DRAFT BASIC ASSESSMENT REPORT

FOR

ERVEN 1356 & 1357 MAGAGULA HEIGHTS TOWNSHIP

Ref. 002/17-18/E0071

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Definitions

Activity (Development)	An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms 'activity' and 'development' are freely interchanged.
Alternatives	Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity.
Applicant	The project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.
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	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.
Decommissioning	The demolition of a building, facility, structure or infrastructure.
Derelict land	means abandoned land or property where the lawful/legal land use right has not been exercised during the preceding ten year period (Regulation R982 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	In terms of the National Environmental Management Act (NEMA) (No 107 of 1998)(as amended), "Environment" means the surroundings within which humans exist and that are made up of: a) the land, water and atmosphere of the earth; b) micro-organisms, plants and animal life; c) any part or combination of (i) of (ii) and the interrelationships among and between them; and d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Environmental Assessment	The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.
Environmental Authorisation	An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.]
Environmental Assessment Practitioner (EAP)	The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

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.
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 Issue	A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.
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
General Waste	Household water, construction rubble, garden waste and certain dry industrial and commercial waste, which does not pose an immediate threat to man or the environment.
Groundwater	Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.
Hazardous Waste	Waste that may cause ill health or increase mortality in humans, flora and fauna.
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)
Indirect Impacts	Indirect or induced changes that may occur as a result of the activity. These types if 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.
Integrated Environmental Management	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).
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.
Irreplaceable areas	Sites, which are essential in meeting targets set for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3)
Mitigate	The implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.
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.
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).
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.
Undeveloped	means that no facilities, structures or infrastructure have been effected upon the land or property during the preceding 10 years.
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 of adopted, it refers to areas situated within the edge of built-up areas (Regulation R984 of NEMA,1998 (Act No. 107 of 1998));
vacant	Means not occupied for the purpose of its lawful land use during the preceding ten year period.
Virgin soil	means land not cultivated for the preceding 10 years. (Regulation R984 of NEMA,1998 (Act No. 107 of 1998);
watercourse	Means (a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; I a wetland, pan, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks. (Regulation R983 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. (Regulation 983 of NEMA, 1998 (ACT NO. 107 OF 1998).

Abbreviations

BAR	Basic Assessment Report
BID	Background Information Document
BSc	Bachelor of Science
CC	Close Corporation
C- Plan	Gauteng Conservation Plan Version 3
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMM	Ekurhuleni Metropolitan Municipality
EMPr	Environmental Management Programme
GPEMF	Gauteng Provincial Environmental Management Framework
GDARD	Gauteng Department of Agriculture and Rural Development
Ha	Hectares
HIA	Heritage Impact Assessment
I & AP's	Interested and Affected Parties
IDP's	Integrated Development Plans
Km	Kilometre(s)
LDO	Land Development Objectives
m	Metre(s)
NEMA	National Environmental Management Act
OHSA	Occupational Health and Safety Act
NGO's	Non-Governmental Organisations
PPP	Public Participation Process
Pr.Sci.Nat.	Professional Natural Scientist
(Pty) Ltd	Proprietary Limited
RSDF	Regional Spatial Development Framework
RDP	Reconstruction and Development Programme
SANBI	South African National Biodiversity Institute
SAPS	South African Police Service
WRC	Water Research Commission

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

N/A

Is a closure plan applicable for this application and has it been included in this report? **NO**

if not, state reasons for not including the closure plan.

The Activity applied for does not relate to the decommissioning or closure of a facility and it is not envisaged that the development will be decommissioned.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? **YES**

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? **YES**

If no, state reasons for not attaching the list.

Please refer to Appendix I

Have State Departments including the competent authority commented? **NO**

If no, why?

State Departments including Competent Authority will provide their comments once they have received and reviewed the report.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

Erven 1356 & 1357 Magagula Heights Township

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	~~NO~~

If yes, describe the legislation and the Competent Authority administering such legislation

An application has been made to the Ekurhuleni Metropolitan Municipality (EMM) in terms of Section 92 and 56 of the Town Planning and Townships Ordinance, 15 of 1986, for the consolidation and simultaneous rezoning of Erven 1356 and 1357 Magagula Heights Township.

If yes, have you applied for the authorisation(s)?	YES	~~NO~~
If yes, have you received approval(s)? (attach in appropriate appendix)	~~YES~~	NO

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline	Administering authority:	Promulgation Date
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	**Department of Agriculture Forestry and Fisheries**	**1983**
Ekurhuleni Biodiversity and Open Strategy (EBOSS)	**Ekurhuleni Metropolitan Municipality**	**2009**
Ekurhuleni Bio-Regional Plan	**Ekurhuleni Metropolitan Municipality**	**2014**
Ekurhuleni Metropolitan Municipality By-Laws	**Ekurhuleni Metropolitan Municipality**	**-**
Ekurhuleni Environmental Management Framework	**Ekurhuleni Metropolitan Municipality**	**2007**
Ekurhuleni Growth and Development Strategy (GDS)	**Ekurhuleni Metropolitan Municipality**	**2005**
Ekurhuleni Integrated Development Plan	**Ekurhuleni Metropolitan Municipality**	**2013/14-2015/16**
Ekurhuleni Metropolitan Spatial Development Framework	**Ekurhuleni Metropolitan Municipality**	**2015**

Ekurhuleni Regional Spatial Development Framework	**Ekurhuleni Metropolitan Municipality**	**2015**
Gauteng Conservation Plan (C-Plan Version 3.3)	**GDARD**	**2011**
Gauteng Planning and Development Act (Act No. 3 of 2003)	**Gauteng Provincial Legislature**	**2003**
Gauteng Provincial Environmental Management Framework	**GDARD**	**2015**
Gauteng Department of Agriculture for Biodiversity Assessments (Version 3)	**Gauteng Department of Agriculture and Rural Development**	**March 2014**
National Development Plan	**National Planning Commission**	**2011**
Gauteng Spatial Development Framework	**Provincial**	**2011**
National Environmental Management Act (Act No. 107 of 1998) as amended.	**National & Provincial**	**1998**
NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as amended 2017. **Activity listed under GN R983:** **Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-** **(i) the undertaking of a linear activity; or** **(ii) maintenance purposes undertaken in accordance with a maintenance management plan.** **Activity listed under GN R983:** **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 ecosystems 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 identified in bioregional plans.**	**National Department of Environmental Affairs and GDARD**	**2014**
National Environmental Management:	**National**	**2004**

Biodiversity Act (Act No. 10 of 2004)	**Department of Environmental Affairs and GDARD**	
National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA)	**National Department of Environmental Affairs and GDARD**	**2008**
National Heritage Resources Act (Act No. 25 of 1999)	**SAHRA**	**1999**
National Water Act (Act No. 36 of 1998)	**Department of Water and Sanitation**	**1998**
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.	**National Government**	**2001**
Reconstruction and Development Programme	**National & Provincial**	**1995**

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	**The proposed development will ensure that no agricultural resources are impacted upon.**
Ekurhuleni Biodiversity and Open Strategy (EBOSS)	**The purpose of the Ekurhuleni Biodiversity and Open Space Strategy (EBOSS) report is to provide an action-based strategy for transforming planning and policies into physical action. The objectives set out in the EBOSS report are as follows:** • **Meet the open space needs of the population of Ekurhuleni in a way that will ensure adequate access to a variety of types of open spaces in Ekurhuleni that will fulfil the physical and psychological needs of the community;** • **Meet the national biodiversity targets for vegetation types in the area in an appropriate manner that focuses on attainable priorities;** • **Consider and integrate the conservation plan needs of the province in a practical way;** • **Consider and take land needed for development into account in an objective and equitable manner;** • **Contribute as an integrated element in the proper functioning of Ekurhuleni as a city;** • **Set implementation targets in a manner that is realistic, affordable and achievable; and** • **Provide objective implementation performance measures that will accurately indicate performance and ensure accountability of officials. EBOSS identified and delineated the open space within the municipality.**

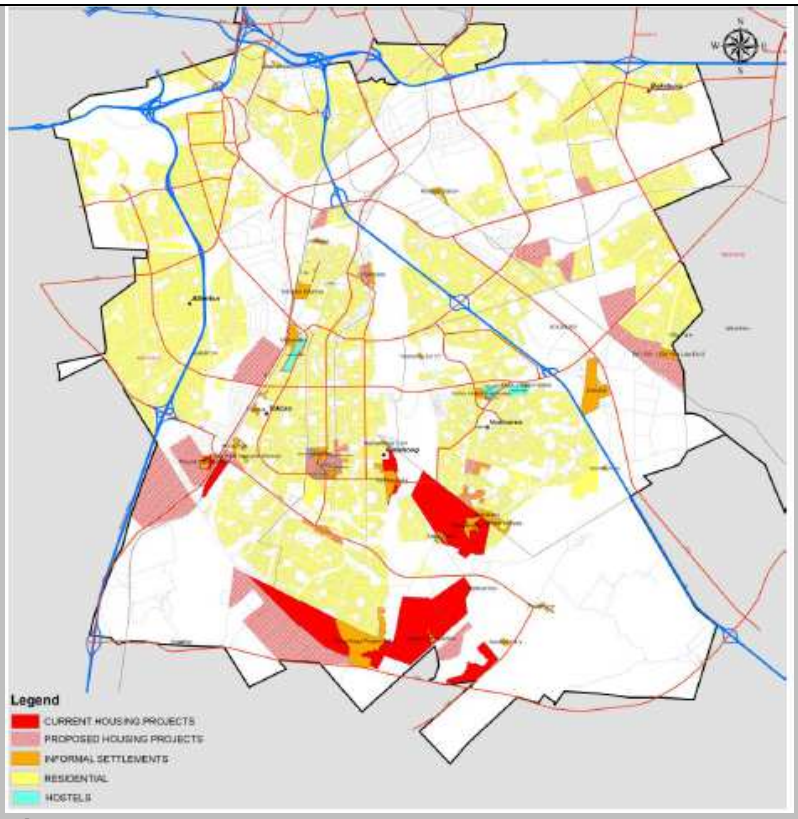
	The different types of open space nodes that were delineated, are defined as: • **Metropolitan open space nodes: open space areas that have a distinct character, that are meant for the use or enjoyment by all persons in the metropolitan area and even beyond;** • **Local open space nodes: open space areas that have a distinct character, that are meant primarily for use or enjoyment by specific communities;** • **Corridors: open space areas that form part of the hydrological system are natural areas that are shallowly undermined or areas with high quality natural vegetation that link different nodes to each other;** • **Other/neighbourhood natural open spaces: natural areas that should remain as open spaces, but do not constitute nodes or corridors, which should be incorporated in the planning and development of neighbourhoods;** • **Mining belt open space: undeveloped land in undermined areas that can be used for open space purposes; and** • **Existing Parks: municipal open spaces and active open spaces. Critical Issues Identified The following critical issues were identified in the Ekurhuleni Biodiversity and Open Space Strategy report:** **Ekurhuleni comprises a vast hydrological network. The presence of the Ramsar Site in the Blesbokspruit is a key element in the hydrological network.** • **The EMM possesses a variety of urban open spaces that include urban parks and sports fields.** • **Municipal and other services servitudes and significant surface areas of shallowly undermined areas have potential to provide important links in the open space system.** • **There are significant physical constraints to development that are advantageous for the development of an open space system in the area that include elements such as shallow undermined areas, dolomite and wetlands.** • **Land within the urban areas of Ekurhuleni is scarce and fierce competition for the utilisation of the land between different sectors can be expected.** • **Most of the natural open space that remains in Ekurhuleni is privately owned (at least 80%) and not necessarily easily available for use as public open space and consequently for the protection of biodiversity.** • **Significant parts of open space, especially the rivers in the area, are polluted or degraded and may require**

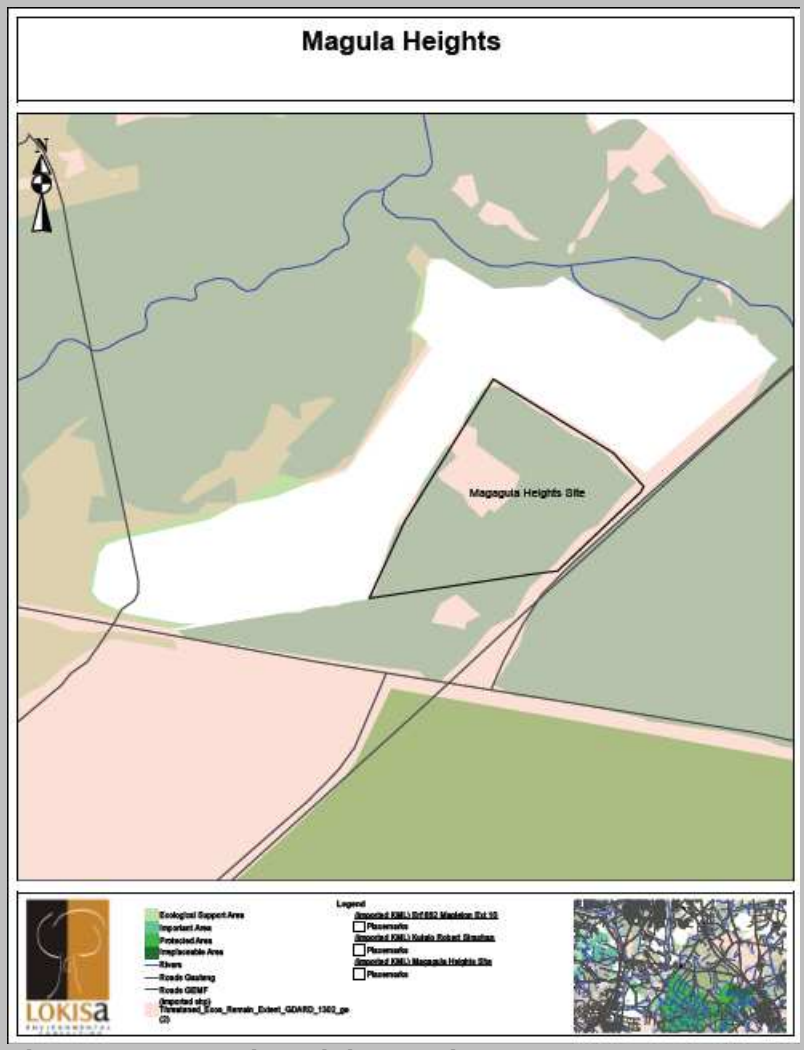
	significant investment to return them to an acceptable state. • **Natural open space elements are often fragmented and in some places it will be difficult to establish adequate links.** • **Due to the land use patterns that emerged during the apartheid era, the population of Ekurhuleni is distributed in a way that limits access to open space for poor communities while disproportionate access opportunities exists to open space (in many cases private open space) for affluent communities.** • **The dispersed nature of the Ekurhuleni spatial structure poses specific challenges to the formulation of an open space system.**
Ekurhuleni Bio-Regional Plan	**Subsequent to the approval of the EBOSS, the guidelines for the compilation of bioregional plans were done in terms of the National Environmental Management: Biodiversity Act. EMM together with the South African Biodiversity Institute (SANBI) and the Gauteng Department of Agriculture and Rural Development (GDARD) developed the EMM Bio-regional Plan. The purpose of the 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. This is done by providing biodiversity priority areas, referred to as critical biodiversity areas and ecological support areas, with accompanying land use planning and decision-making guidelines.** **Critical Issues Identified** **Critical biodiversity areas within the bioregion are the portfolio of sites that are required to meet the region's biodiversity targets, and need to be maintained in the appropriate condition for their category. The Ekurhuleni Metropolitan Municipality Bioregional Plan identified the following categories:** • **Critical Biodiversity Area One;** • **Critical Biodiversity Area Two;** • **Ecological Support Area One;** • **Ecological Support Area Two;** • **Protected areas;** • **Other natural areas; and** • **No natural areas.** **The proposed development will not take place in contrast with the purpose of the Bio-regional plan.**
Ekurhuleni Metropolitan Municipality By-Laws	**A By-law is a law that is passed by the Council of a municipality to regulate the affairs and the services it provides within its area of jurisdiction. A municipality derives the powers to pass a By-law from the Constitution of the Republic of South Africa, which gives**

	certain specified powers and competencies to local government as set out in Park B of Schedules 4 and Part B of 5 to the Constitution. **All activities are to be undertaken to comply with the Ekurhuleni Metropolitan Municipality By-Laws.**
Ekurhuleni Environmental Management Framework	**The aim of the EMF for the EMM is to provide a framework that identifies and illustrates the general environmental characteristics of the municipality. In so doing, the EMF determines environmental opportunities and constraints for the development of the municipality.** **The critical issues within the EMF are the identification of constraint zones and geographical areas. The development constraint zones within the EMF refer to the environmental suitability of land parcels for various types of land uses or activities. The types of development constraint zones identified in the EMF include:** • **Low to no-constraint zone;** • **Agricultural constraint zone;** • **Geotechnical constraint zone;** • **Hydrological constraint zone; and** • **Ecological constraint zone.** **The proposed development does not occur in contrast with intensions of the EMM Environmental Management Framework.**
Ekurhuleni Growth and Development Strategy (GDS)	**Ekurhuleni Growth and Development Strategy 2025** **The GDS is a strategy, not a policy document, for all sectors of society. It is not just a local government strategy, but is intended to build a common vision and purpose across traditional barriers between government, the private sector and civil society. The GDS provides a framework and point of reference for all the EMM's plans, policies and strategies in its various areas of operation. The broad development strategies and targets contained in the GDS will be further contextualised and refined in the IDP and in the various sectoral strategies and policies of the Metro.** **The Strategy speaks to the regeneration of the city and communities. It speaks to infill development and densification as a priority development strategy.** **The proposed development does not occur in contrast with the intentions of the GDS.**
Ekurhuleni Integrated Development Plan	**Integrated Development Planning is a process through which municipalities prepare a strategic development plan which extends over a five-year period. The Integrated Development Plan (IDP) is a product of the IDP process. The Ekurhuleni Metropolitan Municipality (EMM) IDP is the principal strategic planning instrument which**

	guides and informs all planning, budgeting, management, and decision making processes in the municipality. **Through Integrated Development Planning, which necessitates the involvement of all relevant stakeholder , a municipality-** • **Identifies its key development priorities;** • **Formulates a clear vision, mission and values;** • **Formulates appropriate strategies;** • **Develops the appropriate organizational structure and systems to realise the vision and mission; and** • **Aligns resources with the development priorities.** **Since the establishment of EMM, excellent progress has been made in enabling the people of this region to enjoy the fruits of liberation and democracy. Substantial improvements have been made in the provision of health care, building houses and providing water, electricity and sanitation.** **The proposed development does not occur in contrast with the IPD and actually takes place in accordance with the IDP.**
Ekurhuleni Metropolitan Spatial Development Framework	**The Ekurhuleni Metropolitan Municipality (EMM) approved the Metropolitan Spatial Development Framework (MSDF) for Ekurhuleni in April 2011 in accordance with the provisions of Section 26(e) of the Municipal Systems Act 32 of 2000. In terms of the above-mentioned act, a metropolitan municipality also needs to prepare Regional Spatial Development Frameworks (RSDFs), for its area of jurisdiction, to facilitate the development of the metropolitan municipality as envisaged in the MSDF. This revision of the 2011 MSDF, is the result of the RSDFs for the regions of Ekurhuleni having been completed since 2011.** **This revision of the 2011 MSDF thus provides some improved local information for refinement of the MSDF. Events such as the Ekurhuleni Growth and Development Strategy 2055 (EGDS) and the preparation of the short-term Aerotropolis Development Plan have also provided important inputs towards a progressive and action-oriented MSDF.** **The purpose of the MSDF is to indicate to members of the public and others with an interest in the city, the desired long-term proposals that will affect the spatial form of the Ekurhuleni metropolitan area and to:** • **provide a long-term vision of the desired spatial form and structure of the EMM;**

	• **align the EMMs spatial development goals, strategies and policies with relevant national and provincial spatial principles, strategies and policies;** • **spatially co-ordinate, prioritise and align public investment in the municipality;** • **direct private investment by identifying areas that are suitable for urban development, areas where the impacts of development need to be managed, and areas that are not suited for urban development;** • **identify strategies to prevent loss and degradation of critical biodiversity areas, and ensure the necessary level of protection for the remaining areas; and** • **provide policy guidance to direct decision-making on the nature, form, scale and location of urban development, land-use change, infrastructure development and environmental resource protection.**
Ekurhuleni Regional Spatial Development Framework	**Ekurhuleni Regional Spatial Development Framework** **The Ekurhuleni Metropolitan Municipality implemented the Regional Spatial Development Framework as a tool to guide development within region and to transform the vision of the metropolitan municipality into reality.** **The RSDF has identified a few strategic development objectives, which are applicable to the region and specifically to the site. Key objectives of the RSDF which pertain to the site include inter alia:** • **Promote development in areas that are suitably located and in close proximity to the main access corridors** • **Enhance the provision of residential accommodation within the region through the provision of sufficient engineering services and the retention and maintenance of existing residential developments.** **In terms of the RSDF for Region F the site is earmarked for Housing Projects.**

	 **Figure 1: EMM RSDF**
Gauteng Conservation Plan (C-Plan Version 3.3)	**Gauteng Conservation Plan (C-Plan Version 3.3)** **GDARD's (Gauteng Department of Agriculture and Rural Development) C-Plan (Gauteng Conservation Plan Version 3.3) was used to determine the sensitivities of the site and is provided below in Figure 1.** **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.** **C-Plan 3 is based on the systematic conservation protocol developed by Margules & Pressey (2000) and is based on the principles of complementarity, efficiency, defensibility and flexibility, irreplaceability, retention, persistence and accountability. Systematic conservation planning is an iterative process.** **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. **An extract of the sensitivities that could affect the site in terms of the C-Plan is provided below for ease of reference.**  **Figure 2: Magagula Heights C-Plan** **According to the C-Plan the site falls within a threatened ecosystem.**
Gauteng Planning and Development Act (Act No. 3 of 2003)	**"The Act was created to provide for a single system of development, planning and land management in the Province; to set out principles for planning and development in the Province; to establish planning bodies and to provide for appeals to the Appeal tribunal; to create a framework for the preparation of development plans and frameworks; to provide for the creation of zoning schemes; to create unified procedures for development applications; to provide for the repeal of legislation and transitional measures; to provide for**

	general matters such as enforcement procedures; and to provide for matters connected herewith." **It is the intention to promote more compact development of urban areas and the limitation of urban sprawl and the protection of agricultural resources. Further, the development of land that optimised the use of existing resources such as engineering services and social facilities are encouraged.** **The site is situated in an urban area.**
Gauteng Provincial Environmental Management Framework	**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.** **Five EMZs were identified and overlaying those a further six Special Management Areas were identified where specific planning and policy measures are necessary to achieve the development objective of those areas.**

	The site falls within the Environmental Management zone 1.  **Figure 3: The site in terms of the GPEMF** **The site**
National Development Plan	**National Development Plan, 2030** **The National Development Plan (NDP) offers a long-term perspective. It defines a desired destination and identifies the role different sectors of society need to play in reaching that goal.** **As a long-term strategic plan, it serves four broad objectives:** • **Providing overarching goals for what the nation want to achieve by 2030.** • **Building consensus on the key obstacles to us achieving these goals and what needs to be done to overcome those obstacles.** • **Providing a shared long-term strategic framework within which more detailed planning can take place in order to advance the long-term goals set out in the NDP.** • **Creating a basis for making choices about how best to use limited resources.** **The Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality. The core elements of a decent standard of living identified in the Plan are:** • **Housing, water, electricity and sanitation** • **Safe and reliable public transport** • **Quality education and skills development** • **Safety and security** • **Quality health care** • **Social protection** • **Employment**

	• **Recreation and leisure** • **Clean environment** • **Adequate nutrition** **The proposed development and subservient uses on Erven 1356 & 1357 Township is not in contrast with the NDP. In fact, the proposed development supports the aims of the NDP.**
Gauteng Spatial Development Framework	**The GSDF are 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 realisation 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 and direct growth.** **The Gauteng City Region aims to develop as a significant emerging conurbation based on sustainable principles:** • **significantly reducing reliance on private mobility in favour of safe, convenient and affordable public transport and non-motorised transport;** • **significantly reducing present rates of non-renewable energy usage;** • **reducing the rates of energy expended in the manufacture of goods, the delivery of these goods to the market and the importation of goods;** • **integrating open space systems into the city region and providing** • **sustainable ecosystems, urban agriculture and quality of life as a fundamental of the province's development patterns;** • **increasing the intensity of urban form and the complexity of mixed-use development with a view to restricting, as far as possible, the options to extend the present footprint of the province's urban spread; and** • **promoting a democratic urban order in terms of access to opportunity for all.** **The proposed development of the site with subservient uses will not take place in contrast with or opposing any of the principles of the GSDF.** **The existing resource of land being located in close**

	proximity to existing residential development and public transport facilities will ensure that people do not have to make use of private transport. **No scarce agricultural resources will be affected.**
National Environmental Management Act (Act No. 107 of 1998) as amended.	**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.** **In terms of the NEMA principles, the following are of particular relevance to the development:** **a) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interest equitably.** **b) Development must be socially, environmentally and economically sustainable.** **c) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (section 2(4)(b)).** **d) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (section 2(4)(c)).** **e) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination (section 2(4) (d)).** **f) The participation of all Interested and Affected Parties in environmental governance must be promoted, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured (section 2(4)(f)).** **g) Decisions must take into account the interests, needs and values of all Interested and Affected Parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge (section 2 (4) (g)).** **h) The social, economic and environmental impacts of activities, including disadvantages and benefits, must**

	be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment (section 2(4)). **i) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure (section 2(4) (g)).** **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.** **The proposed development does not occur in contrast with the principles and main objective of the Act.**
NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as amended 2017.	**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 promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and amended in 2017.** **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).** **An application is submitted in terms of Chapter 4 of the EIA Regulations as the proposed development triggers activities that require a Basic Assessment.**
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 **(ii) the fair and equitable sharing among stakeholders of benefits arising from bioprospecting involving indigenous biological resources.** **The site is situated in close proximity to the Suikerbosrand Nature Reserve and all the necessary mitigation measures will be identified and incorporated in the proposed development in order to protect the reserve.**
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.** **The proposed development does not occur in contrast with the objectives of the Act.**
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.** **A Heritage Impact Assessment (HIA) was undertaken for the proposed development in order to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. This serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regards 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.** **During the survey no heritage resources were identified. Possible impacts were identified and mitigation measures have been provided in the HIA report (Please refer to the report attached as Appendix G: Specialists Reports)** **The South African Heritage Resources Agency (SAHRA) as a commenting authority under section 38(8) of the National Heritage Resources Act (Act No 25 of 1999) requires all environmental documents to be submitted to SAHRA.**

	The requirements as per SAHRA will be adhered to and the proposed development will not occur in contrast with the National Heritage Resources Act.
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 that takes into account amongst other factors:** • **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.** **In terms of the act "Pollution" "means the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it;** **a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or** **b) harmful or potentially harmful –** ▪ **to the welfare, health or safety of human beings;** ▪ **to any aquatic or non-aquatic organism;** ▪ **to the resource quality; or** ▪ **to property** **"*Water resources*" includes watercourses, surface water, estuary or aquifer.** **Section 19 deals with the situations where pollution if water resources occurs or might occur as a result of activities on land. The person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources.** **"Waste" is defined as "includes any solid material or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be polluted". Waste is the solid, liquid or gaseous by-products that must be accommodated in the environment in a manner that is sustainable.** **The proposed development does not occur in contrast**

	with the objectives of the Act and there are no water resources on site.
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.** **The proposed development site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) [OHSA] and the National Building Regulations.**
Reconstruction and Development Programme (RDP).	**One of the six principles of the Reconstruction and development programme is meeting basic needs and building the infrastructure.** **The RDP integrates growth, development, reconstruction, redistribution and reconciliation into a unified programme. The key link is an infrastructural programme that will provide access to modern and effective services such as electricity, water, telecommunications, transport, health, education and training for all our people.** **The proposed development does not contrast with one of the six principles of the RDP.**
GDARD Minimum Requirements 2014.	**Lokisa Environmental Consulting requested a pre-consultation site visit for the proposed Magagula Heights residential development. The area falls within 1km of the Suikerbosrand Nature reserve.** **GDARD minimum requirements require that all level 1 and level 2 protected areas be protected by 1 kilometre buffer zone.** **The first 300m of this buffer zone must be protected from transformation and is designated as a <u>minimal use zone</u>. Only grazing (wildlife and livestock) and low-impact tourism and residential developments 9footprint <5% of the property) are considered appropriate land uses in the minimal use zone. Subdivision should not be allowed in the minimal use zone.** **The remaining 700m of the buffer zone (i.e up to 1km from the protected area) is designated as a <u>medium use zone.</u> Appropriate land uses in the medium use zone include agriculture (excluding piggeries, chicken batteries and feedlots), game farms, residential and tourism-related developments associated with 80% open space, roads, railways, powerlines, pipelines, masts, cell phone towers and cemeteries. Inappropriate land uses**

	include industry, open cast mining, landfills and sewerage farms. **Based on the site observation the proposed site is in close proximity to the boundary of the Suikerbosrand Nature Reserve, however there is an existing development in the area. It is advisable to keep it as a green open space with only the possibility of limited recreational use/development as it is within the buffer zone of the reserve.** **The proposed layout for the development has incorporated the buffer for the Nature Reserve and has made provision for ±4,140ha for green open space as per the recommendation from GDARD.**

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

The Gauteng Department of Agriculture and Rural Development (GDARD) requires shapefiles (WGS84 datum; geographic co-ordinate system) of the application site to be sent to the Biodiversity Information Service in order to determine whether biodiversity assessments will be necessary and if so, which specialist studies should be conducted.

The shapefiles for the site in question were submitted to GDARD on 15 February 2017 and their response was received on 20 and 21 February 2017 respectively and the response is as follows:

Specialist studies are required to investigate the following aspects:

- **Plants with specific reference to *Habenaria mossii*, *Habenaria bicolor*, vegetation and South African National Biodiversity Institute (SANBI) priority grassland.**
- **The absence of wetlands on site should be verified.**

Furthermore it was established that the site falls within 1km of the Suikerborsrand Nature Reserve Zone. GDARD minimum requirements require that all level 1 and level 2 protected areas be protected by 1km buffer zone.

The Public Participation Process conducted for this proposed development revealed that there is a Transnet pipeline that transverses the site as per the google snapshot below:

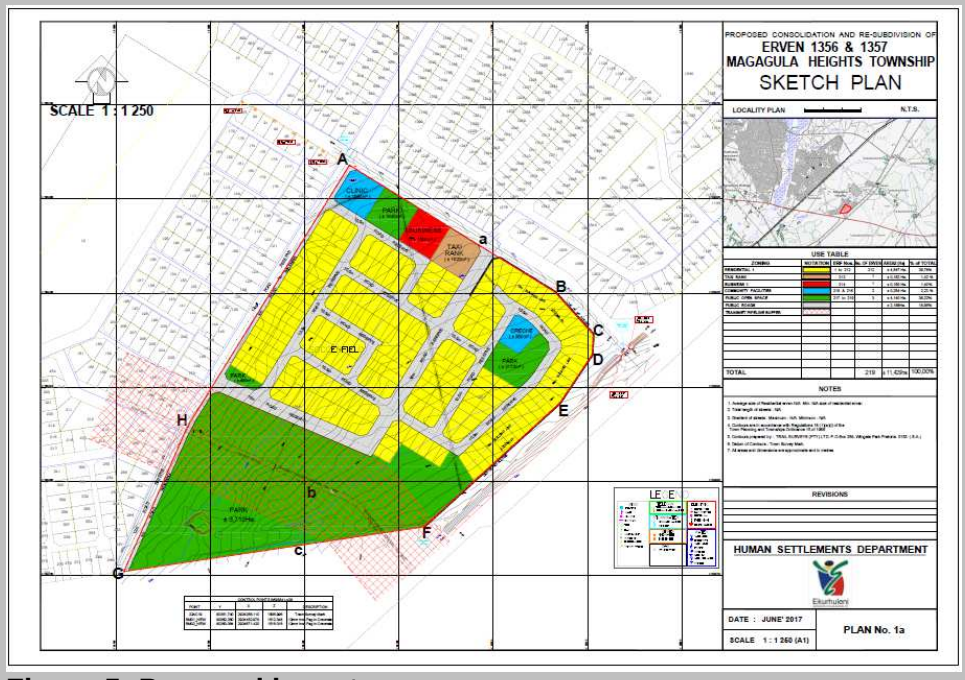
Figure 4: Transnet pipeline servitude

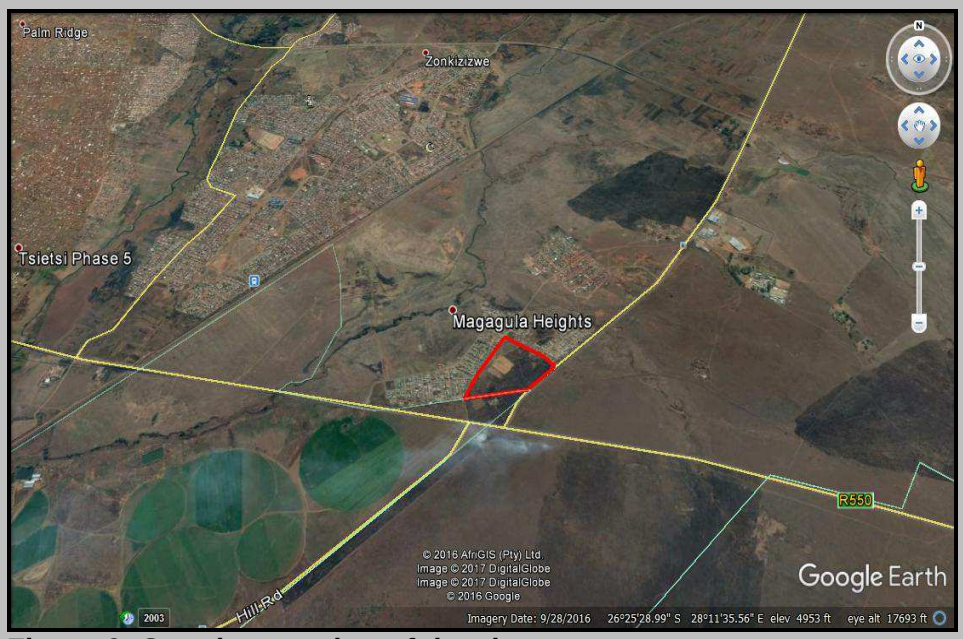
Transnet pipeline servitude

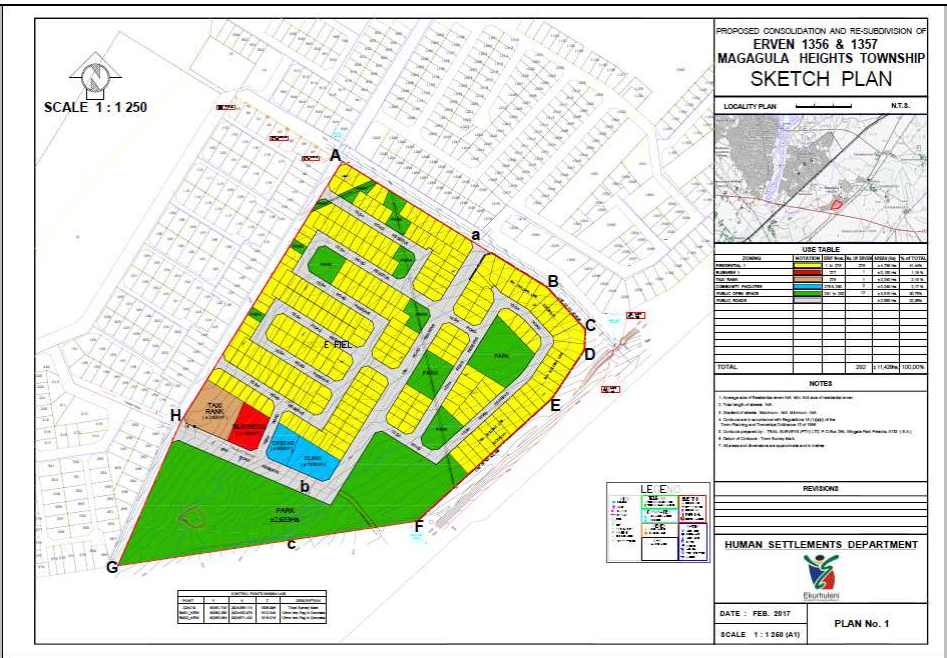
The initial layout as per Alternative 2 had not incorporated the above mentioned issues, therefore when these issues were incorporated, the layout evolved to the preferred layout, thus becoming the proposal layout.

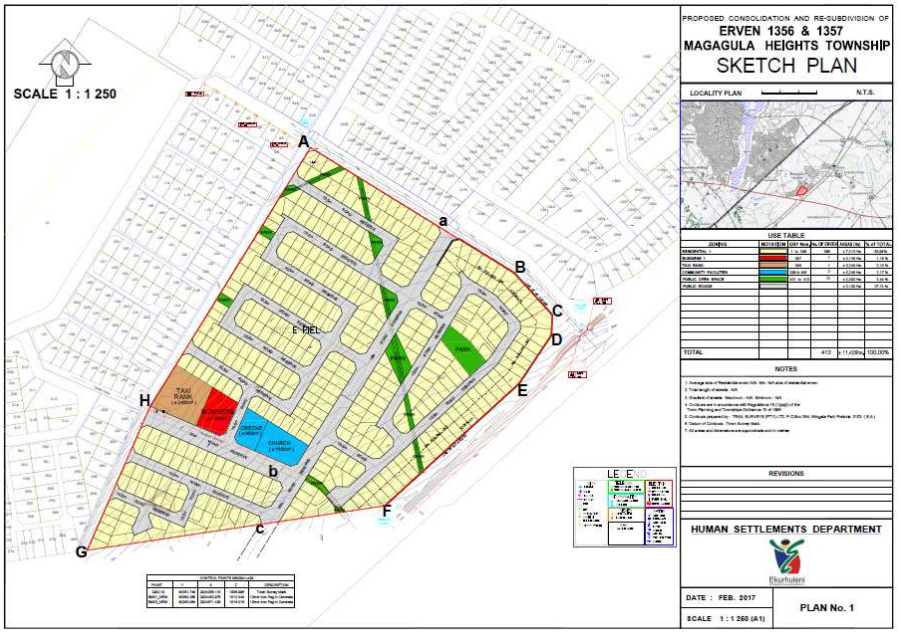
Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity,	**Description**

	design, technology, energy, operational or other(provide details of "other")	
1	**Proposal**	**The project entails the establishment of a mixed uses development with associated uses to be situated on Erven 1356 and 1357 Magagula Heights.** **The proposed development is to include the following uses:** • **212 x "Residential 1" erven;** • **1 x "Taxi Rank" erf;** • **1 x "Business 1" erf;** • **2 x "Community facilities" erven;** • **3 x " Public Open Space" erven** • **"Public Roads" and** • **"Transnet Pipeline Buffer", please refer to the layout below, also attached as Appendix A.** **The Public Open Space area has been assigned to Erven 217 to 219** **The entire development is to take place on a site measuring 11.42ha in extent.**  **Figure 5: Proposal layout** **The site is located approximately 1.7km south east of Zonkezizwe Township, about 200m directly north of the R550 Road and Hill Road junction. The site is bounded by the existing Magagula Heights Township to the north and west.**

		 **Figure 6: Google snapshot of the site** **The proposed development will be provided with the necessary services and infrastructure.**
2	**Alternative 1**	**The proposed mixed uses development is to include the following uses:** • **276 x "Residential 1" erven;** • **1 x "Taxi Rank" erf;** • **1 x "Business 1" erf;** • **2 x "Community facilities" erven;** • **12 x " Public Open Space" erven and** • **"Public Roads"** **Alternative 1 has incorporated the buffer for the Nature Reserve as per the recommendation form GDARD, however the Transnet pipeline buffer had not been incorporated.**

		 **Figure 7: Alternative 1 Layout**
3	**Alternative 2**	**The proposed mixed uses development is to include the following uses:** • **396 x "Residential 1" erven;** • **1 x "Taxi Rank" erf;** • **1 x "Business 1" erf;** • **2 x "Community facilities" erven;** • **13 x " Public Open Space" erven and** • **"Public Roads"** **Alternative 2 differs from Alternative 1 and the proposal in that the buffer for Suikerborsrand Nature Reserve and the buffer for the Transnet pipeline have not been incorporated.**

		 **Figure 8: Alternative 2 Layout**
	Etc.	

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

a) The type of activity

No alternatives in terms of the type of activity to be undertaken were investigated as the site falls within Region F in terms of the Regional Spatial Development Framework (RSDF). The RSDF has earmarked the site for housing purposes.

b) The property on which or location where the proposed activity is to be undertaken

The objective of the Gauteng Provincial Environmental Management Framework, 2015 (GPEMF, 2015) is to guide sustainable land use management within the Gauteng Province. The GPEMF, inter alia, serve the following purposes:

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

According to the Gauteng Provincial Environmental Management Framework, 2015 (GPEMF, 2015) the site is identified as Environmental Management Zone 1: Urban development zone. The intention for zone 1 is described as follows:

<u>Zone 1: Urban Development Zone:</u>

The intention with zone 1 is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within urban development zones as defined in the Gauteng Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimize urban sprawl into rural areas.

Conditions falling within the Zone 1: Urban Development Zone are as follows:

- **Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and storm water loads as a result of increased densities;**
- **Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and**
- **Storm water drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems.**

The proposed residential development is compatible with the intention of Zone 1. It is for this reason that no alternatives were investigated in terms of the property where the activity is to be undertaken.

Figure 9: The site in terms of the GPEMF 2015

The site

c) Sustainability alternatives (these include green building concepts such as energy conservation, design requirements and rainwater harvesting)

The following sustainability alternatives have been assessed for the proposed development.

Energy alternatives: Compact Fluorescents (CFLs) and Light Emitting Diodes (LEDs) lights are to be used instead of the traditional incandescent light bulbs as they have been found to use less energy according to the table below:

Table 1: LEDs versus Incandescent light bulbs versus CFLs

Energy Efficiency and Energy Costs	Light Emitting Diodes (LEDs)	Incandescent Light Bulbs	Compact Fluorescents (CFLs)
Life Span	50 000 hours	1200 hours	8000 hours
Watts of electricity used (equivalent to	6-8 Watts	60 Watts	13-15 Watts

60Watt bulb)			

The use of Passive Infra Reds switches (PIRs) to switch off lighting when areas are unoccupied such as toilets and corridors.

Geysers are to be placed near hot points to ensure that water does not get a chance to cool as it travels from the geyser to the tap. This will enhance geyser efficiency.

A geyser timer will ensure that the geyser is only switched on just before the hot water is required, i.e. for a few hours in the morning and then again in the evening.

<u>Design requirements</u>:
In the southern hemisphere, houses 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.

The design of appropriate overhangs above the windows will allow the winter sun to enter into the building and will block the summer sun.

<u>Rain water harvesting</u>:
Rain water harvesting is a technique used for collecting, storing and using rainwater. The water can be used for toilet flushing, washing machines, dishwashers, garden irrigation, car washings and the swimming pool. This can be achieved by constructing the roof in such a manner that allows for the capturing of rain water, piped into a single or large tanks and a pressure booster pump supplies the water to tap points or an irrigation system. The collection and use of rain water will supplement non-potable water needs and assist to alleviate the pressure on the water supply.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	**11.429Ha/ 114 290m^2**
Alternatives:	
Alternative 1 (if any)	**11.429Ha/ 114 290m^2**
Alternative 2 (if any)	**11.429Ha/ 114 290m^2**
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	**11.421Ha/**

	114 210m^2

Alternatives:

Alternative 1 (if any)	**11.421Ha/ 114 210m^2**
Alternative 2 (if any)	**11.421Ha/ 114 210m^2**

Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	**YES**	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Access will be obtained from the north, north east and also from the west of the site. The access to be provided will enable the newly developed township to connect with the existing residential area of Magagula Heights which borders the site on the north and the west side.

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	**YES**	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Access will be obtained from the north, north east and also from the west of the site. The access to be provided will enable the newly developed township to connect with the existing residential area of Magagula Heights which borders the site on the north and the west side.

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?	YES	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Access will obtained from the north, north east, west and also from the south of the site. The access to be provided will enable the newly developed township to connect with the existing residential area of Magagula Heights which borders the site on the north and the west side.

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated **0** Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

Refer to Appendix A for the Site Plans.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

Refer to Appendix B for the Photographs.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

The following Housing Typology has been proposed.

Figure 10: Housing Typology

The design makes provision for free standing typology and density to be in line with current planning models. The ultimate aim of all the components is to provide a safe, secure, healthy and pleasant township where people will want to live and be willing to invest in.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route **0** times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives **0** times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route **0** (complete only when appropriate for above)

Section B – Location/route Alternative No. **0** (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description:
(Including Physical Address and Farm name, portion etc.)

Erf 1356 Magagula Heights Township
Erf 1357 Magagula Heights Township

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	-26.428139°	**28.194842°**

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	°	°
• Middle point of the activity	°	°
• End point of the activity	°	°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached **NA**

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	**T**	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**6**	**0**	**0**	**0**	**0**	**0**
	T	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**7**	**0**	**0**	**0**	**0**	**0**
ALT. 1	**T**	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**6**	**0**	**0**	**0**	**0**	**0**
	T	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**7**	**0**	**0**	**0**	**0**	**0**
ALT. 2	**T**	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**6**	**0**	**0**	**0**	**0**	**0**
	T	**0**	**I**	**R**	**0**	**8**	**9**	**6**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	**7**	**0**	**0**	**0**	**0**	**0**
etc.																					

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

~~Ridgeline~~	~~Plateau~~	~~Side slope of hill/ridge~~	~~Valley~~	**Plain**	~~Undulating plain/low hills~~	~~River front~~

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	~~YES~~	**NO**
Dolomite, sinkhole or doline areas	**YES**	~~NO~~
Seasonally wet soils (often close to water bodies)	~~YES~~	**NO**
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	**NO**
Dispersive soils (soils that dissolve in water)	~~YES~~	**NO**
Soils with high clay content (clay fraction more than 40%)	**YES**	~~NO~~
Any other unstable soil or geological feature	~~YES~~	**NO**
An area sensitive to erosion	~~YES~~	**NO**

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

A Phase 1 Near Surface Geotechnical Investigation was undertaken for the site by Intraconsult CC and the findings of the study are summarised as follows:

The following notes are intended as general recommendations/guidance for the proposed site based upon near surface data and observations recorded in the report:

- **<u>Near surface conditions recorded on the Soil Map</u>**

Table 2: Near surface conditions recorded on the Soil Map

SUB AREA DESIGNATIONS	COMMENTARY
2[H(H1)/C-C1/S]	**Anticipate pockets of potentially swell/shrink (H1) and "collapsible" C-C1 near surface soils**

- **Road Construction and Installation of underground services**

Most sections of the site are underlain by soils with a general assessment of poor; natural sub grade materials.

SABS 1200 D 'intermediate' and 'rock' should be anticipated in some sections of the site.

Selected granular pie bedding and select fill need to be imported to this development.

Foundation recommendations

It is recommended that the proposed multi storey structures be placed on rationally designed foundations. Specific foundation investigations should be completed once the Site Development Plan for the site has been approved.

General recommendations:

Presumed Sub-Area site boundaries for this site are shown on the Soil Map below. It is recommended that all layouts for this development are revised on an ongoing basis and finally certified by a geotechnical specialist. While every effort has been made to determine overall ground conditions on the site, poorer sub areas may have been missed. For this reason, it is further recommended that a competent specialist is always invited to inspect opened workings during the development of the site in order to confirm the findings described in the report for this study.

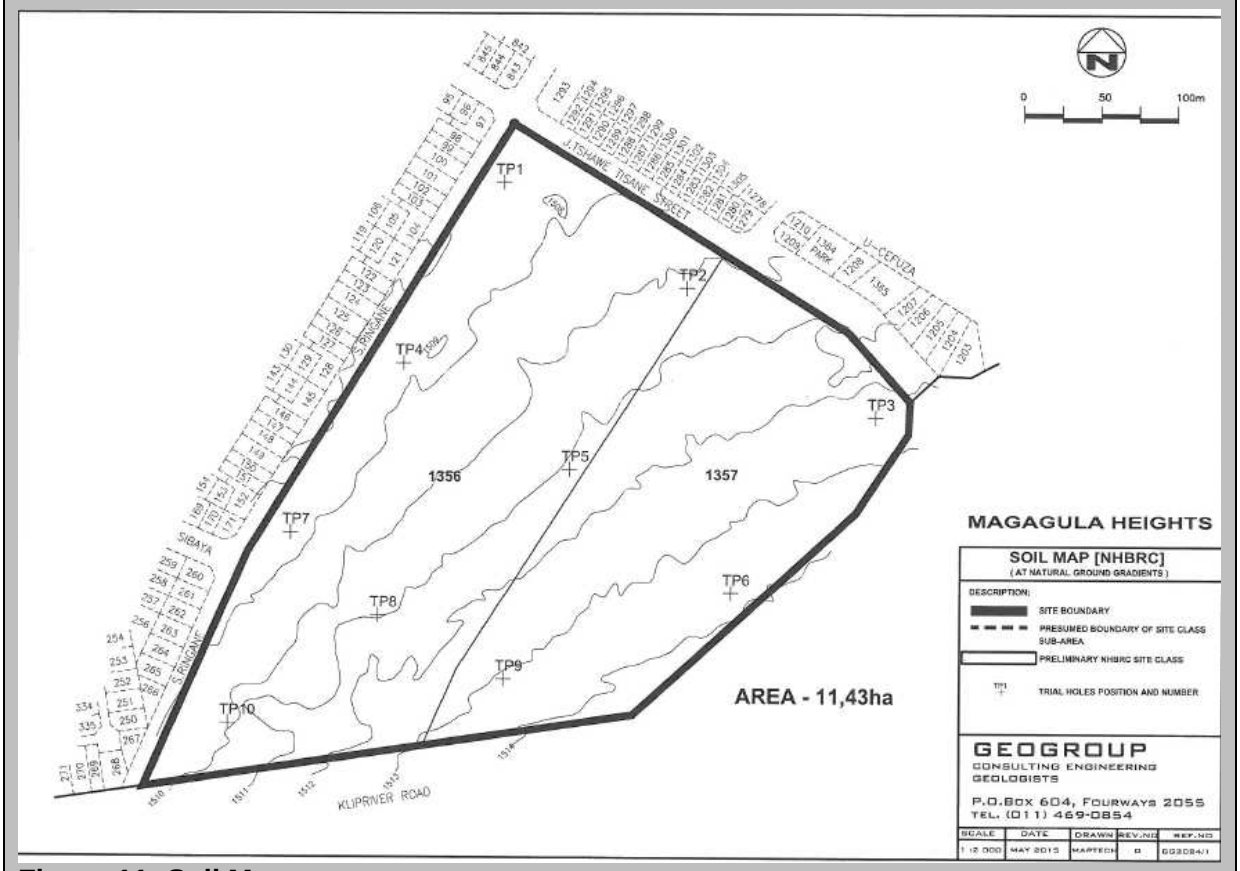


Figure 11: Soil Map

b) are any caves located on the site(s) | YES | **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) | YES | **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) | YES | **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? | YES | **NO**

Please note: The Department may request specialist input/studies in respect of the above.

The site falls within Region F of the Ekurhuleni Metropolitan Municipality and in terms of agriculture the region presents significant potential for further agricultural research and development thereby preserving the 81% of the agricultural land that is being utilised. The land is however disbursed and not suitable for large scale agricultural activities.

Source: *https://www.ekurhuleni.gov.za/rsdf-1/2677-final-rsdf-region-f-2015*

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

~~Natural veld - good condition~~ ~~% =~~	**Natural veld with scattered aliens % = 70**	~~Natural veld with heavy alien infestation~~ ~~% =~~	~~Veld dominated by alien species~~ ~~% =~~	~~Landscaped (vegetation)~~ ~~% =~~
Sport field % = 15	**Cultivated land % = 15**	~~Paved surface (hard landscaping)~~ ~~% =~~	~~Building or other structure~~ ~~% =~~	~~Bare soil~~ ~~% =~~

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site | ~~YES~~ | **NO**

If YES, specify and explain:

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site. | ~~YES~~ | **NO**

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site? | ~~YES~~ | **NO**

If YES, specify and explain:

A Floral assessment was undertaken by Galago Environmental Biodiversity and Aquatic Specialists and the findings of the study are as follows:

Three vegetation study units were identified on the study site:

- **Eragrostis – Hyparrhenia hirta grassland**
- **Cultivated fields; and**
- **Recreational areas.**

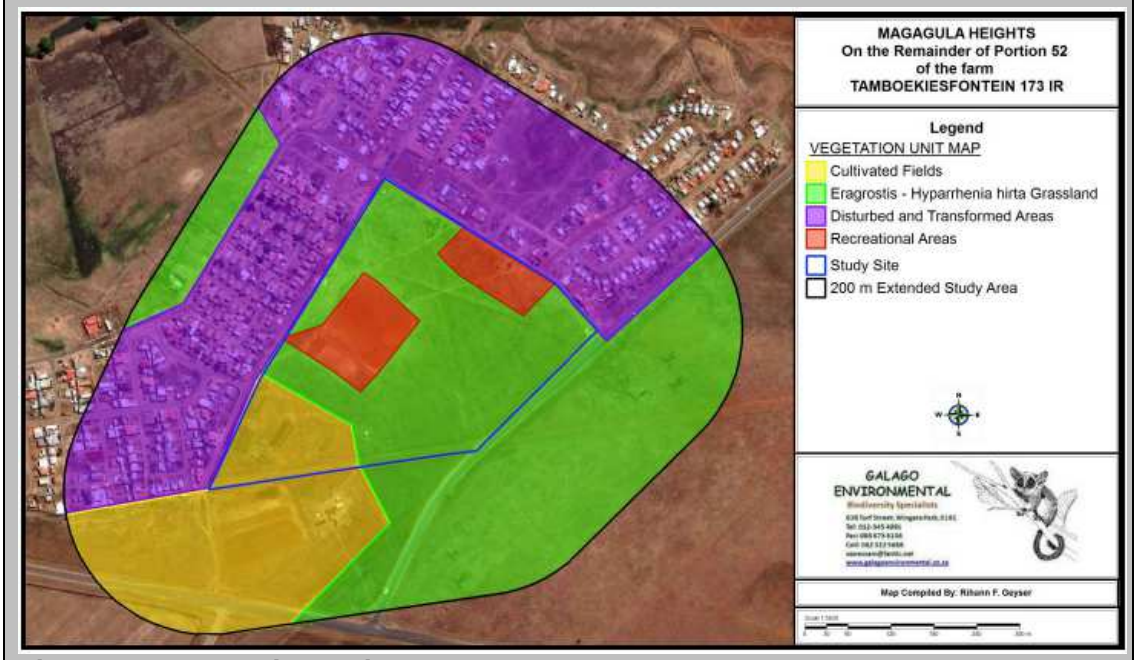


Figure 12: Vegetation Unit Map

According of the GDARD C-Plan 3.3 the site is situated within a Critical Biodiversity Area with an Ecological Support Area in the area designated "Recreational area" along the western boundary of the site.

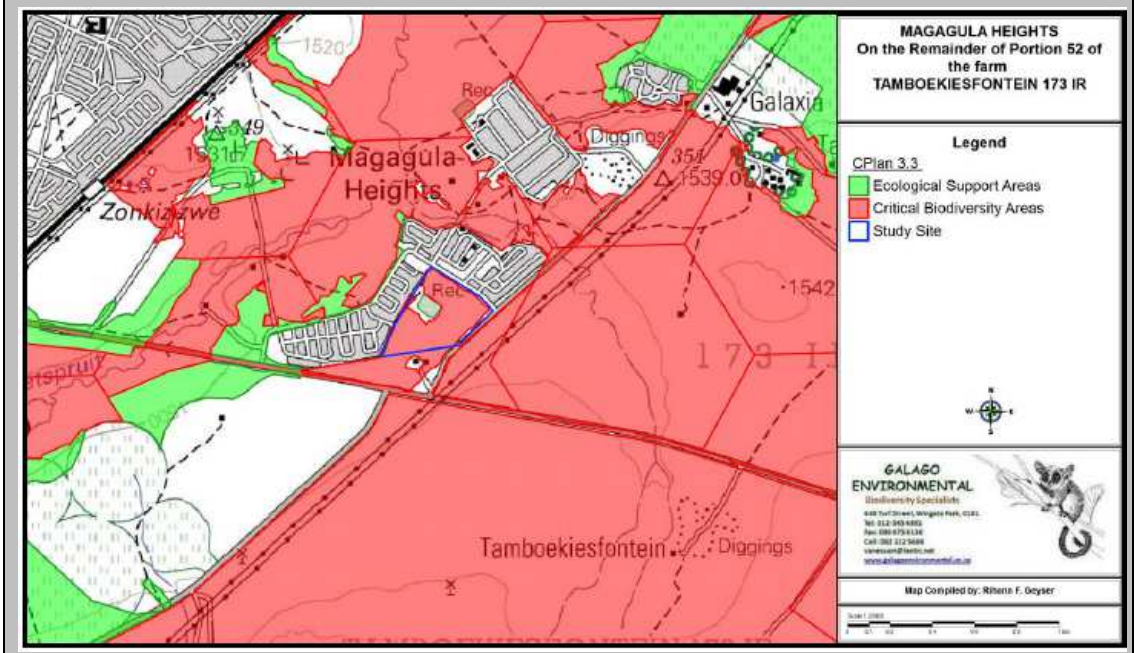


Figure 13: Critical Biodiversity Area and Ecological Support Area

According to the study it was found that the *Eragrostis Hyparrhenia hirta* study unit is secondary grassland and although situated within a Critical Biodiversity area, it is not deemed sensitive. Although the Cultivated fields and Recreational areas study units are likewise situated within a Critical Biodiversity Area and in an Ecological support area, they are not considered sensitive. No Red List or Orange List species occur on the study site.

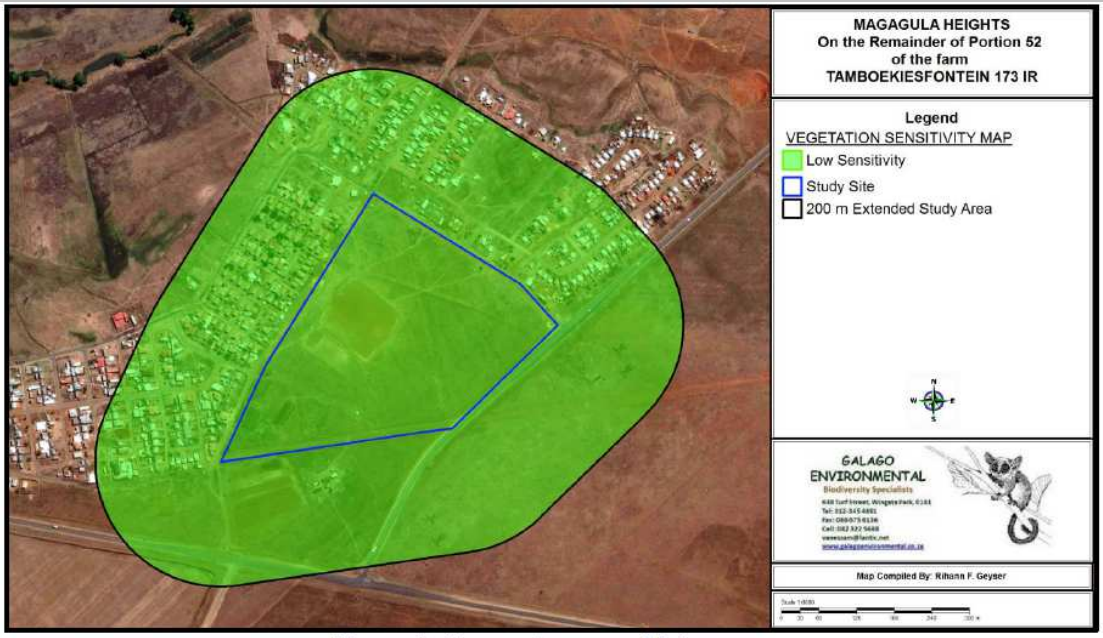


Figure 14: Vegetation Sensitivity Map

A Mammal habitat assessment was undertaken by Galago Environmental Biodiversity and Aquatic Specialists and the study concluded the following:

The drainage lines near the study site (Rietspruit and a tributary of the Rietspruit) as well as their buffer zones should be considered as ecologically sensitive.

The Endangered species treat the site as part of their home range/ territories. There is a possibility that about 11 species of mammals with a Red Data status may occur on the study site. Most of these species include bats, which move over huge distances, and a few shrew species. It is very difficult to confirm whether any of these species are present on any study site, but there is a possibility that individual members some of these two groups of species do occur on this particular study site, especially near the Rietspruit and a tributary of the Rietspruit.

In optimum conditions the possibility exists that the Southern African hedgehog may occur on the study site.

The removal of exotic plants and rubble will increase the quality of the habitat.

If the development should go ahead, a very important indirect effect would be the likely impact that the proposed development might have on the water quality of the drainage lines due to the waste water and surface water runoff. This could have a negative impact on the mammal populations if not managed.

The unique ambience of the nearby Suikerborsrand Nature Reserve must be maintained at all costs.

From a mammal perspective the site has a low sensitivity.

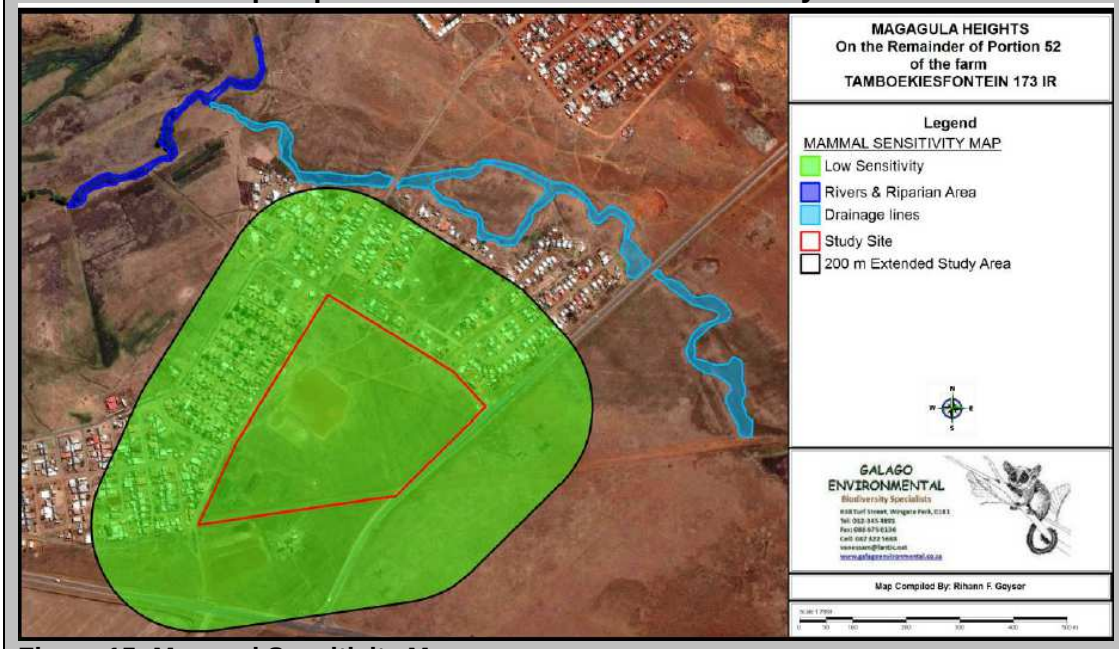


Figure 15: Mammal Sensitivity Map

An Avifaunal Habitat Assessment was undertaken by Galago Environmental Biodiversity and Aquatic Specialists and the findings are as follows:

Four major avifaunal habitat systems were identified within the study area. These habitat systems are as follows:

- **Aquatic habitat**
- **Open grassland**
- **Disturbed Grassland and Fallow Fields and crop lands**
- **Disturbed and Transformed Area**

A short description of each habitat system follows, ranked from most to least important:

<u>Aquatic habitat</u>: A total of ±2% of the total surface area of the study area consists of aquatic habitat consisting of a drainage line as per figure 16 below that forms part of the tributaries of the Rietspruit and a river with sparse riparian vegetation of the Rietspruit.

There is no connectivity between the study site and the aquatic habitat due to roads, built up areas and disturbed and transformed areas. The aquatic habitat mentioned above does not odder suitable habitat for any Red Data avifaunal species and the areas surrounding them are disturbed and the aquatic vegetation highly trampled by livestock and to a letter extent, humans and/or polluted. Despite the disturbances it remains a sensitive habitat. Only the more common avifaunal species associated with aquatic habitat are likely to make use of this habitat system and any development on the study site will not have a negative effect on the avifaunal species that occur or that are likely to occur within the boundaries of the study site.

<u>Open grassland:</u> A total of 10% of the total surface area of the study area

consists of open grassland. The open grassland in the study area represents grassland in the fenced off protected area of the Suikerborsrand Nature Reserve. The open grassland in combination with other habitat systems within the Suikerborsrand nature Reserve offer more suitable habitat for Red Data avifaunal species.

The presence and abundance of bird species in this habitat will vary from season to season – lush and green in summer after summer rains and dry, brown, frosted or burnt during winter. The habitat favours ground-living bird species, such as lapwings, francolins, pipits, longclaws, larks and chats. These birds hunt for insects and/or breed on the ground, in burrows in the ground, or between the grasses. Weavers and widowbirds make use of such habitat for feeding on ripe seeds during late summer and early winter when the grass is not burnt, and widowbirds and cisticolas will also breed in the tall grass during summer. Species such as weavers and bishops that breed in the wetland habitat during summer will also make use of the open grassland habitat for feeding during winter after the grasses have seeded. Aerial feeding birds such as martins, swifts and swallows will also hunt for insects over the grasslands.

Disturbed grassland, fallow field and crop lands: A total of 64% of the total surface area of the study area including the 500m extended study area consists of disturbed grassland, fallow fields and agricultural cropland.

Only the more common grassland avifaunal species that area able to adapt to areas changed by man are likely to make use of this habitat system.

Disturbed and Transformed areas: The rest of the study area ±24% is disturbed and has been transformed by past and present human activities. These areas include built-up areas interspaced with garden vegetation, graded areas, roads, areas within severe dumping and areas overgrown by alien and invasive trees and vegetation.

Only the more common avifaunal species that are able to adapt to areas changed by man will make use of this habitat system. None of these species that occur within this habitat systems are threatened.

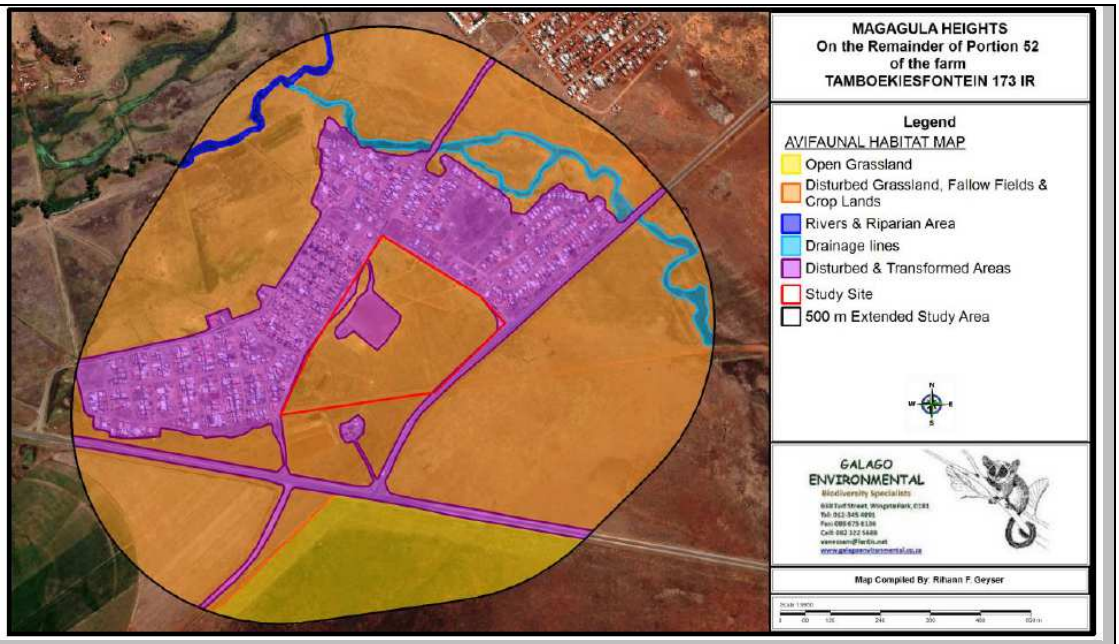


Figure 16: Avifaunal species habitat systems identified on the study site and within the study area

The study concluded that the study area does not offer suitable habitat for Red Data avifaunal species. The Red Data species are habitat specific and unable to adapt to areas changed by man. In general the reporting rate of all Red Data avifaunal species is very low at 1% and less and if they should occur, they are only likely to move through the area on very rare occasions and are unlikely to make use of the habitat systems on a permanent basis. More suitable habitat exists for Red Data avifaunal species within the Suikerborsrand Nature Reserve to the south of the study site. The study site and surrounding study area can be regarded as low sensitive.

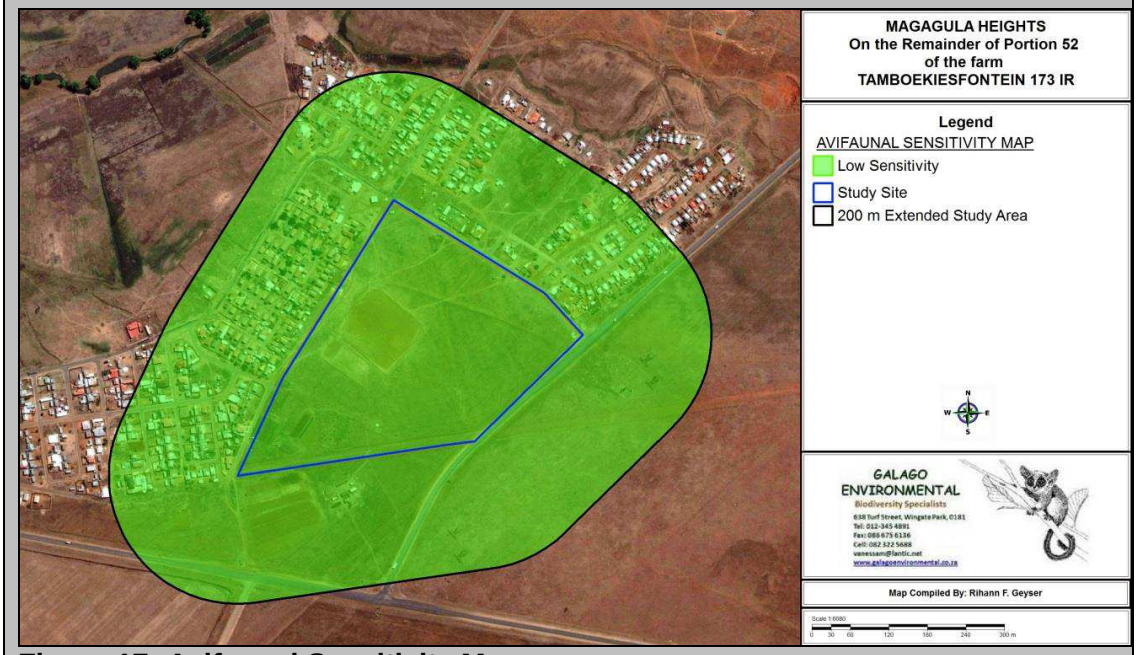


Figure 17: Avifaunal Sensitivity Map

A Herpetofaunal habitat assessment was undertaken by Galago Environmental

Biodiversity and Aquatic Specialists and the findings are as follows:

The study site has no really important topographical features, but two drainage lines occur near the site, (the Rietspruit and a tributary of the Rietspruit). The study site contains one natural herpetofaunal habitat, namely terrestrial.

Species richness: Due to the presence of only one of the four habitat types and the severely altered nature of the site, the study site should have a poor number of species. It must be emphasized that the species richness is for the general area and NOT for the study site itself.

Endangered species: The possibility exists that at least some individuals of the striped harlequin snake could occur on the study site.
Sensitive species and or areas (Conservation ranking): The study site has no important sensitive ecological systems. The two drainage lines, which occur near the site (Rietspruit and a tributary of the Rietspruit) are very sensitive areas. The study site falls in the Tsakane Clay Grassland vegetation type, which is considered endangered (Mucina and Rutherford 2006), but the site I too disturbed and too small to have any important conservation value.

Habitat(s) quality and extent: The terrestrial habitat quality has been jeopardised by the dumping of building rubble and rubbish. Most of the terrestrial habitat is currently used for grazing by herds of cattle, flocks of sheep and goats. Invasive plants grow in many areas. The site has also been disturbed in some parts by veld fires, gravel roads, a soccer field, vegetable gardens, footpaths and pedestrian thoroughfare between townships and the freeway and other roads, which cross the study site and are in constant use. A few diggings have also taken place on the study site and dogs were observed on site.

Impact on species richness and conservation: The proposed development will have a
Significant and lasting effect on species richness and conservation, because of the construction of buildings and new roads carrying more vehicles. These structures, buildings and roads will form an even larger barrier for herpetofaunal movement and it will result in a decrease in connectivity

If the development should go ahead, a very important indirect effect would be the likely impact that the proposed development might have on the water quality of the drainage lines (Rietspruit and a tributary of the Rietspruit) due to surface water runoff. This could have a negative impact on the herpetofauna.

Connectivity: Due to the busy Kliprivier Drive (R550) south of the site, the D817 Road as well as the railway line and the first phase of the Magagula Heights Township connectivity is poor to fair.
Management recommendation: Measures will have to be taken to stop water pollution of the drainage lines (Rietspruit and a tributary of the Rietspruit). The removal of exotic plants and rubble will increase the quality of the habitat.
General: The integrity of the drainage lines should not be jeopardised in any way by the proposed development. The unique ambience of the nearby Suikerborsrand Nature Reserve must not be affected at all.

Sensitivity: The study site has a low sensitivity in terms of herpetofauna

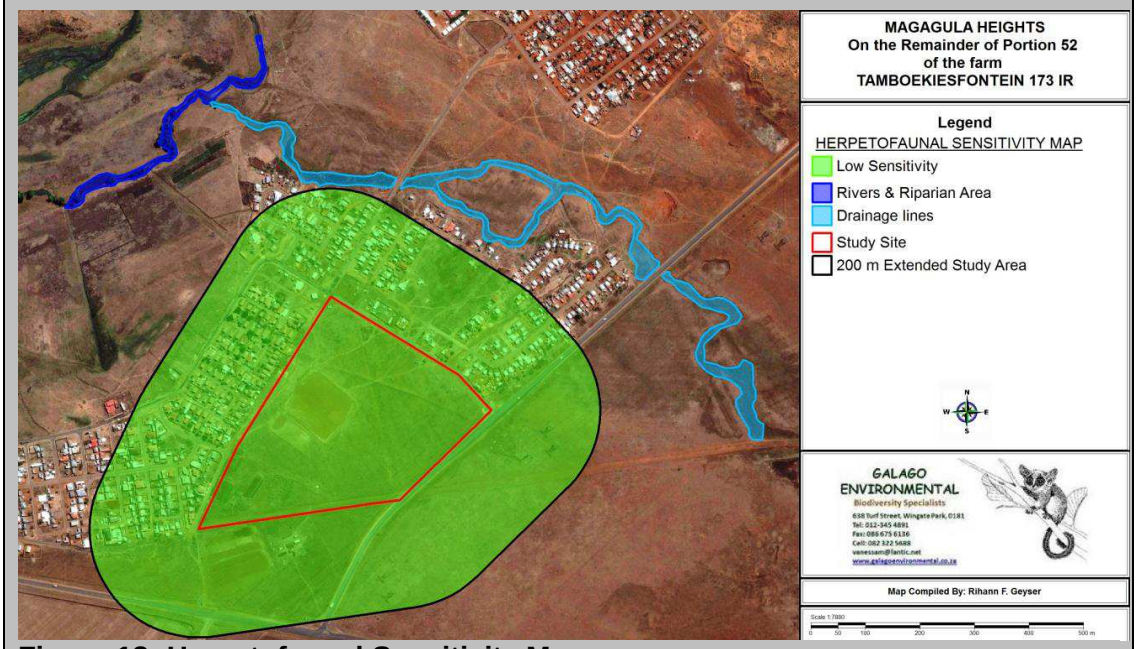


Figure 18: Herpetofaunal Sensitivity Map

Was a specialist consulted to assist with completing this section	~~YES~~	**NO**

If yes complete specialist details

Name of the specialist:	**Mr J.C.P van Wyk (Pr.Sci.Nat: MSc) of Galago Environmental Biodiversity and Aquatic Specialists**			
Qualification(s) of the specialist:	**MSc in Biological Sciences**			
Postal address:	**638 Turf Street Wingate Park**			
Postal code:	**0180**			
Telephone:	**012 345 4891**	Cell:	**082 322 5688**	
E-mail:	**vanessam@lantic.com**	Fax:	**086 675 6138**	

Are any further specialist studies recommended by the specialist?	~~YES~~	**NO**
If YES, specify:	**No**	
If YES, is such a report(s) attached?	~~YES~~	**NO**

If YES list the specialist reports attached below

Signature of specialist: **See Appendix G** Date: **May 2017**

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

Was a specialist consulted to assist with completing this section	**YES**	~~NO~~

If yes complete specialist details

Name of the specialist:	**Mr Rihann F. Geyser and Dr. A.C Kemp (PH.D, Pr.Sci.Nat. Nat. (Zoology & Ecology) of Galago Environmental Biodiversity and Aquatic Specialists**			
Qualification(s) of the specialist:	**Ph.D. Zoology & Ecology**			
Postal address:	**638 Turf Street Wingate Park**			
Postal code:	**0180**			
Telephone:	**012 345 4891**	Cell:	**082 322 5688**	
E-mail:	**vanessam@lantic.com**	Fax:	**086 675 6138**	

Are any further specialist studies recommended by the specialist?	YES	**NO**
If YES, specify:	**No**	

If YES, is such a report(s) attached?	**YES**	~~NO~~
If YES list the specialist reports attached below		

Signature of specialist: **See Appendix G** Date: **May 2017**

Was a specialist consulted to assist with completing this section		**YES**	~~NO~~
If yes complete specialist details			
Name of the specialist:	**Mrs P. Lemmer of Galago Environmental Biodiversity and Aquatic Specialists**		
Qualification(s) of the specialist:	**BSc Pr.Sci.Nat .Nat .Nat.**		
Postal address:	**638 Turf Street Wingate Park**		
Postal code:	**0180**		
Telephone:	**012 345 4891**	Cell:	**082 322 5688**
E-mail:	**vanessam@lantic.com**	Fax:	**086 675 6138**
Are any further specialist studies recommended by the specialist?		YES	**NO**
If YES, specify:			
If YES, is such a report(s) attached?		YES	**NO**
If YES list the specialist reports attached below			
No			

Signature of specialist: **See Appendix G** Date: **May 2017**

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	**3. Nature conservation area**	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	**7. Agriculture**	**8. Low density residential**	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	**34. Small Holdings**	
Other land uses (describe):	**35. Drainage line**			

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

	35, 1	**35**	**35, 1**	**1, 35**	**7**
	1, 35	**8, 1**	**8,35**	**8,35**	**8,35**
WEST	**8**	**8**	**SITE**	**1,3**	**1,3,35** EAST
	7	**1, 7**	**3**	**3**	**3**
	7	**3**	**3**	**3**	**3**

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached	**YES**	~~NO~~

If yes indicate the type of reports below

Ecological reports:
Flora Assessment
Mammal Habitat Assessment
Avifaunal Habitat Assessment
Herpetofaunal Habitat Assessment
Heritage Impact Assessment
Phase 1 Near Surface Geotechnical Investigation

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Magagula Heights is a township situated in Gauteng. It falls within Region F in the jurisdiction of the Ekurhuleni Metropolitan Municipality. Magagula Heights is about 2.73m^2 in size with an estimated population of 4055 people (2011).The population is represented by Black African 98.37%, Coloured 1.41%, Indian/Asian 0.12%, and White 0.10%. IsiZulu and Southern Sotho are the most spoken languages in the area.

According to the RSDF Region F has the highest population within the Ekurhuleni Metropolitan Municipality.

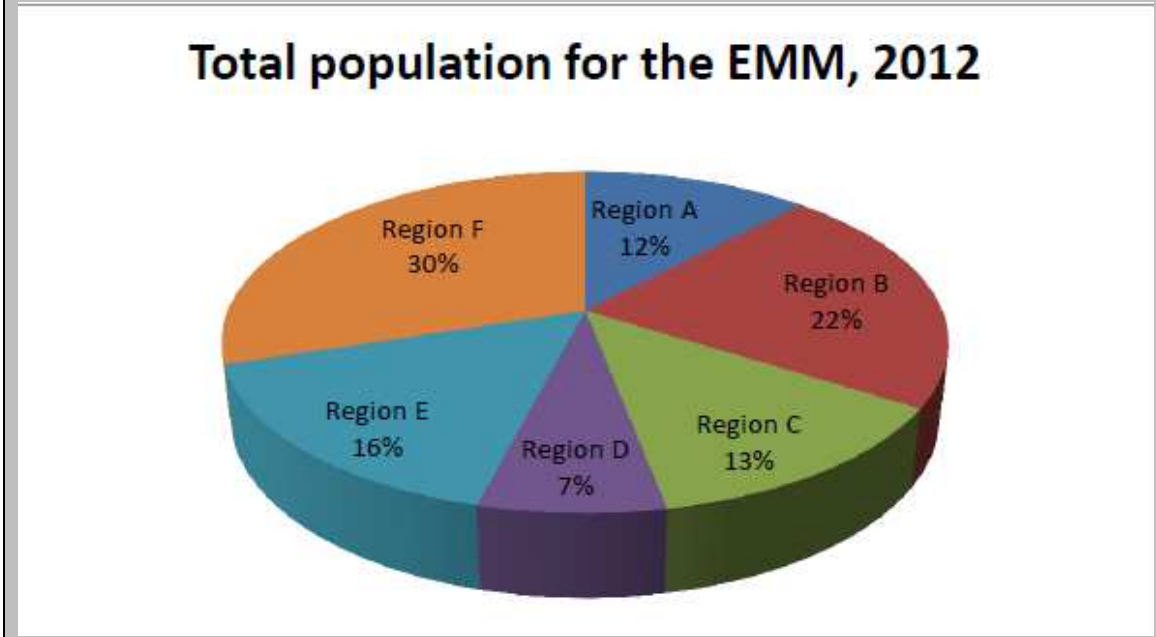


Figure 19: Total population for the EMM, 2012

Table 3: Region F employment levels

REGION F EMPLOYMENT LEVELS	NUMBER/ PERCENTAGE
Working age population (15-64 years of age) (2012)	664 000 people
Economically active population (2012) ***Definition:*** *The economically active population (EAP) is defined as the number of people (between the age of 15 and 65) who are able, willing, and working, or who are actively looking for work. Both employed as well as unemployed people are included. This clearly implies that people, who recently have not taken any active steps to find employment, are not included in the measure. These people may (or may not) consider themselves unemployed. Nevertheless, they are being counted as discouraged work seekers, and thus form part of the non-economically active population.*	400 000 people
Labour force participation rate ***Definition:*** *The labour force participation rate (LFPR) is the EAP expressed as a percentage of the total working age population.*	60.15%,
Total employment ***Definition:*** *Total employment consists of two parts: employment in the official economy, or the formal sector, and then employment in the unofficial economy or the informal sector*	199 000 people
Formal employment	175 000 people
Informal employment	24 500 people
Unemployment (2012) ***Definition:*** *The unemployed includes all persons between 15 and 65 who do not have a job, who are available for jobs, or who are actively seeking a job.*	167 000 people

The following table summarises significant economic factors relevant to the growth and development of the region.

Table 4: Region F Economic indicators

REGION F ECONOMIC INDICATORS	NUMBER/ PERCENTAGE
Gross Domestic Product (GDP) (2012) ***Definition:*** *Gross Domestic Product by Region (GDP-R) represents the value of all goods and services produced within a region, over a period of one year, plus taxes and minus subsidies.*	R 47.1 billion
Contribution to the GDP of EMM (2012)	23.07%
Annual GDP growth rate	3.8%
Contributors to the economy (2012)	Agriculture – 0% Mining – 1% **Manufacturing – 24%** Electricity – 5% Construction – 6% Trade – 15% Transport – 10% Finance – 21% Community Services – 18%
Average annual growth rate per sector (2012)	Agriculture – 0.4% Mining – 1.76% Manufacturing – 2.79% Electricity – 2.67% **Construction – 9.3%** Trade – 4.87% Transport – 4.3% Finance – 5.77% Community Services – 3.64%

From the information above it is evident that the manufacturing sector is the

largest contributor to the economy in Region F with the finance sector in second place. However, the finance sector has the fastest growth rate, followed by the manufacturing sector.

In Region F, the economic sector that recorded the largest number of employment in 2012, was the trade sector with a total of 32 400 or 21.5% of the total employment.

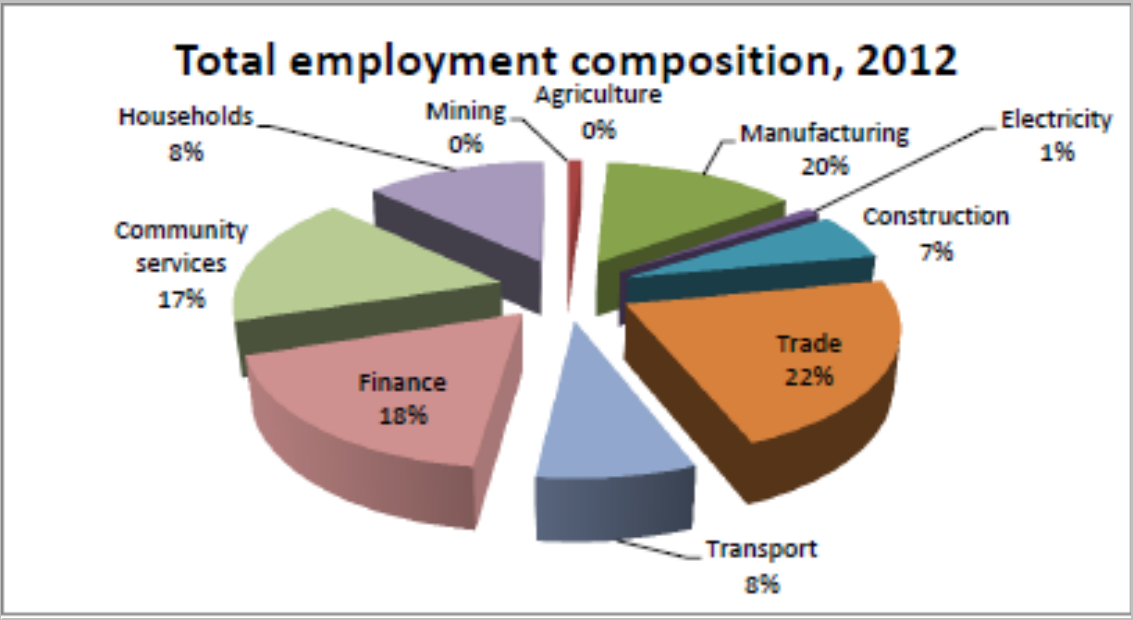


Figure 20: Total employment composition, 2012

Source: https://census2011.adrianfrith.com/place/797031052
Source: https://www.ekurhuleni.gov.za/rsdf-1/2677-final-rsdf-region-f-2015

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000 m2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site? If YES, explain:	~~YES~~	**NO**

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

A Heritage Impact Assessment was undertaken by HCAC – Heritage Consultants and the study concluded the following:

No archaeological sites or material was recorded during the survey. Therefore no further mitigation prior to construction is recommended in terms of the archaeological component of Section 35 for the proposed development to proceed. In terms of the built environment of the (Section 34), no standing structures older than 60 years occur within the study area.

In terms of Section 36 of the Act no burial sites were recorded. A grave is indicated on the 1957 Topographic map just outside the southern periphery of the study area. The area is very disturbed and there are no remaining surface indicators of the grave.

If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The study area is surrounded by residential developments and road infrastructure developments and the proposed development will not impact negatively on significant cultural landscapes or viewscapes. During the public participation process conducted for the project no heritage concerns were raised.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence based on the condition that the following chance find procedure is implemented as part of the EMPr and based on approval from SAHRA.

<u>Chance find procedure:</u>
The possibly of the occurrence of subsurface cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefore a chance find procedure should be put in place as part of the EMPr.

The chance find procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with the policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below:

- **If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or services provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.**
- **It is the responsibility of the senior on-site Manager to make an initial**

assessment of the extent of the find, and confirm the extent of the work stoppage in that area.

- **The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.**

Reasoned opinion from the specialist:

- **The impact of the proposed project on heritage resources is considered low and no further pre-construction mitigation in terms of archaeological resources is required based on approval from SAHRA.**
- **Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are implemented for the project.**

A Palaeontological desktop study was undertaken for the site and the study concluded the following:

The proposed development footprint is underlain by metavoltanic rocks of the Neoarchaean Klipriviersberg Group, the latter being a unit situated at the base of the Ventersdorp Supergroup. Potential palaeontological impact on the voltanic rocks of the Klipriviersberg Group is regarded as very low. There is currently no record of Quaternary vertebrate fossils or sites within superficial overburden in the region and the likelihood of impact on such remains resulting from the proposed development is considered to be very low.

The proposed development may proceed as far as the paleontological heritage is concerned. A phase 1 impact study is not necessary, provided that all excavation activities are restricted to within the boundaries of the development footprint. If, however, any localized fossil material is discovered within the superficial overburden during the construction phase of the project (i.e. modern-looking but more or less lithified animal bones and teeth), a professional palaeontologist must be called immediately to confirm and record the finds.

In the meantime, ex situ remains must be wrapped in paper towels or heavy duty tin foil and stored in a safe place. The material should not be washed or cleaned in any way. In situ material must be kept in place and protected from further damage by covering it with light but rigid object like a box, bucket or metal sheet until further confirmation by the palaeontologist.
(Please refer to Appendix G for the Specialist reports).

Will any building or structure older than 60 years be affected in any way?	~~YES~~	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? If yes, please attached the comments from SAHRA in the appropriate Appendix	~~YES~~	**NO**

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	**YES**	~~NO~~

If yes, has any comments been received from the local authority?	~~YES~~	**NO**

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

The Draft Basic Assessment Report will be submitted to the Ekurhuleni Metropolitan Municipality and their comments will be included in the Final Basic Assessment Report.

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	**YES**	~~NO~~

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Entity	Issue	Date
1. Sasol gas not affected by the proposed development.	**Sandra Reyneke (SASOL Gas)**	**05 may 2017**
2. No MTN distribution services will be affected by the application and MTN has no objection for the proposed development	**Johanna Pilane (Mobile Telephone Network Pty Ltd) MTN)**	**17 May 2017**
3. Egoli Gas will not be affected by the proposed development	**Cornelia Moremong (Egoli Gas (Pty) Ltd)**	**10 May 2017**
4. Transnet pipeline is affected by the proposed development. A diagram has been provided indicating the location of the pipeline on site. There is also an isolation valve and servitude on this line to which Transnet Pipelines will need unobstructed access at all times. The pipeline servitude	**Thami Hadebe/ Francois Malan (Transnet Pipelines)**	**22 May 2017**

is six metres wide and any development within the servitude has to be authorised by their management through a wayleave officer with the following contact details: **Name: Mr Thami Hadebe** **Tel: 031 361 1454** **Email:** **thami.hadebe@transnet.net** **All the relevant restrictions will be provided when an application for the wayleave is submitted.**		
5. The Department will not be able to participate in the Environmental Impact Assessment Process. **6. However, note must be taken that the Gauteng Strategic Transportation Network namely, provincial Road(s): K148 (D17), K154 (D64), PWV13, K146 and PWV18 are affected and as such, in terms of the Gauteng Transport infrastructure Act 2001 (Act No 8 of 2001), when an application for a township establishment, change of land use (rezoning, subdivision, consent use etc.) is lodged with the relevant authority, the said application must be lodged with this Department for evaluation.** **4. Note must be also taken that an application must be submitted to this Department for a way leave if any part of a proposed service falls within 95.0m (measured from the centerline of any Department's existing or future road(s)/railway line or within a 500,0m radius of any intersection on said road(s)/railway line.** **5. Where mining operations are to be undertaken, Section 49 of the Gauteng Transport Infrastructure Act, 2001 (Act No 8 of 2001) shall apply.**	**Ms. L Mafume (Gauteng Department of Roads and Transport)**	**18 May 2017**

6. These conditions are laid down in terms of delegated authority in terms of the provisions of the Gauteng Transport Infrastructure Act, Act No. 8of 2001 and do not exempt the applicant /owner/successor-in-title from the provisions of any other law		
7. He is a resident at 970 Magagula Heights in Katlehong. He can do RDP slabs and galvanized roofing. He registered his company last year August as he was working at Winnie Mandela in Tembisa.	**Sello Cornelius Manavhela**	**11 May 2017**
8. He has an agricultural project of plants and vegetables on the proposed site. He is self-employed as he was retrenched form the company he was working for and his family makes a living from the income he makes and he is also able to take his children to school as one of them is in University and has no funding. **9. He is the funder and some of the people he works with will also be affected as they are working together to survive as they are also not working**	**Kata Abraham Halahala**	**18 May 2017**

If "NO" briefly explain why no comments have been received

7. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

8. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

Public Participation was conducted according to the following steps:

- **An advert was placed in the local newspaper of the Daily Sun on 05 May 2017**
- **Notice boards were placed on site on 05 May 2017,**
- **Notices were hand delivered to adjacent property owners,**
- **Registered letters were sent to neighbouring property owners, and**
- **Faxes and emails were sent to the stakeholders including the ward councillor of the area.**

Please Refer to Appendix E: Public Participation, for the proof of the Public Participation undertaken

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives **0** times (complete only when appropriate)

Section D Alternative No. **0** (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? **YES** ~~NO~~

If yes, what estimated quantity will be produced per month? **9600m^3**

How will the construction solid waste be disposed of (describe)?

The building rubble and solid construction waste (such as sand, gravel, concrete and waste material) that cannot be used for filling and rehabilitation and other litter and waste generated during the construction phase will be removed from site and be disposed of safely and responsibly at a licensed landfill site, i.e. a landfill licensed in terms of Section 20 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989).

Where will the construction solid waste be disposed of (describe)?

The solid waste will be transported to the solid waste disposal site of the Ekurhuleni Metropolitan Municipality either by a private contractor or by the municipality.

Will the activity produce solid waste during its operational phase? **YES** ~~NO~~

If yes, what estimated quantity will be produced per month? **11000m^3**

How will the solid waste be disposed of (describe)?

Waste will be collected and stored separately according to the specific requirements of the waste type. The solid waste will be transported to the solid waste disposal site of the Ekurhuleni Metropolitan Municipality either by a private contractor or by the municipality.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity? ~~YES~~ **NO**

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? ~~YES~~ **NO**

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility? ~~YES~~ **NO**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

Recycling at the source.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	~~YES~~	**NO**
If yes, what estimated quantity will be produced per month?		m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	~~YES~~	**NO**

Will the activity produce any effluent that will be treated and/or disposed of on site?	~~Yes~~	**NO**
If yes, what estimated quantity will be produced per month?		m^3

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?	~~YES~~	**NO**

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

None

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	**YES**	~~NO~~
If yes, what estimated quantity will be produced per month?	**25000m^3**	
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	~~YES~~	**NO**

Will the activity produce any effluent that will be treated and/or disposed of on site?	~~YES~~	**NO**

If yes describe how it will be treated and disposed off.

N/A

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	~~YES~~	**NO**
If yes, is it controlled by any legislation of any sphere of government?	~~YES~~	**NO**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

No gaseous emissions apart from dust and smoke during construction phase are expected.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

municipal	~~Directly from water board~~	~~groundwater~~	~~river, stream, dam or lake~~	~~other~~	~~the activity will not use water~~

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	~~YES~~	**NO**

If yes, list the permits required

If yes, have you applied for the water use permit(s)?	~~YES~~	**NO**
If yes, have you received approval(s)? (attached in appropriate appendix)	~~YES~~	**NO**

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

Eskom

If power supply is not available, where will power be sourced from?

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The installation and promotion of technologically advanced energy efficient systems, components and upgrades, as well as the innovative use of recycled building materials, is strongly encouraged throughout the Erven 1356 and 1357 Magagula Heights development.

<u>Solar water heater</u>: As regular heaters are the biggest consumers of domestic electricity. Solar hot water cylinders can remain connected to the electricity 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.

<u>Gas</u>: Although not a renewable it is less polluting and recommended for cooking and heating. Electric stoves use a huge amount of electricity.

<u>Floor Insulation and Roof / Ceiling Insulation</u>: Up to 15% of the energy used to heat up residences in winter are lost through the floor. 30 mm of high density polystyrene below the concrete of a new house will reduce the heat loss through the floor significantly. 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.

<u>Lighting</u> - Low energy lamps will be used for interior and exterior lighting, with timers or light sensors for switching where necessary.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The skillful integration of solar water and energy panels, wind generators, hot water storage tanks and rainwater harvesting elements into the building design is of prime importance. Design solutions are encouraged to incorporating environmentally conscious building techniques and sustainable high-tech elements, as well as the innovative use of recycled building materials.

<u>Utilities & Services</u>

- **Position of 'wet areas' (bathroom, kitchen etc.) to be positioned in close proximity to HWC and/or energy tower as applicable.**
- **Efficient water usage systems including dual flush cisterns, water-saving shower roses and grey water recycling systems are highly encouraged.**
- **On-site black- and grey-water waste treatment systems (such as Biolytix® or equal approved) subject to review panel approval.**
- **Waste-water, soil and air-conditioning pipes and conduits to be concealed.**
- **Air-conditioning condenser units to be screened from public realm.**
- **Aerial and satellite dishes to be positioned below roof line or concealed within tower structure – no branding permitted.**
- **The use of energy saving products and appliances is further recommended.**
- **Gas for cooking purposes generally encouraged.**
- **Geothermal heating/cooling systems subject to approval and confirmation by Structural Eng.**

<u>Backup Power</u>

- **Photovoltaic panel and battery bank systems preferred in favour of diesel generators.**
- **Requirement and positioning of PV panels as per Solar HWC.**
- **Super silent generators may be permitted at max. 60 decibels at 7.0m. Position and housing of backup generator subject to approval.**

<u>Materials</u>

- **Use of energy efficient, sustainable and environmentally-friendly building materials and products is highly recommended. This includes:**
  - **Non-toxic paints**
  - **Low volatile organic compounds (V.O.C) coatings and materials**
  - **Locally sourced and/or produced materials**
  - **Limited use of energy intensive building materials such as concrete, aluminum etc.**

Use of exotic timber is generally discouraged unless FSC certified from a sustainably harvested source

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

1. **Sasol Gas:**
   Not affected

2. **MTN:**
   No MTN distribution services are affected by the application and MTN

3. **Egoli Gas (Pty) Ltd:**
   Egoli Gas will not be affected by the proposed development.

4. **Transnet pipelines:**
   Transnet pipeline is affected by the proposed development. A diagram has been provided indicating the location of the pipeline on site. There is also an isolation valve and servitude on this line to which Transnet Pipelines will need unobstructed access at all times. The pipeline servitude is six metres wide and any development within the servitude has to be authorised by their management through a wayleave officer with the following contact details:

   Name: Mr Thami Hadebe
   Tel: 031 361 1454
   Email: thami.hadebe@transnet.net

   All the relevant restrictions will be provided when an application for the wayleave is submitted.

5. Gauteng Department of Roads and Transport:
   The Department will not be able to participate in the Environmental Impact Assessment Process.
   However, note must be taken that the Gauteng Strategic Transportation Network namely, provincial Road(s): K148 (D17), K154 (D64), PWV13, K146 and PWV18 are affected and as such, in terms of the Gauteng Transport infrastructure Act 2001 (Act No 8 of 2001), when an application for a township establishment, change of land use (rezoning, subdivision, consent use etc.) is lodged with the relevant authority, the said application must be lodged with this Department for evaluation.

   Note must be also taken that an application must be submitted to this Department for a way leave if any part of a proposed service falls within 95.0m (measured from the centerline of any Department's existing or future road(s)/railway line or within a 500,0m radius of any intersection on said road(s)/railway line.

   Where mining operations are to be undertaken, Section 49 of the Gauteng Transport Infrastructure Act, 2001 (Act No 8 of 2001) shall apply.

These conditions are laid down in terms of delegated authority in terms of the provisions of the Gauteng Transport Infrastructure Act, Act No. 8of 2001 and do not exempt the applicant /owner/successor-in-title from the provisions of any other law.

6. **Sello Cornelius Manavhela:**
   He is a resident at 970 Magagula Heights in Katlehong. He can do RDP slabs and galvanized roofing. He registered his company last year August as he was working at Winnie Mandela in Tembisa.

7. **Kata Abraham Halahala:**
   He has an agricultural project of plants and vegetables on the proposed site. He is self-employed as he was retrenched form the company he was working for and his family makes a living from the income he makes and he is also able to take his children to school as one of them is in University and has no funding.

   He is the funder and some of the people he works with will also be affected as they are working together to survive as they are also not working

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

Entity	Response
1. Sandra Reyneke (SASOL Gas)	None required
2. Johanna Pilane (Mobile Telephone Network Pty Ltd) MTN)	
3. Cornelia Moremong (Egoli Gas (Pty) Ltd)	
4. Thami Hadebe/ Francois Malan (Transnet Pipelines)	Note is taken of the comment and will be adhered to. A buffer of 50m has further been provided on the layout on either sides of the Transnet pipeline.
5. Ms. L Mafume (Gauteng Department of Roads and Transport)	Note is taken of all the comments and they will be adhered to.
6. Sello Cornelius Manavhela	The main contractors will engage sub-contractors. The following official might be contacted for any questions related to the proposed development. • Bongani Molefe: EMM Divisional Head: Functional Planning Tel: 011 999 6727 Email: Bongani.Molefe@ekurhuleni.gov.za
7. Kata Abraham Halahala	A number of 3 erven measuring approximately 4.140Ha in extent have

	been provided for "Public Open Space" uses where these agricultural activities are situated. The I&AP is advised to negotiate with the relevant authority responsible for the property in order to continue using the site and his contact details are as follows: **Bongani Molefe: EMM Divisional Head: Functional Planning** **Tel: 011 999 6727** **Email: Bongani.Molefe@ekurhuleni.gov.za**

2. IMPACTS THAT MAY RESULT FRO THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

Table 1: Methodology

Rating	Definition of Rating	Score
A. Extent – *the area in which the impact will be expected*		
None		**0**
Local	**Confined to project or study area or part thereof (eg. site)**	**1**
Regional	The region, which may be defined in various ways, eg. Cadastral, catchment, **topographic**	**2**
(Inter) national	**Nationally or beyond**	**3**
B. Intensity – *the magnitude or size of the impact*		
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		**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 2: Method used to determine the Consequence Score

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

Rating	**significant**					

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

Table 3: Probability Classification

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 4: Impact Significance Ratings

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 table below.

Table 5: 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 should be considered by GDARD in their decision-making 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.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

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Table 6: Impact assessment-Construction phase

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
BIOPHYSICAL ENVIRONMENT								
1. ISSUE: AIR QUALITY								
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Definite**	**Low & Definite = Low**	**-ve**	**High**
2. ISSUE VISUAL IMPACTS								
2.1 Visual Impacts due to clearance of site, cut and fill	**Local (1)**	**Low (1)**	**Medium term (2)**	**Very low (4)**	**Probable**	**Very low & Probable = Very low**	**-ve**	**High**
2.2 Visual Intrusion and Light Pollution –. Lights from the contractor's camp and construction site could be visually intrusive.	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Probable**	**Low & Probable = Low**	**-ve**	**High**
3. ISSUE GEOLOGY AND SOILS								
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium (6)**	**Definite**	**Medium & Definite = Medium**	**-ve**	High
3.2 Soil pollution	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium(6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	High
3.3 Disturbance of surface geology for development foundations	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium(6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	High
4. ISSUE FAUNA AND FLORA								
4.1	**Local (1)**	**High (3)**	**Medium**	**Medium (6)**	**Definite**	**Medium &**	**-ve**	**High**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
Degradation, destruction of habitats/ ecosystem (Tsakane Clay Grassland)			**term (2)**			**Definite = Medium**		
4.2 Impacts on fauna and flora Disruption of nutrient flow dynamics; Introduction of chemicals into the ground and surface water through leaching; Habitat fragmentation Changes to abiotic environmental conditions; Changes to disturbance regimes e.g. decreased or increased incidences of fire; Changes to successional processes; effects on pollinators; And increased invasion by plants and animals not endemic to the area.	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium (6)**	**Probable**	**Medium& Probable = Medium**	**-ve**	**High**
5. ISSUE HYDROLOGY								
5.1 Storm water flow and drainage- Developments cause the modification of drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, and	**Regional (2)**	**High (3)**	**Medium term (2)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**High**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
sedimentation of nearby water bodies (i.e. Rietspruit and a tributary of the Rietspruit)								
SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT								
6. ISSUE AESTHETICS, SITE CHARACTER AND SENSE OF PLACE								
6.1 Noise/ vibration	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Definite**	**Low & Definite = Low**	**-ve**	**High**
7. ISSUE SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT								
7.1 Safety and Security	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Probable**	**Low & probable = Low**	**-ve**	**High**
7.2 Job opportunities	**Regional (2)**	**High (3)**	**Medium term (2)**	**High (7)**	**Definite**	**High & Definite = High**	**+ ve**	**Medium**
7.3 Visual impact Site clearing and removal of vegetation could partially alter the landscape as viewed from the surrounds of the site, with the emergence of exposed areas of bare soil. Construction vehicles equipment such as cranes could be visually intrusive albeit for a short period of time.	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Probable**	**Low & probable = Low**	**-ve**	**Medium**
7.4 Loss of agricultural land (i.e. Loss of profit)	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium (6)**	**Definite**	**Medium & Definite = Medium**	**-ve**	**High**
8. ISSUE HISTORICAL ENVIRONMENT								
8.1 Destruction of cultural / heritage sites	**Local (1)**	**Low(1)**	**Medium term (2)**	**Very low (4)**	**Probable**	**Very low & Probable = Very low**	**-ve**	**Medium**
9. ISSUE INFRASTRUCTURE AND SERVICES/WASTE								
9.1 Waste	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium (6)**	**Probable**	**Medium & Definite = Medium**	**-ve**	**High**
9.2 Potential impact on Transnet pipeline	**Local (1)**	**Medium (2)**	**Medium term (2)**	**Low (5)**	**Probable**	**Low & Definite = Low**	**-ve**	**High**
9.3 Pressure on existing infrastructure and services (including i.e.	**Local (1)**	**High (3)**	**Medium term (2)**	**Medium (6)**	**Probable**	**Medium & Definite = Medium**	**-ve**	**High**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
K148, K154, PWV13, k146 and PWV18 Provincial Roads)								
10. ISSUE: TRAFFIC								
10.1 Traffic-Construction Vehicles	**Regional (2)**	**Medium (2)**	**Medium term (2)**	**Medium (6)**	**Probable**	**Medium & Definite = Medium**	**-ve**	**High**

Table 7: Impact significance - Operational phase

Proposal

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	status	Confidence
1. ISSUE: FAUNA AND FLORA								
1.1 Alien invasion	**Local (1)**	**Medium (2)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
2. ISSUE: ISSUE GEOLOGY AND SOILS								
2.1 Soil erosion, loss of topsoil, deterioration of soil quality	**Local (1)**	**Medium (2)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT								
3. ISSUE AESTHETICS, SITE CHARACTER AND SENSE OF PLACE								
3.1 Noise	**Local (1)**	**Low (1)**	**Long term (3)**	**Low (5)**	**Probable**	**Low & Probable = Low**	**-ve**	**High**
4. ISSUE: SOCIAL WELL BEING AND QUALITY OF THE ENVIRONMENT								
4.1 Safety and Security	**Local (1)**	**Low (1)**	**Long term (3)**	**Low (5)**	**Probable**	**Low & Probable = Low**	**-ve**	**High**
4.2 Job opportunities	**Regional (2)**	**Medium (2)**	**Long term (3)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**Medium**
5. ISSUE: HYDROLOGY								
5.1 Storm water flow and drainage-Developments cause the modification of drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another.	**Regional (2)**	**Medium (2)**	**Long term (3)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**Medium**
6. ISSUE: ISSUE HISTORICAL ENVIRONMENT								
6.1 Destruction of cultural /	**Local (1)**	**Low(1)**	**Long term (3)**	**Low (5)**	**Probable**	**Low & Probable = Low**	**-ve**	**Medium**

heritage sites								
7. ISSUE: TRAFFIC								
7.1 Traffic – vehicles from the residential development, Public transport etc.	**Regional (2)**	**Low (1)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
INFRASTRUCTURE, SERVICES AND WASTE								
8. ISSUE: INFRASTRUCTURE AND WASTE								
8.1 Waste	**Local (1)**	**Medium (2)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
8.2 Pressure on existing infrastructure and services	**Local (1)**	**Medium (2)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
8.3 Potential impact on Transnet pipeline	**Local (1)**	**Medium (2)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
9. ISSUE: COMPATIBILITY WITH LAND USE DEVELOPMENT MANAGEMENT POLICIES								
9.1 Gauteng Environmental Management Framework 2015	**Regional (2)**	**Low (1)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**
9.2 Regional Spatial Development Framework for Region F	**Regional (2)**	**Low (1)**	**Long term (3)**	**Medium (6)**	**Probable**	**Medium & Probable = Medium**	**-ve**	**Medium**

Alternative 1

The impacts of alternative 1 (Construction and Operational phase) are similar to that of the Proposal, except with regards to the potential impact on the Transnet pipeline for which the Alternative 1 Layout has not incorporated.

Table 8: Impact assessment - Construction and Operational phase

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
INFRASTRUCTURE, SERVICES AND WASTE								
1. ISSUE: INFRASTRUCTURE AND WASTE								
1.1 Potential impact on Transnet pipeline	**Local (1)**	**High (3)**	**Long term (3)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**High**

The impacts of alternative 2 (Construction and Operational phase) are similar to that of the Proposal and Alternative 1, except with regards to the fact that the buffer for the Transnet pipeline and the Suikerborsrand Nature reserve have not been incorporated into the layout. A greater area of the site will be cleared, thus resulting in an increased loss of habitat.

Alternative 2

Table 9: Impact assessment - Construction and Operational phase

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
INFRASTRUCTURE, SERVICES AND WASTE								
1. ISSUE: INFRASTRUCTURE AND WASTE								
1.1 Potential impact on Transnet pipeline	**Local (1)**	**High (3)**	**Long term (3)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**High**
BIOPHYSICAL ENVIRONMENT								
2. ISSUE: FAUNA AND FLORA								
2.1 Degradation, destruction of habitats/ ecosystem	**Local (1)**	**High (3)**	**Long term (3)**	**High (7)**	**Probable**	**High & Probable = High**	**-ve**	**High**

No Go				
Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
None				

Proposal

Table 10: Significance rating construction phase

Alternative 1 (Preferred Option) construction phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
1. ISSUE: AIR QUALITY				
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	Low	• Dust generation should be kept to a minimum. • Dust must be suppressed on construction areas during dry periods by the regular application of water or a biodegradable soil stabilisation agent. • Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution. • It is recommended that the clearing of vegetation from the site should be selective and done just before construction so as to minimise erosion and dust. • Excavating, handling or transporting erodible materials in high wind or when dust plumes are visible shall be avoided. • All materials transported to site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials. • No burning of refuse or vegetation is permitted.	Very Low	Negative impact to the ambient air quality of the area.

2. ISSUE VISUAL IMPACTS				
2.1 Visual Impacts due to clearance of site, cut and fill.	Very Low	• The site area is to be physically screened off with a shade cloth fence (preferably dark green or grey as it will blend in well with the surrounding environment) at least 1.8m in height. • No waste may be placed in excavations on site. • Excess soil and bedrock should be disposed off at an appropriate waste disposal facility. • The site should be, managed appropriately and all rubbish and rubble removed to a recognized waste facility. • Provide the necessary erosion control measures. • Ensure that all erosion control measures are in good repair and working condition. • Avoid development on excessively steep slopes. • Avoid cutting steep embankments.	Very Low	Negative impact to the visual character of the area
2.2 Visual Intrusion and Light Pollution –. Lights from the contractor's camp and construction site could be visually intrusive.	Low	• The construction camp must be located as far from residential properties as possible. • Light pollution should be minimised. • The construction foot print must be minimised. • Construction / management activities must be limited to the daylight hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays. • Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. • Should overtime/night work be authorized, the Contractor shall be responsible to ensure that lighting does not cause undue disturbance to neighbouring residents. • In this situation low flux and frequency lighting shall be utilised. • The site area is to be physically screened off with a shade cloth fence (preferably dark green or grey as it will blend in well with the surrounding environment) at least 1.8m in height. • The site must be managed appropriately and all rubbish and rubble that can't be recycled must be removed to a licensed Landfill site. • Spoil should be disposed of at a Licensed Landfill site. • Waste disposal certificates must be obtained for any waste that is disposed of. • Waste must not remain on site for more than 2 weeks.	Very Low	Light pollution
3. ISSUE GEOLOGY AND SOILS				
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	Medium	• Proper erosion controls and plans to be implemented and monitored around river banks • Ensure that all erosion control measures are in good repair and working condition. • Erosion control measures may take	Low	Degradation or impairment of soil quality.

		the following form:
		• Sheet erosion: smooth the eroding area and install either high density jute matting or thick woven choir/coconut husk matting on the surface, it must be installed according to manufacturer's guidelines, if these are absent the following applies.
		  • Peg spacing less than 50cm or better
		  • The matting must be flat on the surface of the soil, not raised above it at all.
		  • Overlaps in the matting must be between 30-50cm
		  • Jute matting applies only to slopes below 5% or very short slope lengths
		  • Thick choir matting applies only to slopes below 10% or very short slope lengths
		  • The upslope edge of the matting must be buried under soil and folded over to protect the cover layer.
		• Rill erosion: same as above.
		  • Rill erosion is often associated with steeper slopes and choir matting is often the preferred cover.
		  • If the area is small and smoothing the rills impractical, the rills may be packed with the stored grass, this must be pegged and covered with jute or choir matting.
		• Gulley's or small head cuts.
		  • Use stored grass to line the gulley with a 50mm dense layer of organic material.
		  • Pack the rock so that the rock interlocks and forms a dense layer to just below the surrounding soil surface.
		• Stabilised outflows in lieu of formal permanent storm water outlets.
		  • Create a very smooth storm water outlet with as flat a slope as possible that does not encroach on the wetland.
		  • Use stored grass to line the storm water outflow with a 20mm dense layer of organic material.
		  • Cover with dense choir matting.
		  • Install pegs every 300mm
		  • Overlap adjacent mats with 500mm
		  • Large stones may be used between the pegs.
		  • Install sediment traps at the bottom of the outflow.
		• All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks.
		• Machinery and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or at the construction camp.		

		• Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants. • Drip trays are to be inspected daily for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. • Vehicles to be used during the construction phase are to be kept in good working condition and should not be the source of excessive fumes. • Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed, bunded and lined. • All excavations and foundations must be inspected regularly after any event that may have affected their strength or stability. • Once earthworks are complete, disturbed areas are to be stabilised with mulch, straw or other approved method. • Disturbed surfaces to be rehabilitated. No open trenches to be left. • No mounds of soils created during construction to be left. Soils around erected poles to be leveled and sculptured to the original contours of the surrounding soils.		
3.2 Soil pollution	Medium	• Ensure correct position of construction caps, equipment yards, refueling depots, concrete batching plant etc. to avoid areas susceptible to soil and water pollution. • Ensure appropriate handling of hazardous substances • Remediate polluted soil. • All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks. • Plant and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or campsite area. • Drip trays are to be utilised during daily greasing and re-fueling of machinery and to catch incidental spills and pollutants. • Drip trays are to be inspected daily for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. • Vehicles to be used during the construction phase are to be kept in good working condition and should not be the source of excessive fumes. • Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed and bunded. • All excavations and foundations must be inspected regularly	Low	Spilled oil prevents water absorption by soil and spills on grasslands or agricultural locations have the effect of obstructing plant life.
3.3 Disturbance of surface geology for development	Medium	• Adherence to the recommendations as per the Geotechnical report.	Low	Negative impact on the geology

foundations				of the area.
4. ISSUE FAUNA AND FLORA				
4.1 Degradation, destruction of habitats/ ecosystem	Medium	• Minimise construction footprints prior to commencement of construction and control all edge effects of construction activities (proliferation of alien vegetation, disturbance of soils, dumping of construction waste). • Existing roads should be utilized wherever possible to provide access to construction area. • Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. • Clearly demarcate areas to be cleared and ensure that vegetation clearing only occurs within the demarcated areas. • Where possible work should be restricted to one area at a time to give smaller birds and mammals and reptiles a chance to weather the disturbance in an undisturbed zone close to their natural territories. • Ensure that erosion management and sediment controls are strictly implemented from the beginning of the site clearing activities. • The unique ambience of the nearby Suikerborsrand Nature Reserve must not be affected at all.	Low	Loss of biodiversity.
4.2 Impacts on fauna and flora	Medium	• Only indigenous plant species, preferably species that are indigenous to the natural vegetation of the area should be used for landscaping in communal areas. As far as possible, plants naturally growing on the development site but would otherwise be destroyed during the clearing for development purposes, should be incorporated into landscaped areas. Forage and host plants required by pollinators should also be planted in landscaped areas • The contractor must ensure that no fauna species are disturbed, trapped, hunted or killed during the construction phase. • The illegal hunting or capture of wildlife will not be tolerated. Such matters will be handed over to the relevant authorities for prosecution. • Disturbance to birds, animals and reptiles and their habitats should be prevented at all times. • All alien and invasive plants must be removed. • Noise must be kept to a minimum to reduce the impact of the development on the fauna residing in the surroundings. • If the striped harlequin snake or any herpetofaunal species are encountered or exposed, they should be removed and relocated to natural areas in the vicinity.	Low	Loss of biodiversity
5. ISSUE HYDROLOGY				
5.1 Storm water flow and drainage- Developments cause the modification of drainage	High	• Every effort should be made to retain the linear integrity, flow dynamics and water quality of the	Medium	Soil erosion, flooding and sedimentation of

patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, and sedimentation of nearby water bodies (i.e. Rietspruit and a tributary of the Rietspruit)		Rietspruit and a tributary of the Rietspruit. • Storm water measures to be implemented prior to construction taking place on site: • All measures should be implemented during the construction of earthworks (terraces and roadways) to ensure that disturbed soil is not transported into any water course or system where storm water is to flow. Building rubble and other products that can cause contamination must be managed according to best practice and monitored by the site's environmental control officer (ECO). • No temporary accommodation or temporary storage sites to be erected within 100m of any watercourses.		water bodies and loss of habitat.
SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT				
6. ISSUE AESTHETICS, SITE CHARACTER AND SENSE OF PLACE				
6.1 Noise/ vibration	Low	• Noise levels shall be kept within acceptable limits, and construction crew must abide by National Noise Laws and local by-laws regarding noise. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • Construction / management activities involving use of the service vehicle, machinery, hammering etc., must be limited to the hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays; no noisy activities may take place on Sundays or Public Holidays. • Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities etc.) must be preceded by notice being given to the affected neighbours at least 24 hours in advance. • Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly during site operations.	Very Low	An increase in the ambient noise levels of the area.
7. ISSUE SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT				
7.1 Safety and Security	Low	• Signs should be erected on all entrance gates to the site camp indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations • All structures that are vulnerable to high winds must be secured (including toilets). • Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times. • The Contractor is to ensure traffic safety at all times, and shall	Very Low	Potential criminal activities such as theft might occur.

		implement road safety precautions for this purpose when works are undertaken on or near public roads. • Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.). • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMP and relevant occupational health and safety issues. • All construction workers shall be issued with ID badges and clearly identifiable uniforms. • Access to fuel and other equipment stores is to be strictly controlled. • Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided. • Adequate emergency facilities must be provided for the treatment of any emergency on the site. • The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times. • The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. The spill control kits must include absorptive material that can handle all forms of hydrocarbon as well as floating blankets / pillows that can be placed on water courses. • The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas. • Washing and toilet facilities shall be provided on site and in the Contractors camp. • Adequate numbers of chemical toilets must be maintained in the Contractors camp to service the staff using this area. At least 1 toilet must be available per 20 workers using the camp. Toilet paper must be		

		provided. • The chemical toilets servicing the camp must be maintained in a good state, and any spills or overflows must be attended to immediately. • The chemical toilets must be emptied on a regular basis. • The Contractors site must be located on the high side of the site so any leakages or spillages will be contained on site. • HIV AIDS awareness and education should be undertaken by all Contractor staff.		
7.2 Job opportunities	High	• Make use of local labour • Provide clear and realistic information regarding employment opportunities and other benefits for local communities in order to prevent unrealistic expectations. • Provide skills training for construction workers.	High	A large influx of uncontrolled numbers of people coming to the site seeking employment opportunities. This might also pose a security risk.
7.3 Loss of agricultural land (i.e. Loss of profit)	Medium	• Liaison with the necessary official at the Ekurhuleni Metropolitan Municipality: Bongani Molefe: EMM Divisional Head: Functional Planning Tel: 011 999 6727 Email: Bongani.Molefe@ekurhuleni.gov.za	Low	Loss of income might result in poverty.
8. ISSUE HISTORICAL ENVIRONMENT				
8.1 Destruction of cultural / heritage sites	Very Low	<u>Chance find procedure:</u> • The possibly of the occurrence of subsurface cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefore a chance find procedure should be put in place as part of the EMP. • The chance find procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with the policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below: • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or services provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the	Very Low	Impairment of heritage resources

		senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. • The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.		
9. ISSUE INFRASTRUCTURE AND SERVICES/WASTE				
9.1 Waste	Medium	• Adequate number of waste disposal receptacles is to be positioned at strategic locations within the development. • No burning of waste. • Waste will be collected and removed off-site to a registered waste site.	Low	Waste that is not disposed of correctly mainly leads to the following: • Environmental degradation • Water pollution • Infestation by rodents and potential disease causing vectors
9.2 Potential impact on Transnet pipeline	Low	• Adherence to the requirements as per Transnet's leave form and the buffer incorporated in the layout plan.	Very Low	Damage to infrastructure resulting in liability costs
9.3 Pressure on existing infrastructure and services (including i.e. K148, K154, PWV13, k146 and PWV18 Provincial Roads)	Medium	• Adherence to the requirements made by the Gauteng Department of Roads and Transport.	Low	Damage to infrastructure
10. ISSUE: TRAFFIC				
10.1. Traffic- Construction vehicles	Medium	• The contractor to ensure traffic safety at all times and shall implement road safety precautions for this purpose when work is undertaken on or near public roads. • Construction vehicles to use public roads outside peak hours.	Low	Increased levels of traffic

Proposal

Table 11: Significance rating for the operational phase

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
1. ISSUE: FAUNA AND FLORA				
1.1 Alien invasion 1.2 Edge impact on Suikerbosrand Nature Reserve	Medium High	• Site to be kept neat and weed free • Buffer to be provided	Low Medium	Loss of biodiversity.
ISSUE GEOLOGY AND SOILS				
2.1 Soil erosion, loss of topsoil, deterioration of soil quality	Medium	• Provide the necessary erosion control measures. • Areas that have been landscaped must be maintained. • Ensure vegetation cover as far as possible. The use of locally occurring indigenous species is encouraged.	Low	Sedimentation of water bodies.
SOCIO- ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT				
3. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT				

3.1 Noise	Low	• Ensure acceptable noise levels	Very low	Potential criminal activities such as theft.
4. ISSUE: SOCIAL WELL BEING AND QUALITY OF THE ENVIRONMENT				
4.1 Safety and Security	Low	• Security measures to be in place.	Very Low	Potential criminal activities such as theft might occur.
4.2 Job opportunities	High	• Implement local labour. • Provide clear and realistic information regarding employment opportunities and other benefits for local communities in order to prevent unrealistic expectations.	High	A large influx of uncontrolled numbers of people coming to the site seeking employment opportunities. This might also pose a security risk.
5. ISSUE: HYDROLOGY				
5.1 Storm water flow and drainage- Developments cause the modification of drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another.	High	• Always treat the Rietspruit and a tributary of the Rietspruit as a sensitive area.	Medium	Loss of habitat, water pollution.
6. ISSUE: ISSUE HISTORICAL ENVIRONMENT				
6.1 Destruction of cultural / heritage sites	Low	• Adherence to the Heritage and Palaeontological reports	Very Low	Impairment of heritage resources
7. ISSUE: TRAFFIC				
7.1 Traffic –vehicles from the residential development, Public transport etc.	Medium	• Compliance to Traffic and Municipal By-Laws	Low	Increased levels of traffic
INFRASTRUCTURE, SERVICES AND WASTE				
8. ISSUE: INFRASTRUCTURE AND WASTE				
8.1 Waste	Medium	• The site must be managed appropriately and all waste must be removed to a recognized waste facility. • Sorting of waste • Provision of waste management plan for the development • Regular removal of waste to Landfill site • Waste yard to be kept clean and neat • Regular cleaning of waste yard so that it does not became a nuisance and terms of odour and vermin	Low	Waste that is not disposed of correctly mainly leads to the following: • Environmental degradation • Water pollution Infestation by rodents and potential disease causing vectors
8.2 Pressure on existing infrastructure and services	Medium	• Integrity of existing services in the area to be ensured	Low	Damage to infrastructure
8.3 Potential impact on Transnet pipeline	Medium	• Adherence to the conditions provided by Transnet pipelines.	Low	Damage to infrastructure resulting in liability costs

Alternative 1

Table 12: Significance rating for the construction phase and operational phase Alternative 1

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
INFRASTRUCTURE , SERVICES AND WASTE				
1. ISSUE: INFRASTRUCTURE AND WASTE				
1.1 Potential impact on Transnet pipeline	High	• Adherence to the conditions provided by Transnet pipelines.	Medium	Damage to infrastructure resulting in liability costs

Alternative 2

Table 13: Significance rating for the construction and operational phase Alternative 2

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
INFRASTRUCTURE , SERVICES AND WASTE				
1. ISSUE: INFRASTRUCTURE AND WASTE				
1.1 Potential impact on Transnet pipeline	High	• Adherence to the conditions provided by Transnet pipelines.	Medium	Damage to infrastructure resulting in liability costs
BIOPHYSICAL ENVIRONMENT				
2. ISSUE: FAUNA AND FLORA				
2.1 Degradation, destruction of habitats/ ecosystem	High	• Adherence to the Environmental Management Programme	Medium	Loss of biodiversity

No Go				
Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
None				

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Ecological reports: **Flora Assessment** **Mammal Habitat Assessment** **Avifaunal Habitat Assessment** **Herpetofaunal Habitat Assessment**
Heritage Impact Assessment
Phase 1 Near Surface Geotechnical Investigation

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

No impact assessment can be completely certain of the exact nature and extent of the various impacts that would result from a given development activity. However, this assessment strives to limit any uncertainties by optimising the collection of base data, and by following a rigorous impact assessment methodology.

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal

Decommissioning and closure phase

No decommissioning is envisaged but should it take place the impacts are described

below

Direct impacts:
The direct impacts associated with the decommissioning of the site are likely to be similar to the construction phase.

- **Dust pollution.**
- **Noise pollution.**
- **Visual impact.**
- **Waste.**
- **Deep excavations.**

Indirect impacts:
The indirect impacts associated with the decommissioning of the site are likely to be similar to the construction phase.

- **Security.**
- **Traffic.**
- **Spread of alien vegetation.**

Socio Economic:

- **The decommissioning of the site will result in job losses.**
- **Loss in revenue for the local economy.**
- **Loss in safety of tenure**

Cumulative impacts:

- **Surface water pollution.**

Faunal displacement:
The displacement of fauna as a result of an increase in ambient noise, vibration is likely to remain even with mitigation. However if the site is returned to a state as close to the natural vegetation type of the area there is a possibility that fauna may migrate back over time.

Mitigation:
The site will only be decommissioned if it is no longer needed.

- **Decommissioning should take place during the dry winter months.**
- **Dismantling of equipment must be conducted by an accredited contractor.**
- **Waste disposal certificates must be obtained for the disposed waste.**
- **Deep excavations must be cordoned off with safety/barrier net prior to being back filled.**
- **Once the site has been filled it must be rehabilitated.**

Table 14: Significance rating for the Decommissioning phase
Proposal

Potential impacts:	Significance rating of impacts(positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Waste (Rubble)	High	Rehabilitation plan	Medium	Pollution and environmental degradation due to poor

				methods of waste disposal
Surface water pollution	**Medium**	**Rehabilitation plan**	**Low**	**Water pollution and loss of habitat**
Visual	**Medium**	**Rehabilitation plan**	**Low**	**Visual nuisance to neighbouring land owners**
Dust	**High**	**Rehabilitation plan**	**Medium**	**Negative impact to the ambient air quality of the area.**
Noise	**High**	**Rehabilitation plan**	**Medium**	**Nuisance to the neighbouring landowners of the area**
Sense of place	**Low**	**Rehabilitation plan**	**Low**	**Loss of sense of place**
Loss of job opportunities	**High**	**No mitigation measures are possible**	**High**	**Possible causes of crime and poverty**

Alternative 1

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
The impacts are similar to that of the proposal.				

Alternative 2

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
None				

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

None

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

The cost for decommissioning a residential development is in the range of R60mil and this includes the rehabilitation of the affected area.

Post closure management includes 6 monthly monitoring of the regrowth of vegetation and erosion control for a period of 2 years.

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Cumulative impacts
Construction phase

- **Construction impacts may further lead to nuisance noise impacts, the transformation of the general ambience and quality of the site and surrounds and visual concerns.**
- **The EMPr for the construction phase should therefore be implemented to minimise the impact of construction activities on the environment.**

Surface Water Pollution

- **Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate soil and storm water, which might lead to contamination of the nearby Rietspruit surface water bodies.**

Impact on the Suikerborsrand Nature Reserve

- **If the mitigation measures provided by the ecological specialist reports are not adhered to, the construction phase could have a negative impact on the quality of the Suikerborsrand Nature Reserve.**

Increased run off of Water

- **Storm water runoff has the potential to erode the topsoil and result in sedimentation of water bodies if not controlled.**

Ground Water Pollution

- **The construction phase could result in increased infiltration of contaminants into the ground water and soil.**
- **The clearing of the site could result in exposed soil surfaces which may be prone to erosion, creation of dust and sedimentation of water bodies.**
- **Cement mixing and the storage of fuel must be conducted so as to prevent contamination of the soil and groundwater.**

Socio Economic

- **Job creation.**
- **Increase in job seekers in the area**

Impact on services

- **The proposed development will add to existing road users in the area and will have an impact on traffic to some extent.**

Waste

- **The construction and subsequent operational activities will be the source of various waste streams which must be managed appropriately.**

Cumulative impacts:
Operational Impacts

Sense of place

- **An unaesthetic development could cause visual impact and impact on the**

sense of place of the area.

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Proposal

The development of Erven 1356 & 1357 Magagula Heights Township will have an impact on the immediate biophysical environment which cannot be mitigated. However, the biophysical impact of the development will be limited in a regional context, and will be more than offset by the socio-economic benefits of the development.

According to the GDARD C-Plan 3.3 the site is situated within a Critical Biodiversity Area with an Ecological Support Area in the area designated Recreational area along the western boundary of the site, as per the Flora assessment report.

Mucina and Rutherford (2006) classified the site as Tsakane Clay Grassland and the vegetation unit is considered to be endangered. The flora study found that the grassland found in the study area namely the *Eragrostis-Hyparrhenia hirta,* the cultivated fields and recreational areas study units are not considered sensitive.

Furthermore, the study has a low sensitivity in terms of herpetofauna, mammal, and avifaunal point of view. The studies found that the drainage lines near the study site, Rietspruit and a tributary of the Rietspruit as well as their buffer zones should be considered as ecologically sensitive.

From a heritage and palaeontological point of view the potential impact on heritage resources is considered low to very low.

The Phase 1 Near Surface Geotechnical Investigation study has confirmed that potentially problematic soils mantle the bedrocks over large sections of the site area. It is recommended that the proposed multi storey structures be placed on rationally designed foundations. Specific foundation investigations should be completed once the Site Development Plan for the site has been approved.

The assessment of individual impacts indicates that the sensitive land uses adjacent to the site are the Transnet pipeline, the Suikerborsrand Nature Reserve, the potential loss of income for the resident who uses the site for agricultural purposes and the Rietspruit drainage line and a tributary of the Rietspruit. These impacts can however be managed through the implementation of the proposed mitigation measures and the already implemented mitigation measures (i.e. Suikerborsrand and Transnet pipeline buffer).

Overall the proposed activity has a medium to low impact score for the construction phase and operational phase. The development can therefore proceed from an environmental perspective.

Please see below a summary of the identified impacts and their pre-mitigation and post mitigation impact significance rating scores.

Construction phase

Potential impact	Significance rating of impacts	Significance rating of impacts after mitigation
Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	Low	Very low
Visual Impacts due to clearance of site, cut and fill	Very low	Very low
Visual Intrusion and Light Pollution –. Lights from the contractor's camp and construction site could be visually intrusive.	Low	Very low
Soil erosion, loss of topsoil, deterioration of soil quality	Medium	Low
Soil pollution	Medium	Low
Disturbance of surface geology for development foundations	Medium	Low
Degradation, destruction of habitats/ ecosystem (Tsakane Clay Grassland)	Medium	Low
Impacts on fauna and flora Disruption of nutrient flow dynamics; Introduction of chemicals into the ground and surface water through leaching; Habitat fragmentation Changes to abiotic environmental conditions; Changes to disturbance regimes e.g. decreased or increased incidences of fire; Changes to successional processes; effects on pollinators; And increased invasion by plants and animals not endemic to the area.	Medium	Low
Storm water flow and drainage- Developments cause the modification of drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, and sedimentation of nearby water bodies (i.e. Rietspruit and a tributary of the Rietspruit)	High	Medium
Noise/ vibration	Low	Very low
Safety and Security	Low	Very low
Job opportunities	High	High
Visual impact Site clearing and removal of vegetation could partially alter the landscape as viewed from the surrounds of the site, with the emergence of exposed areas of bare soil. Construction vehicles equipment such as cranes could be visually intrusive albeit for a short period of time.	Low	Very low
Loss of agricultural land (i.e.	Medium	Low

Loss of profit)		
Destruction of cultural / heritage sites	Very low	Very low
Waste	Medium	Medium
Potential impact on Transnet pipeline	Low	Very low
Pressure on existing infrastructure and services (including i.e. K148, K154, PWV13, k146 and PWV18 Provincial Roads)	Medium	Low
Traffic- Construction Vehicles	Medium	Low

Operational phase

Potential impact	Significance rating of impacts	Significance rating of impacts after mitigation
Alien invasion	Medium	Low
Edge impact on Suikerbosrand Nature Reserve.	High	Medium
Soil erosion, loss of topsoil, deterioration of soil quality	Medium	Low
Noise	Low	Very low
Safety and Security	Low	Very low
Job opportunities	High	Medium
Storm water flow and drainage- Developments cause the modification of drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another	High	Medium
Destruction of cultural / heritage sites	Low	Very low
Traffic –vehicles from the residential development, Public transport etc	Medium	Low
Waste	Medium	Low
Pressure on existing infrastructure and services	Medium	Low
Potential impact on Transnet pipeline	Medium	Low
Gauteng Environmental Management Framework 2015	Medium	Low
Regional Spatial Development Framework for Region F	Medium	Low

Alternative 1

The impacts are similar to that of the proposal.

Alternative 2

The impacts are similar to that of the proposal and Alternative 1.

No-go (compulsory)

The do-nothing ("no-go") option would entail not using the site and maintaining the site as it is and this will present both direct and indirect negative environmental and socio-economic impacts such as:

- **Loss of security of tenure.**
- **Delayed delivery of housing opportunities.**
- **No access to basic services.**
- **Unemployment opportunities might result in increased levels of crime in the area.**
- **The site might be infiltrated by an informal settlement.**
- **The site could be used as a dumping area by the neighbouring residential area.**
- **The site could be used as an escape route by criminals.**

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

The proposal is preferred. The impacts of the proposed development have been summarised under paragraph 5.

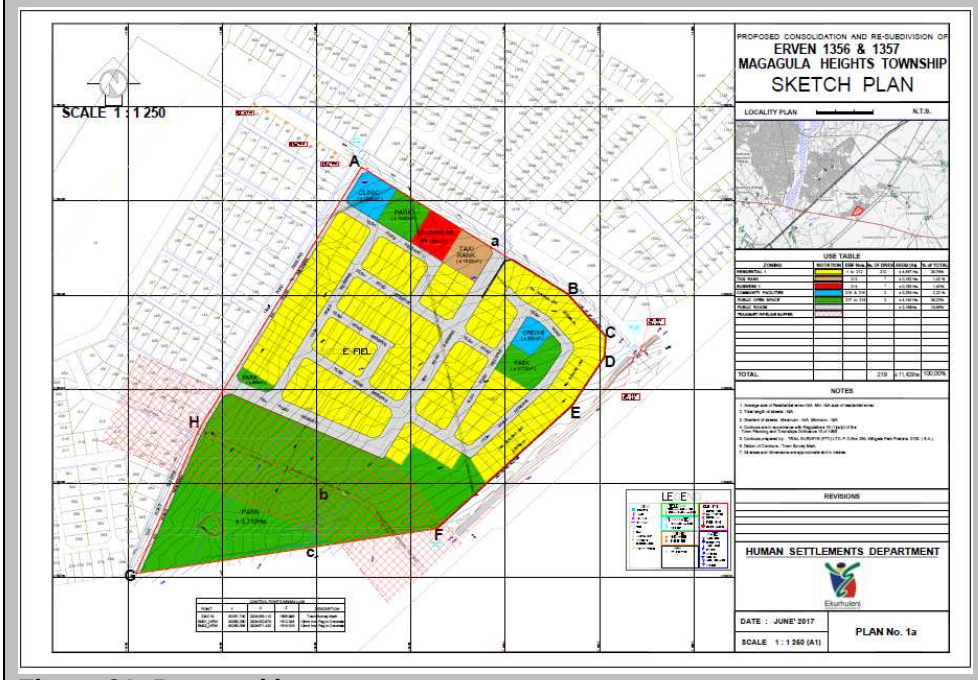

Figure 21: Proposal layout

For alternative:

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

The proposal is preferred for the following reasons:

- **The site is located in an area that has been earmarked for housing developments/ projects according to the Ekurhuleni Metropolitan Municipality Regional Spatial Development Framework: Region F.**
- **The proposed site is surrounded by an already existing residential area to the north, west and north east and therefore is compatible with the surrounding land uses.**
- **The site falls within Zone 1 of the Gauteng Provincial Environmental Management Framework, 2015 (GPEMF, 2015) which supports residential developments, therefore the proposed development is compatible with the intentions for zone 1 of the GPEMF, 2015.**
- **The proposal is preferred as the layout has incorporated the necessary buffers for the Transnet pipeline and the Suikeborsrand Nature Reserve.**

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

According to the Town Planning Memorandum, the Ekurhuleni Metropolitan

Municipality implemented the Regional Spatial Development Framework (RSDF) as a tool to guide development within region and to transform the vision of the metropolitan municipality into reality.

The site falls under Region F, and has been earmarked for "Urban Development". Region F is favourably located in the Economic Activity and Employment Area of the Gauteng Province. This has the potential to negatively impact on the region should a desirable growth and development strategy not be in place. Furthermore, Region F being located in close proximity to the main transport routes of the N3 and N12, is well situated to continue its core industrial role in the region.

The RSDF has identified a few strategic development objectives, which are applicable to the region and specifically to the site. Key objectives of the RSDF which pertain to the site include inter alia:

Support the promotion of new development:

- **Promote development in areas that suitably located areas in close proximity to the main access corridors.**
- **Enhance the provision of residential accommodation within the region through the provision of sufficient engineering services and the retention and maintenance of exiting residential development.**

Support infill development:
Establish development guidelines over dolomitic land and support existing development densification policies.

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	**YES**	~~NO~~

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Based on the information provided it is the opinion of Lokisa Environmental Consulting CC that no fatal flaws have been identified for the proposed residential development and that the information contained within this report is sufficient enough to allow GDARD to make an informed decision. **Lokisa Environmental Consulting CC therefore recommends that Environmental Authorisation be granted for the proposed projects based on the following recommendations.**
• **All areas outside the footprint affected by construction should be rehabilitated upon completion of the construction phase of the development.**
• **All alien vegetation outside the footprint (as a result of construction**

activities) should be removed upon completion of construction.
• **The presence of archaeological, palaeontological and/or historical sites, features or artefacts is always a possibility. Care should be taken when development commences that if any of the mentioned are discovered, a qualified archaeologist, and or palaeontologist be called to investigate the occurrence.**
• **A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMPr**
• **Conclusions and Recommendations contained in specialist studies conducted for this development must be implemented and adhered to at all times (Appendixes G).**
• **Mitigation measures contained in the attached Environmental management Programme (EMPr) attached in this report as Appendix H, must be implemented and complied with at all times.**
• **A Storm Water Management Plan is to be approved by Council**
• **Re-vegetation of cleared surfaces is required**
• **Inadequate management of exposed surfaces may result in dust pollution and soil erosion occurring from the site, therefore adequate measures such as the use of dust suppression techniques must be employed to minimize the occurrence of these potential impacts.**
• **Adequate measures must be in place to prevent polluted runoff water from leaving the site, thus preventing surface and groundwater pollution as well as nuisance to the neighbouring commercial uses.**
• **All types of waste generated during each stage of the development from site preparation to final construction must be disposed of at a licensed disposal site. No waste must be dumped on open spaces. A proof of disposal at a licensed disposal landfill must be provided.**
• **Provincial noise regulations as outlined in Provincial Notice No. 5479 of 1999: Gauteng Noise Control Regulations must be complied with at all times. Noise must not constitute a nuisance to the neighbourhood during construction and operational phases of the proposed project. During construction phase, construction equipment may only operate between the hours of 08h00 and 17h00 on weekdays, 08h00 and 13h00 on Saturdays, with operation being prohibited on Sundays and Public Holidays.**
• **All activities to be undertaken on the said properties must be in accordance with the applicable By-Laws, policies and requirements of the Ekurhuleni Metropolitan Municipality.**

9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

Government has set itself the target of making a positive impact on the quality of life of 500 000 households, by upgrading informal settlements. The upgrade will provide households with security of tenure and access to essential services in sites that are close to economic and other social amenities.

To meet its objective of sustainable human settlements and improved quality of household life, the Department of Human Settlements has identified the following areas of priority:

- **Accelerated delivery of housing opportunities**
- **Access to basic services**
- **More efficient land use**

- **An improved property market**

In terms of the above mandate the Human Settlement Department of Ekurhuleni Metropolitan Municipality has identified the need for a Human Settlement Development programme in order to comply with the need for housing in the area. The site is desirable as it is forms an extension of the existing urban area.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED
(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)

Medium term (2-15 years)

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	**YES**

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.