low
Foundations	9	Medium	Machinery with low noise levels to be used. Pile driving and cement floating to be done during the daytime period only.	5	Low
Building activities	9	Medium	Building activities to take place during daytime periods and may only take place during night time inside the building during the house fitting period.	5	Low
Transportation of building material to and from the construction site	11	Medium	Machinery with low noise levels and maintained in a good order to be used and to comply with the IFC's Health and Safety Regulations.	5	Low
Assembling of equipment/machinery	11	Medium	Machinery with low noise levels to be used.	5	Low

Table 6: Impact rating during the operational phase

ASPECT	Impact (Cons+Li likelihood)	Significance Rating	Mitigation	Impact mitigation measures	Significance rating after mitigatory measures (Extreme, High, Low)
Increase in the traffic noise levels along the feeder roads.	5	Low	There will be a 4.0dBA increase in the noise levels during peak periods at 25m from the road and no increase at 100m from the road. There will be no additional noise mitigatory measures	5	Low

Traffic noise impact from the mine activities north of the proposed development	5	Low	required. The noise level along the boundary of the mine footprint was 46.3dBA and the overall noise level some distance from the mine activity mine footprint was 46.5dBA.	5	Low
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Recommendations

The following noise mitigatory measures are recommended for the proposed development

- Construction activities may only take place during the day time and a noise survey must be carried out should it be required to work after hours;
- A soil berm of 2.0m or wall to be erected along the boundary facing the mine should the operational activities change. A noise impact assessment will have to be carried out should the current gold mine recovery activities change.

Conclusion and summary

It was found that the noise levels along the southern boundary of the mine footprint area of 46.3dBA were within the noise levels for a residential area. The hauling of material to and from this area took place from the northern side of the mine footprint and was not audible at the southern boundary. The noise from the aircraft and traffic was much higher than the noise from the mine activities.

The proposed development will be in line with SANS 10103 of 2008 – The measurement and rating of environmental noise with respect to annoyance and to speech communication and Gauteng Noise Control Regulations, provided that the acoustic screening measures are in place.

8.3.6 Sense of Place

Sense of place is the phenomenon in human society in which people strongly identify with a particular geographical area or location. A “place” is not merely an objective location or collection of geographical attributes. It becomes an emotional abstraction that consists of landscape, people and experiences anchored in time. Virtually all landscapes nowadays have cultural associations, because virtually all landscapes have been affected in some way by human action or perception. In other words, most landscapes are, in practice, cultural landscapes because they have been impacted in differing degrees by human processes. Cultural factors in large measure control the rate at which the landscape is being altered and the economic and cultural differences of a multicultural society are largely responsible for the dynamics of the process.

8.3.7 Property Values

According to Barnard (1999) property values are in most cases affected by three factors, namely an increase in noise, an adverse visual impact and a security risk to already established residents.

In light of the above it is not expected that the project will have an impact on property values.

8.3.8 Traffic

A Traffic Impact Assessment, dated June 2015 was conducted for the Proposed Reiger Park Extension 25 by ITS Engineers (Pty) Ltd.

The report investigated the expected transport related impacts of the new developments planned on Portion 398 of the Remainder of the farm Driefontein 85-IR and on the remaining Extent of Portion 4 of the farm Klippoortje 112-IR (now known as Portion 17 of the Farm Klippoortje 112 IR) in Ekurhuleni and concluded that:

1. The proposed developments will generate the following vehicle trips:
 - AM Peak Hour Trips: 1 010vph
 - PM Peak Hour Trips: 840vph
2. The developments will be accessed from Commissioner Street and St Anthony's Street.
3. It is proposed that St Anthony's Skills Centre access be closed, they will then use Reiger Park Extension 25 access on St Anthony's Road/ Grassland Road intersection.
4. A proposed future link between the two developments is proposed. The link will provide direct access to Commissioner Street via Reiger Park Extension 24 access to the proposed taxi rank in Reiger Park Extension 25.
5. Given the proposed road upgrades, it can be expected that the trips generated by the development can be accommodated on the road network at an acceptable level of service.
6. The upgrades should be designed by a competent civil engineer.

8.3.9 Socio – Economic Environment and Labour Pool

The City of Ekurhuleni's IDP (2018/19) – (2020/21) sets out the socio economic context of the city below:

The City of Ekurhuleni emerged over seventeen years ago as a key Metropolitan Municipality in Gauteng comprising of approximately two million inhabitants living in agglomeration of nine small towns and seventeen townships. The amalgamation of two existing regional entities, namely Kyalami Metropolitan and Eastern Gauteng Service Council served as the beginning of the now large City that accommodates a population of about 3.5 million inhabitants. At the heart of the City's plans and service delivery operations are the communities of, Tembisa, Katlehong, Vosloorus, Duduza, Daveyton and Thokoza that collectively house over 68% of the City's total population.

Demographic analysis

The City's population has grown exponentially since its establishment in the year 2000. The population has nearly doubled in the last seventeen years from an estimated 2 368 283 in the year 2000 to 3 379 104 in 2016. The City's population growth rate is steady at 2.47% per annum, coming down from a high of 4% per annum in the period between 1996 and 2001. The current population represents over 6% of the total population of South Africa (StatsSA: 2017). An important feature of

growth in the Ekurhuleni population is the net migration into the City. Ekurhuleni, together with Tshwane and Johannesburg are the largest recipients of in-migration in the country.

The city has a median age of 30 and 66% of the population is between the ages of 18-64, 18% is below the age of 18 and 6% is above the age of 65. The city has a relatively young population which is about the same rate as that of Gauteng Province. The African (black) population accounts for 80% of the population followed by the white population at 14%, the Coloured population at 3% and the Indian population at 2%.

Males make up 51% of the population within the city and females account for 49%. Isizulu is the most widely spoken language at home at about 34% followed by Sepedi at 12%, Sesotho at 11% and English at 10%. Generally, the population of the City speak more than 1 official South African language and all 11 languages are spoken within the City. 95% of the inhabitants of the City are South African born, with 62% born in Gauteng, 10% born in Limpopo, 7% born in Kwazulu Natal, 5% born in the Eastern Cape and the remaining 10% born elsewhere in the country and 5% born outside the country.

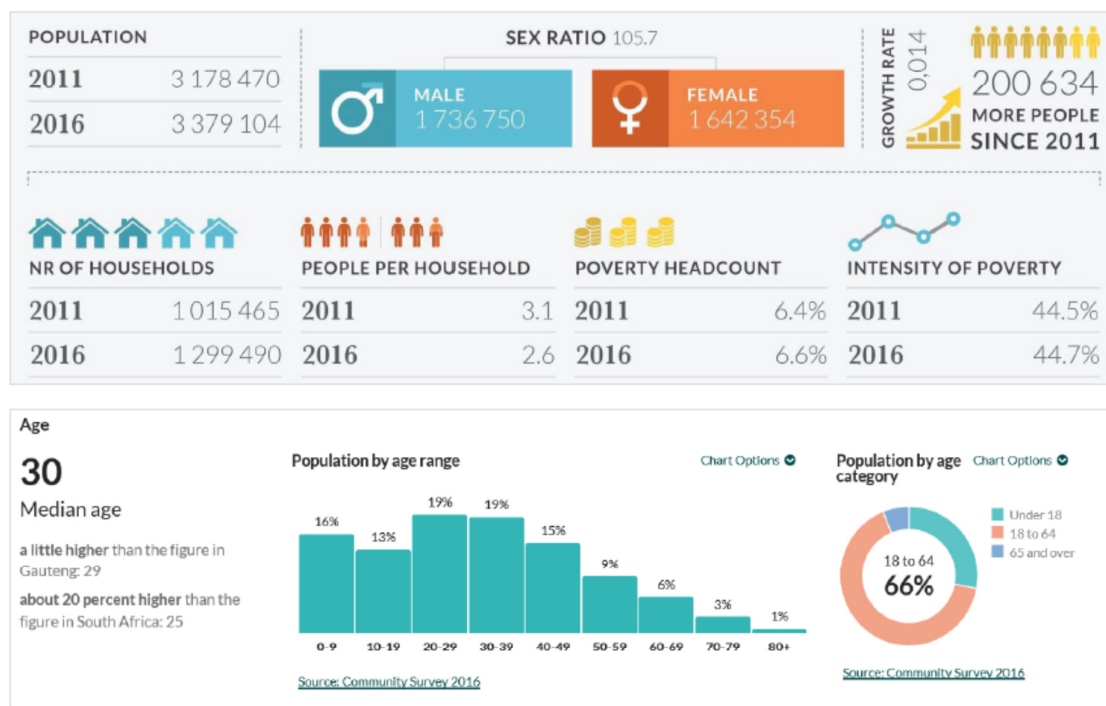


Figure 7: CoE population and socio-economic indicators

Economic analysis

The 2016 State of the Cities Report buttresses the central role of the contribution of the South African cities in the national economy and showing the 5 largest cities Johannesburg, Cape Town, Tshwane, Ekurhuleni and eThekweni playing a dominant role in the national economy. Ekurhuleni's contribution

to the national economy has increased from 8.2% in 1995 to 8.8% in 2016, overtaking eThekweni as the fourth largest city in the process. Between 1995 and 2013, four of the cities increased their share of South Africa's GVA: Johannesburg (11.7% to 13.9%), Cape Town (10.3% to 10.9%), Tshwane (8.9% to 9.2%) and Ekurhuleni (8.2% to 8.8%), but the share of eThekweni and all the three smaller metros declined.

Table 7: Sector contribution to Ekurhuleni GVA Constant Prices

Sector	Sector Contribution by Year			
	2000	2006	2011	2015
Agriculture	0.6	0.4	0.4	0.3
Mining	5.3	3.3	2.6	2.3
Manufacturing	30.3	28.7	24.1	22.7
Electricity	3.3	3.1	2.6	2.3
Construction	2.3	2.9	3.8	4.1
Trade and Hospitality	13.0	13.8	14.4	14.8
Transport, Storage and Communication	10.4	10.7	11.1	11.3
Finance and business services	14.8	18.8	20.9	21.3
Community services and general government	20.1	18.3	20.2	20.9

Source Global Insight 2016

The structure of the City of Ekurhuleni's economy is dominated by four sectors: manufacturing, finance and business services, community services and general government and to a lesser extent the trade and hospitality sector. Over the past 15 years, major structural shifts have occurred in the structure of the economy principally involving a decline of the dominance of the manufacturing sector which dropped from 30.3% in 2000 to 22.7% in 2015 and a comparable increase of the contribution of the finance and business services sector which increased its share from 14.8% in 2011 to 21.3% in 2015. The continuing decline of the manufacturing sector is a big challenge for the municipality and for that reason the revitalization of the manufacturing sector is a key strategic focus area for the municipality.

Labour

- **Economically Active Population (EAP)**

The City of Ekurhuleni's EAP was 1.64 million in 2015, which was 48.47% of its total population of 3.38 million and roughly 25.32% of the total EAP of the Gauteng Province. From 2005 to 2015, the average annual increase in the EAP in Ekurhuleni was 2.33%, which is 0.464 percentage points lower than the growth in the EAP of Gauteng's for the same period.

	Ekurhuleni	Gauteng	National Total	Ekurhuleni as % of province	Ekurhuleni as % of national
2005	1,300,000	4,910,000	17,100,000	26.5%	7.6%
2006	1,350,000	5,090,000	17,600,000	26.4%	7.6%
2007	1,390,000	5,280,000	18,000,000	26.3%	7.7%
2008	1,410,000	5,400,000	18,200,000	26.1%	7.7%
2009	1,430,000	5,510,000	18,200,000	25.9%	7.8%
2010	1,450,000	5,620,000	18,300,000	25.7%	7.9%
2011	1,480,000	5,750,000	18,500,000	25.7%	8.0%
2012	1,510,000	5,920,000	18,800,000	25.6%	8.0%
2013	1,560,000	6,130,000	19,400,000	25.4%	8.0%
2014	1,600,000	6,330,000	20,000,000	25.2%	8.0%
2015	1,640,000	6,460,000	20,600,000	25.3%	8.0%
Average Annual growth					
2005-2015	2.33%	2.80%	1.87%		

Source: IHS Global Insight Regional eXplorer version 993

Figure 8: Economically Active Population - Ekurhuleni, Gauteng and National

In 2015, Ekurhuleni employed 1.19 million people which is 23.92% of the total employment in Gauteng (4.96 million), 7.71% of total employment in South Africa (15.4 million). Employment within Ekurhuleni increased annually at an average rate of 2.54% from 2005 to 2015. The City of Ekurhuleni's average annual employment growth rate of 2.54% exceeds the average annual labour force growth rate of 2.33%.

	Ekurhuleni	Gauteng	National Total
2005	922,000	3,710,000	12,600,000
2006	973,000	3,910,000	13,100,000
2007	1,020,000	4,100,000	13,600,000
2008	1,030,000	4,210,000	13,900,000
2009	1,040,000	4,270,000	13,900,000
2010	1,040,000	4,310,000	13,800,000
2011	1,050,000	4,380,000	13,900,000
2012	1,080,000	4,500,000	14,100,000
2013	1,110,000	4,650,000	14,500,000
2014	1,150,000	4,790,000	15,000,000
2015	1,190,000	4,960,000	15,400,000
Average Annual growth			
2005-2015	2.54%	2.94%	2.05%

Source: IHS Global Insight Regional eXplorer version 993

Figure 9: Total Employment - Ekurhuleni, Gauteng and National

In Ekurhuleni the economic sectors that recorded the largest number of employment in 2015 were the finance sector with a total of 261 000 employed people or 22.0% of total employment in the City. The trade sector with a total of 259 000 (21.8%) employs the second highest number of people relative to the rest of the sectors. The mining sector with 7 190 (0.6%) is the sector that employs the least number of people in Ekurhuleni, followed by the electricity sector with 8 160 (0.7%) people employed.

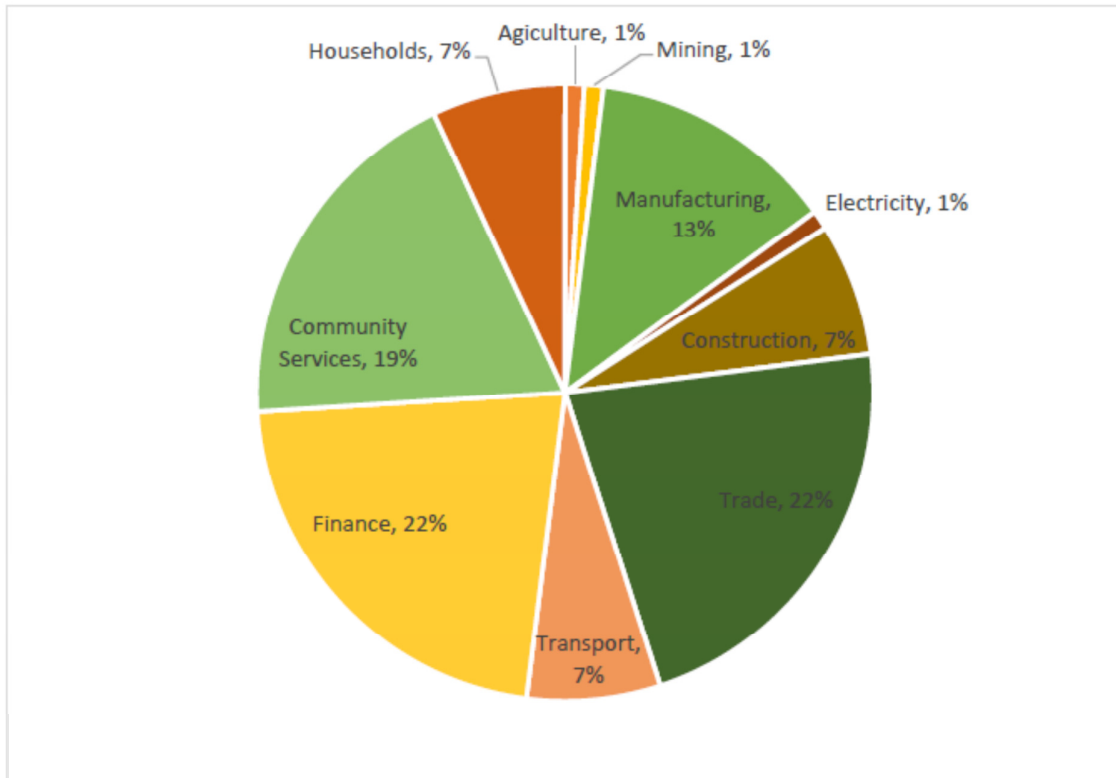


Figure 10: Ekurhuleni total employment by Broad Economic Sector, 2015

- **Formal and Informal Employment**

The number of formally employed people in the City of Ekurhuleni counted 1.03 million in 2015, which is about 86.71% of total employment, while the number of people employed in the informal sector counted 158 000 or 13.29% of the total employment. Informal employment in Ekurhuleni increased from 128 000 in 2005 to an estimated 158 000 in 2015.

- **Unemployment**

In 2015, the unemployment rate in Ekurhuleni (based on the official definition of unemployment) was 29.72%, which is an increase of 0.868 percentage points. The unemployment rate in Ekurhuleni is higher than that of Gauteng as can be seen in the figure below. The unemployment rate for South Africa was 25.28% in 2015, which is a decrease of 1.27 percentage points from 26.55% in 2005.

	Ekurhuleni	Gauteng	National Total
2005	28.9%	26.2%	26.6%
2006	27.5%	25.1%	25.3%
2007	26.6%	24.1%	24.3%
2008	26.6%	23.8%	23.8%
2009	27.4%	24.1%	24.0%
2010	28.5%	24.7%	24.5%
2011	29.4%	25.2%	24.8%
2012	29.2%	25.4%	25.0%
2013	28.9%	25.5%	25.1%
2014	28.3%	25.7%	25.2%
2015	29.7%	26.3%	25.3%

Source: IHS Global Insight Regional eXplorer version 993

Figure 11: Unemployment rate - Ekurhuleni, Gauteng and National

In terms of unemployment, Ekurhuleni as with both Gauteng and South Africa have witnessed a steady increase in the unemployment rate from 2009. From a low of 26.6% in 2006, unemployment rose to 29.7% in 2015 for Ekurhuleni. The number of people employed in the City of Ekurhuleni declined from 1 190 000 in the second quarter of 2015 to 1 161 000 in the second quarter of 2016.

For the period under review, unemployment in Ekurhuleni has consistently been higher than the provincial and national figures as demonstrated in the figure below.

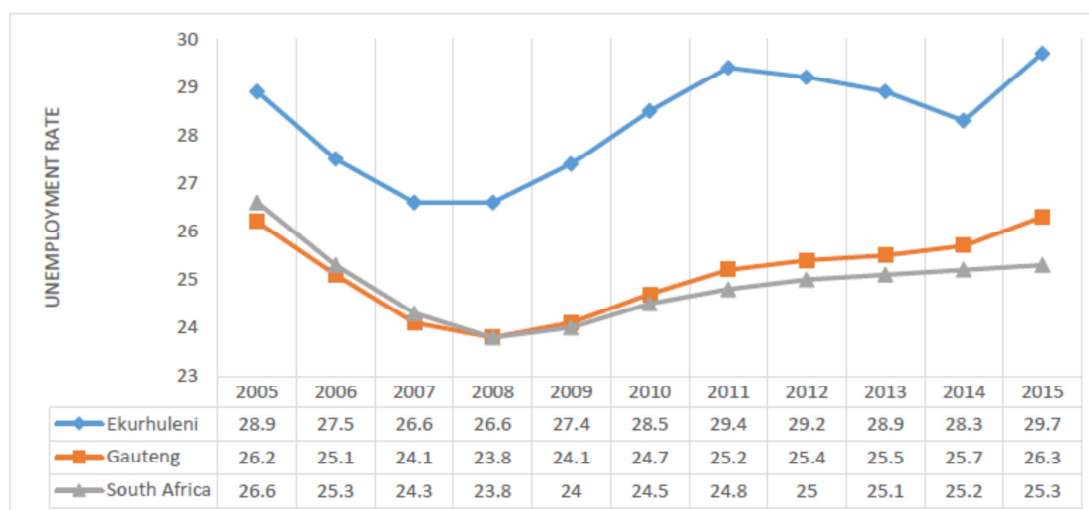


Figure 12: Unemployment Rate - Ekurhuleni, Gauteng, South Africa

9 Analysis of Alternatives

In terms of the NEMA Regulations, 2014 (as amended, 2017), the definition of alternatives is given as: 'Alternatives' in relation to a proposed activity, means different means of meeting the general purpose and requirement of the activity, which may include alternatives to the –

- (a) property on which or location where the activity is proposed to be undertaken;
 - (b) type of activity to be undertaken;
 - (c) design or layout of the activity;
 - (d) technology to be used in the activity; or
 - (e) operational aspects of the activity;
- and includes the option of not implementing the activity;

Alternatives can therefore be used to achieve the same result as the originally proposed project in a way that potentially offset the negative implication of the original plan. However, alternatives that are to be considered must be reasonable and feasible.

9.1 No-go option

There is still a huge backlog in South Africa and the provision of housing will remain a priority over the next few years. Due to the fact that residential uses have been included in the proposed development, the no go development would further affect the backlog. Furthermore the land is presently vacant and being used for illegal dumping, if undeveloped it would continue to be used for the same purpose, with the possibility of an illegal settlement taking place. Therefore the no-go option is considered to be the most undesired alternative

9.2 Location alternative

The Applicant is the property owner of the site and therefore no Location Alternatives will be investigated.

9.3 Type of activity alternatives

City of Ekurhuleni previously appointed Bigen Africa Services (Pty) Ltd as a service provider to assist in the formulation process in the provision of much needed housing during 2013. The Proposed Reiger Park Extension 25 development was part of such developments intended to solve the high need and demand for affordable housing in the Boksburg area. In light of this, no other type of activity alternative will be investigated as there is a definite need for this type of development.

Furthermore, the Applicant has a desire to come to an agreement with the City of Ekurhuleni regarding the purchase of the land to undertake the previously proposed development.

9.4 Design / Layout Alternatives

A number of township layout designs will be investigated in the EIA as the layout evolves and the specialist studies become available.

The proposed concept layout plan was selected since it is an amendment of the previous layout as it was amended to include the recommendations from the Air Quality Assessment Study.

The following design alternatives for the activity will also be tested in the EIA Report.

- Orientation: In the southern hemisphere, dwellings should be oriented to face north. The windows facing the north should be larger for heat gain during winter but not too large because this will result in increased heat losses in winter and heat gains in summer. Windows facing south should be smaller to prevent heat loss during winter
- Insulation: Up to 35% of the energy used to heat up residences in winter is lost through the roof. Roof insulation will ensure comfort by reducing heat loss in winter and keeping the heat out in summer.
- Solar water heater: As regular geysers are the biggest consumers of domestic electricity. Solar hot water cylinders can remain connected to the regular supply in case of back up required over cloudy or very cold periods. The electrical back-up should be managed with a timer switch. Unsightly storage tanks can be hidden in the roof void and need not be visible.

9.5 Technology alternatives

No reasonable or feasible alternatives in terms of the technology aspects of the activity will be investigated.

9.6 Operational alternatives

No reasonable or feasible alternatives in terms of operational aspects of the activity will be investigated.

10 Public Participation

The Scoping phase of this EIA provides for the involvement of Interested and Affected parties in a forum which allows them to voice their opinions and concerns regarding the proposed project. This is critical in the EIA as it contributes to a better understanding of the project and raises issues that need to be addressed in the EIA process.

The broad objectives of the public involvement programme were to:

- Identify and notify I&AP's.
- Provide I&AP's with the opportunity to comment on the proposed activity and to raise issues and concerns.
- Enable I&AP's to comment on the draft Scoping Report prior to submission to the relevant authorities.

10.1 Identification of Interested and Affected Parties

Lokisa Environmental Consulting CC developed a database of I&AP's based on the Public Participation undertaken for the project during November and December 2019. The neighbouring properties were identified and a Deeds search was undertaken to determine the property owners.

10.2 Procedure by which I&APs were afforded the opportunity to participate

All identified I&AP's were notified of the proposed project by e-mail and registered letters were sent out containing the Background Information Document (BID). (Refer to Annexure 11, Appendix A for Proof of notification). The BID provided basic information on the proposed project, the EIA process and the details on how to register as an I&AP. A copy of the Background Information Document is included in Annexure 11, Appendix B.

Notices were hand delivered to properties where registered addresses were not available. The intended activity was furthermore advertised in the "Daily Sun Newspaper" on 14 November 2019. Notices were also placed on and around the site (Refer to Annexure 11, Appendix C for Proof of notices on site).

10.3 Comments from I&APs

Comments were received from I&AP's (Refer to Annexure 11, Appendix D) and a register was opened to register any and all interested and affected parties that sent comments or issues in writing.

All registered I&AP's will be given fair opportunity to comment on the Scoping Report and Plan of Study for EIA (PoSEIA). The Scoping Report was released for public comment before it was finalised and forwarded to the relevant authorities.

10.4 Public Participation Process to be undertaken for the remainder of the EIA process

The public participation activities that will be conducted during the EIA Phase of the proposed project entail the following:

1. All comments received from stakeholders on the Scoping Report were captured in the Comments and Responses Report and incorporated into the Final Scoping Report prior to the submission of the Final Scoping Report to the competent authority for consideration.
2. Once the EIA Report containing the findings of the specialist studies has been compiled by the EAP, the report and accompanying specialist reports will be made available for public review and comment for a period of at least 30 days.

3. Public feedback sessions relating to the outcomes of the EIA Phase and specialist studies may be undertaken during the EIA Report's public review period;
4. All comments received from stakeholders on the Draft EIA Report will be added to the Comments and Issues Report and all documentations will be updated and finalised for the submission of the Final EIA Report to GDARD for decision making purposes;
5. Once the Environmental Authorisation decision is received from the competent authorities, the decision will be communicated to all registered stakeholders as well as those that have participated in the study to date.

11 Summary of Issues Raised by I&AP's and manner in which issues were incorporated

A comments and responses report is included under Annexure 11: Appendix E. Comments received during the Public Participation Process and the responses thereto is captured in the table below.

Table 8: Comments received during Public Participation Process

ISSUE	NAME	RESPONSE
Comments on Notice		
Transnet pipeline servitudes are not affected by the proposed work/installations/excavations/connections/construction/road upgrades/development/etc.	T. Hadebe (Transnet Pipelines)	None required.
Comments and/or questions and will follow after advertisement BID doc and on Public Participation Process.	L. D Swanepoel	None required. L.D has been registered as an I&AP and will be provided with the Draft Scoping Report once finalised.
Egoli gas currently has no gas mains that would be affected by the proposed location of work, as indicated in the plan submitted. The proposed work should be carried out while maintaining the following minimum requirements: <ul style="list-style-type: none"> All work in a road reserve, within the boundaries of the CoJ shall be in accordance with the latest approved Code of Practice for work within the road reserve of the CoJ. Should there be a gas smell during any excavation or want to report a gas leak Egoli should be contacted on: 011 726 4702 after hours or 011 356 5000. This wayleave approval will be valid for 6 months from the date of issue. Egoli Gas will not be liable for any costs that may be incurred as a result of charges / alterations to its gas network during this 6 month period. Should a period of 6 months expire without any construction taking place, a new application will have to be submitted for approval. 	Egoli Gas	None required.
The proposed work affects the DARK Fibre Optical Fibre Infrastructure and because of that, listed below are the terms and conditions to consider and adhere to: <ul style="list-style-type: none"> The Dark Fibre Optical route has been indicated on the drawing provided by their wayleave administrator. The exact position of the route cannot be guaranteed. 	G. Nel and M Kekana (Dark Fibre Africa Pty Ltd)	Dark Fibre Africa's terms and conditions will be considered and adhered to.

ISSUE	NAME	RESPONSE
<ul style="list-style-type: none"> DFA has approved the planned work from the documents received. If the planned work exceeds the boundaries of the demarcated portion of the map/drawing provided; the applicant will be required to submit a supplementary application to DFA in order to identify existing DFA infrastructure outside this area. Should DFA suffer damage and/loss as a result of the proposed works, DFA shall hold the applicant liable for such damage and/or loss. It should be noted that the DFA network is live and carries traffic for a number of subscribers. If the applicant damages the network, the subscribers will have a claim against DFA for which the applicant will also be held liable. The applicant or employed contractor must contact the relevant DFA Preventative Maintenance at least 5 working days prior to commencement of work to arrange a site/kick meeting. Contact details are as follows: George Nel 072 6396139 george.nel@dfafrica.co.za Damaged infrastructure must immediately be reported in writing to Judy Phalane, judy.phalane@dfafrica.co.za. For immediate assistance 011 22 47000 for all damages caused to DFA infrastructure. Cable Protection Slabs, which are precast concrete slabs used for the Protection of DFA's underground cables and other services must be used when installing services near DFA. The standard cable protection slab is 900mm x 200mm x 75 thick. The slab will be reinforced with 3.55mm high tensile wires at 100mm center in both directions. Minimum depth of DFA cable cannot be guaranteed and may differ from descriptions on municipality wayleave conditions. The position can vary from a minimum of 300mm to 1200mm in depth in municipal road reserves. This depth may be less in the road carriage way. The DFA Preventative Maintenance department must be contacted 48 hours prior to excavation in these locations. In some locations, a warning plastic marker tape has been placed as an indication that DFA network is in the vicinity. Should this marker be removed for construction purposes, DFA preventative maintenance must be contacted in order to arrange new warning tape to be installed by your contractor in accordance with DFA specifications. Any excavations by means of self-propelled mechanical machinery, including equipment used for drilling/boring, demolishing and or compaction of soil be executed closer than 500mm from buried DFA optical cables, must be authorized by a DFA official during an on-site meeting before such excavation is to take place. Such excavations may not be executed directly above the DFA infrastructure at any time unless prior written approval is obtained. No blasting may be executed near the proximity of DFA optical fibre infrastructure without supervision of DFA preventative maintenance officer. 		

ISSUE	NAME	RESPONSE
<ul style="list-style-type: none"> This approval letter is valid for 6 months from date of issue. The applicant must re-apply to DFA wayleave administration at services@dfafrica.co.za in Gauteng/ Pretoria , serviceskzn@dfafrica.co.za in Kwa Zulu Natal, serviceswr@dfafrica.co.za in Western Region , after the expiration thereof. If a contractor works under an expired DFA wayleave, DFA officials shall serve a stop work order to the contractor until the conditions are rectified. The applicant, or employed contractor responsible for the projector maintenance work as stated in the applicant's letter must at all times have on their person or on site: <ol style="list-style-type: none"> The Services Affected letter Call Before you dig letter; and Drawing /Map supplied by DFA <p>Should the documentation not be available on request DFA officials may order the contractor to cease all works liaise with the local authorities / municipality for penalties until such approvals are made available and presented to the officer.</p> <ul style="list-style-type: none"> The approval shall be withdrawn and of no effect should: the applicant does not comply with any of the conditions set out above paragraphs 1 to 15. If you receive Dark Fibre Services to be relocated to a new position to accommodate the project the applicant should be advised that Relocation of DARF Fibre Africa's established infrastructure may take up to a minimum of 12 weeks for completion (commencing after settlement of the relocation costs have been received in full) unless prior arrangements and/or written agreements are conveyed and authorised by DFA officials for specialised projects and/or emergency relocations. The following should be noted: Costs for re-positioning of DFA infrastructure may be for the (applicant) company's account. DFA will not be held liable for any delays to the project caused by DFA relocation projects whatsoever. DFA Important Contact Information: Network Operating Centre: 0800 628 662 Wayleave administrator: Mpho Kekana Email: mpho.kekana@dfafrica.co.za 		
<ul style="list-style-type: none"> Sasol Satellite Operations will be affected by the proposed Reiger Park Extension 25 as a gas pipeline transverses the proposed area. This gas pipeline has been declared a Major Hazard Installation (MHI) Regulation No R60 of the OHS Act (Act 85 of 1993). Sasol Satellite Operations will do a risk assessment on the impact of the proposed service station on the gas pipeline. This assessment will be provided in due course. <p>The following is a summary of Sasol Servitude Rights contained in Deed of Cession of Servitude.</p> <ol style="list-style-type: none"> Sasol Satellite Operations shall have and enjoy free and unobstructed access to the servitude at all times for maintenance and repair purposed. No buildings or structures shall be constructed within the servitude areas. No cover shall be removed nor shall be more 	R. Mpofu (Sasol)	Sasol's terms and conditions will be considered and adhered to.

ISSUE	NAME	RESPONSE
<p>than 3m be added over the servitude area.</p> <p>d) No heavy vehicle or power equipment for ground leveling are permitted over the servitude area unless otherwise authorized by this office.</p> <p>e) No roads, water mains, sewers, drains or other services shall be constructed across the servitude unless otherwise agreed to by this office. In this regard a formal written application is required by the office together with plans and sectional drawings in triplicate of the proposed services to cross the servitude in order to establish whether additional protection of the pipeline will be necessary.</p> <p>f) No works, such as fencing or posts with deep foundations may be erected.</p> <p>g) Nor shall deep-rooted trees or shrubs be planted in the servitude area, which are likely to damage or endanger the pipeline or their protective wrapping.</p> <p>h) NO BLASTING IS ALLOWED WITHIN THE PIPELINE SERVITUDE. Application to carry out blasting within 100m of a pipeline must be made to the office in writing in terms of Paragraph 17.1, Chapter 10 of the regulations embodied in the Explosives Act and REGULATIONS (Act 26 of 1956) as amended.</p> <p>i) All costs for additional protection to the pipeline shall be to the developer's account.</p> <p>The application must be requested to make all interested parties aware of the existence of the pipeline as it is operated under high pressure. It is imperative that all Title Deeds are endorsed with details of the pipeline servitude.</p>		
<ul style="list-style-type: none"> Requested details regarding the Reiger Park Extension 25 Development. In order for Sasol to complete their risk assessment for their internal review they requested the following information: <ul style="list-style-type: none"> ➤ A high resolution locality map of the area under review. ➤ A high resolution plan of the area under review. ➤ Details regarding the population density at the area under review. 	N. C. Bean (SASOL)	An email was sent to N.C Bean with all the information requested.
<ul style="list-style-type: none"> They currently have an underground overflow sewerage pipe running from the manhole in front of the yard of 952 Butch Jantjies through to the back of their properties and this causes a lot of problems once sewage starts running into the field. This is and has been a serious health risk – in most cases when these manholes are blocked and the dump reaches maximum height sewerage starts pushing up in their properties – properties affected by sewage pile up 950, 951, 952, 953 & 954. Emails were attached with some of the calls logged with council. It should be noted that there is another manhole at the back of the houses to the left where the sewage piles up, this is where their blockages come from, this is either a link from the informal settlement. They have on numerous occasions seen council unblock sewage at that point with trucks. His neighbour at Erf 952/the Councillor has been battling to sort out this issue for years with the council but they are still sitting with this issue. They recently had a lot of sewage issues 	O. Arends	<p>All relevant civil and electrical engineering services are to be designed after approval of the said township has been obtained from the City of Ekurhuleni. All bulk services will be upgraded to meet the peak demand. The proposed development will ensure services integrity.</p> <p>For existing service related issues the I&AP is advised to contact the City of Ekurhuleni at the following contact details:</p> <ol style="list-style-type: none"> 1. Call centre: 0860 543 000 2. Twitter: @CoE_Call_Centre 3. Email: call_centre@ekurhuleni.gov.za 4. Via My Ekurhuleni App

ISSUE	NAME	RESPONSE
<p>within their area in the last month or so...</p> <ul style="list-style-type: none">This is a great concern for them and it might also be a bigger health risk if not sorted before the development starts. He is not sure if the new sewerage lines for the new development will be linked to the same line, If so he foresees bigger problems.He requested that this be investigated and that visiting properties can also be done.		
<ul style="list-style-type: none">Nomfundo stated that she would be very happy if she gets a house because she is in need of the shelter.She is interested in the project because it will help more people to get shelter and help them to get jobs to get the young people out of the street.	N.O Maloni	Noted. The procedure to be followed in terms of housing applications will be discussed in detail in the EIAR report.
<ul style="list-style-type: none">She is a single mother of a 5 year old who's unemployed and in serious need of a need of a house because it's not safe and not healthy to raise a child in the shacks because anything can happen at any time and if she were to die tomorrow where would her child stay.	S Maloni	
Comments on the Draft Scoping Report		
<p>The Department has no objections for the proposed Reiger Park Extension 25 on the remaining extent of Portion 4 of the Farm Klippoortje 112 IR.</p> <ul style="list-style-type: none">The Scoping Report must comply with Regulation 21 of the Environmental Impact Regulations (EIAR), 2014 as amended.All the specialist studies recommended in the Scoping Report must be undertaken by the qualified and experienced specialist. The specialist studies must comply be undertaken by the qualified and experienced specialist. The specialist studies must comply with GDARD Requirements for Biodiversity Assessments. The most recent version of this document can be obtained by emailing EIAADMIN@gauteng.gov.za or can be downloaded from www.gdard.gpg.gov.za. The following information must form part of the EIAR:<ul style="list-style-type: none">a. A wetland assessment must be undertaken by a suitably qualified specialist within the field of ecological science or must have attended appropriate courses on wetland rehabilitation and delineation.b. The vegetation and plants survey must be undertaken by a suitable qualified specialist and relevant experience within the fields of vegetation science or ecology, and botanical science in the case of plant survey.c. An overall sensitivity map overlaid on the development layout map indicating all the relevant buffer zones and sites that have been excluded due to their sensitive nature.Comparative assessment of all alternatives taking into consideration, the sensitive areas on the site, surrounding land uses, nature and scale of activity components must be done and outcomes reported on the Final Scoping Report.A confirmation from the local authority with regards to provision of bulk services (e.g. water supply,sewage and waste disposal, energy, storm water) and related services such road infrastructure is required. This must	Eric Moletsane GDARD	<ul style="list-style-type: none">The Final Scoping Report was prepared according to Regulation 21 of the Environmental Impact Regulations (EIAR), 2014 as amended.A Vegetation and Wetland Assessment was undertaken for the proposed development during 2014. The Specialist who undertook the study holds an MSc in Botanical Science and is registered with the South African Council for Natural Scientific Professions. She also confirmed that the specialist study complies with the GDARD requirements for Biodiversity Assessments. <p>A layout plan overlain with a sensitivity map will be provided in the EIAR.</p> <ul style="list-style-type: none">As per consultation with the GDARD Official for this application, the comparative assessment of alternatives will be provided for in the EIAR.Confirmation from the local authority regarding the provision of services to the proposed development will be provided in the EIAR.Comment is noted and will be adhered to.

ISSUE	NAME	RESPONSE
<p>include a description of the infrastructure, specifications, layout, capacity and the planned routes.</p> <ul style="list-style-type: none"> All the specialist studies must be submitted to the relevant authority for approval/comments. 		
<p>Comments from Environmental Resources management and Waste Management Department, Legislative Compliance Division:</p> <ul style="list-style-type: none"> City of Ekurhuleni Bioregional Plan: The City of Ekurhuleni's Bioregional Plan indicates that the proposed upgrades are located within Critical Biodiversity Area (CBA), Ecological Support Area (ESA), Other Natural Area and No Natural remaining. <p>CBA and ESA areas are sensitive to development, required to meet targets for biodiversity pattern or ecological. These areas may contain species that are important for conservation or supporting ecological processes.</p> <ul style="list-style-type: none"> National Water Act, 1998 (Act No. 36 of 1998): The proposed development is located within the 500m regulatory zone of a watercourse therefore requires a Water Use Licence. <p>The applicant must ensure that the site camp, storage areas, chemical toilets and maintenance areas are located outside the delineated wetland, watercourses and its associated buffer zones, as well as any other sensitive areas.</p> <p>The applicant must submit a Water Use Licence Application (WULA) to the relevant competent authority, the National Department of Water, Sanitation and Human Settlements, in terms of Section 21 of Section 21 (c) & (i) water uses.</p> <p>The WULA must be made available to the City of Ekurhuleni for comment.</p> <ul style="list-style-type: none"> National Heritage Resources Act, 1999 (Act No 25 of 1999): A Heritage Impact Assessment was conducted for the development in terms of Section 38 of the National Heritage Resources Act, 1999 (Act No 25 of 1999). <p>A Record of decision (ROD) dated 15 May 2015 has been issued by Provincial Heritage Resources Authority – Gauteng (PHRA-G) reference number H57/15, the approval ROD is valid for two years therefore the above mentioned expired on 15 May 2017 and a new ROD will be required.</p> <ul style="list-style-type: none"> Locality map and layout plans or facility illustrations: The proposed Layout Plan is noted. The map must be updated to include the buffer. <p>The applicant must ensure that sensitivities i.e.</p>	<p>A Hietbrink (City of Ekurhuleni)</p>	<ul style="list-style-type: none"> City of Ekurhuleni Bioregional Plan: Comments are noted, however the C-Plan and ecological report stated the following; <p>According to GDARD's Conservation Plan (C-Plan version 3.3) the proposed project site does not fall within any priority areas. The site falls within the Soweto Highveld Grassland vegetation type, a threatened ecosystem according to the GDARD C-plan. This vegetation type is considered endangered according to Mucina & Rutherford 2006. According to GDARD's C-Plan the area directly north east of the site is affected by a pan. The pan falls within an Ecological Support Area.</p> <p>The Ecological study concluded that the vegetation on site is mostly transformed and only a small portion of grassland was present on the south western portion of the site. This grassland portion is also impacted upon by disturbances and signs of ploughing present.</p> <ul style="list-style-type: none"> National Water Act, 1998 (Act No. 36 of 1998): Note is take of the comment and it will be adhered to. The relevant Department will be consulted regarding the Water Use Licence. National Heritage Resources Act, 1999 (Act No 25 of 1999): The Provincial Heritage Resources Authority-Gauteng was telephonically consulted regarding the validity of the Record of Decision (ROD) issued on 15 May 2015. It is understood that a renewal of the ROD should be applied for. The proof of application for renewal or the renewed ROD (if already received) will be included in the EIAR. Locality map and layout plans or facility illustrations: The amended Layout Plan and Locality Map will be provided in the EIA Report. Environmental Management Programme (EMPr): The relevant concerns/issues will be incorporated into the EMPr for review and approval. Public Participation Process: Comments noted. <p>General</p> <ul style="list-style-type: none"> Property description has been corrected. It is understood from the Town Planner, that during the township establishment application, Portion 17 was in the process of being registered in the deeds office. At the time Remaining Extent of Portion 4 was the only registered portion until a subdivision was effected. The report was amended to indicate that

ISSUE	NAME	RESPONSE
<p>ecological, hydrological, etc. is clearly indicated / superimposed on the layout plans and submitted on A3 layout.</p> <p>It is stated on the report that there is a pipeline and a trench transverse on site therefore it must be included on the layout maps.</p> <p>Legend on Layout Map must be more visible for reading.</p> <ul style="list-style-type: none"> • Environmental Management Programme (EMPr): All significant impacts, issues/concerns raised in the comment letter must be addressed in the EMPr, as well as clear mitigation measures for impacts • Public Participation Process: The public Participation Process (PPP) undertaken in Annexure 11. <p>The PPP must be undertaken in terms of, and comply with the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended in 2017).</p> <p>A copy of a BID, site notices, newspaper advertisement, Comments and Response Report was attached in the DSR.</p> <p>General</p> <ul style="list-style-type: none"> • Property description of the proposed development is incorrect and currently refers to the "Remaining Extent of Portion 4", this must be corrected to reflect the correct location as the "Remaining Extent of Portion 17". • The introduction of the report indicates that the City is the applicant, however the introduction must be amended to clearly indicate that the project applicant is an external party and not the City of Ekurhuleni. • The applicant refers to the City of Ekurhuleni as the City of Ekurhuleni Metropolitan Municipality". This statement must be amended to correctly reflect the Local Authority as "City of Ekurhuleni" • The applicant must consult with City of Ekurhuleni Roads & Stormwater Department to assess with the Traffic Impact Assessment done in June 2015 is still valid. It must be noted that the Traffic Impact Assessments are valid for a 5 year period • The Nuclear Authorisation (Ref COR53B0219), dated 12 May 2017, issued by the NNR is noted for Reiger Park X25 (Reiger Park X 16, 17 and 18). • The applicant will be required to obtain written proof of capacity at the EWART WWTW. The applicant must also indicate in the EIR the WWTW where effluent will be treated • All activities to be undertaken on the said property must be in accordance with all applicable By-Laws, policies and requirements of the City of Ekurhuleni. • It should be noted that, in terms of Section 24F of the NEMA, Act No 107 of 1998, as amended, no listed activity may commence prior to an environmental authorization being granted by the competent authority. • In addition to the above, all relevant legislation and requirement of other government 		<p>the City of Ekurhuleni is not the applicant on this project.</p> <ul style="list-style-type: none"> • The report was amended to reflect "City of Ekurhuleni" and not the "City of Ekurhuleni Metropolitan Municipality". • An email enquiry was submitted to the relevant department and their response is yet to be received. • No response required • The proof of capacity for bulk services will be provided for in the EIA report. • All activities will be undertaken according to the By-Laws of the City of Ekurhuleni. • Comments will be adhered to.

ISSUE	NAME	RESPONSE
Departments (i.e. National, Provincial), in particular Section 28 (duty of care) of NEMA, must be compiled with. "Duty of care" to the environment, means that every person has a duty to avoid pollution and environmental degradation.		

12 Plan of Study for the EIA Process

As per Section 1 of Appendix 3 of Regulation 982 the Environmental Impact Assessment process must be undertaken in line with the approved plan of study for Environmental Impact Assessment. The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

12.1 Objectives of the EIA Process

As per Section 2 of Appendix 3 of Regulation 982 the objective of the Environmental Impact Assessment process is 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 development footprint on the approved site as contemplated in the accepted scoping report;
- (c) identify the location of the development footprint within the approved site as contemplated in the accepted scoping report 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--
 - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
 - (ii) degree to which these impacts-
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources, and
 - (cc) can be avoided, managed or mitigated;
- (e) identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report 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 development footprint on the approved site as contemplated in the accepted scoping report 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.

12.2 Plan of study for the EIA process

The plan of study for undertaking the environmental impact assessment process includes the following:

- (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;
- (ii) a description of the aspects to be assessed as part of the environmental impact assessment process;
- (iii) aspects to be assessed by specialists;
- (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;
- (v) a description of the proposed method of assessing duration and significance;
- (vi) an indication of the stages at which the competent authority will be consulted;
- (vii) particulars of the Public Participation Process that will be conducted during the environmental impact assessment process; and
- (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;
- (ix) 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.

12.2.1 Description of the alternatives to be considered and assessed

A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity is discussed in Section 9 of this report and will be included in the Environmental Impact Assessment Report.

12.2.2 Aspects to be assessed as part of the environmental impact assessment process

The table below provides a summary of the environmental aspects to be assessed as part of the environmental impact assessment process.

Table 9: Environmental aspects to be assessed as part of the EIA process

Environmental Aspect	Probable Impact
Topography	<ul style="list-style-type: none"> • Visual Impacts due to clearance of site and cut and fill • Bulk earthworks: changes to topography
Geology and Soils	<ul style="list-style-type: none"> • Soil erosion, loss of topsoil, deterioration of soil quality

	<ul style="list-style-type: none"> • Soil pollution
Hydrology	<ul style="list-style-type: none"> • Storm water flow and drainage • Degradation of Wetland/Pan
Fauna And Flora	<ul style="list-style-type: none"> • Degradation and destruction of habitats/ ecosystem • Impacts on fauna and flora
Aesthetics, Landscape Character and Sense of Place	<ul style="list-style-type: none"> • Noise • Visual impact
Social Well-Being and Quality of the Environment	<ul style="list-style-type: none"> • Safety and Security • Job opportunities • Air quality during construction phase and operational phase.
Historical Environment	<ul style="list-style-type: none"> • Destruction of cultural / heritage sites
Infrastructure and Services/Waste	<ul style="list-style-type: none"> • Availability of existing infrastructure and services • Traffic
Waste	<ul style="list-style-type: none"> • Construction waste • Domestic waste

The impacts identified in the above table will be evaluated in the EIA Phase according to the nature, significance, consequence, extent, duration and probability of the impacts. The evaluation, according to the evaluation described in Section 12.2.5 of this report will include the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

Further evaluation during the EIA Phase will include the positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects as well as the possible mitigation measures that could be applied and level of residual risk.

In addition to the abovementioned specific to this proposed development

12.2.3 Aspects to be assessed by specialists

The following specialist studies were conducted for the proposed project during 2013 and 2019:

- Vegetation and Wetland Assessment - included under Annexure 4
- Heritage Impact Assessment - included under Annexure 5
- Air Quality Impact Assessment Report – included under Annexure 6
- Noise Impact Assessment Report (including impacts from adjacent mining activities) - included under Annexure 7
- Radon Survey Report - included under Annexure 8
- Geotechnical Investigation - included under Annexure 9
- Traffic Impact Assessment – included under Annexure 10

The results from the specialist reports will also be incorporated into the EIAR.

The Civil Services reports (Water, Sanitation, Roads and Stormwater) will be updated where necessary to take into account the new developments and associated increase in demand in the area. Civil services will be discussed in detail in the EIA Report. The sufficient provision of services for the proposed development is one of the critical factors in this proposed development as the development can only proceed if the required services are available thereto.

12.2.4 Methodology used for assessing the environmental aspects

The EIA will assess the significance of impacts based on specialist input. The significance ratings will include the spatial and temporal scale, the likelihood of the impact occurring and the severity of impacts or potential benefits.

The assessment will consider impacts arising from the construction and operation phases of the proposed project both before and after the implementation of appropriate mitigation measures.

The Impact of the project activities is determined by identifying the environmental aspects and then undertaking an environmental risk assessment to determine the significant environmental aspects. The environmental impact assessment will include all phases of the project namely:

- Construction Phase; and
- Operational Phase.

Due to the nature of the development it is anticipated that the infrastructure would be permanent, thus not requiring decommissioning or rehabilitation. Maintenance of infrastructure will be addressed under the operational phase.

12.2.5 Methodology

The potential environmental impacts associated with the project will be evaluated according to the nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- **Extent:** The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- **Duration:** Indicates what the lifetime of the impact will be;
- **Intensity:** Describes whether an impact is destructive or benign;
- **Probability:** Describes the likelihood of an impact actually occurring; and

- **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.

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact. The criteria to determine the Consequence of an Impact is described in the tables below.

Table 10: Methodology

Rating	Definition of Rating	Score
A. Extent – the area in which the impact will be expected		
None	None	0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. Cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude or size of the impact		
None	None	0
Low	Natural and/or social functions and processes are negligibly altered	1
Medium	Natural and/or social functions and processes continue albeit in a modified way	2
High	Natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None	None	0
Short term	Up to 2 years	1
Medium term	2 – 15 years	2
Long Term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as set out in Table below:

Table 11: Method used to determine the consequence score

Combined score (A+B+C)	0 - 2	3 - 4	5	6	7	8-9
Consequence Rating	Not Significant	Very low	Low	Medium	High	Very high

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications indicated in table below:

Table 12: Method used to determine the probability

Probability of impact – the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts is determined by considering consequence and probability using the rating system indicated in table below:

Table 13: Impact significance rating

Significance Rating	Consequence		Probability
Insignificant	Very low	&	Improbable
	Very low	&	Possible
Very Low	Very low	&	Probable
	Very low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very high	&	Improbable
	Very high	&	Possible
Very High	Very high	&	Probable
	Very high	&	Definite

In conclusion the impacts are also considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The prescribed system for considering impacts status and confidence (in assessment) is indicated in the table below.

Table 14: Impact status and confidence classification

Status of Impact	
Indication of where the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')
	Neutral
Confidence of assessment	

The degree of confidence in predictions based on available information, EAP's judgement and/or specialist knowledge	Low
	Medium
	High

The impact significance rating will be considered in the Impact Assessment process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity / development;
- **Very Low:** the potential impact should not have any meaningful influence on the decision regarding the proposed activity / development;
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity / development;
- **Medium:** the potential impact should influence the decision regarding the proposed activity / development;
- **High:** the potential impact will affect the decision regarding the proposed activity / development;
- **Very High:** The proposed activity should only be approved under special circumstances.

12.2.6 Stages at which GDARD will be consulted

The Draft Scoping Report was made available for public review for a period of 30 days. After expiry of the comment period on the Draft Scoping Report, comments received during this period were incorporated in the report, the report was finalised and submitted to GDARD. The report includes a comment and response report which summarises all the comments received during the Public Participation Process.

The Draft Environmental Impact Assessment Report will be made available for public review for a period of 30 days once the Scoping report has been accepted by GDARD. After expiry of the comment period on the Draft Environmental Impact Assessment Report, comments received during this period will be incorporated in the report, the report will be finalised and submitted to GDARD for consideration for environmental authorisation. The report will include specialist studies, an EMPr and a comment and response report which will reflect the incorporation of comments received (including comments received from the competent authority) for the duration of the project.

12.2.7 Public Participation during the Environmental Impact Assessment Process

Public Participation during the Environmental Impact Assessment Process will entail a review of the findings of the EIAR, the EMPr and the specialist studies.

A copy of the Environmental Impact Assessment Report and the Environmental Management Programme (EMPr) will be made available to all I&AP's and stakeholders for public review. I&AP's and stakeholders will be given a 30 day period to comment on these reports.

All the issues, comments and suggestions raised during the comment period will be included in the comment and response report which will form part of the Environmental Impact Assessment Report to be submitted to GDARD.

12.2.8 Tasks to be undertaken as part of the Environmental Impact Assessment Process

A description of the tasks that will be undertaken as part of the environmental impact assessment process is given in Section 7.2.2 of this report.

12.2.9 Provide Mitigation Measures and Recommendations

Mitigation measures are to be provided for the alternatives assessed in the EIA report. The recommendations will establish the required actions that are needed in order to avoid, minimise or offset any negative impacts from the proposed development.

The EIAR will attempt to contribute to the planning process so as to mitigate environment impacts through improved design and layout. Such input has taken place in the Scoping phase and will be reviewed in detail in the EIA phase with input from the specialist studies.

12.3 Structure of EIA Report

The Environmental Impact Assessment Report (EIAR) will be compiled in accordance with the accepted Plan of Study and will incorporate the findings and recommendations from the Scoping Process as well as specialist studies conducted for the project. In addition, the EIAR will be compiled according to the guidelines provided in Appendix 3 of GNR 982 of the EIA Regulations (2014), as amended, and will contain the following:

Table 15: EIAR requirements according to Appendix 3 of Regulation 982 (as amended)

EIAR requirements according to Appendix 3 of Regulation 982
(3)(1)(a) details of – (iii) the EAP who prepared the report; and (iv) the expertise of the EAP, including a curriculum vitae;
(3)(1)(b) the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;
(3)(1)(c) a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;
(3)(1)(d) a description of the scope of the proposed activity, including – (i) all listed and specified activities triggered and being applied for; and (ii) a description of the associated structures and infrastructure related to the development;
(3)(1)(e) a description of the policy and legislative context within which the development is located

and an explanation of how the proposed development complies with and responds to the legislation and policy context;
(3)(1)(f) a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred development footprint within the approved site as contemplated in the accepted scoping report;
(3)(1)(g) a motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report;
<p>(3)(1)(h) a full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including:</p> <ul style="list-style-type: none"> (i) details of the development footprint alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— <ul style="list-style-type: none"> (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) if no alternative development footprints for the activity were investigated, the motivation for not considering such; and (x) a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report;
<p>(3)(1)(i) a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including –</p> <ul style="list-style-type: none"> (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;
<p>(3)(1)(j) an assessment of each identified potentially significant impact and risk, including –</p> <ul style="list-style-type: none"> (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be mitigated;
(3)(1)(k) where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;
<p>(3)(1)(l) an environmental impact statement which contains –</p> <ul style="list-style-type: none"> (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;
(3)(1)(m) based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the

EMPr as well as for inclusion as conditions of authorisation;
(3)(1)(n) the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;
(3)(1)(o) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;
(3)(1)(p) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;
(3)(1)(q) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
(3)(1)(r) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;
(3)(1)(s) an undertaking under oath or affirmation by the EAP in relation to – (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;
(3)(1)(t) where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;
(3)(1)(u) an indication of any deviation from the approved scoping report, including the plan of study, including – (i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and (ii) a motivation for the deviation;
(3)(1)(v) any specific information that may be required by the competent authority; and
(3)(1)(w) any other matters required in terms of section 24(4)(a) and (b) of the Act.

An Environmental Management Programme (EMPr) is to be compiled for the construction and operational phases for the proposed development. The EMPr will be compiled as a stand-alone document from the EIAR and will be submitted to GDARD.

In the interest of readability, the EIAR is divided into a number of volumes in order to cover the information above without being overly cumbersome. The volumes are divided as follows:

Volume 1: EIR

- Chapter 1: Executive Summary*
- Chapter 2: Introduction*
- Chapter 3: Legal Requirements*
- Chapter 4: Need and Desirability*
- Chapter 5: Terms of Reference*
- Chapter 6: Property Description*
- Chapter 7: Project Alternatives*
- Chapter 8: Nature of the Development*
- Chapter 9: Description of Services*
- Chapter 10: Description of receiving Environment*
- Chapter 11: Public Participation Process*
- Chapter 12: Environmental Impact Assessment Approach*
- Chapter 13: Environmental Impact Assessment*

Chapter 14: Conclusion and Recommendations

Volume 2: Specialist Studies

Volume 3: Comments & Responses trail

Volume 4: Environmental Management Programme (EMPr)

13 Conclusion

The Proposed Reiger Park Extension 25 Development requires a full Scoping and Environmental Impact Assessment as stipulated in the National Environmental Management Act, No 107 of 1998, as amended, and the Environmental Impact Assessment Regulations, 2014 (as amended).

The EIA process is divided into two phases – the Scoping and Environmental Impact Assessment phase. The key objectives of the Scoping Phase are to describe the proposed project, undertake a Public Participation Process and record issues and concerns raised by I&AP's. This Scoping Report provides a description of the outcomes of the Scoping phase.

The intention of the scoping report is to provide the registered I & AP's, the local authority and GDARD with the following information: the expertise of the EAP, a description of the proposed activity and property; a description of the environment that may be affected; identified all legislation and applicable guidelines; a description of environmental issues and potential impacts; methodology that will be adopted in assessing the potential impacts (including specialist reports); details of the Public Participation Process and a plan of study for EIA.

14 Declaration

I, Faith Makena, declare that I -

Will ensure that the information provided in this report is correct at the time of compilation,

Will ensure that information containing all relevant facts in respect of the application is made available to interested and affected parties and the public, and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application,

Will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application,

Will ensure that the plan of study for undertaking the environmental impact assessment will be clearly communicated with the interested and affected parties to ensure that everyone involved is aware and in agreement in terms of the plan of study, and

Will ensure that all specific information required by the competent authority is included and addressed in the reports.

15 References

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