

# BASIC ASSESSMENT REPORT

*In terms of Section 24 and 24(D) of NEMA (Act No. 107 of 1998)*

**for:**

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CLEARANCE OF 3,0543 HECTARES OF INDIGENOUS VEGETATION ON THE REMAINDER OF PORTION 1 OF THE FARM TOWNLANDS OF KLERKSDORP, 424-IP, CITY OF MATLOSANA LOCAL MUNICIPALITY, NORTH WEST PROVINCE.**

NWP/EIA/116/2021

Designated Officer: Ms. T Makuwa

Report Date: April 2022



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**Metroland cc**



REPORT

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Report Status	Draft Basic Assessment Report		
Project Title	<i>Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.</i>		
Competent Authority:	North West Department of Economic Development, Environment, Conservation and Tourism		
Reference Number:	NWP/EIA/116/2021		
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Professional affiliation(s) (if any)	EAP-EAPASA (2019-808)		

Report compiled by: Mrs Hannie du Plooy
Signature: <i>JE da Plooy</i>
Report reviewed by: Mr J. P. de Villiers
Signature: 

## EXECUTIVE SUMMARY

Metroland cc. has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

The activity is listed in terms of the Regulations (in force since 4 December 2014) in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998) as amended and published in Government Notice No. R 326 of 2017. The proposed development triggers the following regulations and listed activities:

Indicate the number and date of the relevant notice:	Activity No (s) and Activity Description (in terms of the relevant notice)	Describe each listed activity as per project description	Time for construction to be completed applied for
GN.R. 327, 7 April 2017	27	The clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.	5 Years

The purpose of the study is therefore to determine the impacts that the environment may have on the proposed activity, as well as the possible impacts that the activity may have on the environment.

The study is being conducted according to normal scientific practices. A theoretical background review was compiled for the different variables by using available information from the literature. Field verification was undertaken and visits paid to the site to gather further information and/or to verify information. It also includes the identification of *key interest groups*, both governmental and non-governmental, and to establish good lines of communication. Specialist studies were undertaken to determine the impacts on sensitive areas and to determine whether the proposed project can be sustainably implemented. The specialists will also advise on mitigation measures where applicable.

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# 1. INTRODUCTION

Metroland cc. has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

The Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No.424-1.P is situated adjacent to the N12 Road, between the N12 Road and Goldenway Road, as well as between Goudkoppie and Kia Motors, within the southern portion of the town of Klerksdorp.

## 1.1 THE BASIC ASSESSMENT PROCESS

The purpose of this document is to adhere to the requirements for compilation of Basic Assessment Reports as amended and published in Government Notice R. 326 of 7 April 2017, Appendix 1, and the National Environmental Management Act (Act 107 of 1998) (NEMA).

## 1.2 DESCRIPTION OF THE PROCESS FOLLOWED

In order to assess a proposed development it is important to take into consideration the principles of NEMA. These principles are outlined in Chapter 1 and read as follows:

- 1) *“The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and—*
  - a. *shall apply alongside all other appropriate and relevant considerations, including the State’s responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;*
  - b. *serve as the general framework within which environmental management and implementation plans must be formulated;*
  - c. *serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;*
  - d. *serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and*
  - e. *guide the interpretation administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*
- 2) *Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.*
- 3) *Development must be socially, environmentally and economically sustainable.*
- 4) (a) *Sustainable development requires the consideration of all relevant factors including the following:*
  - (i) *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied:*
  - (ii) *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*

- (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
  - (iv) that waste is avoided. or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
  - (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
  - (vi) that the development use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
  - (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*
  - (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*
- (b) 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.*
  - (c) 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.*
  - (d) 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.*
  - (e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*
  - (f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation and participation by vulnerable and disadvantaged persons must be ensured.*
  - (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.*
  - (h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*
  - (i) 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.*
  - (j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.*



- (k) *Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.*
- (l) *There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.*
- (m) *Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.*
- (n) *Global and international responsibilities relating to the environment must be discharged in the national interest.*
- (o) *The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*
- (p) *The costs of remedying pollution, environmental degradation consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.*
- (q) *The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.*
- (r) *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."*

The above mentioned principals and the applicable legislation, Policies and Guidelines as described in Paragraph 5 of this Report were taken into account in the assessment of the Environmental Impacts for the proposed development. The process followed can be described as follows:

- 1) The EAP was contracted by Metroland cc as their Independent Environmental Assessment Practitioner.
- 2) A Geotechnical Engineer was appointed to determine whether the Geology and Soils of the site is suitable for the proposed development.
- 3) A Town and Regional Planner designed the proposed development in such a way that the layout of the proposed development satisfies the needs of future occupiers of the site.
- 4) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- 5) A Botanical specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- 6) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- 7) Desk top studies were conducted and alternatives assessed.
- 8) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
- 9) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
- 10) All the information obtained from the above mentioned processes is being used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa.

- 11) The inputs from Specialists, interested and affected parties, together with the knowledge of the EAP is being used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

### **1.3 ASSESSMENT PHASE**

The assessment phase included the necessary investigations to assess the suitability of the identified site and its surrounding environment, for the development proposal. The assessment phase described the “status quo” of the bio-physical, social, economic and cultural environment, and identifies the anticipated environmental aspects associated with the proposed development. The assessment phase included the identification of *key interest groups*, (both government and non-government), and strived to establish efficient and effective communication. Identifying and informing Interested and affected parties of the proposed development may have an impact on the focus of the EIA. (S. Cliff, 2015).

This phase also determines the *significance of the impact* of the proposed activity on the surrounding Environment. During this phase, a Basic assessment Report (BAR) is compiled, and, following public review, is submitted to the approving authority – the DEDECT.

*The purpose of the Basic Assessment Report is to document the outcome of the Assessment Phase of the project.* The report fulfilled the requirements of the EIA Regulations (2014) for the documentation of the Basic Assessment Process. The Report was compiled in accordance with Section 21(3) of NEMA’s 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017.

The Basic Assessment Report will be submitted to DEDECT on the 01/04/2022

#### **1.3.1 Objective of the basic assessment process**

The objective of the basic assessment process is to, through a consultative process-

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives;
- (d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine–
  - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  - (ii) the degree to which these impacts–
    - (aa) can be reversed;
    - (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;

- (cc) can be avoided, managed or mitigated; and
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to–
  - (i) identify and motivate a preferred site, activity and technology alternative;
  - (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and
  - (iii) identify residual risks that need to be managed and monitored.

### 1.3.2 Scope of assessment and content of basic assessment reports

The BAR assesses those identified potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with the project design, construction, and operation phases, and recommends appropriate mitigation measures for potentially significant environmental impacts. The Environmental impacts are assessed both before and after mitigation to determine:

- The significance of the impact despite mitigation; and
- The effectiveness of the proposed mitigation measures.

The BAR addresses potential environmental impacts and benefits associated with all phases of the project, including design, construction and operation, and aims to provide the environmental authorities with sufficient information to make an informed decision regarding the proposed project.

Table 1 below provides a summary of the legislative requirements in terms of a Basic Assessment Report as stipulated in Section 23 of the 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017. Cross-references are provided in terms of the relevant section within this BA Report where the NEMA and BA Report requirements have been addressed.

**Table 1: Basic Assessment Report content as per Section 23 of NEMA’s 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017 Appendix 1.**

3. (1) *A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include:*

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (a)	Details of the EAP who prepared the report; and the expertise of the EAP;	Paragraph 2
Appendix 1, section 3 (b)	The location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including – <ul style="list-style-type: none"> <li>(i) The 21 digit Surveyor General code of each cadastral land parcel;</li> <li>(ii) Where available, the physical address and farm name;</li> <li>(iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties</li> </ul>	Paragraph 4 Paragraph 4 Paragraph 4
Appendix 1, section 3 (c)	A plan which locates the proposed activity or activities applied for, at an appropriate scale, or, if it is – <ul style="list-style-type: none"> <li>(i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or</li> <li>(ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken;</li> </ul>	Appendix A1 and Appendix A2 Paragraph 4
Appendix 1, section 3 (d)	A description of the scope of the proposed activity, including – <ul style="list-style-type: none"> <li>(i) all listed and specified activities triggered and being applied for; and</li> </ul>	Paragraph 3



Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
	(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Paragraph 8
	(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Paragraph 9
Appendix 1, section 3 (j)	An assessment of each identified potentially significant impact and risk, including-	Paragraph 9
	(i) cumulative impacts;	Paragraph 9
	(ii) the nature, significance and consequences of the impact and risk;	Paragraph 9
	(iii) the extent and duration of the impact and risk;	Paragraph 9
	(iv) the probability of the impact and risk occurring;	Paragraph 9
	(v) the degree to which the impact and risk can be reversed;	Paragraph 9
	(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and	Paragraph 9
	(vii) the degree to which the impact and risk can be mitigated;	Paragraph 9
Appendix 1, section 3 (k)	Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	Paragraph 11
Appendix 1, section 3 (l)	An environmental impact statement which contains-	Paragraph 12.2 and 12.2 Figure 2
	(i) a summary of the key findings of the environmental impact assessment;	Paragraph 12
	(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	
Appendix 1, section 3 (m)	Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr	Paragraph 11 and 12
Appendix 1, section 3 (n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	Paragraph 3.1.2.1
Appendix 1, section 3 (o)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	Paragraph 1.4.3
Appendix 1, section 3 (p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	Paragraph 12.4
Appendix 1, section 3 (q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised	Not Applicable
Appendix 1, section 3 (r)	An undertaking under oath or affirmation by the EAP in relation to-	Paragraph 13
	(i) The correctness of the information provided in the report;	Paragraph 13
	(ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; and	Paragraph 13
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and	Paragraph 13
	(iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Paragraph 13
Appendix 1, section 3 (s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	Not Applicable

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (t)	Any specific information that may be required by the competent authority.	Not Applicable
Appendix 1, section 3 (u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act	Not Applicable

### 1.3.3 Assumptions, uncertainties, limitations and gaps in knowledge:

This report is based on current available information and, as a result, the following limitations and assumptions are implicit –

The report is based on the *project description* provided by the Applicant as a result of reports that was compiled by the following Specialists:

- A Geotechnical Engineer has been appointed to assess the geology and soils.
- A Town planner has been appointed to determine the availability of services and the layout of the development
- A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- An Ecologist specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- Desktop studies were conducted and alternatives assessed.

Descriptions of the biophysical and social environments are based on specialist fieldwork, investigations, and the Public Participation Process.

## 2. DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

AB Enviro Consult (CC) is a registered consultancy, owned and operated as an independent unit by the registered owner and consultant: **Prof. A.B. de Villiers**

- **Mr J.P. De Villiers** joined the consultancy during 2004
- **Mrs J.E. du Plooy** is a consultant since 2001

### PERSONAL PARTICULARS AND CAREER HISTORY OF PROF DE VILLIERS

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### ACADEMIC AND PROFESSIONAL QUALIFICATIONS

**AB ENVIRO-CONSULT**

## Post-Matric Qualifications

YEAR	Qualification	Institution	Field of Study
1968	B.Sc.	PU FOR CHE	Geography, Geology
1970	HONNS. B.Sc.	PU FOR CHE	Soil Science
1974	M.Sc.	PU FOR CHE	Geography
1981	Ph.D.	UOFS	Geography

## PROFESSIONAL QUALIFICATIONS AND REGISTRATIONS

YEAR	Qualification/ Registration	Institution	Field of Study
1986	Professional Natural Scientist	S.A. Council for Natural Scientists	Environmental Science
1994	Quality Auditor	ESKOM	Auditing
1998	Personnel & Verifying Auditor	SAATCA	Environmental Auditing
2006	Environmental Assessment Practitioner	Interim Certification Board EAPSA	Environmental Science

## MEMBERSHIP AND PARTICIPATION IN SOCIETIES, COUNCILS, ETC.

Name of professional societies	YEAR	Capacity
S.A. Geographical Society.	1967-1996	Board Member
Society for Geography	1968-2004	Member
SAGS Western Transvaal	1985-1989 1987-1989 1996	Chairman
Africa Geographical Association	1993-1995	Vice-President.
Society for the Vaal River Catchment	1980-1999	Member
S.A. Society for Photogrammetry, Remote Sensing and Cartography	1984-1996	Member
Dendrological Society	1986-2005	Member
Birdlife South Africa	2003-present	Member
British Geomorphological Research Group	1985-1997	Member
Int Com on Water Resource Systems	1985-1997	Member
Int Com on Continental Erosion	1986-1990	Member
Int Com on Remote Sensing and Data Transmission	1986-1991	Member
Society for S.A. Geographers	1995-2005	Member
SA Photogrammetrical and Geo. Info.	1995-2003	Member
S.A. Association of Geomorphologists	1994-1999	Board Member and member
SADC Mine Dump Study Group	1996-2005	Member

## ACADEMIC AND PROFESSIONAL QUALIFICATIONS MR J.P. DE VILLIERS

YEAR	Qualification	Institution	Field of Study
1993	BA	PU FOR CHE	Geography, Economics
1994	HED	PU FOR CHE	Geography Economics
2006	B.Sc.(Honns) Cum Laude	North-West University	Environmental Management
2007	M.Sc.	North-West University	Geography

## PROFESSIONAL QUALIFICATIONS AND REGISTRATIONS

YEAR	Qualification/ Registration	Institution	Field of Study
2008	Basic Principles of Ecological Rehabilitation and Mine Closure	Centre for Environmental Management (North West University)	Ecological Rehabilitation

2019	Registered as Environmental assessment Practitioner	EAPASA Registration number: 2019/808	
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## ACADEMIC AND PROFESSIONAL QUALIFICATIONS MRS J.E. DU PLOOY

YEAR	Qualification	Institution	Field of Study
1999	BA	PU FOR CHE	Geography, Tourism
2000	BA (Honns) Cum Laude	PU FOR CHE	Geography
2003	Master's degree in Environmental Management	PU FOR CHE	Environmental Management
2001	Aquabase Intro	AQUABASE	Hydrology
2001	Geomedia Professional	INTERTECH	GIS
2001	Map Info	SPATIAL TECHNOLOGY	GIS
2020	Registered as Environmental Assessment Practitioner	EAPASA : 2019/1573	

## EXPERIENCE OF THE CONSULTANCY

Over a period of 26 years (1996-2022) this consultancy has successfully applied for, and obtained positive ROD's and EA's for more than 390 projects. Environmental Control Officer's duties are also performed on various projects.

The company was involved (from 1992-1994) in evaluation of 114 applications for the subdivision of land, 23 applications for resort developments, and 54 applications for business rights for the Department of Agriculture, Conservation and the Environment - North West Province.

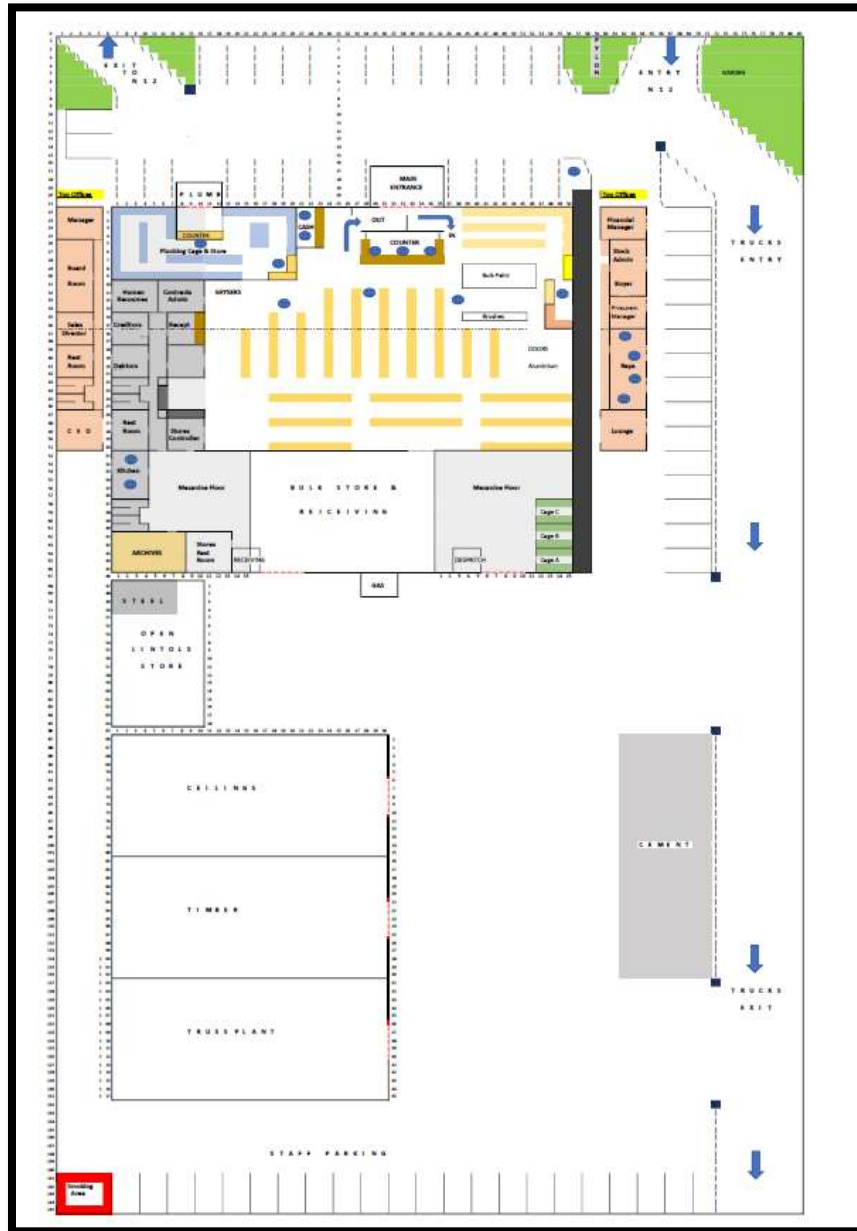
The consultancy is qualified to undertake professional studies in waste management and is still involved in the development of waste disposal- (solid and liquid effluent), and emission studies. These studies are conducted both academically and practically. This work relates to mine waste, domestic waste and effluent as well as to the monitoring of waste disposal. Environmental audits in this respect are undertaken on a regular basis.



### 3. DESCRIPTION OF THE ACTIVITY

The proposed clearance of 3,0543 hectares of indigenous vegetation on the remaining extent of Portion 1 of the farm Townlands of Klerksdorp No424-IP. The intention of the Applicant is to Utilize the site for business purposes, with specific reference to a shop, a builder's yard and an ancillary workshop. Please see Figure 1 below for a copy of the proposed layout Plan.

The entire site is proposed to be utilized with in-out access from the eastern side entering the site, with car parking area to the front of the building and truck access to the side of the site and to the yard at the back for loading and unloading. Truck exit is proposed to link to an existing road to the east at the rear of the site to enable in-out access.



**Figure 1: PROPOSED LAYOUT PLAN**

The internal water and sewer services will comply with standard engineering specifications and requirements. It is proposed that services will link to the municipal infrastructure that is available in the area. The roads (accesses and parking) in the development will be constructed in such a manner that it will be able to accommodate the traffic and the possible storm water

flow. It will also be properly planned and designed in order to prevent accumulation of storm water at any point. Refuse removal services to the proposed development will be provided by the local municipality.

## 4. DESCRIPTION OF THE PROPERTY

The site is situated adjacent to the N12 Road, between the N12 Road and Goldenway Road, as well as between Goudkoppie and Kia Motors, within the southern portion of the town of Klerksdorp. The site is relatively flat and the Goudkoppie Heritage Hill is situated directly adjacent and to the west. (Figure 2 Locality Map). Known cultural heritage sites and features are located and preserved on the Goudkoppie Heritage Hill site, including Stone Age stone tools & rock engravings, remains related to the late 19th century gold mining in the area and Anglo-Boer War (1899-1902) related sites and features. The Late Iron Age (Sotho-Tswana) village on the Hill is a replica. Recent vandalism and illegal mining in the area is threatening the Goudkoppie Heritage Hill sites, and efforts to mitigate these threats and preserve the sites here are ongoing. The assessment done by the Heritage Specialist of the specific study area did not identify any sites, features or material of any real cultural heritage (archaeological and/or historical) significance on the site, although there are some remnants of trenches and diggings possibly related to earlier mining in the area.

The area would have been used in the past for agricultural purposes, as well as prospecting and trenching for gold and if any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance existed here in the past it would have been extensively disturbed or destroyed as a result.

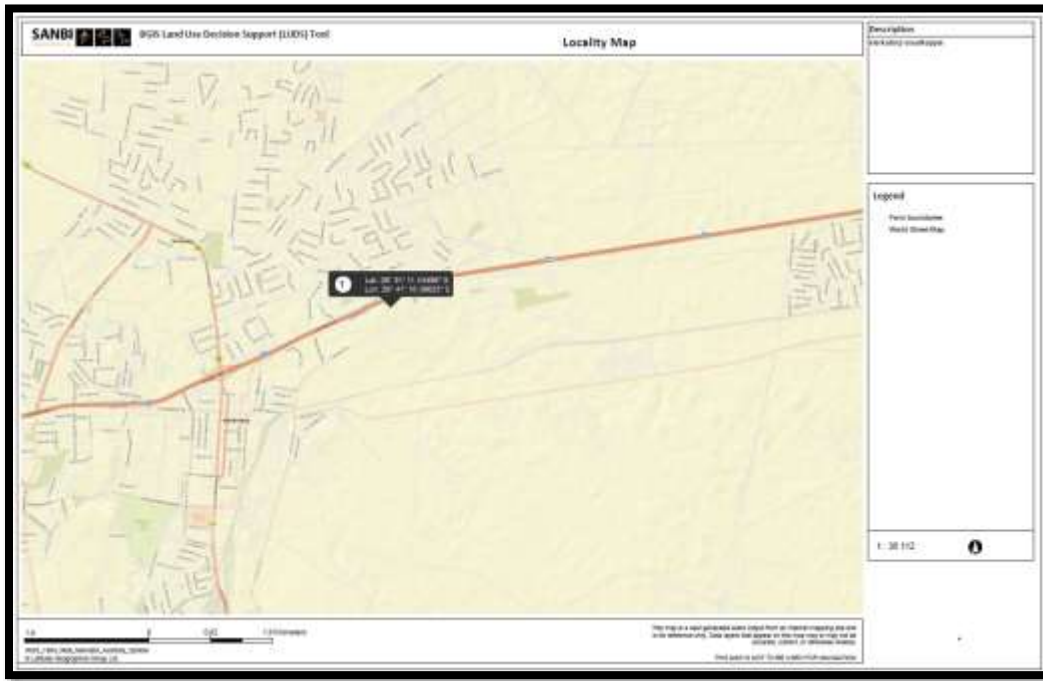
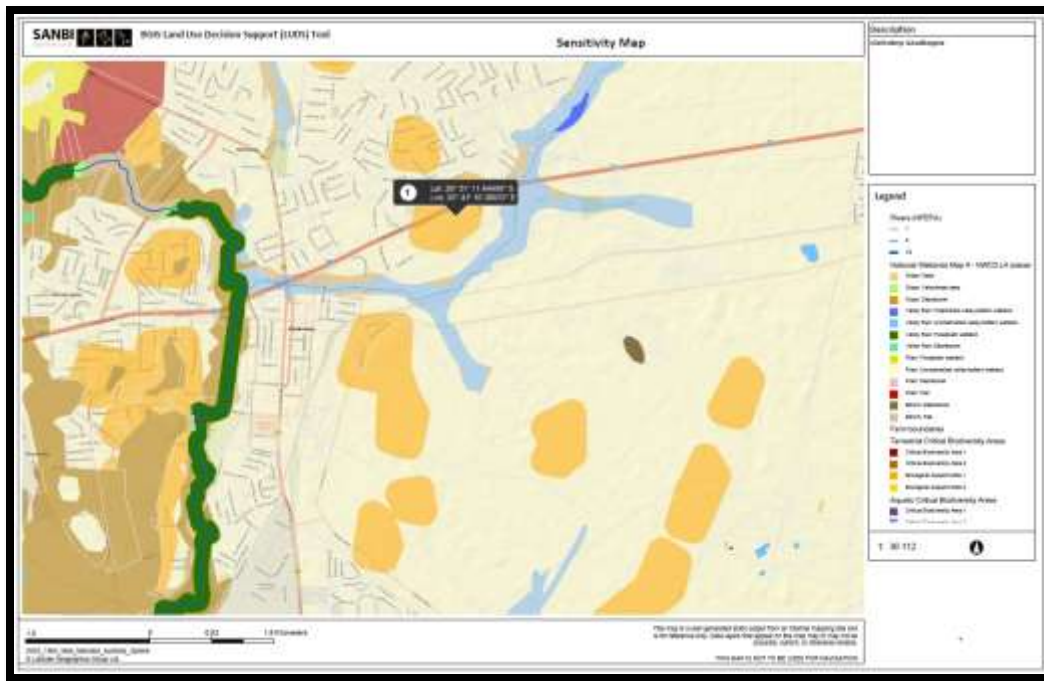


Figure 2: Locality Map



**Figure 2: Sensitivity Map**

The site is visibly ecologically disturbed and informal dumping and excavations (Photo 1) are present at the site. There are rocky patches present on site, where people appear to stay from time to time with a number of informal fire places (Photo 2). The site is located within an Ecological Support area. (Figure 3). Commercial and retail buildings beyond the site (Photo 3). Disturbed grassland is present at the site. Informal fire places at the site probably contribute to impacts on the veld-burning regime at the site. Few trees are present at the site notably the widespread indigenous *Searsia pyrioides* (Photo 4) and *Vangueria infausta* as well as the alien invasive *Melia azedarach* (Photo 5) and *Morus alba*. Grassland patches at the site contain indigenous grass species. One plant species that is not threatened but listed as Declining occurs at the site, *Hypoxis hemerocallidea* (African Star Flower). No Threatened or Near Threatened plant or animal species appear to be resident at the site. According to the Ecological Specialist: “Ecological Sensitivity at the site is medium (Figure 4), however there is little scope for the site to be part of a corridor of particular conservation importance. No threatened or near threatened plant or animal species appear to be resident at the site”. No wetlands or rivers are present at the site.





**Photo 1** Excavations are present at the site and surrounding study area.  
Photo: R.F. Terblanche.



**Photo 2** Rocky patch at the site where people appear to stay from time to time. There are a number of informal fire places at the site.  
Photo: R.F. Terblanche



**Photo 3** View of part of the site and built-up areas beyond the site.  
Photo: R.F. Terblanche.



**Photo 4** The widespread indigenous tree species, *Searsia pyroides*, at the site.  
Photo: R.F. Terblanche.





**Photo 5** Stunted alien invasive *Melia azedarach* (Syringa Berrytree) at disturbed grassland at the site.  
 Photo: R.F. Terblanche



**Figure 4** Ecologist's delineation of ecological sensitivity at the site.

- |   |                            |                        |
|---|----------------------------|------------------------|
|  | Red outline                | Boundaries of the site |
|  | Orange outline and shading | Medium Sensitivity     |

The Surveyor-general 21-digit site reference number is:

T	0	I	P	0	0	0	0	0	0	0	0	0	4	2	4	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**Landowner:**

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

City of Matlosana Local Municipality		
Mr. B. Choche		
P.O.	Box	99
Klerksdorp		
2571		
018 462 0653		
bchoche@klerksdorp.org		

Cell	082 563 3293
Fax:	

**Site Co-ordinates**

**Latitude (S):**

**Longitude (E):**

**Alternative S1 (preferred or only site alternative)**

26°	51'	11,44"	26°	41'	16.36"
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## 5. LEGAL AND OTHER REQUIREMENTS

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act No. 107 of 1998 as amended.	NEMA is the guiding legislation that has been considered during the Environmental Impact Assessment process and the compilation of this Scoping Report.	NW:DEDECT	27 November 1998
The Bill of Rights, Constitution of South Africa, Section 27 (1)(b)	<p>The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of South Africa and in, section 24 of the Act, it is stated that:</p> <p>Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p> <p>Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance:</p> <p>(1) Public administration must be governed by the democratic values and principles enshrined in the constitution, including the following principles: (a) (b) (c) (d) (e) Peoples needs must be responded to, and the public must be encouraged to participate in policymaking. (f) Public administration must be accountable. (g) Transparency must be fostered by providing the public with timely, accessible and accurate information (Government Gazette, 1996).</p>	National Government	1994
New Regulations 2014 in terms of NEMA	Legislation consulted during the environmental impact assessment process to determine whether any listed activities would be triggered. The Regulations were also consulted to determine inter alia the requirements regarding the contents of Scoping reports and the public participation process that should be followed.	NW: DEDECT	7 April 2017
National Water Act (36 OF 1998)	National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and has to ensure ecological integrity, economic growth and social equity when managing and using water.	Department of water and sanitation	1998

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>The major objectives of the National Water Act are to:</p> <ul style="list-style-type: none"> <li>•Aid in providing basic human needs;</li> <li>•Meet the growing demand of water in a sustainable manner;</li> <li>•Ensure equal access to water and use of water resources;</li> <li>•Protect the quality of water of natural resources;</li> <li>•Ensure integrated management of water resources;</li> <li>•Foster social and economic development; and</li> <li>•Conserve aquatic and related ecosystems.</li> </ul> <p>Section 19 of the National Water Act states that the person responsible for land upon which any activity is or was performed which causes, has caused or is likely to cause, pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.</p>		
<p>National Environmental Management: Biodiversity Act (NEMBA) (ACT NO. 10 OF 2004)</p>	<p>The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004), provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p> <p>In terms of Chapter 4 of the Above Act:</p> <p>52. (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection.</p> <p>(b) An MEC for environmental affairs in a province may, by notice in the Gazette, publish a provincial list of ecosystems in the province that are threatened and in need of protection.</p> <p>(2) The following categories of ecosystems may be listed in terms of subsection:</p> <p>(a) critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;</p>	<p>NW: DEDECT</p>	<p>2004</p>

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>(b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;</p> <p>(c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and</p> <p>(d) protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs (a), (b) or (c).</p> <p>(3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list.</p> <p>53 (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.</p> <p>(2) A threatening process, identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act (1998) and a listed ecosystem must be regarded as an area identified for the purpose of that section.</p>		
National Environmental Management: Protected Areas Act (ACT NO. 57 OF 2003)	<p>This Act aims to provide for a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. The Protected Areas Act tries to ensure the protection of the entire range of biodiversity, referring to natural landscapes and seascapes. The Act makes express reference to the need to move towards Community Based natural Resource Management (CBNRM) as its objectives include promoting the participation of local communities in the management of protected areas. The purpose of the Act is:</p> <ul style="list-style-type: none"> <li>•To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity.</li> <li>•To conserve biodiversity in those areas;</li> <li>•To protect South Africa's rare species;</li> <li>•To protect vulnerable or ecologically sensitive areas;</li> <li>•To assist in ensuring the sustained supply of environmental goods and services;</li> <li>•To provide for the sustainable use of natural and biological resources;</li> </ul>	National Department of Environmental Affairs	2003

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<ul style="list-style-type: none"> <li>•To create or augment destinations for nature-based tourism;</li> <li>•To manage the interrelationship between natural environmental biodiversity, human settlement and economic development;</li> <li>•To contribute to human, social, cultural, spiritual and economic development;</li> <li>•To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.</li> </ul> <p>This Act further stipulates various criteria which must be met before an area can be declared as a special nature reserve, national park, nature reserve and protected environment. It also prescribes a range of procedures, including consultation and public participation procedures which must be followed before any of the kinds of protected areas are declared.</p>		
National Heritage Resources Act, Act No. 25 of 1999	Legislation consulted during the impact assessment process, to determine the legal requirements relating to the management of heritage resources that are present in and around the site.	SAHRA	1999
National Environmental Management: Waste Act, Act No. 59 of 2008, DEDECT together with the List of Waste Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment, GN No. 921 of 29 November 2013	Legislation consulted to determine whether a waste licence will have to be obtained for the development.	NW:DEDECT Waste Section	2008
<i>National Environmental Management: Air Quality Act (Act 39 of 2004)</i>	To protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social Development. Construction activities may cause some air pollution.	Department of Environmental Affairs: Directorate Air quality management	2004
<i>The Conservation of Agricultural Resources Act (Act 43 of 1983)</i>	This Act regulates the flow pattern of runoff water, control of weeds and invader plants.	NW: Department of Agriculture	1983
<i>National Veldt and Forest Fire Act (Act 101 of 1998)</i>	Chapter 4 places a duty on owners to prepare and maintain firebreaks.	Department of Agriculture, Forestry and Fisheries	1998
<i>National Forests Act, Act 84 of 1998 (NFA) DEDECT with GN1602 of December 2016.</i>	During the construction phase of the development certain protected trees may be affected. Licences will have to be obtained from the Minister before the affected trees may be cut, disturbed, damaged or destroyed. GN1602 of December 2016 contains the list of protected trees.	Department of Agriculture, Forestry and Fisheries	1998
<i>Occupational Health and Safety Act (Act 85 of 1993)</i>	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 and the protection of persons other than persons at work against hazards to health.	Department of Employment and labour	1993

**5.2 (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and**

**(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments explanation of how the proposed development complies with and responds to the legislation and policy context**

### **5.2.1 Existing Land use Rights:**

The site is currently zoned as municipal and an application is in the process to rezone to 'Special' for the purposes of a shop, builder's yard and a vehicle workshop by the Town and Regional Planner

### **5.2.2 Provincial Spatial Development Framework (PSDF)**

In terms of the Provincial Growth and Development Strategy (PGDS) the following key programmes of the Economic enhancement initiative were identified:

- The provincial economy needs to become more productive, more competitive and more diversified.
- Promote labour absorbing activities through Small Enterprises to support and promote private stimulation of rural economies.

To promote skills development and training in economic practices to enhance economic growth.

### **5.2.3 Urban Edge/ Edge of built environment**

The site is located within the urban edge of the City of Matlosana LM

### **5.2.4 Spatial Development Framework (SDF) of the Local Municipality.**

The Integrated Development Plan consists mainly of broad strategies and projects guiding and integrating capital investment, focussed development in the areas of inter alia planning, environmental programmes, economic development, transport, waste management, and services, etc. The purpose of an Integrated Development Plan is to increase the municipal performance in terms of the pre-determined vision.

The Site is located along the N12 corridor in an area that comprises various developments. The SDF states the following:

*“Activity roads form the major linkages between the different sections of the urban area as well as the activity corridors and spines. These roads normally attract sufficient passing trade and provide important opportunities for the stimulation of business development and community facilities within neighbourhood nodes.*

*The main development corridor is formed by the N12 (Treasure Corridor) which should serve as a concentration for appropriate new development initiatives such as industrial , commercial, nodal, residential, tourism and mixed land use development. Numerous new development initiatives are already focused on this corridor.*

### **5.2.5 Spatial Planning and Land Use Management Act, Act 16 of 2013, (SPLUMA).**

The Spatial Planning and Land Use Management Act, Act 16 of 2013, (SPLUMA) came into operation on the 1<sup>st</sup> of July 2015 and has changed the Planning profession to such an extent that Planning can no longer be used as a tool to separate people and communities. The objectives are:

- *provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic;*
- *ensure that the system of spatial planning and land use management **promotes social and economic inclusion;***
- *provide for **development principles and norms and standards;***

- provide for the **sustainable and efficient use of land**;
- provide for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and
- Redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.

#### **SPLUMA's desired outcomes:**

- Coherent regulatory framework;
- Constitutional synergy (clear delineation, distribution & allocation of powers among spheres);
- Predictable and transparent regulatory system; and
- Clear, rational and efficient inter-linkages of sectoral and intersphere planning tools and policies.

#### **The following guidelines are given for Land Use Management:**

- **Land resources are used for a variety of purposes which interact** and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner.
- Land use management examines all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development.
- The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources.
- Integration should consider all environmental, social and economic factors.
- Integrated consideration facilitates appropriate choices and trade-offs, thus maximizing sustainable productivity and use. The broad objective is to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources.

#### **Provincial Priority 4 states the following:**

- Address the apartheid geography and create the conditions for more humane – and environmentally sustainable – living and working environments.
- It is important to address the entrenched spatial patterns that exacerbate social inequality and economic inefficiency, cognisant of the unique needs and potentials of different rural and urban areas in line with emerging development corridors.
- Active citizenship in spatial development should be supported through properly funded interventions that encompass citizen-led neighbourhood vision and planning processes; and the introduction of social compacts.
- Settlement planning should ensure the creation of spaces that are liveable, equitable, sustainable, resilient and efficient, and that support economic opportunities and social cohesion.

The proposed development complies with the principles as set out above in the sense that the proposed development will contribute to economic growth in the area

The study is conducted in such a way as to comply with the instructions regarding such studies and reports (as contained within the above-mentioned documents).

## 5.2.6 Integrated Environmental Management as set out in Section 23 of NEMA as amended.

The IEM guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be: informed decision-making;

- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'); and
- the opportunity for public and specialist input in the decision-making process.

The general objectives of Integrated Environmental Management have been taken into account in this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural considerations and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, enhance benefits and promote compliance within the principles of environmental management.

Additionally the Basic Assessment process will be undertaken to ensure I&APs have been afforded the opportunity to comment on the proposed activity and that their comments/inputs/concerns will be taken into consideration during the assessment process.

## 5.2.7 The principles of environmental management as set out in Section 2 of NEMA

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development.

This process will be undertaken in a transparent manner and all efforts will be made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision can be made by the Regulating Authority.

**The following aspects have been dealt with:**

### SCHEDULE

Actions	Timeframe
1 Communication with authorities and source and analyse relevant baseline information and undertake site inspections	3 days
2 Compile Environmental Application Form for the project	2 days
3 Compile an <i>information requirements list</i> to be distributed to the project team. The Information required would assist with completion of the BAR.	2 days
4 Identify key interested and affected parties (I&APs)	1 day
5 Compilation of terms of reference for specialist studies	2 days
6 Commission specialist studies	1 day

7 Compile draft BAR and make available to the public for a 30 day commenting period and submit the application form to the competent authority.	3 days for compilation and 30 days for commenting period (The competent authority has 90 days to request additional information or to refuse the application, from the date of submission)
<b>NB: According to the new Regulations a BAR must be submitted 90 days after the application has been submitted. The implication is that all information must be available within 80 days after submitting the Application.</b>	
8 Prepare an Information Sheet (summary of the draft BAR) and distribute to I&APs	1 day
9 Compile and publish media notices (for the BAR) in relevant newspapers	7 – 10 days depending on the day the newspaper is published
10 Compile and place poster/s along the boundary of the site	1 day
11 Hold a public meeting / Open House / focus meeting with I&APs	1 day
12 Receive and address first round of comments from public	3 days
13 Should the draft BAR require substantial changes, these changes will be incorporated into the draft BAR and distributed	Included above (allow an additional 50 days to include #14 below)
14 Allow the identified public to provide comment within a 30 day period on above report.	3 days for compilation and 30 days for commenting period (Competent authority has an additional 50 days)
15 Address comments received on the draft BAR, Finalise BAR and update comments and response table; finalise Basic Assessment Report and submit to authorities	5 days
16 Submit final BAR to authorities for a final decision	1 day, The department has 107 days from the date of receipt to review and come to a final decision.
17 Once the decision is issued, all I&Ps must be formally informed of the decision	20 days
<b>TOTAL AMOUNT OF DAYS:</b>	<b>197 days</b>

## 6. NEED AND DESIRIBILITY

The planning practices of the past have resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is located within the urban area and is surrounded by urban development.

The proposed development addresses the need identified by the Municipality for the provision of additional business properties, to be alienated by means of full title and will provide for a mixed land use and expansion of the existing commercial / retail corridor along the N12.

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result. The site is currently zoned "Municipal" however will form part of an existing commercial node of Matlosana located within the urban built-up area, within the urban fringe of the City of Matlosana Local Municipality, as contained in the Spatial Development Framework.

Due to the retail nature of the proposed development it will lead to an increase in employment opportunities in the operational phase and will contribute to the broadening of the income base and alleviation of poverty within the Local Municipality.



## 7. ALTERNATIVES

One of the objectives of the Basic Assessment process is to investigate alternatives to the proposed project. The IEM procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. In order to ensure that the proposed development enables sustainable development, feasible alternatives must be explored (S. Cliff, 2015).

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives should be considered as a norm within the Environmental Process (S. Cliff, 2015).

The alternatives considered for the proposed development includes land use alternatives (including the No-go option). The various alternatives that will be assessed is in terms of environmental, social and technical feasibility.

### 7.1 Land Use Alternatives

#### 7.1.1 “Special Zoning” land use (Alternative 1 – Preferred alternative)

Alternative Site layouts have been developed for the proposed development.

The appointed Town and Regional planner have produced the proposed layout plan.

The intention of the Applicant is to Utilize the site for business purposes, with specific reference to a shop, a builder's yard and an ancillary workshop.

The proposed development will:

- Promote entrepreneurial services and products;
- Provide Job opportunities; and
- Within the existing N12 commercial / retail corridor and provide a complimentary development within the area.

#### 7.1.2 Single land use: Housing (Alternative 2)

The area proposed to be developed is within the N12 corridor, which in this area is mainly commercial and retail uses. A Commercial area commonly “a focal point at which a range of essential services can be obtained by people living in its vicinity”. In turn, a commercial area acts as a pool of human and physical resources from which the inputs necessary for development can be distributed efficiently, and from which a community can draw to promote their development”.

Whilst it is acknowledged that housing development is prominent in the area, it is mainly located setback from the main road beyond the retail and commercial uses which abuts the road. Commercial and retail directly adjoining the busy road is preferable to housing as it creates a buffer for disturbances traditionally ascribed to a busy road for future residents. As such housing in this location is not a preferred land use option.

#### 7.1.3 No-go Alternative

The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is unacceptable, as other land parcels will have to be sourced to provide for this need within the community. This will imply that infill development will not take place and will result in urban sprawl.

## 8. DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE PROJECT

### 8.1 BIO-PHYSICAL ASPECTS

#### 8.1.1 GEOLOGY & SOILS

According to the 1:250 000 Map No 2626 West Rand geological map, the site is underlain by quartzite belonging to Jeppetown and Johannesburg formation of the Central Rand group, Witwatersrand Super group.

From a macro point of view, the site is underlain by recently transported soils comprising of hillwash and a pebbles marker only noted in test hole TH01, which are in turn underlain by VERY SOFT ROCK grading into MEDIUM HARD ROCK and most probably HARDER with depth, quartzite bed rock, comprising off-white, stained reddish brown, medium grained, moderately to highly weathered and moderately fracture. A number of MEDIUM HARD TO HARD ROCK quartzite outcrops daylight across the site.

Soil description	Depth ranges encountered in test holes (m)						
	TH 01	TH 02	TH 03	TH 04	TH 05	TH 06	TH 07
Slightly moist, orange-brown, pinhole voided, fine to medium grained silty SAND with scattered fine roots in profile. Hillwash transported.	0,0-1,0 <u>Medium dense</u> P = -	0,0-1,2 <u>Medium dense</u> P = -	-	-	-	-	-
Slightly moist, orange-brown, fine to medium grained silty SAND as a matrix for medium coarse gravels with scattered fine roots in profile. Pebbles marker transported.	1,0-1,1 <u>Medium dense</u> P = <50kPa	-	-	-	-	-	-
Slightly moist, orange-brown, relic fissured, silty SAND as a matrix for scattered coarse gravel and abundant fine roots. Residual quartzite.	-	-	0,0-0,5 <u>Dense</u> P = 150kPa	0,0-0,3 <u>Dense</u> P = 150kPa	-	-	-
Off-white, stained reddish brown, medium grained, highly to moderately weathered and moderately fractured, BEDROCK. Quartzite.	1,1-1,3+ <u>VERY SOFT ROCK</u> P = 300kPa	1,2-1,4+ <u>VERY SOFT ROCK</u> P = 300kPa	0,5-1,0+ <u>VERY SOFT ROCK</u> P = 300kPa	0,3-1,3+ <u>VERY SOFT ROCK</u> P = 300kPa	0,0-0,4 <u>Soft rock</u> P = 400kPa	0,0-0,3 <u>Soft rock</u> P = 400kPa	0,0-0,2 <u>Soft rock</u> P = 400kPa
					0,4+ <u>MEDIUM HARD ROCK</u> P = 750kPa	0,3+ <u>MEDIUM HARD ROCK</u> P = 750kPa	0,2+ <u>MEDIUM HARD ROCK</u> P = 750kPa

**Note:**  
P = Predicted allowable bearing capacity (total settlement < 10mm) of soil layer should conventional shallow foundations be considered (kPa)

**Summary of soil horizons encountered**

**Table 1: Summary of Soil horizons encountered on site**

The regional geology of the site and surrounding area, together with the various soil horizons encountered during profiling are included in the Geotechnical Report.

#### Site class designation:

The site, from a geotechnical site class designation point of view, can be divided into two zones, namely Zone A and B (Figure 5), and is summarized as follows:

Zone A class as "C2/R" and Zone B as "S/R", summarized in the following table, all in accordance with the NHBRC classification system:

Geotechnical zone: Description: Designation Zone A Relatively thick hillwash (>1,0m) underlain by quartzite bedrock.C2/R

Zone B Relatively thin residual quartzite (<0,5m) underlain by soft rock quartzite. SIR



**Figure 5: Geotechnical Zoning**

### 8.1.2 TOPOGRAPHY

The general topography around the site has a slope of about 5% towards the South. Therefore, it is expected that the site will have an adequate surface water run-off and a low to moderate probability surface water ponding during down pours.

A detailed site survey has been carried out to establish levels. The Layout plan will address issues regarding storm water. As the proposed development will be in close proximity to residential areas, safety of children and people need to be taken into consideration.

### 8.1.3 CLIMATE

The climate of the area is typical of the South African interior. In the discussion of this variable, certain aspects of rainfall, temperature and wind that can influence the project will be highlighted.

It must be noted that the climatic data are recorded in the Department of Environmental Affairs (1988) climatic data records. Data for Klerksdorp weather station (0436/292 ) is available. This records were only taken between 1903-1952.

#### 8.1.3.1. Rainfall

The average annual rainfall for the area is 625mm per annum. The highest annual rainfall recorded during the period for which the record is available is 980 mm (1976), while a yearly low of 365mm was recorded in 1903. Of note is the maximum-recorded daily rainfall of 140mm that was recorded during December 1943. Of importance is the fact that monthly minima of zero rainfall have been recorded for 6 months of the year. More recent data (last 10 years' average rainfall) is indicated below for Klerksdorp:



Source: [www.worldweatheronline.com/klersdorp-weather-averages/north-west/za.aspx](http://www.worldweatheronline.com/klersdorp-weather-averages/north-west/za.aspx)  
(Visited: 14/10/2020)

The variability of rainfall as well as the high intensity events will definitely influence the project. On average however, the impact of rainfall can be considered as positive, as sufficient water is generally available for sustaining vegetation. Extreme dry conditions during dry spells will negatively affect the project due to the secondary effects on vegetation as well as the possibility of fire hazards. Extreme maximum events can also have a negative effect on the project during all its phases.

The overall impact can therefore be considered to be “variable” during the construction and operational phases (local in extent and long term in duration). The likelihood that these impacts may occur is probable, medium in intensity and significance. Steps to mitigate negative effects will be described in various sections of the Management Plan.

Due to the scale of the operation, the rainfall of the area cannot be affected by the project and is therefore “Not Applicable”.

### 8.1.3.2. Temperature

The average daily maximum temperature for the winter months for the area is approximately 20° C. The average daily minimum for that time of the year is in the order of 2,0° C.

During the summer months, the average daily maximum is in the order of 28° C and the daily average minimum approximately 14°C. The highest daily maximum recorded was 39,2°C while the lowest recorded temperature was -10,2°C.



Source: [www.worldweatheronline.com/klersdorp-weather-averages/north-west/za.aspx](http://www.worldweatheronline.com/klersdorp-weather-averages/north-west/za.aspx)  
(Visited: 14/10/2020)

In combination with a dry spell, such hot temperatures may be favourable for the spreading of veldfires.

The general impact of this variable on the project can be considered as positive during the construction and operational phases. The impacts can however be considered as having low intensity impacts of low significance. The extent is local and short term in duration.

Due to the scale of the project, it is clear that it will have no impact on the environment”.

### **8.1.3.3. Wind**

The average wind direction for the area during the summer months is from the north-to-north easterly quadrant, while during the early spring the direction is more north westerly. Southerly winds generally occur during the winter, but are not frequent. Normally very little wind is experienced during the winter due to the presence of the high-pressure cell situated over the country during that time of the year.

The wind speeds are normally fairly low, but high wind speeds may occur during early spring and during of thundershowers.

Wind can be considered as having a low intensity, and a low significance negative impact on the construction and operational phases of the project. The probability is probable and the impacts are local but short in duration. The project can have no influence on the wind and is therefore “not applicable.

## **Climate Change**

According to: WIREs Climate Change 2014, 5605-620. Doi:10.1002/wcc.295: “Climate change is a key concern within South Africa. Mean annual temperatures have increased by at least 1.5 times the observed global average of 0.65°C over the past five decades and extreme rainfall events have increased in frequency. These changes are likely to continue. Climate change poses a significant threat to South Africa’s water resources, food security, health, infrastructure, as well as its ecosystem services and biodiversity. Considering South Africa’s high levels of poverty and inequality, these impacts pose critical challenges for national development. In relation to water, impact studies for the water resources sector have begun to look beyond changes in streamflow to changes in the timing of flows and the partitioning of streamflow into base flows and stormflows, reservoir yields, and extreme hydrological events. Spatially the eastern seaboard and central interior of the country are likely to experience increases in water runoff. Higher frequencies of flooding and drought events are projected for the future. Complexities of the hydrological cycle, influences of land use and management and the linkages to society, health, and the economy indicate far higher levels of complexity in the water resources sector than in other sectors. What has emerged is that land uses that currently have significant impacts on catchment water resources will place proportionally greater demands on the catchment’s water resources if the climate were to become drier. The influence of climate change on water quality is an emerging research field in South Africa, with assessments limited to water temperature and non-point source nitrogen and phosphorus movement. A critical interaction that has not been explored is between changes in water quality and quantity and the combined impacts, such changes might have impact on various types of water use, e.g., irrigation, domestic consumption, or aquatic ecosystems support”.

## **8.1.4 SURFACE DRAINAGE, WETLANDS AND RIPARIAN ZONES**

### **Absence of wetlands**

Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, depressions, seeps and wetland flats appear to be absent at the site. No wetlands are found at the site.

Erosion by sheet flow may occur in disturbed areas. Storm water drainage will have to be considered during the planning phase of the development and will have to be incorporated into the final layout plan. Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures. Storm water

diversion measures such as ponding pools are recommended to control peak flows during thunderstorms. All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

### 8.1.5 GROUND WATER

No groundwater seepage was encountered by the Geotechnical engineer. Notwithstanding the fieldwork having been carried out towards the end of the dry season, a perched groundwater table may occur at the contact between hillwash / residual quartzite and the VERY SOFT ROCK AND HARDER, quartzite bedrock for instance and especially during the rainy season.

Possible infiltration into the groundwater must be taken into account. During the construction phase, no spills of lubricants or construction worker sewage should be allowed to pollute the ground water. These aspects are addressed in the EMP.

### 8.1.6 FLORA AND FAUNA

The study area is located at the eastern parts of the town of Klerksdorp, at Goudkoppie, Matlosana Local Municipality, North West Province. Site is situated at the Grassland Biome which is represented by the Vaal-Vet Sandy Grassland vegetation type (Mucina & Rutherford, 2006). A brief overview of the vegetation type, which serves as an outline of the ecological context of the site, follows.

#### Gh 10 Vaal-Vet Sandy Grassland

Distribution: In South Africa the Vaal-Vet Sandy Grassland is present in the North-West Province and Free State Province. Vaal-Vet Sandy Grassland ranges from south of Lichtenburg and Ventersdorp to Klerksdorp, Leeudoringstad, Bothaville and to the Brandfort areas north of Bloemfontein. Altitude ranges from 1 220 – 1560 m for the entire vegetation type (Mucina & Rutherford 2006).

Vegetation and landscape features: Plains-dominated landscape with some scattered, slightly undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element are present. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *Themeda triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall. Geology and soils: Aeolian and colluvial sand overlying sandstone, mudstone, and shale of the Karoo Supergroup (mostly the Ecca group) as well as older Ventersdorp Supergroup and basement gneiss in the north (Mucina & Rutherford 2006).

Climate: Warm-temperate, summer-rainfall climate, with overall mean annual precipitation of 530 mm. High summer temperatures. Severe frost (37 days per year on average) occurs in winter (Mucina & Rutherford 2006).

Important taxa of the Vaal-Vet Sandy Grassland listed by Mucina & Rutherford (2006): Graminoids: *Antheophora pubescens*, *Aristida congesta*, *Chloris virgata*, *Cymbopogon caesius*, *Cynodon dactylon*, *Digitaria argyrograpta*, *Elionurus muticus*, *Eragrostis chloromelas*, *Eragrostis lehmanniana*, *Eragrostis plana*, *Eragrostis trichophora*, *Heteropogon contortus*, *Panicum gilvum*, *Setaria sphacelata*, *Themeda triandra*, *Tragus berteronianus*, *Brachiaria serrata*, *Cymbopogon pospischilii*, *Digitaria eriantha*, *Eragrostis curvula*, *Eragrostis obtusa*, *Eragrostis superba*, *Panicum coloratum*, *Pogonarthria squarrosa*, *Trichoneura grandiglumis*, *Triraphis andropogonoides*. Herbs: *Stachys spathulata*, *Barleria macrostegia*, *Berkheya onopordifolia* var. *onopordifolia*, *Chamaesyce inaequilatera*, *Geigeria aspera* var. *aspera*, *Helichrysum caespitium*, *Hermannia depressa*, *Hibiscus pusillus*, *Monsonia burkeana*, *Rhynchosia adenodes*, *Selago densiflora*, *Vernonia oligocephala*. Geophytic Herbs: *Bulbine narcissifolia*, *Ledebouria marginata*. Succulent Herb: *Tripteris aghillana* var. *integrifolia*. Low shrubs: *Felicia muricata*, *Pentzia globosa*, *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum dregeanum*, *Helichrysum paronychioides*, *Ziziphus zeyheriana*.

**Note:** Not all of the above listed plant species for the vegetation types occur at the site in the study area.

Disturbed grassland is present at the site. Informal fire places at the site probably contribute to impacts on the veld-burning regime at the site. Few trees are present at the site notably the widespread indigenous *Searsia pyrioides* and *Vangueria infausta* as well as the alien invasive *Melia azedarach* and *Morus alba*. Grassland patches at the site contain indigenous grass species such as *Elionurus muticus*, *Melinis nerviglumis*, *Melinis repens*, *Cynodon dactylon*, *Aristida congesta*, *Digitaria eriantha*, *Themeda triandra* and *Eragrostis chloromelas*. Indigenous herbaceous plant species at the site include *Hermannia lancifolia*, *Gazania krebsiana*, *Helichrysum cerastoides*, *Hilliardiella oligocephala* and *Senecio coronatus*. *Aloe jeppeae* (= *Chortolirion latifolium*) is present at the site. Few individuals of the geophyte *Hypoxis hemerocallidea* are also present at the site.

Alien invasive weeds are present at disturbed areas at the site and include *Argemone ochroleuca*, *Plantago lanceolata*, *Tagetes minuta*, *Bidens pilosa*, *Conyza bonariensis*, *Verbena aristigera* and *Datura ferox*.

Rocky patches occur at the site. The site is east of a rocky ridge.

No wetlands or rivers are present at the site.

Grassland at the site is represented by the Vaal-Vet Sandy Grassland vegetation type (Gh 10) which is listed as a Threatened Ecosystem, Endangered, according to the National List of Threatened Ecosystems (2011). Vegetation at the site has been disturbed, modified and in some areas transformed. The site is isolated in an urban area. The scope for the restoration and conservation of natural grassland at the site is small.

No Threatened or Near Threatened plant or animal species appear to be resident at the site.



One plant species that is not threatened but listed as Declining occurs at the site, *Hypoxis hemerocallidea* (African Star Flower).

Apart from *Hypoxis hemerocallidea* which is a Declining plant species, none of the other plant species of particular conservation priority appear to occur at the site.

Ecological sensitivity at the site is medium Figure 6.



**Figure 6** Indications of ecological sensitivity at the site.

- |   |                            |                        |
|---|----------------------------|------------------------|
|  | Red outline                | Boundaries of the site |
|  | Orange outline and shading | Medium Sensitivity     |





**Photo 6** Stunted alien invasive *Melia azedarach* (Syringa Berrytree) at disturbed grassland at the site.  
Photo: R.F. Terblanche



**Photo 7** The widespread indigenous tree species, *Searsia pyroides*, at the site.  
Photo: R.F. Terblanche.





**Photo 8** Flowers of *Aloe jeppeae* (= *Chortolirion latifolium*) at the site.  
Photo: R.F. Terblanche

## Habitat and vegetation characteristics

### Plants

Extinct, threatened, near threatened and other plant species of high conservation priority in North West Province are listed in Tables 4.2 – 4.8. (Of the Fauna and Flora Habitat Report. Appendix C of this Report.) Protected tree species are listed in Table 4.9. (Of the Fauna and Flora Habitat Report. Appendix C of this Report.) The presence or not of all the species listed in the tables were investigated during the survey. None of the Threatened and Near Threatened plant species are likely to occur on the site. No other plant species of particular conservation concern is likely to occur at the site.

Threatened, Near Threatened and other plant species of high conservation priority in North West Province are listed in Tables 4.2 – 4.8. Protected tree species are listed in Table 4.9. The presence or not of all the species listed in the tables were investigated during the survey.

None of the Threatened and Near Threatened plant species are likely to occur on the site. One plant species that is not threatened but listed as Declining occurs at the site, *Hypoxis hemerocallidea* (African Star Flower).

Apart from *Hypoxis hemerocallidea* which is a Declining plant species, none of the other plant species of particular conservation priority appear to occur at the site.

## 5.3 Vertebrates

### 5.3.1 Mammals

Table 4.10, Table 4.11 and Table 4.12 list the possible presence or absence of threatened mammal species, near threatened mammal species and mammal species of which the status is uncertain, respectively, at the site. Literature sources that were used are Friedman & Daly (2004), Skinner & Chimimba (2005) and Child *et al.* (2017). Since the site falls outside reserves, threatened species such as the black rhinoceros (*Diceros bicornis*) and the African wild dog (*Lycaon pictus*) are obviously not present. No smaller mammals of particular high conservation significance are likely to be found on the site as well.

### 5.3.2 Birds

Table 4.13 and Table 4.14 list the possible presence or absence of threatened bird species and near threatened bird species at the site. With bird species which often have a large distributional range, their presence does not imply that they are particularly dependent on a site as breeding location. Therefore, the emphasis in the right-hand columns of Table 4.12 and Table 4.13 are on the particular likely dependence or not of bird species on the site. Literature sources that were mainly consulted are Barnes (2000), Hockey, Dean & Ryan (2005) and Chittenden et. al. (2016). No threat to any threatened bird species or any bird species of particular conservation importance are foreseen.

### 5.3.3 Reptiles

Table 4.15 and Table 4.16 list the possible presence or absence of Threatened and Near Threatened reptile species on the site. Main Source used for the conservation status and identification of reptiles are Bates, Branch, Bauer, Burger, Marais, Alexander & de Villiers (2014). Alexander & Marais (2007) as well as Tolley & Burger (2007) give useful indications of distributions, habitats and identification of the reptile species. There appears to be no threat to any reptile species of particular high conservation importance if the site is developed.

### 5.3.4 Amphibians

No frog species that occur in the North West are listed as Threatened species (Vulnerable, Endangered or Critically Endangered) or Near Threatened species according to IUCN Amphibian Specialist Group (2013). Table 4.17 lists *Pyxicephalus adspersus* (Giant Bullfrog) as Least Concern globally. According to the Biodiversity Management Directorate of GDARD (Gauteng Department of Agriculture and Rural Development) (2014) there are no amphibians in Gauteng that qualify for red listed status (red listed here indicates a category of special conservation concern such as threatened or near threatened). Suitable habitat for Giant Bullfrog at site appears to be absent.

## 5.4 Invertebrates

### 5.4.1 Butterflies

Studies about the vegetation and habitat of threatened butterfly species in South Africa showed that ecosystems with a unique combination of features are selected by these often localised threatened butterfly species (Deutschländer and Bredenkamp 1999; Edge 2002, 2005; Terblanche, Morgenthal & Cilliers 2003; Lubke, Hoare, Victor & Ketelaar 2003; Edge, Cilliers & Terblanche, 2008). Threatened butterfly species in South Africa can then be regarded as bio-indicators of rare ecosystems.

Four species of butterfly in Gauteng Province and North West Province combined are listed as threatened in the recent butterfly conservation assessment of South Africa (Mecenero *et al.*, 2013). The expected presence or not of these threatened butterfly species as well as species of high conservation priority that are not threatened, at the site (Table 4.18 and Table 4.19) follows.

#### 5.4.1.1 Assessment of threatened butterfly species

##### ***Aloeides dentatis dentatis* (Roodepoort Copper)**

The proposed global red list status for *Aloeides dentatis dentatis* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.*, 2013). *Aloeides dentatis dentatis* colonies are found where one of its host plants *Hermannia depressa* or *Lotononis eriantha* is present. Larval ant association is with *Lepisiota capensis* (S.F. Henning 1983; S.F. Henning & G.A. Henning 1989). The habitat requirements of *Aloeides dentatis dentatis* are complex and not fully understood yet. See Deutschländer and Bredenkamp (1999) for the description of the vegetation and habitat characteristics of one locality of *Aloeides dentatis* subsp. *dentatis* at Ruimsig, Roodepoort, Gauteng Province. There is not an ideal habitat of *Aloeides dentatis* subsp. *dentatis* on the site and it is unlikely that the butterfly is present at the site.

##### ***Chrysoritis aureus* (Golden Opal/ Heidelberg Copper)**

The proposed global red list status for *Chrysoritis aureus* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.*, 2013) *Chrysoritis aureus* (Golden Opal/ Heidelberg Copper) is a resident where the larval host plant, *Clusia pulchella* is present. However, the distribution of the butterfly is much more restricted than that of the larval host plant (S.F. Henning 1983; Terblanche, Morgenthal & Cilliers 2003). One of the reasons for the localised distribution of *Chrysoritis aureus* is that a specific host ant *Crematogaster liengmei* must also be present at the habitat. Fire appears to be an essential factor for the maintenance of suitable habitat (Terblanche, Morgenthal & Cilliers 2003). Research revealed that *Chrysoritis aureus* (Golden Opal/ Heidelberg Copper) has very specific habitat requirements, which include rocky ridges with a steep slope and a southern aspect (Terblanche, Morgenthal & Cilliers 2003). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon is highly unlikely.

#### ***Lepidochrysops praeterita* (Highveld Blue)**

The proposed global red list status for *Lepidochrysops praeterita* according to the most recent IUCN criteria and categories is Endangered (G.A. Henning, Terblanche & Ball, 2009; Mecenero *et al.*, 2013). *Lepidochrysops praeterita* is a butterfly that occurs where the larval host plant *Ocimum obovatum* (= *Becium obovatum*) is present (Pringle, G.A. Henning & Ball, 1994), but the distribution of the butterfly is much more restricted than the distribution of the host plant. *Lepidochrysops praeterita* is found on selected rocky ridges and rocky hillsides in parts of Gauteng, the extreme northern Free State and the south-eastern Gauteng Province. No ideal habitat appears to be present for the butterfly on the site. It is unlikely that *Lepidochrysops praeterita* would be present on the site and at the footprint proposed for the development.

#### ***Orachrysops mijburghi* (Mijburgh's Blue)**

The proposed global red status for *Orachrysops mijburghi* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.*, 2013). *Orachrysops mijburghi* favours grassland depressions where specific *Indigofera* plant species occur (Terblanche & Edge 2007). The Heilbron population of *Orachrysops mijburghi* in the Free State uses *Indigofera evansiana* as a larval host plant (Edge, 2005) while the Suikerbosrand population in Gauteng uses *Indigofera dimidiata* as a larval host plant (Terblanche & Edge 2007). There is no suitable habitat for *Orachrysops mijburghi* on the site and it is unlikely that *Orachrysops mijburghi* would be present on the site.

#### **Conclusion on threatened butterfly species**

There appears to be no threat to any threatened butterfly species if the site is developed.

#### **5.4.1.2 Assessment of butterfly species that are not threatened but also of high conservation priority**

##### ***Colotis celimene amina* (Lilac tip)**

*Colotis celimene amina* is listed as Rare (Low density) by Mecenero *et al.* (2013). In South Africa *Colotis celimene amina* is present from Pietermaritzburg in the south and northwards into parts of Kwa-Zulu Natal, Gauteng, Limpopo, Mpumalanga and the North West Provinces (Mecenero *et al.* In press.). Reasons for its rarity are poorly understood. It is highly unlikely that *Colotis celimene amina* would be resident at the site.

##### ***Lepidochrysops procera* (Savanna Blue)**

*Lepidochrysops procera* is listed as Rare (Habitat specialist) by Mecenero *et al.* (2013). *Lepidochrysops procera* is endemic to South Africa and found in Gauteng, KwaZulu-Natal, Mpumalanga and North West (Mecenero *et al.*, 2013). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

##### ***Metisella meninx* (Marsh Sylph)**

Henning and Henning (1989) in the first South African Red Data Book of Butterflies, listed *Metisella meninx* as threatened under the former IUCN category Indeterminate. Even earlier in the 20<sup>th</sup> century Swanepoel (1953) raised concern about vanishing wetlands leading to habitat loss and loss of populations of *Metisella meninx*.

According to the second South African Red Data Book of butterflies (Henning, Terblanche & Ball, 2009) the proposed global red list status of *Metisella meninx* has been Vulnerable. During a recent large scale atlassing project the *Conservation Assessment of Butterflies of South Africa, Lesotho and Swaziland: Red List and Atlas* (Mecenero *et al.*, 2013) it was found that more *Metisella meninx* populations are present than thought before. Based on this valid new information, the conservation status of *Metisella meninx* is now regarded as Rare (Habitat specialist) (Mecenero *et al.*, 2013). Though *Metisella meninx* is more widespread and less threatened than perceived before, it should be regarded as a localised rare habitat specialist of conservation priority, which is dependent on wetlands with suitable patches of grass at wetlands (Terblanche *In prep.*). Another important factor to keep in mind for the conservation of *Metisella meninx* is that based on very recent discoveries of new taxa in the group the present *Metisella meninx* is species complex consisting of at least three taxa (Terblanche *In prep.*, Terblanche & Henning *In prep.*). The ideal habitat of *Metisella meninx* is treeless marshy areas where *Leersia hexandra* (rice grass) is abundant (Terblanche *In Prep.*). The larval host plant of *Metisella meninx* is wild rice grass, *Leersia hexandra* (G.A. Henning & Roos, 2001). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

#### ***Platylesches dolomitica* (Hilltop Hopper)**

*Platylesches dolomitica* is listed as Rare (Low density) by Mecenero *et al.* (2013). Historically the conservation status of *Platylesches dolomitica* was proposed to be Vulnerable (Henning, Terblanche & Ball 2009). However this butterfly which is easily overlooked and has a wider distribution than perceived before. *Platylesches dolomitica* has a patchy distribution and is found on rocky ledges where *Parinari capensis* occurs, between 1300 m and 1800m (Mecenero *et al.* 2013, Dobson *Pers comm.*). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

#### **5.4.2 Fruit chafer beetles**

Table 4.20 lists the fruit chafer beetle species (Coleoptera: Scarabaeidae: Cetoniinae) that are of known high conservation priority in the North West Province. No *Ichnestoma stobbiai* or *Trichocephala brincki* were found during the surveys. There appears to be no suitable habitat for *Ichnestoma stobbiai* or *Trichocephala brincki* at the site. There appears to be no threat to any of the fruit chafer beetles of particular high conservation priority if the site were developed.

#### **5.4.3 Scorpions**

Table 4.21 lists the rock scorpion species (Scorpiones: Ischnuridae) that are of known high conservation priority in the North West Province. None of these rock scorpions have been found at the site and the habitat does not appear to be optimal.

## **8.2 SOCIO ECONOMIC FACTORS**

### **8.2.1 SOCIAL AMENITIES**

The planning practices of the past have resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is located within the urban area and is surrounded by urban development.

The proposed development addresses the need identified by the Municipality for the provision of additional business properties, to be alienated by means of full title and will provide for a mixed land use and expansion of the existing commercial / retail corridor along the N12.

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result. The site is currently zoned "Municipal" however will form part of an existing commercial node of Matlosana located within the urban built-up area, within the urban fringe of the City of Matlosana Local Municipality, as contained in the Spatial Development Framework.

Due to the retail nature of the proposed development it will lead to an increase in employment opportunities in the operational phase and will contribute to the broadening of the income base and alleviation of poverty within the Local Municipality.

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

## **8.2.2. AIR QUALITY**

*"The extent and toxicity of emissions is not necessarily a concise indicator of contributions to ground-level air pollution concentrations or of risks to health and the environment. Such contributions are also a function of the height of emission, temporal variations in the release of pollutants, and the proximity of the source to the people or the environment affected by exposure to the pollutant (such as, for instance, children, or the elderly, or people who are ill, or others who may be particularly sensitive receptors to a specific pollutant above a certain concentration). If an industry is operating close to a school or hospital or centre for the elderly, the potential exposure (in combination with the other contributing factors) is high.*

*Three factors govern the significance of household fuel-burning emissions:*

- (i) the low level of emissions (that is, their height above the ground is generally about 3 m, within people's breathing zone);*
- (ii) the simultaneous occurrence of peak emissions (during the coldest months of winter and in the early mornings and throughout the evenings) and poor atmospheric dispersion (stable atmosphere with low wind speeds, with the possible development of temperature inversions); and*
- (iii) the release of such emissions within high human exposure areas, given that such emissions generally occur in dense, low-income settlements where population density is high (in addition, the pollution is not only outdoors, but frequently indoors as well, due to poor ventilation, so it affects the whole family).*

*The significance of vehicle emissions as contributors to air-pollutant concentrations and health risks is similarly increased by the low level (close to the ground) of the emissions, and their proximity to highly populated areas – on highways, for example, with emissions being particularly high when traffic is congested. Vehicle emissions tend to peak early in the morning and in the evenings, when the potential for atmospheric dispersion is reduced (for example, wind speeds are generally low in the early mornings and evenings, reducing their potential for dispersing pollution).*

*Given the high volumes of pollutants emitted from fuel-burning within the industrial and power-generation sectors, their contribution to ambient concentrations and public health risks is often lower than might be expected. This is because these sources are generally characterized by constant releases, relatively high above ground level, and further away from residential settlements than are household fuel-burning and vehicle emissions.*

*Ranking the significance of different sources of pollution on the basis of the total emissions for which each source is responsible would, for example, place industrial emissions above household fuel-burning. If the aim is to reduce impacts on human health, however, then household fuel-burning would need to be targeted as a top priority (Scorgie et al., 2004d).*

*Historically, air pollution control in South Africa has primarily emphasized the implementation of 'command and control' measures in the industrial sector. The shift from source-based control, to the management of the air that people breathe, emphasizes the importance of targeting a wider range of sources and using more flexible and varied approaches. It means*

*paying greater attention to ambient air quality, as it is more important (and more cost-effective, in many cases) to make sure that the ambient air complies with air quality standards. This approach ensures that human and environmental health is protected and that the cumulative impact of pollution from a number of sources is addressed.*

*Approaches adopted or considered for future implementation have included: regulation (for example, the use of Atmospheric Emission Licences for Listed Activities); market instruments (such as atmospheric user-charges and pollution taxes); the potential for voluntary agreements, education and awareness raising; and emissions trading. International experience shows that adopting a mix of instruments and interventions is more effective than using a single instrument to improve air quality across various types of source. Although direct regulation remains important in controlling industrial sources, there is evidence that specifying emission limits is more effective than specifying the use of particular technologies, so as to give companies flexibility in selecting the method of achieving success that suits them best. This approach is advocated as being more cost-effective and more likely to stimulate technological advances in pollution control methods and production processes.*

*For large point sources (that is, sources of pollution that are concentrated on one site, but that have large, constant volumes of many types of pollution) that are few in number, instruments such as emissions trading have been advocated as an effective way to manage pollutant emissions and reduce the costs of compliance.*

*Implementing an efficient social protection system to alleviate poverty is central to maintaining conditions that facilitate not only economic growth but also environmental sustainability. Many South African households – including those with access to electricity – use coal, wood, and paraffin, due to the relative cost-effectiveness of such fuels for heating (that is, space heating) and cooking purposes.*

*Many low-cost housing developments and informal settlements are located close to industrial and mining operations, as such land is both available and inexpensive. Poorer communities are more likely to suffer from poor service delivery, including inadequate waste removal that sometimes results in refuse being set alight illegally. These examples show that poverty alleviation could help to improve air quality by enabling people to choose practices that are friendlier to the environment.”*

[https://www.environment.gov.za/sites/default/files/docs/stateofair\\_airqualityand\\_sustainable\\_development.pdf](https://www.environment.gov.za/sites/default/files/docs/stateofair_airqualityand_sustainable_development.pdf) Date visited: 17/03/2020.

The proposed development is planned and will eventually be developed with the above mentioned in mind. The alleviation of poverty (Jobs that will be created).

In addition to the above, it should be noted that the project will however create a certain amount of dust during the construction phase. If proper dust suppression measures are implemented this variable will have very little impact (low in intensity and significance during the construction phase).

### **8.2.3 NOISE**

It is a fact that a certain amount of noise will be generated during the construction phase of the project. Noise levels should however rarely exceed the allowable limits. It is unlikely that the project will create any more noise during the operational phase than that already experienced on site.

### **8.2.4 ARCHAEOLOGY AND CULTURAL SITES**

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. The Goudkoppie Heritage Hill Site is located to the west of the proposed development area. The assessment of the specific study area did not identify any sites, features or material of any real cultural heritage (archaeological and/or historical) significance, although there are some remnants of trenches and diggings possibly related to earlier mining in the area.

The area would have been used in the past for agricultural purposes, as well as prospecting and trenching for gold and if any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance existed here in the past it would have been extensively disturbed or destroyed as a result.

Known cultural heritage sites and features are located and preserved on the Goudkoppie Heritage Hill site, including Stone Age stone tools & rock engravings, remains related to the late 19th century gold mining in the area and Anglo-Boer War (1899-1902) related sites and features. The Late Iron Age (Sotho-Tswana) village on the Hill is a replica. Recent vandalism and illegal mining in the area is threatening the Goudkoppie Heritage Hill sites, and efforts to mitigate these threats and preserve the sites here are ongoing.

Although the proposed new development for which this assessment was undertaken will not directly impact on the Goudkoppie Heritage Hill and the sites located there, it is recommended that the new development should take the close proximity of the area into consideration during the related development actions. Any Visual Impacts on the Heritage Hill should be avoided therefore and the historic sense of place should be preserved. It is however also believed that the proposed new development will contribute towards mitigating the ongoing threats to the archaeological & historical sites and features as a result of illegal mining and vandalism situated here. This could be achieved by an assumed higher volume of people and vehicular traffic in the area, heightened security measures and the cleaning of the area. Cooperation between the developer and Local Authorities including the City Council, SAP and the Matlosana (Klerksdorp) Museum will however be of crucial importance in assuring this.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

**Finally, from a Cultural Heritage point of view the proposed Office Block & Vehicle Workshop development on a portion of Townlands of Klerksdorp 424IP should be allowed to continue taking the above recommendations into consideration.**

### **8.2.5 AESTHETICS**

Although the proposed new development for which this assessment was undertaken will not directly impact on the Goudkoppie Heritage Hill and the sites located there, it is recommended that the new development should take the close proximity of the area into consideration during the related development actions. Any Visual Impacts on the Heritage Hill should be avoided therefore and the historic sense of place should be preserved. It is however also believed that the proposed new development will contribute towards mitigating the ongoing threats to the archaeological & historical sites and features as a result of illegal mining and vandalism situated here. This could be achieved by an assumed higher volume of people and vehicular traffic in the area, heightened security measures and the cleaning of the area. Cooperation between the developer and Local Authorities including the City Council, SAP and the Matlosana (Klerksdorp) Museum will however be of crucial importance in assuring this.

Visual Intrusion is defined as the level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape.

**High visual intrusion** – results in a noticeable change or is discordant with the surroundings;

**Moderate visual intrusion** – partially fits into the surroundings, but clearly noticeable;

**Low visual intrusion** – minimal change or blends in well with the surroundings.

The proposed development will change the scenic resources of the local area from an undeveloped site to a retail development. The visual intrusion is considered to be moderate as the proposed development would fit in well with the nearby commercial and retail developments, it is acknowledged that it will be noticeable, however due to the scale of the proposal (retail on ground level with mezzanine floor), it is unlikely to have a detrimental visual impact on the heritage hill beyond, as opposed to a larger multi-storey complex.

The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.



## 9. ENVIRONMENTAL IMPACT ASSESSMENT

### 1. 9.1 ASSESSMENT CRITERIA

Impacts were rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
<b>Duration (time scale)</b>	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
<b>Extent (area)</b>	Local	Confined to study area and its immediate surroundings
	Regional	Region (cadastral, catchment, topographic)
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
<b>Magnitude (Intensity)</b>	Low	Site-specific and wider natural and/or social functions and processes are negligibly altered. ((A low intensity impact will not affect the natural, cultural, or social functions of the environment).
	Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way. (Medium scale impact will alter the different functions slightly).
	High	Site-specific and wider natural and/or social functions and processes are severely altered. (A High intensity impact will influence these functions to such an extent that it will temporarily or permanently cease to exist).
<b>Probability</b>	Improbable	Possibility of occurrence is very low. (Such an impact will have a very slight possibility to materialise, because of design or experience).
	Possible	There is a possibility that the impact will occur
	Probable	It is most likely that the impact will occur
	Definite	The impact will definitely occur
<b>Significance</b>	Insignificant	Impact is negligible and will not have an influence on the decision regarding the proposed activity (No mitigation is necessary)
	Very Low	Impact is very small and should not have any meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Low	The impact may not have a meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Medium	The impact should influence the decision regarding the proposed activity (The project can only be carried through if certain mitigatory steps are taken)
	High	The impact will influence the decision regarding the proposed activity
	Very High	The proposed activity should only be approved under special circumstances
<b>Reversibility</b>	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	High	There is a high chance in correcting the adverse impact
<b>Risk</b>	Low	Assessing a risk involves an analysis of the consequences and likelihood of a hazard being realized. In decision-making, low-consequence / low-probability risks (green) are typically perceived as acceptable and therefore only require monitoring.
	Medium	Other risks (amber) may require structured risk assessment to better understand the features that contribute most to the risk. These features may be candidates for management
	High	High-consequence / high-probability risks (red) are perceived as unacceptable and a strategy is required to manage the risk.

Attributes associated with the alternatives were assessed and is outlined below:

### **Geographical attributes**

The Geographical attributes of an area relates to the characteristics of a particular region, area or place. It influences the determination of site alternatives as it relates to the location of a site in relation to relevant features in the area.

### **Physical attributes**

Physical attributes of an area relates to the processes and patterns in the natural environment. For the purpose of this assessment, the following processes and patterns have been investigated. Geology, soil, topography and landforms, climate and meteorology, surface water and ground water.

### **Biological attributes**

Biological attributes for the purpose of this study includes the distribution of species and ecosystems in geographic space and through geological time. Organisms and biological communities often vary in a regular fashion along geographic gradients of latitude, elevation, isolation and habitat area. The two main branches assessed will be:

Phytogeography is the branch of biogeography that studies the distribution of plants.

Zoogeography is the branch that studies distribution of animals.

### **Social attributes**

Social attributes is closely related to social theory in general and sociology in particular, dealing with the relation of social phenomena and its spatial components.

### **Economic attributes**

Economic attributes includes the location, distribution and spatial organization of economic activities and also takes into account social, cultural, and institutional factors in the spatial economy of the development.

### **Heritage attributes**

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

### **Cultural attributes**

Cultural attributes relates to the specific characteristics such as language, religion, ethnic and racial identity, and cultural history & traditions of people. These attributes influences family life, education, economic and political structures, and, of course, business practices.

It should be noted that the above mentioned attributes do not occur in isolation and it is not uncommon for an identified impact to overlap with two or more of these attributes. Also note, not all risks require comprehensive and detailed assessment. Solid problem formulation should allow decision-makers to evaluate the extent of subsequent analysis required. The level of effort put into assessing each risk should be proportionate to its significance and priority in relation to other risks, as well as its

complexity, by reference to the likely impacts. Consideration should be given to stakeholders' perceptions of the nature of the risk.

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
<b>DIRECT IMPACTS:</b>					
Geographical Physical Social Economic	3,0543 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Plan for the provision of services for the development.	Duration	Long term	Determine the availability of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Plan to rehabilitate disturbed surfaces which can lead to erosion and dust pollution. Prepare method statements to this effect.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
Plan for the provision and maintenance of ablation facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablation facilities that will not cause pollution during the construction phase.	Short term	
	Extent	Local		Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	
	Significance	Medium		Medium	
	Reversibility	High		High	
	Risk	Low		Medium	
Plan to manage possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised.	Long term	
	Extent	Local		Local	
	Magnitude (Intensity)	Low		Medium	
	Probability	Definite	The findings of a Geotechnical Engineer must be incorporated into the design of the project.	Definite	
	Significance	Medium		Medium	
	Reversibility	High		High	
	Risk	Low		Medium	
			Plan to prevent spills of lubricants/oils that can take place on bare soil. This		

**ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)**

**ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)**

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)		
				will include the use of drip trays for vehicles that are standing for more than 24 hours.			
	Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.  <i>Aloe jeppeae</i> (= Chortolirion latifolium) which occurs at the site, is listed as Least Concern, it could be valuable for urban nature conservation	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants.	Short term		
		Extent	Local		Local		
		Magnitude (Intensity)	Medium		Medium		
			Probability	Definite	Plan to relocate this plant species to the Heritage Site adjacent to the site.	Definite	
			Significance	Medium		Medium	
			Reversibility	High		High	
			Risk	Low		Medium	
	Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration	Short term	Ensure that the trenches stay open for as short a time as possible.	Short term		
		Extent	Local		Local		
		Magnitude (Intensity)	Medium		Medium		
			Probability	Definite	Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Definite	
			Significance	Medium		Medium	
			Reversibility	High		High	
			Risk	Low		Medium	
<b>Indirect impacts:</b>							
Geographical Physical Social Economic	Plan to control dust generation from the proposed project which could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction.	Short term		
		Extent	Local		Local		
		Magnitude (Intensity)	Low		Low		
				Probability	Probable	Start the rehabilitation of disturbed surfaces as soon as possible	Probable
				Significance	Medium		Medium
				Reversibility	High		High
				Risk	Low		Medium
		Plan and compile method statements to implement measures for the prevention and or handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Local	
			Magnitude (Intensity)	Low		Low	
			Probability	Probable		Probable	
			Significance	Medium	Medium		
			Reversibility	High	High		
			Risk	Low	Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Medium	
		Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase.	Local	
			Magnitude (Intensity)	Low		Low	
			Probability	Probable		Probable	
			Significance	Medium	Medium		
			Reversibility	High	High		
				Risk	Low	All cement is housed as to prevent spills (due to rain and or handling errors).  NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Medium
			Extent	Local		Local	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non-compliance to the relevant legislation.	Magnitude (Intensity)	Medium	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act.	Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
Risk	Low	Medium			
<b>Cumulative impacts:</b>					
	Plan to ensure that the services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
	Risk	Low	Medium		
	Plan for the increase in traffic volumes that will result from the proposed development	Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
Reversibility		Low	Low		
Risk	Medium	Medium			

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
<b>DIRECT IMPACTS:</b>					
Geographical Physical Social Economic	3,0543 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Plan for the provision of services for the development.	Duration	Long term	Determine the availability of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite	Definite	
		Significance	Medium	Medium	
		Reversibility	Low	Low	

**ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)**

**ALTERNATIVE 2: Single land use: Housing only**

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
		Risk	Medium		Medium
	Plan to rehabilitate disturbed surfaces which can lead to erosion and dust pollution. Prepare method statements to this effect.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the provision and maintenance of ablution facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to manage possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised.  The findings of a Geotechnical Engineer must be incorporated into the design of the project.  Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.  <i>Aloe jeppeae</i> (= Chortolirion latifolium) which occurs at the site, is listed as Least Concern, it could be valuable for urban nature conservation	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants.  Plan to relocate this plant species to the Heritage Site adjacent to the site.  The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible.  No snares may be set.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration	Short term	Ensure that the trenches stay open for as short a time as possible.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium

**ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)**

**ALTERNATIVE 2: Single land use: Housing only**

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
		Reversibility	High	Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	High
		Risk	Low		Medium
<b>Indirect impacts:</b>					
Geographical Physical Social Economic	Plan to control dust generation from the proposed project which could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction.  Start the rehabilitation of disturbed surfaces as soon as possible	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan and compile method statements to implement measures for the prevention and or handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.  Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase.  All cement is housed as to prevent spills (due to rain and or handling errors).  NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non-compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act.  Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
Risk		Low	Medium		
Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	
	Significance	Medium		Medium	
	Reversibility	Medium		Medium	
	Risk	Low		Medium	
<b>Cumulative impacts:</b>					
Geographical Physical Social	Plan the development to ensure the social well-being of	Extent	Local	Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium



ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
Economic	the community for which the development is intended	Probability	Definite	The demand for housing will be partially addressed in the area.	Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Plan to ensure that the services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite	Ensure that the development is constructed as planned.	Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the increase in traffic volumes that will result from the proposed development	Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
Risk		Medium	Medium		

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 3: (No-Go Option)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
<b>DIRECT IMPACTS:</b>					
Geographical Physical Social Economic Cultural	No indigenous vegetation will be removed.	Duration	Long term	No mitigation measures required.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
<b>Indirect impacts:</b>					
Geographical Physical Social Economic Cultural	No new employment opportunities will be created during the planning and design phase.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
	No skills enhancement will take place	Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	High		High
If this option is implemented, the projected boost to the local and regional economy will not take place.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	
	Significance	High		High	
	Reversibility	High		High	
	Risk	Medium		Medium	
<b>Cumulative impacts:</b>					
Geographical Physical Social Economic Cultural	If this option is implemented, the projected boost to the local and regional economy will not take place.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
	No new employment opportunities will be created.	Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium
No improvement to local skills development will take place.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	



ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 3: (No-Go Option)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	No broadened Tax base for the Local Municipality.				

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
<b>DIRECT IMPACTS:</b>					
Geographical Physical Social Economic	3,0543 hectares of indigenous vegetation will be eradicated in order to establish the development	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Un-rehabilitated, disturbed surfaces can lead to erosion and dust pollution.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible.  Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
	Risk	Low	Medium		
	Foreign plant species are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
	Risk	Low	Medium		
	Poorly planned abluion facilities for construction workers may cause pollution of surface and underground water.	Duration	Short term	Provide portable abluion facilities that will not cause pollution during the construction phase.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
	Risk	Low	Medium		
The proposed project can impact on the soil and geology.	Duration	Long term	The findings of a Geo-Technical Engineer must be incorporated into the design of the project.  Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term	
	Extent	Local		Local	
	Magnitude (Intensity)	Low		Medium	
	Probability	Definite		Definite	
	Significance	Medium		Medium	
	Reversibility	High		High	
Risk	Low	Medium			
The vegetation of the area will be removed during the	Duration	Short term		Short term	
	Extent	Local		Local	

**ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)**

**ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)**

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
	construction phase, which will destroy floral and faunal habitats. <i>Aloe jeppeae</i> (= <i>Chortolirion latifolium</i> ) which occurs at the site, is listed as Least Concern, it could be valuable for urban nature conservation	Magnitude (Intensity)	Medium	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants.  Relocate this plant species to the Heritage Site adjacent to the site.  The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible.  No snares may be set.	Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Open trenches can be dangerous as they can either collapse on people or on equipment and people- especially small children, can fall into it.	Duration	Short term	Ensure that the trenches are dug according to specifications.  Ensure that the trenches stay open for as short a time as possible.  Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Short term	
		Extent	Local		Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	<b>Indirect impacts:</b>					
	Geographical Physical Social Economic	Dust generation from the proposed project could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction.  Start the rehabilitation of disturbed surfaces as soon as possible	Short term
Extent			Local	Local		
Magnitude (Intensity)			Low	Low		
Probability			Probable	Probable		
Significance			Medium	Medium		
Reversibility			High	High		
Risk		Low	Medium			
Spills of lubricants / oils can take place on bare soil.		Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.  Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local	
		Magnitude (Intensity)	Low		Low	
		Probability	Probable		Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
Risk		Low	Medium			
Waste materials such as glass, plastic, metal or paper present a possible pollution hazard		Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase.  All cement is housed as to prevent spills (due to rain and or handling errors).  NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local	
		Magnitude (Intensity)	Low		Low	
		Probability	Probable		Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
Risk		Low	Medium			
Non-compliance to the relevant legislation may cause social and environmental problems.		Extent	Local	Ensure that contractors (construction phase) abide by all the requirements	Local	
		Magnitude (Intensity)	Medium		Medium	

**ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)**

**ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)**

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
		Probability	Probable	of the Occupational Health and Safety Act.  Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	New employment opportunities will be created. Local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	Medium		Medium	
		Risk	Low		Medium	
	<b>Cumulative impacts:</b>					
	Geographical Physical Social Economic	Enhancement of the social well-being of the local communities as new employment opportunities will be provided by the development	Extent	Local	Ensure that the development is constructed as planned.	Local
			Magnitude (Intensity)	Medium		Medium
Probability			Definite	Definite		
Significance			Medium	Medium		
Reversibility			Medium	Medium		
Risk			Low	Medium		
<u>Solid waste:</u> The proposed development will add additional solid waste into the existing waste stream of the Local Municipality.  <u>Sewage:</u> The proposed development will add additional sewage into the existing sewage stream of the Local Municipality.  <u>Water supply:</u> The proposed development will add pressure to the water supply of Local Municipality's Water.		Extent	Local	Ensure that the development is constructed as planned.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	High		High	
		Risk	Low		Medium	
<u>Traffic:</u> The proposed development will result in an increase in traffic in the immediate surroundings of the proposed development.		Extent	Local	Ensure that the development is constructed as planned by the Town and Regional Planner	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	
Indigenous vegetation will be removed.		Extent	Local	<i>Aloe jeppeae</i> (= <i>Chortolirion latifolium</i> ) which occurs at the site, is listed as Least Concern, should be relocated to the adjoining Heritage Site	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	
		Extent	Local		Local	

ENVIRONMENTAL IMPACT ASSESSMENT (Operational Phase)					
ALTERNATIVE 1: "Special zoning" development (Preferred Alternative)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
<b>DIRECT IMPACTS:</b>					
Geographical Physical Social Economic Cultural	Poorly maintained and serviced infrastructure may cause environmental problems.	Extent	Local	It will be the responsibility of the developer to maintain the infrastructure on site.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
<b>Indirect impacts:</b>					
Geographical Physical Social Economic Cultural	Lack of rehabilitation may cause problems	Extent	Local	It will be the responsibility of the developer to ensure that the rehabilitation plan is implemented	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
<b>Cumulative impacts:</b>					
Geographical Physical Social Economic Cultural	Enhancement of the social well-being of the local communities as new employment opportunities will be available	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium
Geographical Physical Social Economic Cultural	The proposed development will generate additional income for the Local Municipality.	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

## 10. PUBLIC PARTICIPATION.

### 10.1 ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Klerksdorp Record	
<b>Date published</b>	01/04/2022	
<b>Site notice 1 position</b>	Latitude	Longitude
	26°51'7.90"S	26°41'15.53"E
<b>Date placed</b>	01/04/2022	

### PROOF OF SITE NOTICE

# PROOF OF NEWSPAPER ADVERTISEMENT

## 10.2. DETERMINATION OF APPROPRIATE MEASURES

Details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN R.982.

Key stakeholders (other than organs of state) identified in terms of Regulation 40(2)(d) of GN R.982:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
N/A	Neighbours	See proof of Letter drop

### PROOF OF LETTER DROP





### 10.3 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders. Key stakeholders identified in terms of Regulation 7(1) and (2) and Regulation 40(2) (a)-(c) of GN R.982:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Water and Sanitation	Mr TP Ntili	(018) 387 9547	NA		Chief Director: North West Dept. of Water and Sanitation Private Bag X5 MMABATHO 2735
Head of Department: North-West Department of Agriculture and Rural Development	Dr. P. Mokaila	018-3895723	018-389 5090	<a href="mailto:pmokaila@nwpg.gov.za">pmokaila@nwpg.gov.za</a>	Private Bag X2039 Mmabatho 2735
North West Department of Biodiversity	B. Doile	018 389 5719/ 5431/ 5688	018 392 4377	<a href="mailto:bdiole@nwpg.gov.za">bdiole@nwpg.gov.za</a>	Private Bag X2039 Mmabatho 2735
Dr Kenneth Kaunda District Municipality	The District Municipal Manager	018 473 8000	018 473 2523		Private Bag X5017, Klerksdorp, 2570
City of Matlosana	The Municipal Manager	018 487 8009	018 487 1652	<a href="mailto:dnkosi@klerksdorp.org">dnkosi@klerksdorp.org</a>	PO Box 99 Klerksdorp 2570
Ward 19, City of Matlosana	Mr. JJ Le Grange	018 487 8000	018 464 1780		PO Box 99 Klerksdorp 2570
NW: Department Public Works and Roads	Mrs Chocklingo	018 388 1378	018 388 1395		Private Bag X 2080, Mmabatho, 2735
SANRAL	Mr. P. Hlala	012 844 8000	012 844 8200		PO Box 415 Pretoria 0001
SAHRA				SAHRIS	
Eskom	Mr M. Dala			<a href="mailto:dalaME@eskom.co.za">dalaME@eskom.co.za</a>	

PLEASE SEE PROOF BELOW



7 Louis Leipold Street,  
Potchefstroom, 2531  
Tel: + 27 (83) 5488 105  
E-mail: [jp@abenviro.co.za](mailto:jp@abenviro.co.za)

## AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

01/04/2022

Mr. TP Ntli  
Department of Water and Sanitation  
Cnr Dr. James Moroka Drive and Sekame Road  
Mega City Complex  
Unit 99 Sekame Street  
MMABATHO  
2735

Tel: (018) 387 9500

Dear Sir/Madam

### PROJECT NAME:

Environmental Impact Assessment for the proposed clearance of 3.0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

AB ENVIRO CONSULT was appointed by Metroland cc. to submit an application to the Department of Economic Development, Environment, Conservation and Tourism, North West Province for the above mentioned proposed development. Attached please find a notification of the proposed development and an electronic copy of the Basic Assessment report for your comments. You are requested to comment by no later than the 9<sup>th</sup> May 2022.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, it will be assumed that your department/organisation does not wish to comment on this matter and the application will be processed further. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers  
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)  
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M: EAP-EAPASA, IAIA)



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## AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

01/04/2022

Dr. P. Mokaila  
Head of Department: North-West Department of Agriculture and Rural Development  
Private Bag X2039  
Mmabatho  
2735

Dear Sir/Madam

**PROJECT NAME:**

**Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.**

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## AB ENVIRO-CONSULT CC

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01/04/2022

**The Manager**  
Directorate: Biodiversity Management and Conservation  
North West Department: North West Department Economic Development, Environment, Conservation and Tourism  
[DSeshabela@nwpq.gov.za](mailto:DSeshabela@nwpq.gov.za)

Dear Sir/Madam

**PROJECT NAME:**

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## AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

01/04/2022

SANRAL  
Mr. P. Hlahla  
PO Box 415  
Pretoria  
0001

Dear Sir/Madam

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01/04/2022

Department Public works and roads  
Director: Dr. Kenneth Kaunda District  
Mrs C. A. Chocklingo  
Private Bag X 2080  
MMABATHO  
2735

Dear Sir/Madam

**PROJECT NAME:**

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01/04/2022

The Municipal Manager  
Dr. Kenneth Kaunda District Municipality  
Private Bag X5017  
Klerksdorp  
2570

Dear Sir/Madam

**PROJECT NAME:**

Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

**AB ENVIRO CONSULT** was appointed by Metroland cc. to submit an application to the Department of Economic Development, Environment, Conservation and Tourism, North West Province for the above mentioned proposed development. Attached please find a notification of the proposed development and an electronic copy of the Basic Assessment report for your comments. You are requested to comment by no later than the 9<sup>th</sup> May 2022.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, it will be assumed that your department/organisation does not wish to comment on this matter and the application will be processed further. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers  
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)  
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M: EAP-EAPASA, IAIA)



## AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

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01/04/2022

The Municipal Manager  
City of Matlosana Local Municipality  
P.O Box 99  
Klerksdorp  
2570

Dear Sir/Madam

PROJECT NAME:

Environmental Impact Assessment for the proposed clearance of 3.0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

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01/04/2022

City of Matlosana Local Municipality  
Clr. Le Grange, Ward 19  
P.O Box 99  
Klerksdorp  
2570

Dear Sir/Madam

**PROJECT NAME:**

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Reg no. 2000/016653/23

01/04/2022

Eskom  
Mr. M Dala  
[DalaME@eskom.co.za](mailto:DalaME@eskom.co.za)

Dear Sir/Madam

**PROJECT NAME:**

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## 10.4 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
To follow as part of Final BAR	NA

## 2. 10.5 COMMENTS AND RESPONSE REPORT

I&AP registered:	Comment received:	Response by the EAP:
To follow as part of Final BAR		

# 11. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF SPECIALISTS

## 11.1 GEOTECHNICAL REPORT (See Appendix A for a copy of the Report.)

### 11.1.1 Terms of Reference

The purpose of the geotechnical investigation was to:

- Establish the engineering properties of the soils and rock underlying the site, encountered during our fieldwork.
- Confirm the soil/ rock horizons encountered during fieldwork in accordance with standard practice.
- Identify any potential problem soils which may contribute to differential settlement and /or heave.
- Determine the allowable bearing capacity and settlement characteristics of the in-situ soils and /or rock.
- Determine excavatability within the in-situ materials.
- **Confirm near surface groundwater occurrence and associated expected flow rates for dewatering purposes.**
- Assess and provide recommendations with regards to slope stability.
- **Provide recommendations with regards to the in-situ soils' corrosiveness.**
- Provide the site class designation in accordance with the N HBRC.
- Put forward recommendations with regards to the founding of the proposed structures.
- **Provide an indication of the in-situ material's re-use potential with specific reference** to bulk backfilling and pavement layers for access roads and parking pavements.

#### Founding recommendations:

##### Structural Founding:

The following options may be considered: *Conventional reinforced shallow foundations*

We recommend that reinforced concrete foundations be placed within the residual quartzite with an in-situ consistencies of dense and better or VERY SOFT ROCK AND HARDER, quartzite bedrock should the minimum allowable bearing capacity requirements ranging between 60kPa and 150kPa be considered .

In areas underlain by the residual quartzite, as a precautionary measure the in-situ strip foundation beds must be compacted to a minimum of 95% Mod AASHTO density within the *dense*, residual quartzite, prior to placement of reinforcing and concrete. The main purpose of the recommended in-situ compaction is to densify any potential unwanted in-situ softening during foundation excavation preparations, which may contribute towards differential settlement.

##### Surface beds, access road and parking areas:

The founding of surface beds where an engineered fill is not introduced, access roads and parking areas are summarized as follows:

- Clear and grub the upper organic contaminated hillwash and residual quartzite transported soils (maximum thickness encountered = 200mm).
- Rip and re-compact the upper say 300mm (minimum) of in-situ soils to a minimum of 93% Mod AASHTO in-situ density.
- Import minimum one layer of G7 quality natural soils/gravels and compact to 95% of Mod AASHTO at optimum moisture content for all surface bed preparation and selected road layer works construction purposes.
- A minimum of 1No x 150mm thick layer, comprising of GS/G6 material stabilized to C4 base/subbase quality material (minimum) should be considered for road pavement construction purposes. Pending the final

EBO traffic count, G5 material stabilized to form a C3 *base* layer combined with a C4 stabilized *subbase* layer may be considered.

- Interlocking block paving surfacing should preferably be considered as final road and parking area surfacing.

**Re-use potential of the in-situ material:**

Based on the foundation indicator related laboratory test results, the hillwash transported class between G10 and >G 10. Therefore, these soils may be used for bulk backfilling only, should quality control related laboratory testing results meet the minimum G10 requirement for fill material specifically.

The residual quartzite class between G7 and GB material and may be considered for bulk backfilling, surface bed preparation and selected layer road pavement construction, should the material be considered on its own and quality control related laboratory testing confirm the minimum G7 specification requirement, specifically.

All oversize and organic material must be removed prior to re-use though, where encountered.

All G5 and G6 material, as well as all G7 *shortfall* (base, subbase/engineered fill/selected road layer works) material will have to be imported from commercial resources.

*We strongly recommend that confirmation quality assurance testing be carried out to confirm the noted material classifications for construction stage purposes.*

## 11.2 ECOLOGICAL IMPACT ASSESSMENT (See Appendix B for a copy of this report)

An ecological habitat survey is required for a proposed development at Goudkoppie, Klerksdorp, Matlosana Local Municipality, North West Province, South Africa (elsewhere referred to as the site). The survey focused on the possibility that threatened fauna or flora known to occur in North West Province are likely to occur within the proposed development or not. Species of known high conservation priority that do not qualify for threatened status also received attention in the survey.

### Objectives of the habitat study

- Surveys to investigate key elements of habitats on the site, relevant to the conservation of fauna and flora.
- Recording of any sightings and/or evidence of existing fauna and flora.
- The selective and careful collecting of voucher specimens of invertebrates where deemed necessary.
- An evaluation of the conservation importance and significance of the site with special emphasis on the current status of threatened species.
- Recording of possible host plants or foodplants of fauna such as butterflies.
- Literature investigation of possible species that might occur on site.
- Integration of the literature investigation and field observations to identify potential ecological impacts that could occur as a result of the development.

Integration of literature investigation and field observations to make recommendations to reduce or minimise impacts, should the development be approved

### Methods:

A desktop study comprised not only an initial phase, but also it was used throughout the study to accommodate and integrate all the data that become available during the field observations.

Survey by R.F. Terblanche during September 2021 was conducted to note key elements of habitats on the site, relevant to the conservation of fauna and flora. The main purpose of the site visits was ultimately to serve as a habitat survey that concentrated on the possible presence or not of threatened species and other species of high conservation priority.

### Conclusion:

- Disturbed grassland is present at the site. Informal fire places at the site probably contribute to impacts on the veld-burning regime at the site. Few trees are present at the site notably the widespread indigenous *Searsia pyrioides* and *Vangueria infausta* as well as the alien invasive *Melia azedarach* and *Morus alba*. Grassland patches at the site contain indigenous grass species such as *Elionurus muticus*, *Melinis nerviglumis*, *Melinis repens*, *Cynodon dactylon*, *Aristida congesta*, *Digitaria eriantha*, *Themeda triandra* and *Eragrostis chloromelas*. Indigenous herbaceous plant species at the site include *Hermannia lancifolia*, *Gazania krebsiana*, *Helichrysum cerastoides*, *Hilliardiella oligocephala* and *Senecio coronatus*. *Aloe jeppeae* (= *Chortolirion latifolium*) is present at the site. Few individuals of the geophyte *Hypoxis hemerocallidea* are also present at the site.
- Alien invasive weeds are present at disturbed areas at the site and include *Argemone ochroleuca*, *Plantago lanceolata*, *Tagetes minuta*, *Bidens pilosa*, *Conyza bonariensis*, *Verbena aristigera* and *Datura ferox*.
- Rocky patches occur at the site. The site is east of a rocky ridge.
- No wetlands or rivers are present at the site.
- Grassland at the site is represented by the Vaal-Vet Sandy Grassland vegetation type (Gh 10) which is listed as a Threatened Ecosystem, Endangered, according to the National List of Threatened Ecosystems (2011). Vegetation at the site has been disturbed, modified and in some areas transformed. The site is isolated in an urban area. The scope for the restoration and conservation of natural grassland at the site is small.
- No Threatened or Near Threatened plant or animal species appear to be resident at the site.
- One plant species that is not threatened but listed as Declining occurs at the site, *Hypoxis hemerocallidea* (African Star Flower).
- Apart from *Hypoxis hemerocallidea* which is a Declining plant species, none of the other plant species of particular conservation priority appear to occur at the site.
- Ecological sensitivity at the site is medium (Figure 2).

- There is little scope for the site to be part of a corridor of particular conservation importance.
- If the development is approved a key issue would be continued monitoring and eradication of alien invasive plant species. It is in particular alien invasive species such as *Melia azedarach* (Syringa Berrytree) and alien invasive Australian *Acacia* species, which should not be allowed to establish.
- If the development is approved an opportunity presents itself to cultivate indigenous plant species which would benefit urban nature conservation.
- While the small grass-aloe like species *Aloe jeppeae* (= *Chortolirion latifolium*) which occurs at the site, is listed as Least Concern, it could be valuable for urban nature conservation to relocate this plant species to the Heritage Site adjacent to the site. The fence of this Heritage also needs to be restored. There is an opportunity, for the development, if approved, to contribute to the adjacent Heritage Site which appears to be increasingly degraded.

### 11.3 HERITAGE IMPACT ASSESSMENT (HIA) (See Appendix C for a copy of this report – to follow)

#### 11.5.1 Terms of Reference for Heritage Impact Assessment

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

#### Legislative requirements of National Heritage Resources Act (NHRA), Act 25 of 1999

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

#### The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. *Grave yards and graves older than 60 years*
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage

- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance
- g. *Graves and burial grounds*
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. *Any development or other activity that will change the character of a site and exceed 5 000m<sup>2</sup> or involve three or more existing erven or subdivisions thereof*
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

### **11.5.2 Methodology**

#### **Survey of literature**

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

#### **Field survey**

The field assessment section of the study was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

#### **Oral histories**

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

#### **Documentation**

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality

### **11.5.3 Recommendations and Conclusions**

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. The Goudkoppie Heritage Hill Site is located to the west of the proposed development area. The assessment of the specific study area did not identify any sites, features or material of any real cultural heritage



(archaeological and/or historical) significance, although there are some remnants of trenches and diggings possibly related to earlier mining in the area.

The area would have been used in the past for agricultural purposes, as well as prospecting and trenching for gold and if any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance existed here in the past it would have been extensively disturbed or destroyed as a result.

Known cultural heritage sites and features are located and preserved on the Goudkoppie Heritage Hill site, including Stone Age stone tools & rock engravings, remains related to the late 19th century gold mining in the area and Anglo-Boer War (1899-1902) related sites and features. The Late Iron Age (Sotho-Tswana) village on the Hill is a replica. Recent vandalism and illegal mining in the area is threatening the Goudkoppie Heritage Hill sites, and efforts to mitigate these threats and preserve the sites here are ongoing.

Although the proposed new development for which this assessment was undertaken will not directly impact on the Goudkoppie Heritage Hill and the sites located there, it is recommended that the new development should take the close proximity of the area into consideration during the related development actions. Any Visual Impacts on the Heritage Hill should be avoided therefore and the historic sense of place should be preserved. It is however also believed that the proposed new development will contribute towards mitigating the ongoing threats to the archaeological & historical sites and features as a result of illegal mining and vandalism situated here. This could be achieved by an assumed higher volume of people and vehicular traffic in the area, heightened security measures and the cleaning of the area. Cooperation between the developer and Local Authorities including the City Council, SAP and the Matlosana (Klerksdorp) Museum will however be of crucial importance in assuring this.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

**Finally, from a Cultural Heritage point of view the proposed Office Block & Vehicle Workshop development on a portion of Townlands of Klerksdorp 424IP should be allowed to continue taking the above recommendations into consideration.**

## 12. CONCLUSIONS AND RECOMMENDATIONS

Metroland cc has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 3,0543 hectares of indigenous vegetation on the Remainder of Portion 1 of the Farm Townlands of Klerksdorp, 424-IP, City of Matlosana Local Municipality, North West Province.

This Chapter of the BAR provides a summary of the findings of the impact assessment process, including the EAP's opinion as to whether the activity should or should not be authorised.

### 12.1 ENVIRONMENTAL IMPACT STATEMENT

The detailed environmental assessment for the proposed development, has not found any environmental impacts that *cannot* be mitigated to acceptable and manageable levels.

In the National Framework for Sustainable Development (NFSD) it is stated that *"the achievement of sustainable development is not a once-off occurrence and its objectives cannot be achieved by a single action or decision. It is an ongoing process that requires a particular set of values and attitudes in which economic, social and environmental assets that society has at its disposal, are managed in a manner that sustains human well-being without compromising the ability of future generations to meet their own need.* The NFSD further continues to emphasize that South Africa's current development path in certain instances reflects signs of being unsustainable in the long-term. It highlights that a large percentage of growth in economic activity (measured in terms of its contribution to the GDP) is achieved by *"consuming' natural resources and degrading our habitat at accelerating rates with the inevitable consequence that future economic growth and development objectives will be prejudiced. "*

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion"*, whilst ensuring that such growth is *"ecologically sustainable"*. In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably.

The local municipality intends to promote a more compact city in order to prevent the expansive provision of social and engineering services, as well as to prevent the economic decline of the traditional city centre. The Spatial Development Framework (SDF) addresses the scale of urban growth through planned extensions, infill and redevelopment strategies. It also addresses measures to promote compact and connected growth opportunities, such as the identification of revitalisation zones, densification and mixed land use zones.

The planning practices of the past has resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is infill development within the urban area, which is already used as the commercial / retail node along the N12 corridor.

The proposed development addresses the need identified by the Local Municipality, for the provision of additional business properties, to be alienated by means of full title and will provide for a special zoning as a retail property and yard.

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.

The alternatives considered for the proposed development includes "Special zoning" (Alternative 1), "Single land use: Housing only" (Alternative 2) and the "No-go option.

People want easy access to job opportunities, shops, schools, banking facilities, clinics, etc. and want their living environment to be placed at strategic positions with good access routes in close proximity to these amenities.

The proposed “special zoning” erf will accommodate a shop, builder’s yard and ancillary workshop and will:

- Promote entrepreneurial services and products;
- Provide Job opportunities; and
- Improve neighbourhood quality.

Providing housing in this location is not ideal as the nuisance associated with a busy road (N12) is not preferable for future residence due to disturbances and is best located setback from the main road behind the commercial / retail uses.

The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is unacceptable, as other land parcels will have to be sourced to provide for this need within the community. This will imply that infill development will not take place and will result in urban sprawl.

It is therefore proposed that Alternative 1 be the preferred alternative.

Specialist studies were conducted and a full Public Participation Process is being followed. This information was used to generate a sensitivity map that was used to assess the sustainability of the design and layout plan for the proposed development.

The **Geo-Technical Engineer** has found the site can be developed taking cognizance of the recommendations in relation to excavations.

The **Heritage Impact Assessment** revealed that the proposed new developmen will not directly impact on the Goudkoppie Heritage Hill and the sites located there, it is recommended that the new development should take the close proximity of the area into consideration during the related development actions. Any Visual Impacts on the Heritage Hill should be avoided therefore and the historic sense of place should be preserved. It is however also believed that the proposed new development will contribute towards mitigating the ongoing threats to the archaeological & historical sites and features as a result of illegal mining and vandalism situated here. This could be achieved by an assumed higher volume of people and vehicular traffic in the area, heightened security measures and the cleaning of the area. Cooperation between the developer and Local Authorities including the City Council, SAP and the Matlosana (Klerksdorp) Museum will however be of crucial importance in assuring this.

The **Fauna and Flora Habitat** study conducted also revealed that vegetation at the site has been disturbed, modified and in some areas transformed. The site is isolated in an urban area. The scope for the restoration and conservation of natural grassland at the site is small. While the small grass-aloë like species *Aloe jeppeae* (= *Chortolirion latifolium*) which occurs at the site, is listed as Least Concern, it could be valuable for urban nature conservation to relocate this plant species to the Heritage Site adjacent to the site. The fence of this Heritage also needs to be restored. There is an opportunity, for the development, if approved, to contribute to the adjacent Heritage Site which appears to be increasingly degraded.

A full Public Participation Process is being conducted and any objections or comments that will be received in relation to the proposed development will be incorporated into the Final BAR.

## 12.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

EMPR’s aim to identify and minimise the potential impacts that the proposed construction and operational phases of the project may have on the receiving environment. An EMPR has been developed which is contained in Appendix D and includes detailed mitigatory measures for the construction phase.

As a general guideline, the EMPR should be based on a comprehensive set of environmental aspects (elements of the facility that can interact with the environment), and hence, the EMPR compiled for this application includes the following key components:

- Mechanisms for the on-going identification and assessment of environmental aspects and impacts;

- Environmental management programmes; objectives and targets;
- Environmental monitoring and reporting framework;
- Environmental management procedures; and,
- Mechanisms for the recording of environmental incidents and implementing corrective and preventative actions.

### **12.3 EAP OPINION**

The information contained in this BAR and Specialist Studies, provides a detailed and comprehensive description of the proposed project, baseline environment and potential environmental impacts associated with the proposed development. As no significant impacts that cannot be mitigated were identified, AB Enviro Consult is of the opinion that the project should proceed, provided that the necessary mitigation and management measures are implemented.

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of the EMPR complies with the relevant legislation and the conditions of the environmental authorisation. The applicant will thus be responsible for the implementation of the EMPR.

The environmental management programme (EMPR) should form part of the contract between the construction company and the applicant. This will help ensure that the EMPR is adhered to. It is suggested that a suitably qualified Environmental Control Officer (ECO) be appointed for the construction phase.

### **12.4 CONDITIONS RECOMMENDED TO BE INCLUDED IN ANY AUTHORISATION THAT MAY BE GRANTED BY THE COMPETENT AUTHORITY IN RESPECT OF THE APPLICATION**

**The following recommendations has been identified for the pre-construction and construction phases of the proposed development**

1. A full copy of the signed EA from DEDECT in terms of NEMA, granting approval for the development must be available on site
2. A copy of the EMPr as well as any amendments thereof must be available on site
3. A suitably qualified ECO must be appointed.
4. Impacts on the environment must be minimised during site establishment and the development footprint must be kept to the approved development area.
5. Vegetation clearing may not commence until such time as the development footprint has been clearly defined.
6. No clearance of vegetation outside of the development footprint may occur.
7. No construction workers or machinery will be allowed within the no-go area that is defined as the non-perennial river, including its riparian and buffer zone.
8. At the end of the construction phase the site and its surrounding area must be free from any pollution that originated as a result of the construction activities.
9. No disturbance of topsoil & subsoil may commence until such time as the development footprint has been clearly defined.
10. No disturbance of topsoil & subsoil outside of the development footprint may occur.
11. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any chemical, fuel, oil and cement spills that originated as a result of the construction activities.
12. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any sewage that originated as a result of the construction activities.
13. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any hazardous or general waste pollution that originated as a result of the construction activities.
14. Dust prevention measures must be applied to minimise the generation of dust.
15. Noise prevention measures must be applied to minimise the generation of unnecessary noise pollution as a result of construction activities on site.

16. Absolutely no burning of waste is permitted.
17. Fires will only be allowed in facilities especially constructed for this purpose.
18. No hunting of animals will be allowed.
19. No intentional destruction of any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance may occur.
20. All Contractors and sub-contractors must abide to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.

### 13. AFFIRMATION BY EAP

Mr. Jean Pierre De Villiers

declare under oath that I:

- a. act as the independent environmental practitioner in this application ;
- b. do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed;
- c. do not have and will not have a vested interest in the proposed activity proceeding;
- d. have no, and will not engage in, conflicting interests in the undertaking of the activity;
- e. undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required;
- f. will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- g. will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- h. will keep a register of all interested and affected parties that participated in a public participation process; and
- i. will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

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Signature of the Environmental Assessment Practitioner:

Name of company: AB Enviro Consult CC

Date:

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Signature of the Commissioner of Oaths:

Date

Designation

Official stamp:

## 14. LIST OF REFERENCES

- Department of Environmental Affairs and Tourism. 1992.** Integrated Environmental Management. Pretoria, DEAT.
- Department of Environmental Affairs and Tourism. 1998.** *Guideline Document - EIA Regulations*. Pretoria, DEAT.
- Department of Environmental Affairs. 1988.** *Climate of South Africa, climate statistics up to 1984*. Weather Bureau (WB40). Pretoria, Government Printer.
- Department of Transport, 19--.** *Climate of South Africa Part 1 Climate statistics*. Weather Bureau (WB20). Pretoria Government Printer.
- S. Cliff. 2015.** Environmental Scoping report for the proposed high density residential township "Tanganani extension 7", to be located on a part of Portion 119 of the farm Diepsloot 388 JR, City of Johannesburg Municipality, Gauteng

**APPENDIX A:  
GEOTECHNICAL SPECIALIST REPORT**



**APPENDIX B:  
ECOLOGICAL SPECIALIST REPORT**

**APPENDIX C:  
SAHRA SPECIALIST REPORT**

**APPENDIX D:  
ENVIRONMENTAL MANAGEMENT PROGRAMME**

**APPENDIX E:  
SPECIALIST DECLARATION OF INDEPENDENCE (TO FOLLOW)**

**APPENDIX F  
PROOF OF BAR SENT TO DW&S**