DRAFT REPORT

SCOPING 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 132,8881 HA OF INDIGENOUS VEGETATION, SOME WITHIN AN ECOLOGICAL SUPPORT AREA, FOR THE PROPOSED MIXED USE TOWNSHIP ESTABLISHMENT (TO BE KNOWN AS IMPUMELELO EXTENSION 5) LOCATED ON PORTION 18 OF THE FARM NOOITGEDACHT 294-IR, LESEDI LOCAL MUNICIPALITY, GAUTENG PROVINCE.

Report Date: May 2021

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Compiled for:

NEP Construction PTY (LTD)

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EXECUTIVE SUMMARY

The land owner**, NEP Construction PTY (LTD)** in co-operation with the Department of Human Settlements has appointed ***AB Enviro Consult CC***, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng 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) (in terms of the relevant notice) :**	**Describe each listed activity as per project description[1]:**	**Anticipated years to complete construction (From date of commencement)**
GN. R 325, 7 April 2017	15	The clearance of 132,8881 ha of indigenous vegetation for the proposed township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.	10 Years
GN. R 327, 7 April 2017	28 (ii)	Mixed use development where such land has been used for agriculture after 1 April 1998 and where such development ii) will occur outside an urban area, where the total land to be developed is bigger than a hectare	10 Years
GN. R 324, 7 April 2017	12 c. (ii)	The clearance of 498 576 square meters (49,8576 ha) of indigenous vegetation in order to establish a township situated with an Ecological Support Area as described in the Gauteng Conservation Plan.	10 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.

1. INTRODUCTION

The land owner, NEP Construction PTY (LTD), in co-operation with the Department of Human Settlements, has appointed appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

1.1 THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The purpose of this document is to adhere to the requirements for compilation of Environmental Impact Assessment Reports as amended and published in Government Notice R.326 of 7 April 2017, Appendix 2, 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 the land owner, **NEP Construction PTY (LTD)** in co-operation with the Department of Human Settlements 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) The Civil Engineer was appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He also designed the proposed infrastructure.
4) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
5) A Fauna and Flora and Wetland specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
6) An Agricultural Specialist has been appointed to assess the impact of the proposed development on this aspect.
7) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
8) Desk top studies were conducted and alternatives assessed.
9) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
10) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
11) 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.
12) 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 SCOPING PHASE

The Scoping phase includes the necessary investigations to assess the suitability of the identified site and its surrounding environment, for the development proposal. The scoping exercise describes the "status quo" of the bio-physical, social, economical and cultural environment, and identifies the anticipated environmental aspects associated with the proposed development. Scoping includes the identification of key interest groups, (both government and non-government), and 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)

The purpose of the Scoping Report is to document the outcome of the Scoping Phase of the project.
This report fulfils the requirement of the EIA Regulations (2014) for the documentation of the scoping phase. The Scoping Report is 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. Table 1 below provides a summary of the legislative requirements in terms of a Scoping Report as stipulated in Section 21(3) of the EIA Regulations of December 2014 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 Scoping Report where the NEMA and Scoping Report requirements have been addressed.

Table 1: Scoping Report content as per Section 21(3) of NEMA's 2014 EIA Regulations of December 2014 as amended and published in Government Notice R. 326 of 7 April 2017 Appendix 2

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Location in this Scoping report
Appendix 2, section 2 (1)(a)	Details of - (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Paragraph 2
Appendix 2, section 2 (1)(b)	The location of the activity, including – (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; (iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties	 Paragraph 4 Paragraph 4 Paragraph 4
Appendix 2, section 2 (1)(c)	A plan which locates the proposed activity or activities applied for, at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken; or (iii) On land where the property has not been defined, the coordinates	Figure 1 and Figure 2, 3 and 4
Appendix 2, section 2 (1)(d)	A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered; (ii) A description of the activities to be undertaken, including associated structures and infrastructure.	 Paragraph 3 Paragraph 3
Appendix 2, section 2 (1)(e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Paragraph 5
Appendix 2, section 2 (1)(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Paragraph 6
Appendix 2, section 2 (1)(g)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including- (i) Details of all alternatives considered; (ii) Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	 Paragraph 7 Paragraph 10 Paragraph 10

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Location in this Scoping report
	(iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Paragraph 8
	(v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts-	Paragraph 9
	(aa) can be reversed;	Paragraph 9
	(bb) may cause irreplaceable loss of resources; and	Paragraph 9
	(cc) can be avoided, managed, or mitigated.	Paragraph 9
	(vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Paragraph 9
	(vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Paragraph 9
	(viii) The possible mitigation measures that could be applied and level of residual risk;	Paragraph 9
	(ix) The outcome of the site selection matrix;	Not Applicable
	(x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Not Applicable
	(xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Paragraph 11
Appendix 2, section 2 (1)(h)	A plan of study for undertaking the environmental impact assessment process to be undertaken including-	Paragraph 12
	(i) A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Paragraph 12.1
	(ii) A description of the aspects to be assessed as part of the environmental impact assessment process;	Paragraph 12.2
	(iii) Aspects to be assessed by specialists;	Paragraph 12.3
	(iv) A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;	Paragraph 12.4
	(v) A description of the proposed method of assessing duration and significance;	Paragraph 12.5
	(vi) An indication of the stages at which the competent authority will be consulted;	Paragraph 12.6
	(vii) Particulars of the public participation process that will be conducted during the environmental impact assessment process;	Paragraph 12.7
	(viii) A description of the tasks that will be undertaken as part of the environmental impact assessment process;	Paragraph 12.8
		Paragraph 12.9

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Location in this Scoping report
	(ix) Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	
Appendix 2, section 2 (1)(i)	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the report; (ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; and (iii) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Paragraph 13 Paragraph 13 Paragraph 13
Appendix 2, section 2 (1)(j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	Paragraph 13
Appendix 2, section 2 (1)(k)	Where applicable, any specific information required by the competent authority.	To be included in final Scoping Report
Appendix 2, section 2 (1)(l)	Any other matter required in terms of section 24(4) (a) and (b) of the Act.	Not Applicable

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

Over a period of 25 years (1996-2021) this consultancy has successfully applied for, and obtained positive ROD's and EA's for more than 375 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

ACADEMIC AND PROFESSIONAL QUALIFICATIONS PROF DE VILLIERS

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 Scientific Professions (400099/86)	Environmental Science
1994	Quality Auditor	ESKOM	Auditing
1998	Personnel & Verifying Auditor	SAATCA	Environmental Auditing
2006-2017	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	

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	Masters 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
2019	Registered as Environmental assessment Practitioner	EAPASA Registration number: 2019/1573	

3. DESCRIPTION OF THE ACTIVITY

The land owner, **NEP Construction PTY (LTD)** in co-operation with the Department of Human Settlements has appointed appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the the proposed township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

The property is situated within the jurisdiction of the Sedibeng District Municipality and the Lesedi Local Municipality within close proximity to Devon and adjacent to approved Impumelelo Ext 3. The application site is close to major roads such as the R29 to Springs, R548 to Delmas, R550 to Nigel and the N17. The application site is located to the north of the approved Impumelelo Ext 3 along the R548 to Delmas (and Devon).

The site is influenced by a number of design factors that were considered for the proposed layout plan to be acceptable. These factors include the slope of the site, flood lines, environmental sensitivity, service provision, erf size, access, road layout and community facilities as well as the geotechnical features presented in the Geotechnical Report. To ensure that the proposed development do not infringe on any design principles and the environmental sensitive areas, development of residential units will only be allowed to take place according to the prescribed methods. Subsequently a buffer area has been established around the wetlands area and no development may take place beyond the 1:100 year flood line.

The proposed development will have one direct access points from provincial road R548 as mentioned above, in accordance to guidelines as provided by Gautrans.

Public facilities such as Business areas, Community Facilities and parks have been provided in close proximity to the residential areas and will contribute to provide the required facilities associated with a housing development.

The township will consist of a mixed use, including: See Figure 1 for a copy of the proposed Layout Plan.

Residential 1	1752 Erven (55.6250 ha)
Residential 2	3 Erven (4.4099 ha) @ 80 dwelling units/ha
Business 2	7 Erven (5.8147 ha)
Institutional	20 Erven (1.5150 ha)
Community Facilities	1 Erven (0.1897 ha)
Special	179 Erf (16.3187 ha)
Public Open Space	17 Erven (13.1473 ha)
Streets	(35.8678 ha)
TOTAL Erven	**1979 Erven**
Area of township	**132,8881 ha**

FIGURE 1: Proposed layout plan.

CIVIL SERVICES

Water

Bulk water is currently supplied to Devon and Impumelelo through the Rand Water Bulk Supply system, from the downstream Bloemendal pump station. The Rand Water main pump line supplies a 2.5Ml reservoir and a 0.136Ml elevated water tower situated in Devon. Impumelelo Ext 1 & 2 is serviced by 3 x 150m3 elevated steel tanks that receive water from the Devon reservoir through a 2.67km 200mm diameter pipe. Devon and Impumelelo have total reservoir storage of 3.08ML including elevated tanks.

The current total theoretical 48 hour required storage capacity is 6.62ML for the existing Devon and Impumelelo township including the new development, whereas the existing storage is 3.08Ml. Spare capacity for this project is therefore not available.

A new 3.65 ML reservoir is required to augment the existing storage reservoir to provide 48 hrs storage capacity. The proposed new reservoir will be placed next to the existing 2.5ML concrete reservoir in Devon town.

Storage Capacity requirement for the Proposed Development Impumelelo Ext 5:

GAADD 925.4 x 2: 1850.8Kl

Total Storage Required: 1850.8 Kl say 2 ML

Elevated Storage Tank 4 hrs: 722 KL say 750 KL

Sewer

Sewer generated from Devon and Impumelelo is collected through an existing 315 mm outfall sewer pipeline located on the southern banks of the stream, leading to the Wastewater Treatment Works. The existing wastewater treatment works with a capacity of 1.4Ml is situated northwest of Impumelelo.

A theoretical capacity of 2.89Ml is needed to treat sewerage generated by the existing township, Devon town as well as the proposed development of Impumelelo Ext 5.

The existing 2.37ML Wastewater Treatment Plant cannot handle the additional load from the proposed Impumelelo Ext 5 (3118 units). An upgrade from 2.37ML to 2.89Ml is necessary.

This application does not deal with the proposed upgrade of the Wastewater Treatment Plant. Occupation of the site will not commence before this upgrading has taken place and sufficient capacity is available for this aspect.

Roads

The proposed township development is accessible via a provincial road R548 jurisdiction of Gautrans, which is on the north eastern boundary of the site. Spacing of the intersection will comply with Gautrans requirements.

Secondary Access to the proposed development will be provided via a link road from Impumelelo Ext 3. Authorization from the relevant authorities, including Gautrans will have to be gained to construct the intersection.

All internal roads surfaces for the development will be constructed according to the proposed pavement design in the attached report. The majority of the residential development is proposed to drain towards and ultimately to discharge south easterly of the development to follow the natural water course.

Stormwater

A conceptual stormwater management plan (SWMP) for the development needs to be prepared. It is proposed that the development be served by a conventional stormwater drainage system consisting of roadways as well as open channels.

The runoff shall be attenuated by means of stormwater detention facilities to be at least equal to pre-development peak flow rates for up to the 1 in 2-year return period storm event.

The vertical alignment is designed to address storm water drainage within the road reserve. Therefor the final surfaced level of the roads is as far as possible below natural ground level as to ensure storm-water drainage at the most efficient way. The roads have a maximum cross-fall to one side of 2% and minimum longitudinal slope of 0.5%.

Electricity

Electricity shall be supplied by ESKOM through a bulk meter and reticulated to individual units.

Refuse Removal

Refuse removal is conducted by Lesedi Local Municipality.

4. DESCRIPTION OF THE PROPERTY

The property is situated within the jurisdiction of the Sedibeng District Municipality and the Lesedi Local Municipality within close proximity to Devon and adjacent to the approved Impumelelo Ext 4. The application site is close to major roads such as the R29 to Springs, R548 to Delmas, R550 to Nigel and the N17. The site is located north of the approved Impumelelo Extention 4 (See Photograph 6) along the R548 to Delmas (and Devon).

Most of the study area itself is currently lying fallow. Localized portions of the study area are been utilized for agricultural purposes, including ploughing and/ or tilling. See Photograph 1. Significant degradation of the northern portion of the site, possibly as a result of open-cast mining or quarrying activities, is evident. See Photograph 2. The natural topsoil has been reworked and stockpiled, or in places completely removed, in this area. A homestead, paddocks (See Photograph 3) and other infrastructure associated with cattle farming are also present.

PHOTOGRAPH 1: Much of the site is being cultivated

PHOTOGRAPH 2: Significant degradation of the northern portion of the site, possibly as a result of open-cast mining or quarrying activities, is evident

A non-perennial river (with narrow active channel and poorly developed riparian zone) and two small in-channel dams (with groundwalls) are present on site. See Photograph 4 and 5. The active channel is not well-developed and appears to be very seasonal with waterflow probably sporadic and highly dependent on substantial rainfall events. Aquatic systems classified as wetland types (channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, floodplain wetlands, wetland depressions, wetland flats and seeps) appear to be absent at the site. See Figure 5.

A historical cemetery is located close to the main homestead on the farm. The site contains two graves, formally demarcated with headstones. The 1st grave consists of a double burial, with Johannes Kotze (born in 1888 and died in 1963) and Christina Kotze (born 1906 and died in 1956) buried here. See Photograph 7. Grave 2 is that of Jacobus Johannes Jurgen Kotze who was born in 1917 and died in 1925.

PHOTOGRAPH 3: A paddock and other infrastructure associated with cattle farming are also present.

PHOTOGRAPH 4: View at the southern boundary of the site looking towards the area where the watercourse is present.

PHOTOGRAPH 5: View of grassland area and in-channel dam, Dam 1, at the site.

PHOTOGRAPH 6: Ongoing and existing residential development to the south of the study area.

PHOTOGRAPH 7: Grave 1 on Site 1. The grave contains two burials

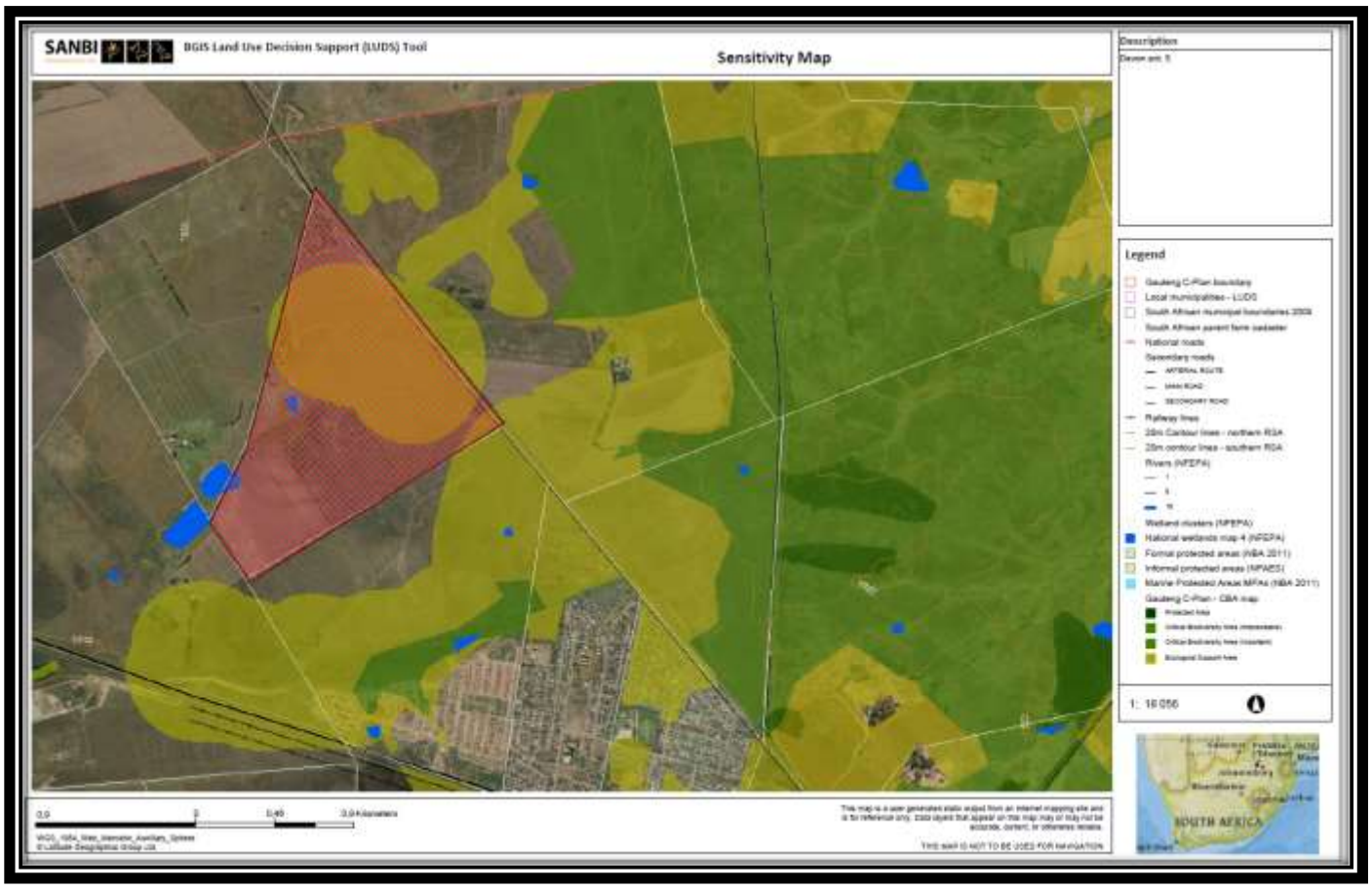
Land owner	NEP Construction PTY (LTD)		
Contact person:	Mr. Pieter Ernst		
Postal address:	P.O. Box 804, Wolmaransstad		
Postal code:	2630	Cell:	082 773 0323
Telephone:	018 451 1005	Fax:	018 451 1012
E-mail:	Pfernst1@gmail.com		

Description of the property/properties where activity is proposed to be undertaken:	Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province		
Farm/ Erf name(s) & number(s) (including portion/ holding) of all proposed sites:	Portion 18 of the farm Nooitgedacht 294-IR		
Property size(s)(ha) of all proposed sites	132,8881 ha		
Property size(s) (m^2) of all proposed sites:	132,8881 ha		
Development footprint size(s) in ha/m^2:	132,8881 ha		
SG Digit code(s) of all proposed sites:	TOIR00000000029400018		
Coordinates of site: Latitude (S)	26°	19’	58,82“
Longitude (E)	28°	45’	26,88“

Note: Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94 WGS84 co-ordinate system**.** Where numerous properties/sites are involved (e.g. linear activities), please attach a list of property descriptions separately.

Physical/Street address of proposed sites:	A Portion 18 of the farm Nooitgedacht 294IR, Lesedi Local Municipality, Gauteng Province
Current Zoning of site(s)	Agricultural

Figure 4: LOCALITY MAP AND SENSITIVITY MAP



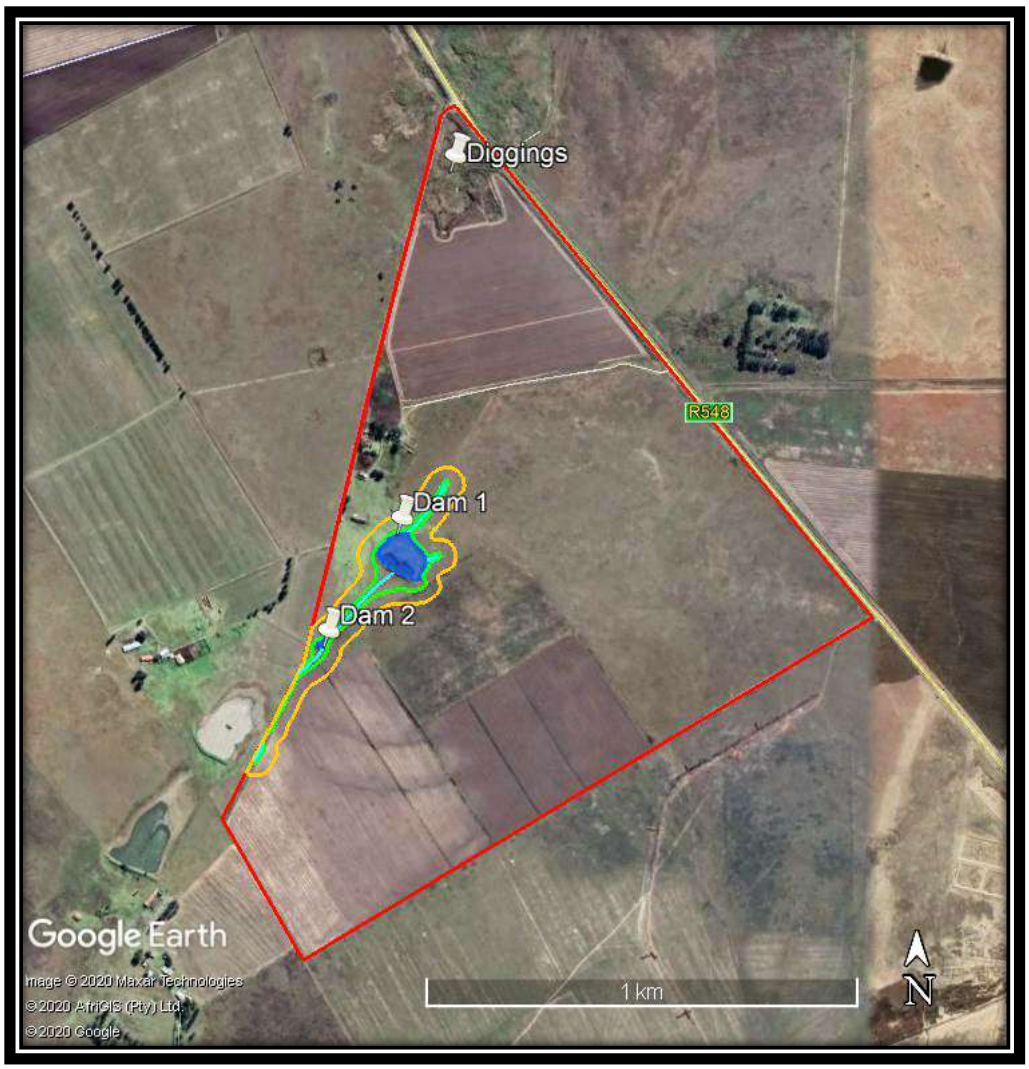


Figure 5 Indication of non-perennial river (active channel, riparian zone, buffer zone) at the site.

Light blue outline	Route of active channel at the site
Green outline	Riparian zone
Orange outline	Outer edge of buffer zone
Darker blue outline and shading	Artificial Waterbody (In-channel Dam)

Grid references and altitudes were taken at site with a GPS Garmin E-trex 20 ® instrument.
Map information were analysed and depicted on Google images with the aid of Google Earth Pro (US Dept. of State Geographer, MapLink/ Tele Atlas, Google, 2018).

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.	National & Provincial (DEA And Gauteng GDARD)	27 November 1998
The Bill of Rights, Constitution of South Africa, Section 27 (1)(b)	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: 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. Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance: (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).	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.	National & Provincial (DEA And Gauteng GDARD)	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	Department of water and sanitation	1998

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	integrity, economic growth and social equity when managing and using water. The major objectives of the National Water Act are to: •Aid in providing basic human needs; •Meet the growing demand of water in a sustainable manner; •Ensure equal access to water and use of water resources; •Protect the quality of water of natural resources; •Ensure integrated management of water resources; •Foster social and economic development; and •Conserve aquatic and related ecosystems. 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.		
National Environmental Management: Biodiversity Act (NEMBA) (ACT NO. 10 OF 2004)	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. In terms of Chapter 4 of the Above Act: 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. (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. (2) The following categories of ecosystems may be listed in terms of subsection:	National & Provincial (DEA And Gauteng GDARD)	2004

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	(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; (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; (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 (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). (3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list. 53 (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process. (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.		
National Environmental Management: Protected Areas Act (ACT NO. 57 OF 2003)	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	National & Provincial	2003

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	management of protected areas. The purpose of the Act is: •To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity. •To conserve biodiversity in those areas; •To protect South Africa's rare species; •To protect vulnerable or ecologically sensitive areas; •To assist in ensuring the sustained supply of environmental goods and services; •To provide for the sustainable use of natural and biological resources; •To create or augment destinations for nature-based tourism; •To manage the interrelationship between natural environmental biodiversity, human settlement and economic development; •To contribute to human, social, cultural, spiritual and economic development; •To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species. 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.		
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, read 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.	National & Provincial (DEA And Gauteng GDARD)	2008
Mineral and Petroleum Resources Development Act (MPRDA), Act 28 of 2002	The Act distinguishes between mining permits and mining rights as follows: **Mining Permit**: Required where the activity will last less than two years and affects an area of less than 1.5ha in extent (valid for 3 years). In terms of the Act a mining permit requires a submission of an Environmental	Relevant Provincial Authorities.	2002

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	Management Plan (EMP to DME for approval prior to the onset of activities). **Mining Right**: Required for larger mining operations (renewable and valid for 30 years). In terms of the Act a mining right requires the submission of an Environmental Management Programme (EMProg) to DME for approval prior to the onset of activities. In light of their limited spatio-temporal extent, borrow pits (for the provision of construction material) and quarry operations would typically require a mining permit. The closure of borrow pits requires the submission of a closure application; this must be submitted within 180 days after ceasing operations. It is important to recognise that the mining right/permit holder's liability persists until such time as a Closure Certificate has been issued by DME.		
National Environmental Management: Air Quality Act (Act 39 of 2004)	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.	Relevant Provincial Authorities.	2004
The Conservation of Agricultural Resources Act (Act 43 of 1983)	This Act regulates the flow pattern of runoff water, control of weeds and invader plants.	Relevant Provincial Authorities.	1983
National Veldt and Forest Fire Act (Act 101 of 1998)	Chapter 4 places a duty on owners to prepare and maintain firebreaks.	Relevant Provincial Authorities.	1998
National Forests Act, Act 84 of 1998 (NFA) read with GN1602 of December 2016.	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.	National and Provincial authorities.	1998
Occupational Health and Safety Act (Act 85 of 1993)	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.	Relevant Provincial Authorities.	1993

Regional legislations, policies and guidelines

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

Legislation, policy of guideline	Description of compliance
GDACE requirements for Biodiversity Assessments	Gauteng is South Africa's smallest and most densely populated and economically productive province. As such it has intense land-use pressure, from urban

	expansion and mining predominantly, and there are severe pressures on Gauteng's natural resources. To address this, as well as enhance livelihoods for the citizens of Gauteng, a range of tools have been developed to aid the wise use of natural resources and sustainable development. These tools help to mainstream biodiversity objectives into land-use planning and development decision-making. Biodiversity is in fact key to a green economy. It underpins the ecological infrastructure and natural capital from which flows a range of goods and services that benefit people. This provides a foundation for: • Economic growth and the creation of jobs in biodiversity management, restoration and maintenance of ecological infrastructure • Social development through the delivery of services that support the poorest members of society and aid in poverty alleviation • Human wellbeing including helping us cope with climate-related hazards and disaster risk reduction The Biodiversity Specialist were provided with copies of the requirements and he has incorporated them into his report.
Development guidelines for Ridges	The quartzite ridges of Gauteng are one of the most important natural assets in the northern provinces of South Africa. This is because these ridges, and the area immediately surrounding the ridges, provide habitat for a wide variety of fauna and flora, some of which are Red List, rare or endemic species or, in the case of certain of the plant species, are found nowhere else in South Africa or the world. The ridges also fulfill functions that are necessary for the sustainability of ecosystems such as the recharging of groundwater, wetlands and rivers, wildlife dispersal and providing essential habitat for pollinators. Ridges also have a socio-cultural role in that they provide aesthetically pleasing environments that are valued by residents, tourists and recreational users. Human activities such as urbanization, mining and the planting of alien vegetation may undermine the contribution that ridges make to the environment. These factors were all taken into account by the Botanical and Heritage Specialists in their assessment of the area.
Lesedi Local Integrated Development Plan, 2017/2018	The Lesedi Local Municipality is located on the eastern boundary of Gauteng province and consist of two urban areas namely Heidelberg / Ratanda and Devon/ Impumelelo. In terms of the Lesedi IDP 2017 / 2018, development in the municipality should be directed by the following guidelines: **Correction of historically distorted spatial patters** The main focus of this guideline is to integrate the townships with oneanother. Devon and Impumelelo is situated in close proximity to one another and development should be encouraged towards each other. An informal settlement has already formed on the farm portion and through this township establishment application, a formal township with access to proper housing and services can be supplied to the community. **Promotion of spatial integration** The spatial integration should promote urban infill development and establish mixed use areas. This application will encourage mixed land uses and the integration of work opportunities closer to living spaces. **Discouragement of urban sprawl and the promotion of more compact towns** The proposed densities for the township are in line with the existing densities in Impumelelo. Seeing as urban sprawl have already taken place over the farm portion through informal settlements, proper planning methods should be encourage to reduce further sprawl and ensure that viable housing be provided on site. Through this township establishment application, a formal process is followed to ensure that further sprawl to the west do not take place and provide adequate housing opportunities to the residents.

	Promotion of a diverse combination of land use, also at a detailed level This application is focussed on providing a sustainable neighbourhood to its residents by making use of mixed land uses. Nodal areas to provide job opportunities are created, community facilities such as a crèche, clinic and so forth can be provided. Ample open spaces are given for sports and recreational purposes, all in close proximity to residential areas. By combining a number of related land uses, this township strives to create a sustainable neighbourhood. **Optimization of the use of existing resources, including bulk infrastructure** The proposed Impumelelo Extension 4 is located adjacent to the existing Impumelelo Townships. According to the IDP, the area of Impumelelo / Devon has spare capacity for services and development should be concentrated in these areas. Accordingly the proposed development of Impumelelo Ext 4 will utilize the existing resources that are available for infrastructure. **Sustainable land development patterns and practices** The promotion of this guideline is twofold, first it focusses on the conservation of ecological sensitive areas and secondly the sustainability of the community. The proposed Impumelelo Ext 4 has areas within which is not suitable for development and was taken into consideration. An environmental scoping report and the authorisation thereof was completed on the farm portion and is attached as Annexure N and O. Therefore all environmental aspects have been considered before the layout plan was conceptualised. With the drafting of the layout plan, numerous land uses was included in the residential township in order to create a sustainable development that will bring work opportunities closer to home. Residential related uses, community facilities and so forth have also been introduced for sustainability. **Discouragement of land invasion and ensuring equitable access to land** The purpose of this application is to provide additional housing to Impumelelo. The proposed development is an initiative of the Gauteng Department of Housing to resolve housing backlogs by providing additional housing within Impumelelo.
Regional spatial development framework	In terms of the Spatial Development Framework for the Lesedi Local Municipality, the application site is earmarked for current and proposed residential projects). Some strategic land pockets have been identified for investment and critical planning and technical analysis has been completed. The investment areas are targeted for intensification and connectivity within the urban fabric with mix-use development scalable for the context of the area.
The National Development Plan 2030	The National Development Plan (NDP) 2030 offers a long-term perspective on South Africa's priorities, and aims to eliminate poverty and reduce inequality by 2030. It defines a desired destination and identifies the role different sectors of society need to play in reaching that goal. The NDP recognises the wealth of natural resources such as biodiversity and the need to protect the environment whilst benefiting from mineral resources. It proposes three measures to protect natural resources in South Africa: i) An Environmental Management Framework, including biodiversity offsets for developments with negative environmental or social impacts. ii) Targets for protected areas. iii) Annual reports of the health of natural resources in order to inform policy
Government priorities and biodiversity	The Medium Term Strategic Framework (MTSF) is a framework that guides government's programme of work in a particular electoral mandate period. It provides a prioritisation framework focusing government efforts on strategic priority areas. The phased development of new MTSFs every 5 years provides guidance for achieving the NDP priorities. The MTSF for the period of 2014-2019 provides a framework for implementing South Africa's transition to an environmentally sustainable, climate change resilient, low-carbon economy. The MTSF is a key input in determining national budget allocations, through the Medium Term Expenditure Framework.

	The MTSF strategic priorities are articulated in more detail in key Outcomes, with accompanying measurable outputs and key activities, and Outcome Delivery Agreements. The latter are performance agreements between the President and Ministers.
Outcome 10 Delivery Agreement	The Government's main priorities for the period reflected by the MTSF are reflected by 14 Outcomes, derived from the Strategic Plan of The Presidency's ten priorities. These outcomes form the government's delivery and implementation plans for the period. The plans are reviewed annually and reported on throughout the year, forming a key input in determining national budget allocations. Final budget allocations affect the order of priorities and phasing of the implementation of the delivery agreements. Outcome 10 in the MTSF 2014-2019 is 'protect and enhance our environmental assets and natural resources', and sets priorities for relevant government departments and conservation agencies.

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).

The following aspects will be dealt with:
SCHEDULE

Actions	Timeframe
1. Project Initiation and Scoping Phase	
1.1 Communication with authorities and source and analyse relevant baseline information and undertake site inspections	5 days
1.2 Identify key interested and affected parties (I&APs)	1 day
1.3 Compilation of terms of reference for specialist studies	2 days
1.4 Commission specialist studies	1 day
1.5 Compile Environmental Application Form for the project and submit to the authorities	Once the Environmental Application form has been submitted, the scoping report which has been subject to public participation (30 days) needs to be submitted within 44 days
1.6 Compile draft Scoping Report (SR) and make available to the public for a 30 day commenting period	5 days for compilation and 30 days for commenting period
1.7 Prepare an Information Sheet (summary of the draft SR) and distribute to I&APs	1 day
1.8 Compile and publish media notices (for the EIA) in relevant newspapers	7 days
1.9 Compile and place poster/s along the boundary of the site	1 day
1.10 Receive and address first round of comments from public	3 days
1.11 Should the draft SR require substantial changes, these changes will be incorporated into the final SR and distributed	The competent authority must within 43 days of receipt of the scoping report accept / refuse the report with our without conditions
1.12 Address comments received on the SR, finalise Scoping Report and submit to authorities	As above
1.13 Compile a Plan of Study for the assessment phase and submit to authorities for approval	As above
The total time allowed for the Scoping phase of the application	**87 days**
2. Assessment Phase	
2.1 Undertake assessment phase by assessing and evaluating potential impacts identified in the Scoping phase.	5 days
2.2 Review and manage specialist studies required.	Ongoing
2.3 Compile a draft Environmental Impact Report (EIR).	5 days
2.4 Compile a draft Environmental Management Plan for the Construction phase.	Included above
2.5 Compile an Information Sheet (summary of EIR) and distribute to identified I&APs	1 day

2.6 Distribute DEIR to I&APs	1 day
2.7 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
2.8 Address comments received and finalise EIR	3 days
2.9 Should the draft EIR require substantial changes, these changes will be incorporated into the final EIR and distributed for a 21 day commenting	3 days plus 21 day commenting period
2.10 Finalise EIR and update comments and response table for submission to authorities	5 days
2.11 Submit EIR to authorities for a final decision	1 day (The department requires the submission of the Final EIR within 106 days of the approval of the Scoping report), **therefore all information from the client's side must be provided within this timeframe to ensure the application is not withdrawn**)
2.12 Once the decision is issued, all I&Ps must be formally informed of the decision	The Competent Authority has 107 days from the date of receipt of the EIR and EMPr to determine the application
Total number of days allowed for the compilation and consideration of the EIR	**213 (may require additional 50 days public participation and consideration)**
TOTAL AMOUNT OF DAYS:	**300-350 days**

6. NEED AND DESIRIBILITY

As in the rest of South Africa, there is a housing shortage in the area. This is totally unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The area around Devon and Impumelelo is earmarked for residential development in order to relieve the existing backlog of housing in the region. Proper planning methods should also be implemented in order to reduce further sprawl to the west of Impumelelo. By introducing a formalized township on the farm portion, the existing informal settlement will be relocated and further "squatting" will be reduced.

As mentioned, development guidelines from the Guidelines for human settlement planning and design were taken into account to develop a sustainable area for people to have job opportunities and public facilities close to home. This will encourage a sustainable community and by implementing these guidelines, will help contribute to the upliftment of the community in whole.

The proposed development of Impumelelo also conforms to the principals and guidelines for development of the Lesedi IDP as discussed previously. The guidelines are as follows:

- Correction of historically distorted spatial patterns
- Discouragement of land invasion and ensuring equitable access to land
- Discouragement of urban sprawl and the promotion of more compact towns
- Promotion of a diverse combination of land use, also at a detailed level
- Optimization of the use of existing resources, including bulk infrastructure
- Sustainable land development patterns and practices
- Promotion of spatial integration

All of the above conclude that there is a need for residential development, and that the proposed township of Impumelelo Ext 5 is not only favourable by the Gauteng Department of Housing, but to the counsel as well as the community.

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.

7. ALTERNATIVES

One of the objectives of an EIA 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 will be assessed in the EIAR, in terms of environmental, social and technical feasibility.

7.1 Land Use Alternatives

7.1.1 Mixed land use township (Alternative 1)

Alternative Site layouts have been developed for the proposed development.

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

The proposed Township will consist of the following:

Residential 1	1752 Erven (55.6250 ha)
Residential 2	3 Erven (4.4099 ha) @ 80 dwelling units/ha
Business 2	7 Erven (5.8147 ha)
Institutional	20 Erven (1.5150 ha)
Community Facilities	1 Erven (0.1897 ha)
Special	179 Erf (16.3187 ha)
Public Open Space	17 Erven (13.1473 ha)
Streets	(35.8678 ha)
TOTAL Erven	**1979 Erven**
Area of township	**132,8881 ha**

Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities, shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;

- The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
    - Promote entrepreneurial services and products;
    - Be within walking distance to places of refreshment and trade for residents;
    - Provide Job opportunities; and
    - Improve neighbourhood quality.

7.1.2 Single land use: Housing only (Alternative 2)

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, cannot be achieved.

A Commercial node on site is commonly utilised as a "Multi-Purpose Community Centre/Rural Service Centre" which is defined as "a focal point at which a range of essential services can be obtained by people living in its vicinity". In turn, a commercial node 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".

By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, 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 Informal settlements consist of non-conventional housing built without omplying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

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

8.1 BIO-PHYSICAL ASPECTS

8.1.1 GEOLOGY

The available geological information indicates that the area is underlain by yellowish- to white, cross-bedded sandstone and grits, and relatively soft, dark grey shale, with localized coal beds, known as the Vryheid Formation that forms part of the Ecca Group, Karoo Supergroup (Visser, 1989). This formation contains numerous plant fossils. Prominent dolerite sills (sheets) and dykes have intruded into the Vryheid Formation strata, mainly along joint planes, and are indicated to occur at the surface throughout most of the study area itself.

Preliminary geotechnical zonation

Most of the study area is considered suitable for residential development, provided suitable precautionary and / or mitigation measures are implemented regarding the design and construction of foundations and roads, trafficability, material re-use, and excavatability during construction. The valley floor in the northwest, as well as the borrow pit area in the extreme north, should, however be avoided.

The available information indicates that the soil-like overburden and the underlining strata are expected to exhibit adverse geotechnical characteristics that require quantification by means of a site-specific geotechnical investigation..

FIGURE 6: Preliminary geotechnical zones

Zone A1*: $2_{B,E,I,K}$ $3_{C,D,F}$ or S2 H2 (R)

Intermediate:	localized weak perched water table possible at a depth of < 1.5 m, intermediate erodibility, slopes of < 2°, and at risk of mining-induced seismicity.
Least favourable:	high soil heave expected, high soil compressibility expected, and weathered rock expected to comprise > 40% of volume of material to 1.5 m.

Zone A2*: $2_{B,F,I,K}$ $3_{C,D,E}$ or S2 H2/H3	
Intermediate:	localized weak perched water table possible at a depth of < 1.5 m, rock/hardpan pedocrete expected to comprise between 10 and 40% of volume of material to 1.5 m, slopes of < 2°, and at risk of mining-induced seismicity.
Least favourable:	high to severe soil heave expected, high soil compressibility expected, and high risk of erosion expected.

If the proposed mitigation measures as described in the Geotechnical report are adhered to, it will ensure a sustainable development as far as this variable is concerned.

8.1.2 TOPOGRAPHY

The regional morphological setting of the area around Devon classifies as a slightly undulating plain. A localized ridge crest comprises most of the southern and eastern portions, with the terrain sloping towards the head of a southwestwardly flowing non-perennial stream that cuts into the northwestern portion thereof. The natural slope across the site is expected to be very gentle (between 0.5 and 2°) with localized pockets considered nearly level (slopes of less than 0.5°). Highly localized portions in the centre and northwest of the study area exhibits slopes of between 2 and 4.5° (gently sloping areas). As such, the majority of the study area classifies as NHBRC site class 2I (i.e., slopes of less than 2°).

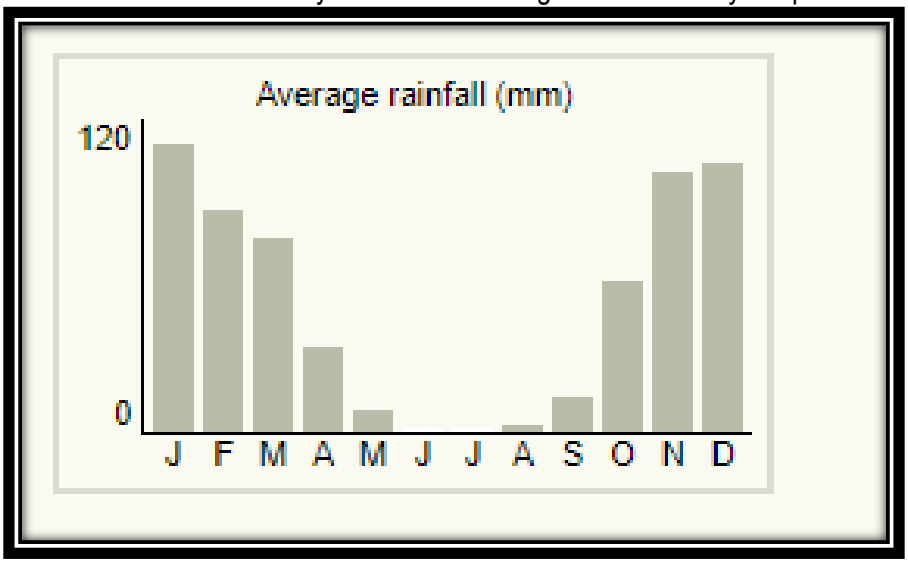
A detailed site survey has been carried out to establish levels. The Engineering report and the Layout plan will address issues regarding storm water. As the proposed development will be in close proximity to residential areas, safety of children and people need to be taken into consideration.

8.1.1. CLIMATE

A summer maximum rainfall and a dry winter is the norm. Extreme climatic events may have an influence on the project during the construction and operational phase and will have to be considered.

The closest South African weather station to Devon is located at Springs and is situated 33 km north-west of the proposed development site. Climatic statistics for this weather station has been used to describe the climate of the area.
Springs normally receives about 586mm of rain per year, with most rainfall occurring during summer. The chart below shows the average rainfall values for Springs per month. It receives the lowest rainfall (0mm) in June and the highest (111mm) in January. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Springs range from 16.9°C in June to 26°C in January. The

region is the coldest during July when the mercury drops to 0°C on average during the night. Consult the chart below for an indication of the monthly variation of average minimum daily temperatures.



Extreme climatic events may have an influence on the project during the construction and operational phase and will have to be taken into consideration.

8.1.3. SURFACE DRAINAGE WETLANDS AND RIPARIAN ZONES

The area falls within Quaternary Catchment Area (QCA) C21A that forms part of the Vaal Catchment Management Area (CMA), (WMA 8). Site is part not part of a Freshwater Ecosystem Priority Area (not a FEPA). A non-perennial river (with narrow active channel and poorly developed riparian zone) and two small in-channel dams (with groundwalls; artificial waterbodies) are present at a part of the site. The active channel is not well-developed and appears to be very seasonal with waterflow probably sporadic and highly dependent on substantial rainfall events. Surface flow along the stream is generally expected to comprise mainly the accumulation of surface run-off, with relatively low flow velocities. However groundwater seepage into the stream channel is expected during the rainfall season, and could persist for a while into the generally drier winter months.

The streambeds of this non-perennial stream will be impacted upon. The objective is to minimise the impact on the environment whilst crossing the river by minimising sediment generation and changes to the river banks and river channels during construction. Erosion by sheet flow may occur in disturbed areas.

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. In conclusion no wetlands are found at the site.

Present ecological status (PES) of the Non-perennial River at the site is CATEGORY C which means the watercourse is moderately modified but with some loss of natural habitats (Table 4.2 and Table 4.3). Ecological Importance and Sensitivity (EIS) at the site is Category C which is Moderate and refers to watercourses that are considered to be ecologically important and sensitive on a provincial or local scale.

The biodiversity of these floodplains is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major rivers.

The non-perennial river, small in-channel dams, and their riparian zones riparian zone as well as the buffer zone, should be be viewed as an important conservation corridor in the larger area.

Figure 7: Indication of narrow non-perennial river, two small in-channel dams (artificial waterbodies with groundwalls) and diggings at the site.

Light blue outline	Route of active channel at the site
Darker blue outline and shading	Artificial Waterbody (In-channel Dam)

Figure 8 Indication of non-perennial river (active channel, riparian zone, buffer zone) at the site.

Light blue outline	Route of active channel at the site
Green outline	Riparian zone
Orange outline	Outer edge of buffer zone
Darker blue outline and shading	Artificial Waterbody (In-channel Dam)

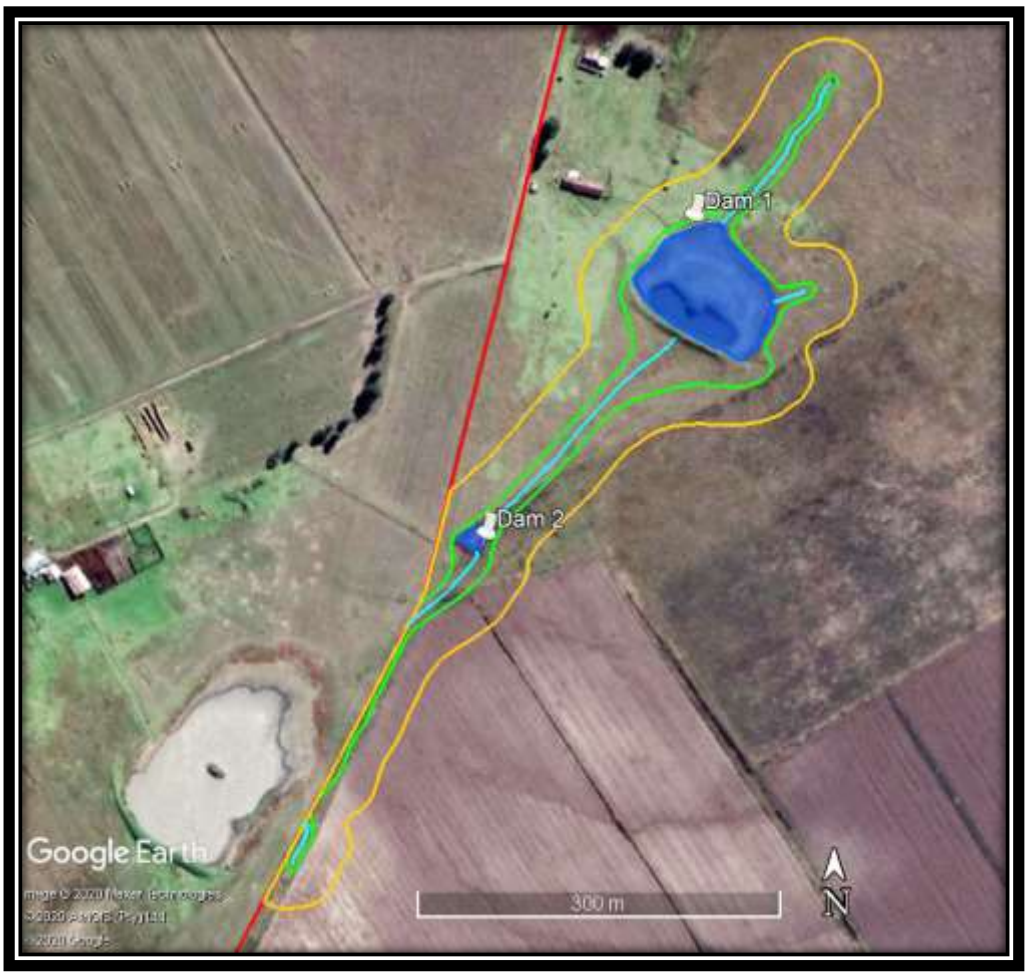


Figure 9 Indication of non-perennial river (active channel, riparian zone, buffer zone) at part of the site.

Light blue outline	Route of active channel at the site
Green outline	Riparian zone
Orange outline	Outer edge of buffer zone
Darker blue outline and shading	Artificial Waterbody (In-channel Dam)

8.1.4. GROUND WATER

Possible infiltration into the groundwater have been taken into account. During the construction phase, no spills of lubricants or construction worker sewage should be allowed to pollute the ground water. Special care

must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures, especially within these relative flat areas.

8.1.5. FLORA

Grassland Biome at the site is represented by Soweto Highveld Grassland (Gm 8) (Mucina & Rutherford 2006).

Gm 8 Soweto Highveld Grassland

Distribution: In South Africa the Soweto Highveld Grassland is found in Mpumalanga, Gauteng (and to a very small extent also in neighbouring Free State and North West) Provinces; In a broad band roughly delimited by the N17 road between Ermelo and Johannesburg in the north, Perdekop in the southeast and the Vaal River (border with the Free State) in the south. It extends further westwards along the southern edge of the Johannesburg Dome (including part of Soweto) as far as the vicinity of Randfontein. In southern Gauteng it includes the surrounds of Vanderbijlpark and Vereeniging as well as Sasolburg in the northern Free State. Altitude 1420 – 1760 m (Mucina & Rutherford 2006).

Vegetation and landscape features: Gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothrix*. In places not disturbed, only scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover (Mucina & Rutherford 2006).

Geology and soils: Shale, sandstone or mudstone of the Madzaringwe Formation (Karoo Supergroup) or the intrusive Karoo Suite dolerites which feature prominently in the area. In the south, the Volksrust Formation (Karoo Supergroup) is found and in the west, the rocks of the older Transvaal, Ventersdorp and Witwatersrand Supergroups are most significant. Soils are deep, reddish on flat plains and are typically Ea, Ba and Bb land types (Mucina & Rutherford 2006).
Climate: Climate is characterized by summer-rainfall with mean annual precipitation of 662 mm. Frequent occurrence of frost and large thermic diurnal differences are recorded (Mucina & Rutherford 2006).

Important taxa of the Soweto Highveld Grassland listed by Mucina & Rutherford (2006): Graminoids: *Andropogon appendiculatus, Brachiaria serrata, Cymbopogon pospischilii, Cynodon dactylon, Elionurus muticus, Eragrostis capensis, Eragrostis chloromelas, Eragrostis curvula, Eragrostis plana, Eragrostis planiculmis, Eragrostis racemosa, Heteropogon contortus, Hyparrhenia hirta, Setaria nigrirostris, Setaria sphacelata, Themeda triandra, Tristachya leucothrix, Andropogon shirensis, Aristida adscensionis, Aristida bipartita, Aristida congesta, Aristida junciformis* susbp. *galpinii, Cymbopogon caesius, Digitaria diagonalis, Diheteropogon amplectens, Eragrostis micrantha, Eragrostis superba, Harpochloa falx, Microchloa caffra, Paspalum dilatatum*. Herbs: *Hermannia depressa, Acalypha angustata, Berkheya setifera, Dicoma anomala, Euryops gilfillanii, Geigeria aspera* var. *aspera, Graderia subintegra, Haplocarpha scaposa, Helichrysum miconiifolium, Helichrysum nudifolium* var. *nudifolium, Helichrysum rugulosum, Hibiscus pusillus, Justicia anagolloides, Lippia scaberrima, Rhyncosia effusa, Schistostephium crataegifolium, Selago densiflora, Senecio coronatus, Vernonia oligocephala, Wahlenbergia undulata*. Geophytic Herbs: *Haemanthus humilus* subsp. *hirsutus, Haemanthus montanus.* Herbaceous Climber: *Rhyncosia totta.* Low Shrubs: *Anthospermum*

hispidulum, Anthospermum rigidum subsp. *pumilum, Berkheya annectans, Felicia muricata, Ziziphus zeyheriana*.

Note: The above is an outline of the vegetation type that serves as a larger ecological context within which the site occurs. Not all the plant species listed above for the vegetation type necessarily occur at the site.

Much of the site is being cultivated which resulted in removal of natural vegetation cover in the past. A homestead, paddocks and other infrastructure associated with cattle farming are also present. Some grassland patches remain where indigenous grass species and forbs are present.

Indigenous grass species include *Setaria sphacelata, Eragrostis chloromelas, Eragrostis curvula, Elionurus muticus, Aristida canescens, Aristida congesta, Cynodon dactylon*, *Sporobolus africanus* and *Sporobolus fimbriatus*. Indigenous shrublets and forbs include *Nemesia fruticans, Bulbine narcissifolia, Gazania krebsiana, Felicia muricata, Chamaesyce inaquilatera, Conyza podocephala, Helichrysum nudifolium, Helichrysum rugulosum* and *Hilliardiella oligocephala.* The herbaceous shrub *Gomphocarpus fruticosus* occurs at visibly disturbed areas. Conspicuous exotic weeds at the site are *Guilleminea densa*, *Argemone ochroleuca*, *Schkuhria pinnata*, *Sonchus oleraceus*, *Chenopodium album*, *Conyza bonariensis, Datura ferox, Verbena aristigera, Verbena nonariensis, Datura stramonium*, *Xanthium spinosum, Plantago lanceolata, Malva parviflora* and *Opuntia humifusa.*

Wetland plant species appear to be poorly represented at the non-perennial river and in-channel dams. The sedges *Eleocharis dregeana* and *Schoenoplectus decipiens* form narrow bands at the seasonal zone of the in-channel dams and some other parts of the watercourse. Other plant species which favour higher soil moisture conditions include the indigenous *Berkheya radula, Falckia oblonga, Ranunculus multifidus* and the alien invasive species *Paspalum dilatatum*, *Cirsium vulgare, Oenothera rosea* and *Rumex crispus*. The exotic tree *Salix babylonica* occurs at one of the dams at the site. Megagraminoids are absent.

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If the development is approved an opportunity presents itself to establish and cultivate indigenous vegetation.

8.1.6. FAUNA

The fauna of the area is highly disturbed by the people living in the adjoining suburbs. The likelihood of the presence of larger mammals is doubtful. No listed species were identified during the fieldwork phase.

VERTEBRATES

Mammals

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.

Birds

The site does not appear to form part of any habitat of particular importance for any threatened bird species or any bird species of particular conservation importance. In the case of this study, the presence or not of Tyto capensis, African grass-owl, deserves particular reference.

***Tyto capensis* (African Grass-owl)**

Tyto capensis is listed as regionally vulnerable in South Africa (Hockey, Dean & Ryan 2005). Tyto capensis (African Grass-owl) is often found as a resident in treeless areas with damp substrata, mainly marshes and vleis (Hockey, Dean & Ryan 2005). This owl favours patches of tall, rank grass, sedges or weeds (Armstrong, 1991). No Tyto capensis was recorded on the site, no particular suitable habitat for this owl species has been found at the site and it is unlikely that the African grass-owl will be present.

Reptiles

While the conservation statuses of reptile species are under revision Alexander & Marais (2007) as well as Tolley & Burger 2007) give useful indications of possible red listings in the near future. There appears to be no threat to any reptile species of particular high conservation importance if the site is developed.

Amphibians

Currently, no frog species that occur in the Gauteng area are red listed as threatened species or near threatened. There appears to be no threat to any amphibian species of particular high conservation importance if the site is developed. Presence of Pyxicephalus adspersus (Giant Bullfrog), a species hitherto listed as near threatened is unlikely.

INVERTEBRATES

Butterflies

Studies relating to 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 follows.

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, Clutia 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 Chrysorits 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.

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 present 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 20th 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 percieved 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.

Fruit chafer beetles

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.

Mygalomoph Spiders

The baboon spider species (Araneae: Teraphosidae) that are of known high conservation priority in the Gauteng Province. The assessment of the conservation status of baboon spiders in South Africa is in process but as a pre-caution the species listed has been included. None of the above baboon spider species were found on the site, or are likely to be resident at the site. There appears to be no threat to the baboon spider species of high conservation significance if the study site is developed

Scorpions

None of the 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

As in the rest of South Africa, there is a housing shortage in the area. This is totally unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The area around Devon and Impumelelo is earmarked for residential development in order to relieve the existing backlog of housing in the region. Proper planning methods should also be implemented in order to reduce further sprawl to the west of Impumelelo. By introducing a formalized township on the farm portion, the existing informal settlement will be relocated and further "squatting" will be reduced.

As mentioned, development guidelines from the Guidelines for human settlement planning and design were taken into account to develop a sustainable area for people to have job opportunities and public facilities close to home. This will encourage a sustainable community and by implementing these guidelines, will help contribute to the upliftment of the community in whole.

The proposed development of Impumelelo also conforms to the principals and guidelines for development of the Lesedi IDP as discussed previously. The guidelines are as follows:

- Correction of historically distorted spatial patters
- Discouragement of land invasion and ensuring equitable access to land
- Discouragement of urban sprawl and the promotion of more compact towns
- Promotion of a diverse combination of land use, also at a detailed level
- Optimization of the use of existing resources, including bulk infrastructure
- Sustainable land development patterns and practices
- Promotion of spatial integration

All of the above conclude that there is a need for residential development, and that the proposed township of Impumelelo Ext 5 is not only favourable by the Gauteng Department of Housing, but to the counsel as well as the community.

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 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) and the provision of proper accommodation facilities (Which has been designed to be as energy efficient as possible) will contribute towards lessening air pollution in the area.

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

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites on the specific land parcel, while some were identified in the study area during the fieldwork. See Figure 10.

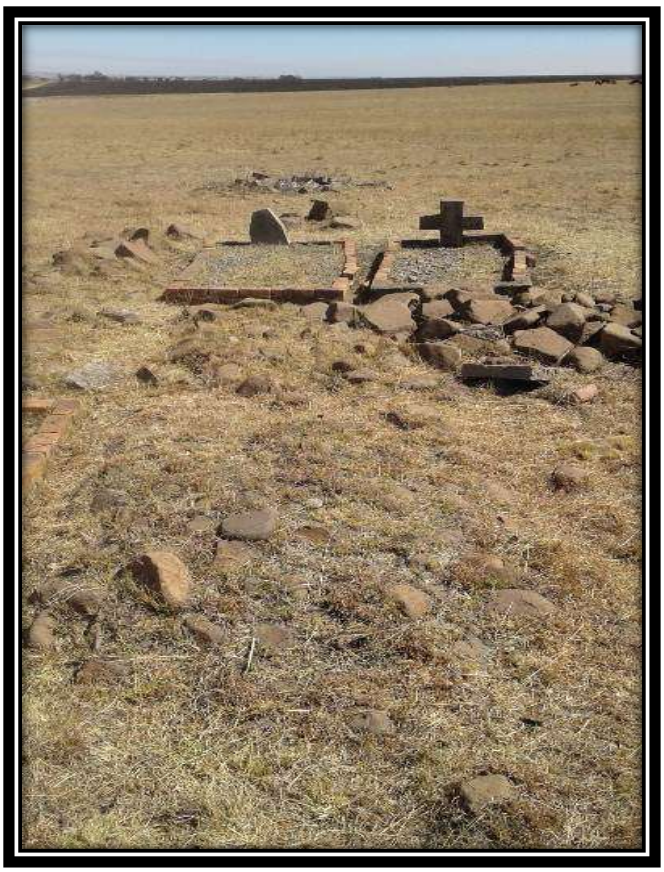
Figure 10: Location of the sites located in the study & development area (Google Earth 2020). Site 1 is situated on the farmstead close to main homestead

The 1st site is the existing farmstead (consisting of various structures such as old barns and other infrastructure, as well as the main homestead. Although the exact age of the homestead and the related structures are not clear it is likely that many are older than 60 years of age. The main house – although largely modern – contains part of the original sandstone structure that is typical of the late 19th/early 20th century farmhouses found on the Highveld. See Photograph 8.

PHOTOGRAPH 8: A view of the main house. Sections of the original sandstone is visible

It is recommended that if the farmstead and related structures are to be demolished to make way for the proposed development, that a detailed Phase 2 Heritage study be undertaken here by a suitable specialized architectural historian.

A historical cemetery is located close to the main homestead on the farm. The site contains two graves, formally demarcated with headstones. The 1st grave consists of a double burial, with Johannes Kotze (born in 1888 and died in 1963) and Christina Kotze (born 1906 and died in 1956) buried here. Grave 2 is that of Jacobus Johannes Jurgen Kotze who was born in 1917 and died in 1925. See Photograph 9.



Photograph 9: Grave 2 is that of Jacobus Johannes Jurgen Kotze who was born in 1917 and died in 1925

During a 2018 Phase HIA township development to the south of the current study area on another portion of Nooitgedacht 294IR, another cemetery was recorded as well. It was located outside of the 2018 development & study area and would not have been impacted directly by proposed development actions. However, the site is located within the Impumelelo Extension 5 development footprint and care should be taken to not negatively impact the site and graves situated on it. Two of the graves identified has headstones with legible inscriptions and belong to an Elizabeth Manyaroke (died in 1969) & Ellie Sithole (died in 1971) respectively.

Graves always carry a High Significance rating from a Cultural Heritage point of view and should be avoided as far as possible and protected against any negative impacts by development. Based on this the following is recommended regarding the two grave sites:

1. **Option 1**: Proper fencing in of the site to protect it against any accidental or direct impact by any future development. The site should also be cleaned and properly marked as a cemetery. Should be included in a Graves Management Plan.

2. **Option 2**: If the site and graves can't be avoided by the development then the possibility of exhuming & relocating the graves does exist. This option includes detailed social consultation to try and contact any possible descendants of the deceased buried at the site in order to obtain their consent for the exhumations and relocations. Once social consultation has been completed various permits also have to be obtained from local, provincial and National departments and organizations.

From a cultural heritage point of view the development should be allowed to continue once the recommended mitigation measures had been implemented.

8.2.5 AESTHETICS AND VISUAL

The topography of the area is relatively flat & open, with some small rocky ridges and outcrops present in parts. Informal settlements, illegal dumping and associated dirt roads and tracks cover fairly large areas of the site. Numerous soil dumps, ditches and excavations are also present on site. The site is located adjacent to the existing residential area of Barkley-West that is situated towards the east. A railway line is present at the northern boundary of the site. Alien invasive weeds occur at disturbed and hitherto cleared areas

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 area to a formal residential area. The visual intrusion is considered to be low as the proposed development will have minimal change and blends in well with the surroundings.

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

Aesthetics have very little influence as the area is already highly disturbed. Most of the study area is located on agricultural land and has been fairly extensively ploughed and utilized in the recent past.

8.2.6 AGRICULTURAL POTENTIAL

Most of the site is currently being used for Agricultural purposes. An Agricultural Specialsit has been appointed to assess the impact of the proposed development on this aspect. His findings will be incorporated into the EIA Report.

9. ENVIRONMENTAL IMPACT ASSESSMENT

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
Duration (time scale)	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	Local	Confined to study area and its immediate surroundings

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	Regional	Region (cadastral, catchment, topographic)
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
Magnitude (Intensity)	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).
Probability	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
Significance	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
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact
Risk	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

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
		(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: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic	132,8881 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area. 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	Low		Medium
	498 576 square meters (49,8576 ha) of the proposed development area is located within an Ecological Support Area and the vegetation will be eradicated.	Duration	Long term	Obtain the necessary environmental authorization for the development. Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area. 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	Low		Medium
	Plan for the provision of services for the development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design 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 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. There should be 1 Chemical toilet for every 15 workers on site.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
		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 the 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.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. 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
	There are no known cultural heritage sites (archaeological and/or historical) sites on the specific land parcel, while some were identified in the study area during the fieldwork. The 1st site is the existing farmstead (consisting of various structures such as old barns and other infrastructure, as well as the main homestead. Although the exact age of the homestead and the related structures are not clear it is likely that many are older than 60 years of age. The main house – although largely modern – contains part of the original sandstone structure that is typical of the late 19th/early 20th century farmhouses found on the Highveld. A historical cemetery is located close to the main homestead on the farm. The site contains two graves, formally demarcated with headstones. The 1st grave consists of a	Duration	Permanent	It is recommended that if the farmstead and related structures are to be demolished to make way for the proposed development, that a detailed Phase 2 Heritage study be undertaken here by a suitable specialized architectural historian. Graves always carry a High Significance rating from a Cultural Heritage point of view and should be avoided as far as possible and protected against any negative impacts by development. Based on this the following is recommended regarding the two grave sites: 1. **Option 1**: Proper fencing in of the site to protect it against any accidental or direct impact by any future development. The site should also be cleaned and properly marked as a cemetery. Should be included in a Graves Management Plan. 2. **Option 2**: If the site and graves can't be avoided by the development then the possibility of exhuming & relocating the graves does exist. This option includes detailed social consultation to try and contact	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	double burial, with Johannes Kotze (born in 1888 and died in 1963) and Christina Kotze (born 1906 and died in 1956) buried here. Grave 2 is that of Jacobus Johannes Jurgen Kotze who was born in 1917 and died in 1925.			any possible descendants of the deceased buried at the site in order to obtain their consent for the exhumations and relocations. Once social consultation has been completed various permits also have to be obtained from local, provincial and National departments and organizations.	
	A non-perennial river (with narrow active channel and poorly developed riparian zone) and two small in-channel dams (with groundwalls; artificial waterbodies) are present at a part of the site. The active channel is not well-developed and appears to be very seasonal with waterflow probably sporadic and highly dependent on substantial rainfall events.	Duration	Permanent	The 1:100 fllodline will have to be determined and will have to be incorporated into the final layout plan. The construction camp shall not be located within the 1:100 year flood line or within a 100m of any watercourse; whichever the greater. Construct the infrastructure in accordance with the designs and ensure the natural flow of the river is not disturbed in the long term. Obtain the necessary environmental authorization for the development. Obtain the necessary Water Use Licenses. Implement the mitigation measures as described in the Environmental Management plan..	Permanent
		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 are dug according to specifications as prescribed by the Civil Engineer. 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
Indirect impacts:					
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	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	lubricants / oils that can take place on bare soil.	Significance	Medium	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.	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
Cumulative impacts:					
Geographical Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		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	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	cause Environmental degradation.	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
	Loss of indigenous vegetation and agricultural land.	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		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)**
	DIRECT IMPACTS:				
Geographical Physical Social Economic	132,8881 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area. 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	Low		Medium
	498 576 square meters (49,8576 ha) of the proposed development area is located within an Ecological Support Area and the vegetation will be eradicated.	Duration	Long term	Obtain the necessary environmental authorization for the development. Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area. 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	Low		Medium
	Plan for the provision of services for the development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design 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 the 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. The findings of the 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	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

	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)**
	floral habitats) during the construction phase.	Probability	Definite	The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	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 are dug according to specifications as prescribed by the Civil Engineer. 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
	There are no known cultural heritage sites (archaeological and/or historical) sites on the specific land parcel, while some were identified in the study area during the fieldwork. The 1st site is the existing farmstead (consisting of various structures such as old barns and other infrastructure, as well as the main homestead. Although the exact age of the homestead and the related structures are not clear it is likely that many are older than 60 years of age. The main house – although largely modern – contains part of the original sandstone structure that is typical of the late 19th/early 20th century farmhouses found on the Highveld. A historical cemetery is located close to the main homestead on the farm. The site contains two graves, formally demarcated with headstones. The 1st grave consists of a double burial, with Johannes Kotze (born in 1888 and died in 1963) and Christina Kotze (born 1906 and died in 1956) buried here. Grave 2 is that of Jacobus Johannes Jurgen Kotze who was born in 1917 and died in 1925.	Duration	Permanent	It is recommended that if the farmstead and related structures are to be demolished to make way for the proposed development, that a detailed Phase 2 Heritage study be undertaken here by a suitable specialized architectural historian. Graves always carry a High Significance rating from a Cultural Heritage point of view and should be avoided as far as possible and protected against any negative impacts by development. Based on this the following is recommended regarding the two grave sites: 1. **Option 1**: Proper fencing in of the site to protect it against any accidental or direct impact by any future development. The site should also be cleaned and properly marked as a cemetery. Should be included in a Graves Management Plan. 2. **Option 2**: If the site and graves can't be avoided by the development then the possibility of exhuming & relocating the graves does exist. This option includes detailed social consultation to try and contact any possible descendants of the deceased buried at the site in order to obtain their consent for the exhumations and relocations. Once social consultation has been completed various permits also have to be obtained from local, provincial and National departments and organizations.	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		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)**
	A non-perennial river (with narrow active channel and poorly developed riparian zone) and two small in-channel dams (with groundwalls; artificial waterbodies) are present at a part of the site. The active channel is not well-developed and appears to be very seasonal with waterflow probably sporadic and highly dependent on substantial rainfall events.	Duration	Permanent	The 1:100 fllodline will have to be determined and will have to be incorporated into the final layout plan. The construction camp shall not be located within the 1:100 year flood line or within a 100m of any watercourse; whichever the greater. Construct the infrastructure in accordance with the designs and ensure the natural flow of the river is not disturbed in the long term. Obtain the necessary environmental authorization for the development. Obtain the necessary Water Use Licenses. Implement the mitigation measures as described in the Environmental Management plan.	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Indirect impacts:				
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).	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		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)**
				NO glass, plastic, metal, or paper shall be allowed to pollute the area.	
	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
	Cumulative impacts:				
Geographical Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		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. 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
	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
	Loss of indigenous vegetation and agricultural land.	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		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)**
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	No indigenous vegetation will be removed and agricultural activities will be continuing on the site.	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
	No impact on the watercourses in the area..	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
Indirect impacts:					
Geographical Physical Social Economic Cultural	No new employment opportunities will be created during the planning and design phase. No skills enhancement will take place 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	Medium		Medium
		Reversibility	Medium		Medium
		Risk	High		High
Cumulative impacts:					
Geographical Physical Social Economic Cultural	If this option is implemented, the projected boost to the local and regional economy will not take place. No new employment opportunities will be created. No improvement to local skills development will take place. No broadened Tax base for the Lesedi Local Municipality .	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

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
DIRECT IMPACTS:					
Geographical Physical Social Economic	132,8881 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
		Probability	Definite	Implement the findings of the Fauna and Flora Habitat survey. Implement the mitigation measures as described in the Environmental Management Plan.	Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low		Medium
	498 576 square meters (49,8576 ha) of the proposed development area is located within an Ecological Support Area and the vegetation will be eradicated.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the findings of the Fauna and Flora Habitat survey. 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	Low		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 ablution facilities for construction workers may cause 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
	The proposed project can impact on the soil and geology.	Duration	Long term	Implement the findings of the Geo-Technical Engineer.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
		Significance	Medium	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.	Medium
		Reversibility	High		High
		Risk	Low		Medium
	The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. 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
	Open trenches can be dangerous as they can either collapse on people or on equipment and people- especially small children, can fall into them.	Duration	Short term	Ensure that the trenches are dug according to specifications as prescribed by the Civil Engineer. 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
Indirect impacts:					
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.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
				Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	
	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 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
	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

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
	A non-perennial river (with narrow active channel and poorly developed riparian zone) and two small in-channel dams (with groundwalls; artificial waterbodies) are present at a part of the site. The active channel is not well-developed and appears to be very seasonal with waterflow probably sporadic and highly dependent on substantial rainfall events.	Duration	Permanent	The 1:100 fllodline will have to be determined and will have to be incorporated into the final layout plan. The construction camp shall not be located within the 1:100 year flood line or within a 100m of any watercourse; whichever the greater. Construct the infrastructure in accordance with the designs and ensure the natural flow of the river is not disturbed in the long term. Obtain the necessary environmental authorization for the development. Obtain the necessary Water Use Licenses. Implement the mitigation measures as described in the Environmental Management plan.	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
Cumulative impacts:					
Geographical Physical Social Economic	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	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 Lesedi Local Municipality . <u>Sewage</u>: The proposed development will add additional sewage into the existing sewage stream of the Lesedi Local Municipality . <u>Water supply</u>: The proposed development will add pressure	Extent	Local	Ensure that the development is constructed as planned by the Civil Engineer.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
	to the water supply of Lesedi Local Municipality 's Water.				
	Traffic: 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	No mitigation measures possible.	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: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	Poorly maintained and serviced infrastructure may cause environmental problems. Ensure the cemetary is operated and excavations done as per the layout plan	Extent	Local	It will be the responsibility of the Local Municipality to maintain the infrastructure.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
Indirect impacts:					
Geographical Physical Social Economic Cultural	Lack of rehabilitation may cause problems	Extent	Local	It will be the responsibility of the Local Municipality 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
Cumulative impacts:					
Geographical Physical Social Economic Cultural	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Operational Phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
Geographical Physical Social Economic Cultural	Broadened tax base: The proposed development will generate more income for the Lesedi 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

Publication name	Heidelberg / Nigel Heraut	
Date published	19/05/2021	
	Latitude	Longitude
Site notice 1 position	26°20'41.12"S	28°45'47.20"E
Site notice 2 position	26°20'3.29"S	28°45'58.47"E
Date placed	18/05/2021	

PLEASE SEE PROOF BELOW: (NOTICE SANITIZED)

PROOF OF NEWSPAPER ADVERTISEMENT:

Legals

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS (EIR AND SCOPING) GAUT 002/21-22/E2898

Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1; Activity no 28 (ii)); (Government Notice No. R.325 Listing Notice 2; Activity no 15) and (Government Notice No. R.324 Listing Notice 3; Activity no s 12(i)(ii)).

This advertisement complies with the instructions regarding such notices, National Environmental Management Act (Act No. 107 of 1998, as amended) (Amended Regulations promulgated on 17 April 2017) (Government Notice No. R.326 of 2017) (Regulation 41(2)(c)(dd)). The competent authority is the Gauteng Province: Department of Agriculture and Rural Development. PROJECT NAME: Environmental Impact Assessment for the proposed clearance of 112,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Rooigedacht 294-IR, Lesedi Local Municipality, Gauteng Province. PROJECT DESCRIPTION: Proposed clearance of 132,8881 ha of indigenous vegetation (of which 498 576 square meters (49,8576 ha) is located within an Ecological Support Area), for the proposed township establishment (business, residential, institutional and community facilities - to be known as Impumelelo Extension 5) located on Portion 18 of the farm Rooigedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

CLIENT: NEP Construction PTY (LTD) CONSULTANT AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult cc, 7 Louis Leipoldt Street, Potchefstroom, 2531 Tel: 083 5488 105 Fax: 018 293 0671 E-mail: jp@abenviro.co.za Parties wishing to formally object to and / or comment on the proposed development are requested to forward their objections and comments (with reasons) to AB Enviro Consult, no later than 30 days after the date of this advertisement. An electronic copy of the draft Scoping Report is also available from AB Enviro Consult on request.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS (BASIC ASSESSMENT) GAUT 002/21-22/E2889

Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1; Activity no 19). This advertisement complies with the instructions regarding such notices, National Environmental Management Act (Act No. 107 of 1998, as amended) (Amended Regulations promulgated on 17 April 2017) (Government Notice No. R.326 of 2017) (Regulation 41(2)(c)(dd)). The competent authority is the Gauteng Province: Department of Agriculture and Rural Development. PROJECT NAME: Environmental Impact Assessment for the proposed infilling of 200 cubic metres of bedding and blanket material into, and the excavation, removal and moving of soil and/or rock of 1 200 cubic metres from a watercourse in order to construct a 1 900 meter (450 mm diameter) and a 800 meter (300 mm diameter) Bulk Outfall Sewer Pipeline located on Portion 2 and Portion 28 of the farm Boschfontein 385-IR, Lesedi Local Municipality, Gauteng Province. PROJECT DESCRIPTION: Proposed construction of a 1 900 meter (450 mm diameter) and a 800 meter (300 mm diameter) Bulk Outfall Sewer Pipeline, which entails 5 crossings of a watercourse.

CLIENT: NEP Construction PTY (LTD) CONSULTANT AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult cc, 7 Louis Leipoldt Street, Potchefstroom, 2531 Tel: 083 5488 105 Fax: 018 293 0671 E-mail: jp@abenviro.co.za Parties wishing to formally object to and / or comment on the proposed development are requested to forward their objections and comments (with reasons) to AB Enviro Consult, no later than 30 days of the date of this notice. An electronic copy of the draft Basic Assessment Report is available from AB Enviro Consult on request.

Wynand van Vollenstee vertolk die rol van die grotman in *Groet die Grotman 2* wat op 22 Mei in Heidelberg kom draai

Groet die Grotman 2 binnekort te sien

HEIDELBERG - *Groet die Grotman 2* kom maak 'n draai in Heidelberg en beloof om mans en vroue weer heerlik te laat lag en sommer gratis terapie vir die huwelik te besorg.

Wynand van Vollenstee (*Karate Kallie*) is te sien in die rol van Grotman. Frans Swart het die teks geskryf en hanteer ook die regie.

In *Groet die Grotman 2* word die verskille tussen mans en vroue op komiese wyse uitgebeeld.

Vroue is steeds die gaanders (veral van nuttelose inligting) en mans steeds die jagters (van 'n bok tot 'n televisieprogram).

"Mans en vroue lag vir mekaar in *Groet die Grotman 2* en dis juis wat hierdie produksie so gewild en sterk maak," het Swart gesê.

"Mens kan amper sê ons doen huweliksberading op 'n komiese wyse.

"Die feit dat Grotman sy wêreld moet groter maak om by Elize se wêreld aan te pas en die feit dat Elize haar oop wêreld so bietjie nouer moet maak om by Grotman se wêreld uit te kom sorg vir komiese situasies."

Die oomprinklike *Groet die Grotman* hou steeds die rekord vir die Afrikaanse teaterproduksie wat die meeste vertonings oor die langste tydperk gehad het, met meer as 1 000 vertonings oor 10 jaar.

Groet die Grotman 2 besoek Adler's@Heidelberg Tap & Grill by die Heidelberg Heritage Museum op 22 Mei om 7nm.

Besprekings kan gedoen word by www.computicket.com

Vir groepbesprekings, skakel Lefra Produksies by 011 815 3000 of stuur 'n e-pos na admin@lefra.com

Die skreeusnaakse Wynand van Vollenstee kom kuier in Heidelberg met *Groet die Grotman 2*.

Oelender / Dagboek

HEIDELBERG:

19 Mei
Die algemene vergadering vir die Heidelberg Heritage Association vind by die Old Gaol om 7nm plaas. Vir meer inligting kontak vir Tony Burisch by 072 460 9663.

22 Mei
Lede van die Sukarbos Bonsai Kai se volgende byeenkoms sal vanaf 12nm tot 3nm op die plaas Eendracht plaasvind. Die plaas is geleë op die R103, Heidelberg. Enige belangstellendes of voornemende lede is welkom. Byeenkomste van die aard vind elke vierde Saterdag van die maand plaas. Vir navrae kontak vir Stefann by 084 924 3820 of Hannes Fritz by 079 502 2972.

22 Mei
Groet die Grotman 2 kan by Adler's@Heidelberg Tap & Grill by die Heidelberg Heritage Museum gesien word om 7nm. Besprekings kan by www.computicket.com gemaak word. Vir groepbesprekings skakel Lefra Produksies by 011 815 3000 of stuur 'n e-pos na admin@lefra.com

27 Mei
Hoër Volkskool hou manne-aand saam met Fanie de Villiers. Vir verdere inligting kontak vir Riana Cloete by 016 341 3165 tydens skool-ure.

29 Junie
Helene Bester sing om 7nm by Adler's @ Heidelberg Tap & Grill by die Heidelberg Heritage Museum. Besprekings kan by www.computicket.com gemaak word. Vir groep besprekings skakel Lefra Produksies by 011 815 3000 of stuur 'n e-pos na admin@lefra.com

NIGEL:
Die Heigel Fotoklub vergader elke tweede Woensdag van die maand om 6.30nm by die Nigel Tennisklub. Vir meer inligting, kontak Francios van Jaarsveld by 083 659 9657.

29 Mei
Nigel DBV hou hul jaarlikse algemene vergadering om 2nm op die perseel. Die publiek is welkom om die vergadering by te woon. Vir inligting, stuur 'n e-pos aan chair@nigelspca.co.za

5 Junie
Die jaarlikse Ride4Life berg-fiets-ry geleentheid word deur Earth Owl by die John Vorster Stadion aangebied. Registrasie om deel te neem sal vanaf 6.30vm plaasvind. Die eerste resies (40km) sal om 9vm afskop gevolg deur die 25km. Die dag sal afsluit met 'n 10km groep-nagrit wat tussen 6nm en 7nm sal plaasvind. Medaljes en pryse kan op die dag gewen word. Vir meer inligting kontak Roché Pepler by 060 482 1280 of Santana Pestana by 083 062 2091.

10 Junie
Lede van die Nigel VLU-tak hou hul maandelikse vergadering om 10vm by die NG Kerk-Oos in Nigel. Vir meer inligting, kontak vir Anna-Marie Axer by 082 886 2002.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS (EIR AND SCOPING) GAUT 002/21-22/E2898

Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1; Activity no 28 (ii)); (Government Notice No. R.325 Listing Notice 2: Activity no 15) and (Government Notice No. R.324 Listing Notice 3; Activity no`s 12(c)(ii)).

This advertisement complies with the instructions regarding such notices, National Environmental Management Act (Act No. 107 of 1998, as amended) (Amended Regulations promulgated on 17 April 2017) (Government Notice No. R.326 of 2017) (Regulation 41(2)(c)(d)). The competent authority is the Gauteng Province: Department of Agriculture and Rural Development. PROJECT NAME: Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province. PROJECT DESCRIPTION: Proposed clearance of 132,8881 ha of indigenous vegetation (of which 498 576 square meters (49,8576 ha) is located within an Ecological Support Area), for the proposed township establishment (business, residential, institutional and community facilities - to be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

CLIENT: NEP Construction PTY (LTD) CONSULTANT AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult cc. 7 Louis Leipoldt Street, Potchefstroom, 2531 Tel: 083 5488 105 Fax: 018 293 0671 E-mail: jp@abenviro.co.za Parties wishing to formally object to and / or comment on the proposed development are requested to forward their objections and comments (with reasons) to AB Enviro Consult, no later than 30 days after the date of this advertisement. An electronic copy of the draft Scoping Report is also available from AB Enviro Consult on request.

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	Neighbour	See photo evidence
Bismark Mashua	Gauteng Wetland Forum	Mpfareleni.Mashau@gauteng.gov.za
Keitumetse Mekgoe	DEA Provincial Coordinator: Gauteng Wetland Forum	KMekgoe@environment.gov.za

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Fax: + 27 (18) 293 0671
Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

Bismark Mashua
Gauteng Wetland Forum
Chairperson and Secretary
Mpfareleni.Mashau@gauteng.gov.za

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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Attached please find a notification of the proposed development as well as a copy of the draft Scoping report for your comments. We must receive your comments within a period of 30 days from the date of this letter. 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.

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

Yours sincerely,

PROF. A.B. DE VILLIERS

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

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Reg no. 2000/016653/23

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Potchefstroom, 2531
Fax: + 27 (18) 293 0671
Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

Keitumetse Mekgoe
DEA Provincial Coordinator
Gauteng Wetland Forum
KMekgoe@environment.gov.za

Dear Sir/Madam

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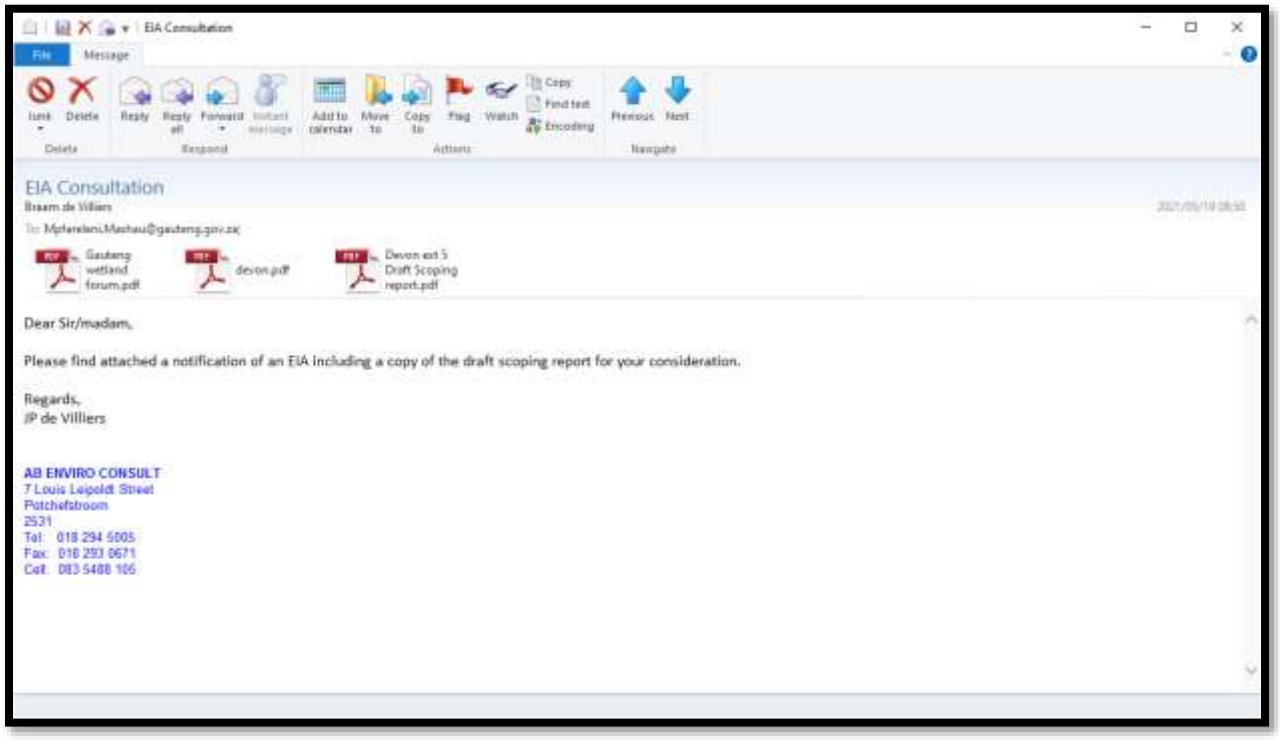
MR.J.P. DE VILLIERS (M Sc, HED, EAP-EAPASA); MRS.J.E. DU PLOOY (M.E.M, EAP-EAPASA)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Previous
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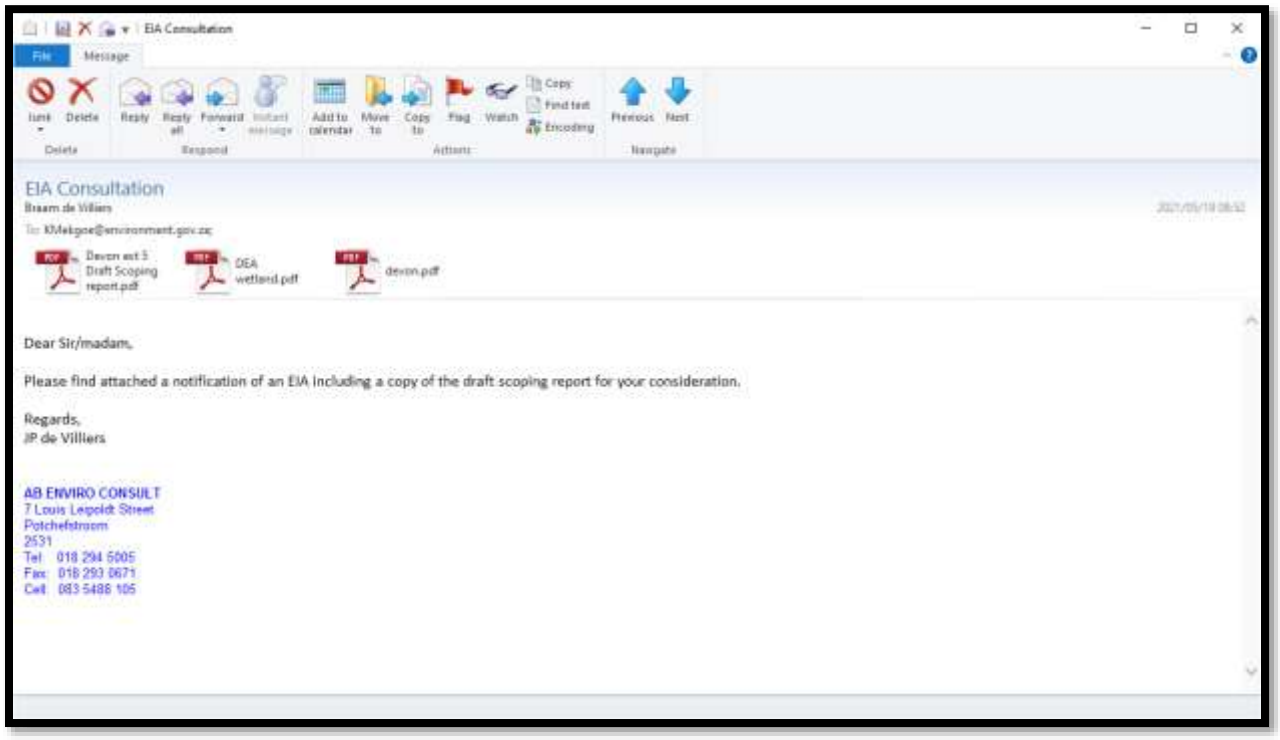
Delete
Respond
Actions
Navigate
EIA Consultation
Braam de Villiers
Mpherelani.Mashau@gauteng.gov.za
Gauteng wetland forum.pdf
devon.pdf
Devon ext 5 Draft Scoping report.pdf
Dear Sir/madam,
Please find attached a notification of an EIA including a copy of the draft scoping report for your consideration.
Regards,
JP de Villiers
AB ENVIRO CONSULT
7 Louis Leipoldt Street
Potchefstroom
2531
Tel: 018 294 5005
Fax: 018 293 0671
Cell: 083 5488 105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Junk
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Reply all
Forward
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Copy to
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Find text
Encoding
Previous
Next
Delete
Respond
Actions
Navigate
EIA Consultation
Braam de Villiers
KMakgoe@environment.gov.za
Devon ext 5 Draft Scoping report.pdf
DEA wetland.pdf
devon.pdf
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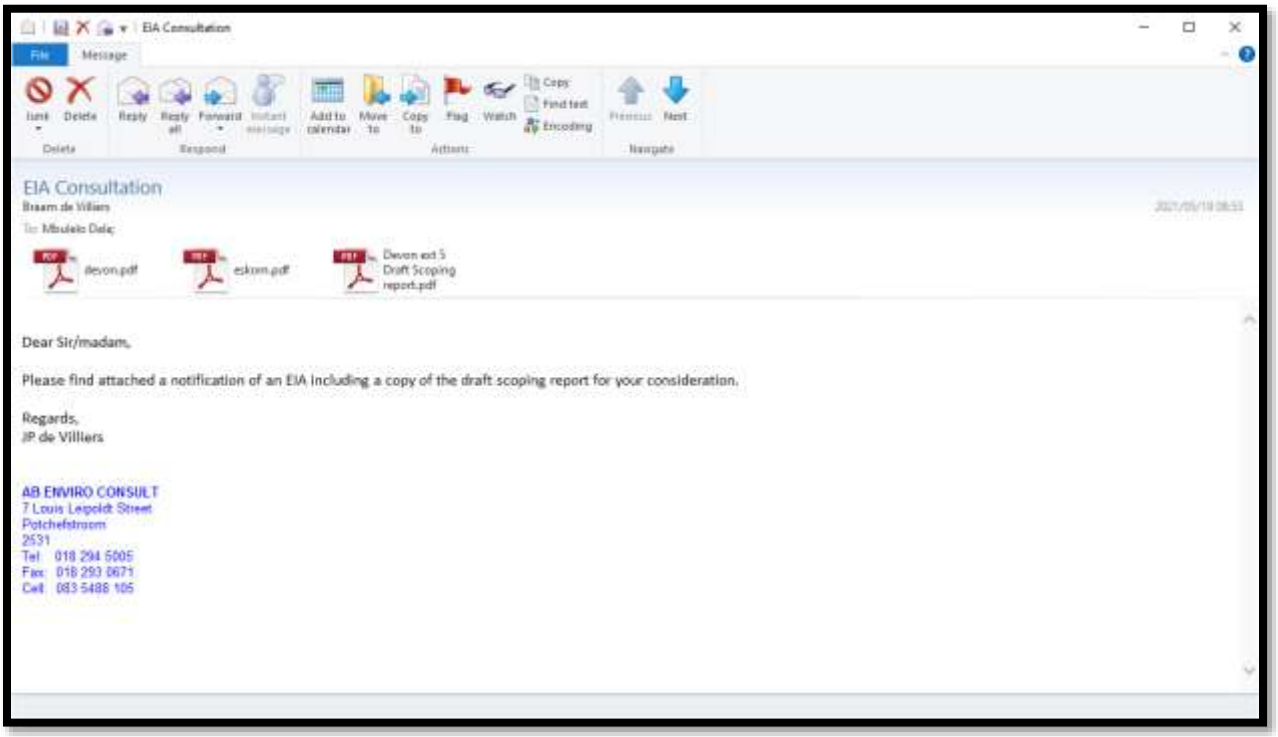
Potchefstroom
2531
Tel: 018 294 5005
Fax: 018 293 0671
Cell: 083 5488 105

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 Gauteng	**Mr Sibusiso Mthembu**	012 392 1415			285 Francis Baard Street Pretoria 0001
Head of Department: Gauteng: Department of Agriculture and Rural Development	**Mr Nhlakanipho Nkontwana**	**(011) 240 2576**	**(011) 240 21**	**Nhlakanipho.Nkontwana@gauteng.gov.za**	**PO Box 8769 Johannesburg 2000**
Gauteng: Department of Agriculture and Rural Development	**Head of Department: Biodiversity**				**PO Box 8769 Johannesburg 2000**
Department: Rural development and Land Reform	**Head of Department**	**(012) 407-4400**			**Private Bag X833 Pretoria 0001**
Sedibeng District Municipality	**The District Municipal Manager M r. S Khanyile**	016 450 3165	016 455 5264	khanyiles@sedibeng.gov.za	**PO Box 471 Vereeniging 1930**
Lesedi Local Municipality	**The Municipal Manager**	**2716 492 0043**			**P O Box 201 Heidelberg Gauteng 1438**
Lesedi Local Municipality Ward 12	**The Councillor**	**0842208 758**			**P O Box 201 Heidelberg Gauteng 1438**
Gautrans	**Mr. R. Swartz**				**Private Bag X83 Marshalltown 2017**
Eskom	**Mr M. Dala**			**DalaME@eskom.co.za**	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Copy to
Flag
Watch
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Encoding
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Next
Delete
Respond
Actions
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Braam de Villiers
To: Mbulelo Dalo
devon.pdf
eskom.pdf
Devon ext 5 Draft Scoping report.pdf
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Regards,
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AB ENVIRO CONSULT
7 Louis Leipoldt Street
Potchefstroom
2531
Tel: 018 294 5005
Fax: 018 293 0671
Cell: 083 5486 105

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7 LOUIS LEIPOLDT STREET
POTCHEFSTROOM
2531

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1	HOD GAUTENG AGRI & RURAL DEV PO BOX 8769 JOHANNESBURG 2000					REGISTERED LETTER RC385048574ZA CUSTOMER COPY 301028R
2	DMM SEDIBENG DM PO BOX 471 VEREENIGING 1930					REGISTERED LETTER RC385048588ZA CUSTOMER COPY 301028R
3	HOD BIODIVERSITY, GAUTENG AGRI & RURAL DEV, PO BOX 8769, JNB, 2000					REGISTERED LETTER RC385134750ZA CUSTOMER COPY 301028R
4	CLLR WARD 12, NKEDI NM PO BOX 201 HEIDELBERG 1438					REGISTERED LETTER RC385134746ZA CUSTOMER COPY 301028R
5	HOD GAUTENG ROADS & TRANSPORT PRIVATE BAG X83 MARSHALLTOWN 2017					REGISTERED LETTER RC385134732ZA CUSTOMER COPY 301028R
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AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
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Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

Mr Nhlakanipho Nkontwana
Head of Department: Gauteng: Department of Agriculture and Rural Development
PO Box 8769
Johannesburg
2000

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

AB ENVIRO CONSULT was appointed by **NEP Construction PTY (LTD)** to submit an application to the Gauteng Province: Department of Agriculture and Rural Development for the above mentioned proposed development.

Attached please find a notification of the proposed development as well as a copy of the draft Scoping report for your comments. We must receive your comments within a period of 30 days from the date of this letter. 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.

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19/05/2021

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Head of department: Biodiversity
PO Box 8769
Johannesburg
2000

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Fax: + 27 (18) 293 0671
Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

Directorate: Department of Water and Sanitation
The Department of Water and Sanitation
Provincial Office: Gauteng/ Vaal River Catchment Management Agency
Bothongo Plaza East, Level 15
285 Francis Baard Street
PRETORIA, 0001
Tel. 012 392 1300

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

Gauteng department: Roads and Transport
HOD: Mr. R. Swartz
Private Bag X83
Marshalltown
2017

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

District Municipal Manager
Sedibeng District Municipality
PO Box 471
Vereeniging
1930

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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Potchefstroom, 2531
Fax: + 27 (18) 293 0671
Cell: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

19/05/2021

The Municipal Manager
Lesedi Local Municipality
P O Box 201
Heidelberg
Gauteng
1438

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
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19/05/2021

The Councillor: Ward 12
Lesedi Local Municipality
P O Box 201
Heidelberg
Gauteng
1438

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

AB ENVIRO CONSULT was appointed by **NEP Construction PTY (LTD)** to submit an application to the Gauteng Province: Department of Agriculture and Rural Development for the above mentioned proposed development.

Attached please find a notification of the proposed development as well as a copy of the draft Scoping report for your comments. We must receive your comments within a period of 30 days from the date of this letter. 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 do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

PROF. A.B. DE VILLIERS

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

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19/05/2021

Eskom
Mr. M. Dala
DalaME@eskom.co.za

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 132,8881 ha of indigenous vegetation, some within an Ecological Support Area, for the proposed mixed use township establishment (To be known as Impumelelo Extension 5) located on Portion 18 of the farm Nooitgedacht 294-IR, Lesedi Local Municipality, Gauteng Province.

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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	

10.5 COMMENTS AND RESPONSE REPORT

I&AP registered:	Comment received:	Response by the EAP:
To follow	To follow	

11. CONCLUDING STATEMENT.

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.

As in the rest of South Africa, there is a housing shortage in the area.

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 “Mixed land use township” (Alternative 1), “Single land use: Housing only” (Alternative 2) and the “No-go option” (Alternative 3).

Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;
- The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
    - Promote entrepreneurial services and products;
    - Be within walking distance to places of refreshment and trade for residents;
    - Provide Job opportunities; and
    - Improve neighbourhood quality.

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, *cannot be achieved*. By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

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 Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The proposed development will address this shortage.

Although this is only the Scoping phase of the proposed development, no "fatal flaws" has been encountered as of yet. All the issues envisaged at this stage can be mitigated.

12 PLAN OF STUDY FOR EIA

12.1 Description of the alternatives to be considered and assessed

One of the objectives of an EIA 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 will be assessed in the EIAR, in terms of environmental, social and technical feasibility.

12.1 Land Use Alternatives

12.1.1 Mixed land use township (Alternative 1)

Alternative Site layouts have been developed for the proposed development.

The current layout plan is the product of the appointed Town and Regional planner.

The proposed Township will consist of the following:

Residential 1	1752 Erven (55.6250 ha)
Residential 2	3 Erven (4.4099 ha) @ 80 dwelling units/ha
Business 2	7 Erven (5.8147 ha)
Institutional	20 Erven (1.5150 ha)
Community Facilities	1 Erven (0.1897 ha)
Special	179 Erf (16.3187 ha)
Public Open Space	17 Erven (13.1473 ha)
Streets	(35.8678 ha)
TOTAL Erven	**1979 Erven**
Area of township	**132,8881 ha**

Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is socially responsible based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;

- The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
- Promote entrepreneurial services and products;
- Be within walking distance to places of refreshment and trade for residents;
- Provide Job opportunities; and
- Improve neighbourhood quality.

12.1.2 Single land use: Housing only (Alternative 2)

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, cannot be achieved.

A Commercial node on site is commonly utilised as a "Multi-Purpose Community Centre/Rural Service Centre" which is defined as "a focal point at which a range of essential services can be obtained by people living in its vicinity". In turn, a commercial node 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".

By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

12.1.3 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 Informal settlements consist of non-conventional housing built without omplying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

12.2 Description of the aspects to be assessed as part of the environmental impact assessment process

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 following aspects and their possible impacts will be assessed

- Geology -structure and rock-type
- Topography- macro and micro-relief
- Climate: Temperature, rainfall, and wind.
- Soil
- Fauna
- Flora

- ❖ Surface Water
- ❖ Underground water
- ❖ Air Quality
- ❖ Noise
- ❖ Archaeology
- ❖ Cultural Sites
- ❖ Aesthetics
- ❖ Technical issues
- ❖ Sociological Issues
- ❖ Economic Issues

- ❑ The evaluation of concerns in order to assign priority to the important issues: The study is designed to address concerns as well as to prioritise issues as part of the process.
- ❑ Developing a strategy for addressing and resolving each issue: All relevant issues will be addressed in order of priority. In this sense the inputs of all I&APs, as well as all other socio-economic factors of importance will be resolved in order of priority.
- ❑ Providing feedback at regular intervals in which comments by authorities have been incorporated: Feedback to I&APs is the only logical way by which eventual acceptance can be achieved. It is therefore a standing practise in all studies conducted by the consultant that feedback is provided on a continuous basis.

12.3 Aspects to be assessed by specialists

The process followed can be described as follows:

1) The EAP was contracted by the land owner, NEP Construction PTY (LTD) in co-operation with the Department of Human Settlements 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) The Civil Engineer was appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He also designed the proposed infrastructure.
4) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
5) An Ecological and Wetland specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
6) An Agricultural Specialsit has been appointed to assess the impact of the proposed development on this aspect.
7) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
8) Desk top studies were conducted and alternatives assessed.
9) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
10) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
11) 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.
12) 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.

The inputs from Specialists, interested and affected parties, together with the knowledge of the EAP will be used to determine measures to avoid, mitigate and manage potential impacts. These measures will be described in the Environmental Management Programme.

12.4 Description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists,

And

12.5 Description of the proposed method of assessing duration and significance

Impacts will be rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Duration (time scale)	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	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.
Magnitude (Intensity)	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).
Probability	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
Significance	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)

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	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
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact
Risk	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 will be 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. A surveyor has been appointed to map the area and determine site levels.

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. Various Specialists are involved in assessing different aspects including Civil Engineer, Electrical Engineer, Surveyor, Town Planner, Botanical Specialist, Wetland Specialist, SAHRA Specialist and the EAP.

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. The Botanical Specialist will determine the sensitivity and distribution of flora and associated fauna, and the wetland specialist will ensure that the relevant aquatic ecosystems are assessed.

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. EAP, Town Planner, Civil Engineer and SAHRA specialist.

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. . EAP, Town Planner, Civil Engineer and SAHRA specialist.

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. SAHRA Specialist.

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. SAHRA Specialist.

The inputs from Specialists, interested and affected parties, together with the knowledge of the EAP will be used to determine measures to avoid, mitigate and manage potential impacts. Inputs from I&APs will be considered for all the above in order to ensure a sustainable development.

12.6 Stages at which the competent authority will be consulted

1) The first consultation will be in the form of the application submission
2) A Draft Scoping report will be submitted to the Department on 13/11/2018.
3) 40 Days after this draft has been submitted, the final Scoping report will be submitted to the Department.
4) Once the Final Scoping report has been accepted, a Draft EIA Report will be submitted to the Department.
5) 30 Days after this draft EIA Report has been submitted, the final EIA Report will be submitted to the Department.

12.7 Particulars of the public participation process that will be conducted during the environmental impact assessment process

Public and stakeholder involvement in the EIA process is widely recognised as being an *essential* component of the EIA process. The input and contribution added to the process, by public comment and involvement, leads to better and more acceptable decision-making. The involvement of interested parties, adjacent land owners, NGO bodies and others, can help to identify whether all impacts have been included and whether all risk groups have been identified.

The engagement process will provide stakeholders with the opportunity to raise their issues and concerns and to interact on a one-on-one basis with the project team.

Registered I&APs shall be informed of the approval or rejection of the scoping report, and will be encouraged to continue their active participation in the EIA process by staying involved in the process, and commenting on the scoping report approval conditions / requirements.

The PPP to be conducted during the EIA phase will entail the following:

- ❖ Update the existing stakeholder database, following the review of the draft and final scoping reports by registered IAP's and READ
- ❖ Announcement of the EIA phase of the project, which entails the following:

1) Distribution of Letters, notices, the Draft and final EIAR to all registered I&APs via email, fax or post;
2) Hosting Public Meetings (if necessary);
3) Integration of comments into a Comments and Response Report;

12.8 Description of the tasks that will be undertaken as part of the environmental impact assessment process

Actions
1. Assessment Phase
1.1 Undertake assessment phase by assessing and evaluating potential impacts identified in the Scoping phase.
1.2 Review and manage specialist studies required.
1.3 Compile a draft Environmental Impact Report (EIR).
1.4 Compile a draft Environmental Management Plan for the Construction phase.
1.5 Compile an Information Sheet (summary of EIR) and distribute to identified I&APs
1.6 Distribute DEIR to I&APs
1.7 Allow the identified public to provide comment within a 30 day period on above report.
1.8 Address comments received and finalise EIR
1.9 Should the draft EIR require substantial changes, these changes will be incorporated into the final EIR and distributed.
1.10 Submit EIR to authorities for a final decision
1.11 Once the decision is issued, all I&Ps must be formally informed of the decision

12.9 Measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

An EIA involves *prediction* and thus a certain degree of *uncertainty* is an integral part. There are two types of uncertainty associated with environmental impact assessments: those associated with the process and, those associated with predictions. With the former the uncertainty is whether the most important impacts have been identified and whether recommendations will be acted upon or ignored. For the latter, the uncertainty is in the accuracy of the findings. The main types of uncertainty and the ways in which they can be minimized are summarized as follows:

- **Uncertainty of prediction**: this is important at the data collection stage and the final certainty will only be resolved once implementation commences. Research can reduce the uncertainty;

- **Uncertainty of values**: this reflects the approach taken in the EIA process. Final certainty will be determined at the time decisions are made. Improved communications and extensive negotiations should reduce this uncertainty;

- **Uncertainty of related decision**: this affects the decision making element of the EIA process and final certainty will be determined by post evaluation. Improved coordination will reduce uncertainty.

The importance of *wide consultation* cannot be overemphasized in minimizing the risk of missing important impacts. The significance of impacts is subjective, but the value judgments required are best arrived at by consensus: public participation and consultation with a wide sector of the community will reduce uncertainty.

The accuracy of predictions is dependent on a variety of factors such as lack of data or lack of knowledge. Prediction capabilities are generally good in the physical and chemical sciences, moderate in ecological sciences and poor in social sciences.

The results of the EIA should indicate the level of uncertainty with the use of confidence limits and probability analyses wherever possible. Sensitivity analysis similar to that used in economic evaluation, could be used if adequate quantifiable data are available. A range of outcomes can be found by repeating predictions and adjusting key variables.

An EIA cannot give a precise picture of the future. The EIA enables uncertainty to be managed and, as such, is an aid to better decision making. (*S. Cliff, 2015, P92.*)

13. AFFIRMATION BY EAP

I **Mr J.P. De Villliers** 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.

Signature of the Environmental Assessment Practitioner:

Name of company:

Date:

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.

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APPENDIX A

PROOF THAT THE DRAFT SCOPING REPORT HAS BEEN SENT TO DEPARTMENT OF WATER AND SANITATION