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 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer Reneke Townlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

Report Date: July 2021

NWP/EIA/38/2020

Compiled by:

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Compiled for:

Mamusa Local Municipality

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EXECUTIVE SUMMARY

The land owner, the Mamusa Local Municipality,has appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer ReneketTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approached to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Mamusa Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities. Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of household where development is not possible or desirable.
- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-

owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.

HOUSING AND STANDS NEEDS

- The waiting list of the municipality currently indicated a need for 6000 houses. This waiting list increased drastically from 3171 units in 2014 (NW Multi Year Development Plan 2014).
- According to the 2013 spatial Development Framework (SDF) for Mamusa Local Municipality there were 804 informal structures not on stands (squatters) and 303 informal structures in backgrounds. (This was also indicated in the 2013 Housing Sector Plan for Mamusa Local Municipality)
- Due to the fact that there are no vacant stands in Schweizer-Reneke/ Ipelegeng Urban area, households are currently squatting on municipal vacant land, parks, school sites and in the backyards and the community already submitted two memorandums to the municipality demanding additional stands

The proposed development is based on the premise that the proposed township area should be a fully integrated human settlement catering not only for low cost subsidised housing but also for other housing typologies including inter alia but not limited to GAP housing, affordable bonded housing, the necessary social, community and recreational facilities as well as opportunities for job creation and employment.

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

The 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:

Number and date of the relevant notice:	**Activity No (s) (in terms of the relevant notice) :**	**Listed activity as per project description[1]:**	**Anticipated years to complete construction (From date of commencement)**
GN.R. 325, 7 April 2017	15	The proposed clearance of 264ha of indigenous vegetation to establish a mixed use Township on portion 100 (a portion of Portion 2) of the farm Nooitgedacht No 434-IP, Mamusa, North West Province.	10 years
GN.R. 327, 7 April 2017	28(i)	Residential, mixed, retail, commercial and institutional developments where such land was used for agriculture on and after 01 April 1998 and where such development:	10 Years

		(i) will occur inside the urban area of Schweizer Reneke, where the total land to be developed is 274,2189 hectares.	
GN.R. 324, 7 April 2017	12 (h)(iv)	The proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (located within a critical Biodiversity area 1 as identified in the North West Bioregional Plan) and within 100 meters from a non-perennial stream located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12.	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.

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.

1. INTRODUCTION

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Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

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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 DEDECT 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, **Mamusa Local Municipality** 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 has been appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He will also designed the proposed infrastructure.
4) A Traffic engineer has been appointed to determine the impact of the additional traffic generated by the proposed development on the existing road network and suitability of the access to the development as well as considering

5) The town and regional planner have designed the proposed layout of the development informed by the surveyer's and floodline engineer's findings.
6) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
7) A Fauna and Flora specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
8) A Wetland specialist has been appointed to determine the impact of the proposed development on the watercourses of the area.
9) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
10) Desk top studies were conducted and alternatives assessed.
11) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
12) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
13) 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.
14) 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;	 Paragraph 4 Paragraph 4

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Location in this Scoping report
	(iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties	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 and 3
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; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed, or mitigated. (vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk;	 Paragraph 7 Paragraph 10 Paragraph 10 Paragraph 8 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Location in this Scoping report
	(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
	(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.	Paragraph 12.9
Appendix 2, section 2 (1)(i)	An undertaking under oath or affirmation by the EAP in relation to-	Paragraph 13
	(i) The correctness of the information provided in the report;	Paragraph 13
	(ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; and	Paragraph 13
	(iii) 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.	
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

PERSONAL PARTICULARS AND CAREER HISTORY OF PROF DE VILLIERS

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POTCHEFSTROOM
2531
Lecturer & Professor – Potchefstroom University 1969- 2004

ACADEMIC AND PROFESSIONAL QUALIFICATIONS

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	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

***Chairman of the Committee for Interested and Affected Parties (CIP) (2004-2008)** for International Accreditation by the influential accrediting body of **Price, Waterhouse Coopers- International Environmental Auditors in Southern Africa.**

Member of Price Waterhouse Coopers CIP (2004-2010)

2.1. ACADEMIC COURSES TAUGHT AT POST-MATRIC LEVEL

1.1 The Geography of Economic Activities and Regional Geography (3rd year and honours students)
1.2 Weather and Climate (1st, 2nd, and 3rd year students)
1.3 Geomorphology (1st year up to PhD level)
1.4 Remote Sensing and the Environment (3rd year and Honours)
1.5 Quantitative Geography (3rd year up to Masters Level)
1.6 Environmental Management (2nd year, up to PhD level)
1.7 Environmental Analysis (3rd year and up to Masters Level)
1.8 Geography of Soil (3rd year and Honours)
1.9 Cartography (1st year to Honours)
1.10 As professor, 26 Masters & 4 PhD D students completed their studies in environmentally related subjects under his tutor- and co-tutorship.

2.2 INVOLVEMENT IN COURSES AND WORKSHOPS

2.2.1 ENVIRONMENTAL COURSES: Partially responsible for course development and taught various courses for environmental officers employed by the North West Province over a period of 3 years (1998-2001). These courses were aimed at improving their knowledge of the environment as well as their understanding of the environmental interactions specifically related to the North West province.

2.2.2 STATE OF THE ENVIRONMENT REPORT (SOE) Involved in the first SOE prepared by the North West Province and was responsible for most of the physical geographical aspects (1999).

2.3 ENVIRONMENTAL PROJECTS

The following projects are typical examples, of such projects which he co-ordinated and managed:

2.3.1 MOOI RIVER CATCHMENT STUDIES: This was a study on the impacts of the mining activities on the quality and quantity of water in the Mooi River catchments and was done for the North West Province. He co-ordinated and managed this project. The team consisted of a PhD student as well as two teams of local and international students; one responsible for the biophysical variables, and the other for socio-cultural aspects.

2.3.2 SADC MINE DUMPS STUDY GROUP: Acted as co-ordinator for the formulation of tools to assess the effects of mine dumps on the environment in the SADC region. One group was involved in the

Zimbabwean copper belt region, and the other in the Tanzanian gold mining area. The studies were undertaken for the Carl Duisburg Geselschaft (Germany). The research team consisted of geographers, ecologists and mining experts. From this study, a pilot program, the "South African Environmental Management System" (SEMS) developed, which was applied successfully by a team of researchers in a pilot study in the Carletonville region.

2.3.3 SADC DEVELOPMENT OF TRAINING MODULES FOR ENVIRONMENTAL STUDIES USING GIS: Member of the three-person team who developed these training modules. It was applied at the Copperbelt University, the University of Dar Es Salaam as well as at the Potchefstroom University as an introduction to the integration of environmental data (both biophysical and socio-economic) for the interpretation of geographical regions.

2.3.4 ENVIRONMENTAL DEGRADATION - THE RESULT OF INDISCRIMINATE LOCATION OF SLIME DAMS IN THE SADC REGION: Co-ordinated this study in the Far West Rand Area; conducted case studies in Zambia and South Africa. The team consisted of researchers from the Netherlands, Germany, Zambia and Tanzania.

2.3.5 LAND USE CHANGES IN THE NORTH WEST PROVINCE: An Environmental Management Support System for SOE North-West University Team leader. This project was undertaken for DACE (NWP) and various students participated – each involved in a specific aspect of the environment. This data was co-ordinated and eventually incorporated into the SOE report.

2.4 RESEARCH PUBLICATIONS AND CONFERENCES

He published 11 environmentally related articles in peer-reviewed magazines, and appeared professionally at 30 conferences with a direct bearing on environmental work.

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
2019	Registered as Environmental assessment Practitioner	EAPASA Registration number: 2019/1573	
2001	Aquabase Intro	AQUABASE	Hydrology
2001	Geomedia Professional	INTERTECH	GIS
2001	Map Info	SPATIAL TECHNOLOGY	GIS

EXPERIENCE OF THE CONSULTANCY

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 380 projects. Environmental Control Officer's duties are also performed on various projects.

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

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

3. DESCRIPTION OF THE ACTIVITY

The land owner, Mamusa Local Municipality,has appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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, environmental sensitivity, service provision, erf size, access, road layout, as well as the geotechnical features and floodlines. To ensure that the proposed development do not infringe on any design principles and the environmental sensitive areas, development will only be allowed to take place according to the prescribed methods. The proposed development consists of 2 513 households on 2300 stands. The footprint area of the proposed development is approximately 292.9318ha. The average residential erven size is approximately 400m² with street reserves ranging from 10 meters to 20 meters.

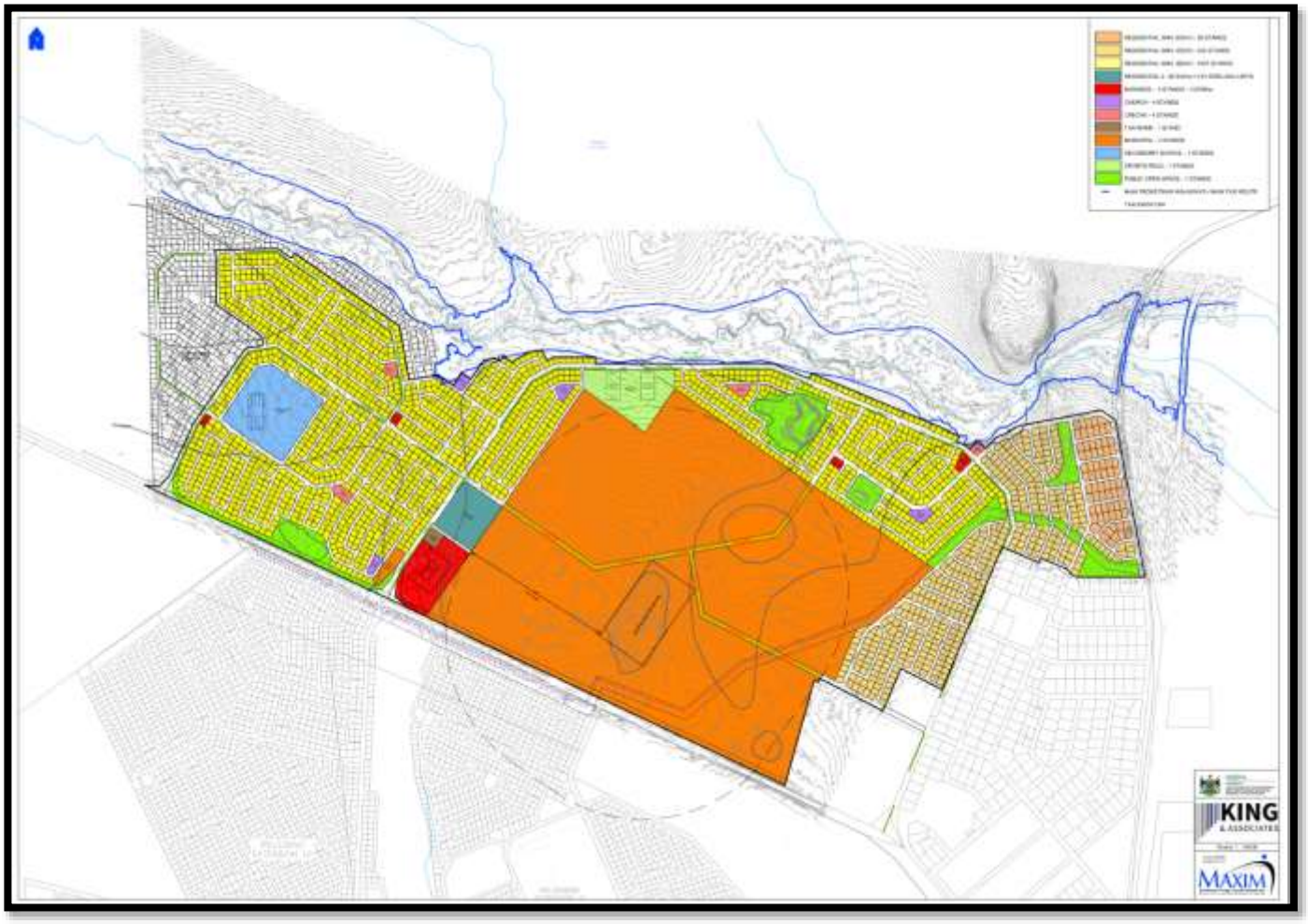


FIGURE 1. Proposed layout plan.

The proposed land use composition of the development (excluding public open space & streets) are as follows:

- 1 831 x Stands (Residential Minimum 360 m²)
- 400 x Stands (Residential Minimum 450 m²)
- 69 x Stands (Residential Minimum 600 m²)
- 213 x Dwelling units (Residential 2 – 80DU/ha)
- 5 x Business Stands (Business)
- 3 x Institutional (Church)
- 2 x Authority (Municipal)
- 4 x Institutional (Creche)
- 1 x Institutional (Taxi Rank)
- 1 x Institutional (Secondary School)

Services are proposed to connect to municipal infrastructure and have been dsigned as follows:

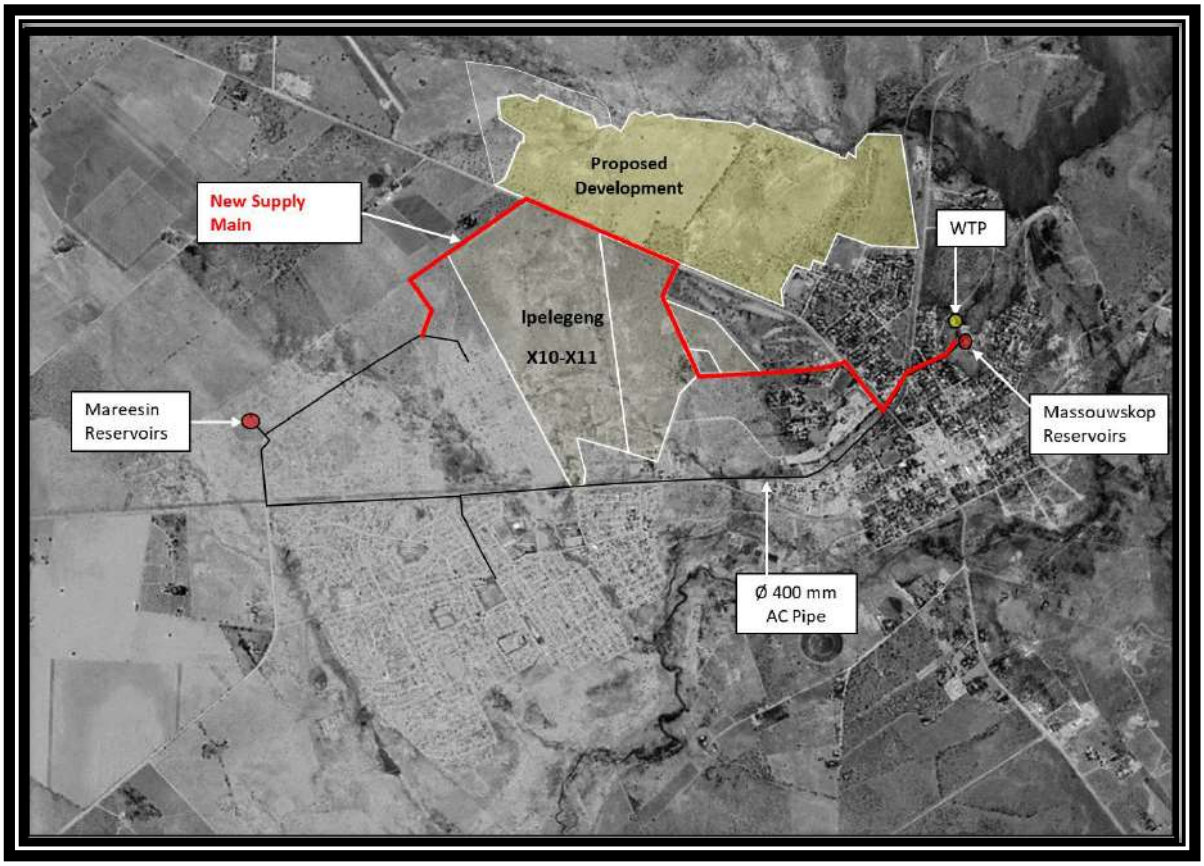
Bulk Water
The estimated current Average Annual Daily Demand (water) equates to 5.9 Mℓ / day. The Proposed Development could increase the water demand to 8.8 Mℓ/day. The existing 6 Mℓ/day WTP will not be able to meet the future water demand. However, the capacity shortfall of the WTP can be mitigated by augmenting the supply volume of the Mamusa bulk water pipeline. The current bulk water storage reservoirs do not have sufficient capacity to accommodate the development. It is proposed that the storage capacity be increased to compensate for the storage shortfalls in future.

In addition, it is proposed that a new bulk supply main be constructed to provide potable water to the development from the Massouwskop reservoirs. Please see Figure below.

Please note that these proposed upgrading of the Bulk Infrastructure does not form part of this application.

The design of internal services will be dependent on the final proposed development layout. The following design guidelines will be followed:

- The internal water supply network will consist of uPVC and/or HDPE pipes of varying diameter according to designs of the Civil Engineer.
- Sufficient storage capacity for water demand and fire water supply.
- Provision of isolating valves, air release valves and fire hydrants to comply with the requirements of the Local Authority and Building Regulations.
- Cognisance will be taken of pipe diameters and water pressure for firefighting purposes



Proposed Bulk Water Infrastructure Augmentation

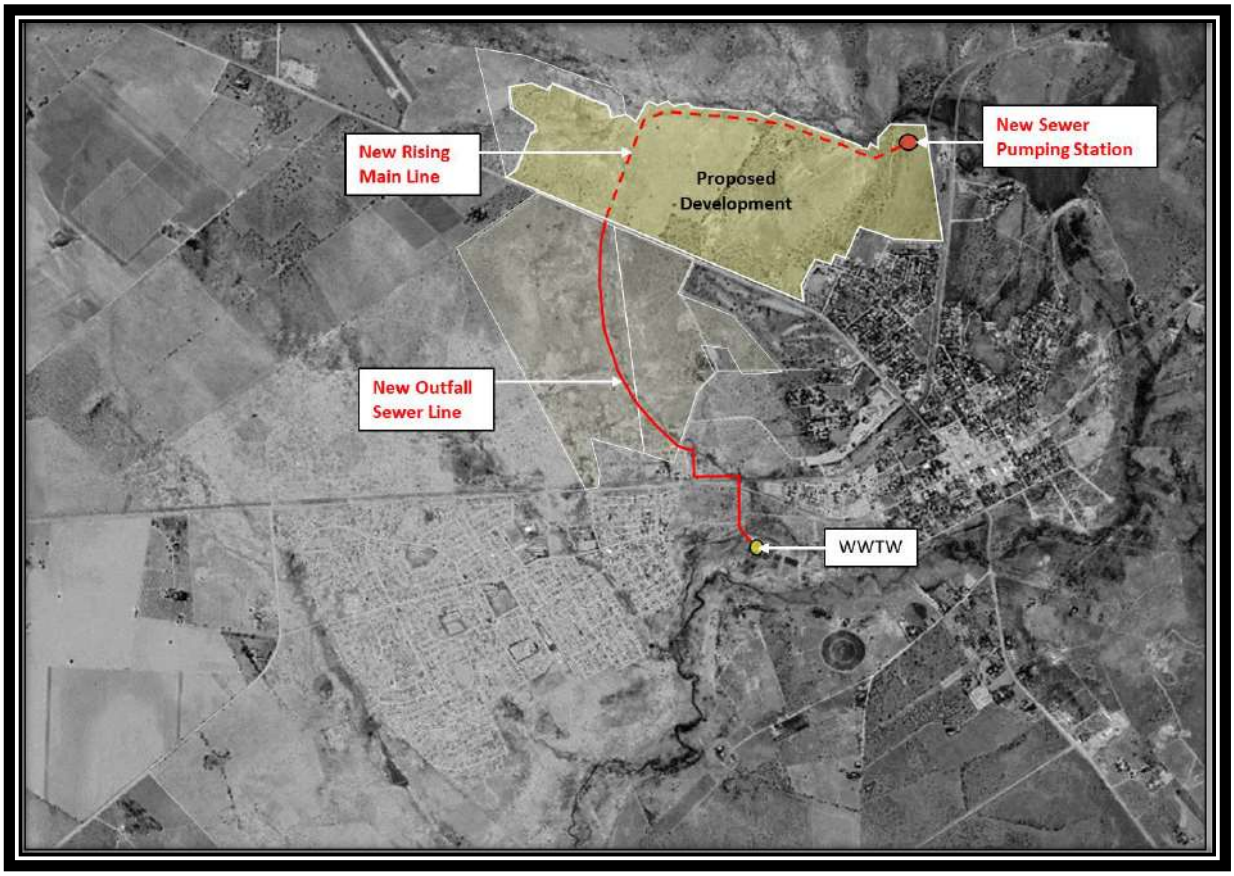
Wastewater

The estimated current wastewater generation equates to 5.7 Mℓ / day. The Proposed Development could increase the wastewater generation to 8.6 Mℓ / day. The existing WWTW will have capacity to accommodate the increased wastewater loading. In order to convey wastewater generated by the development to the WWTW, it is proposed that a new sewer pumping station be constructed as well as a new rising main and bulk outfall sewer line. Please see Figure below.

Please note that these proposed upgrading of the Bulk Infrastructure does not form part of this application.

Depending on the future development layout, an internal sewer network of Ø 110mm and Ø 160mm pipes with related Y-junction connections and inspection eyes will be installed to comply with the minimum specifications stipulated in the SANS 10400 Building Regulations. Manholes and rodding eyes will be constructed at necessary positions to allow for effective maintenance.

The internal sewer network will be connected to the new gravity outfall sewer as explained above



Proposed New Wastewater Infrastructure

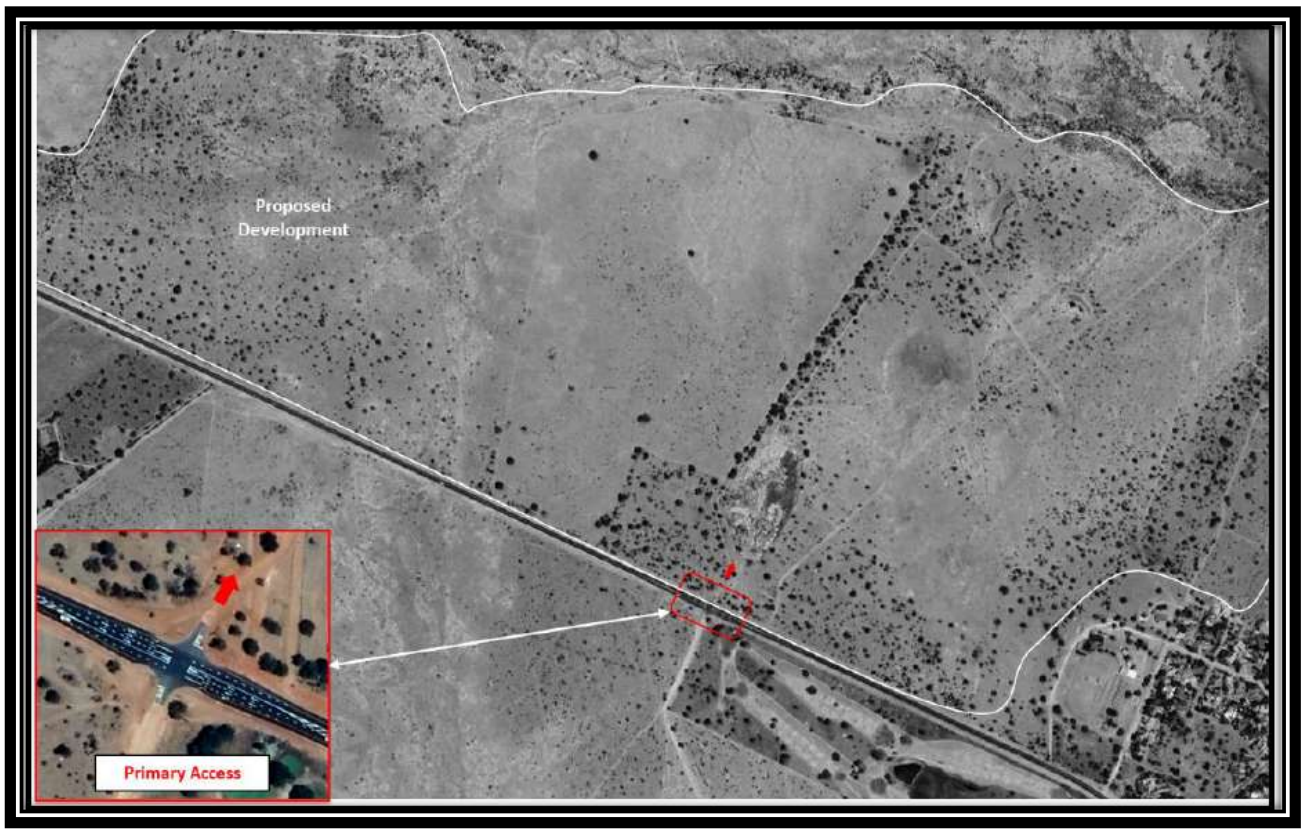
Access

The Proposed Development is located north of the R34 road (Vryburg - Schweizer-Reneke). Primary access to the Proposed Development will be from the R34 road which was recently reconstructed where provision was made for an intersection as indicated in the figure below.

The design of the internal access roads shall provide for an appropriate road surface with cross sections designed to accommodate the channelling of storm water generated on the development area.

Where storm intensity calculations dictate, sufficiently designed concrete channels will be constructed as part of the road cross section to channel storm water as described in the relevant section above.

Roads and storm water infrastructure will generally be designed to follow the natural runoff patterns to avoid ponding and flooding of properties with associated damage

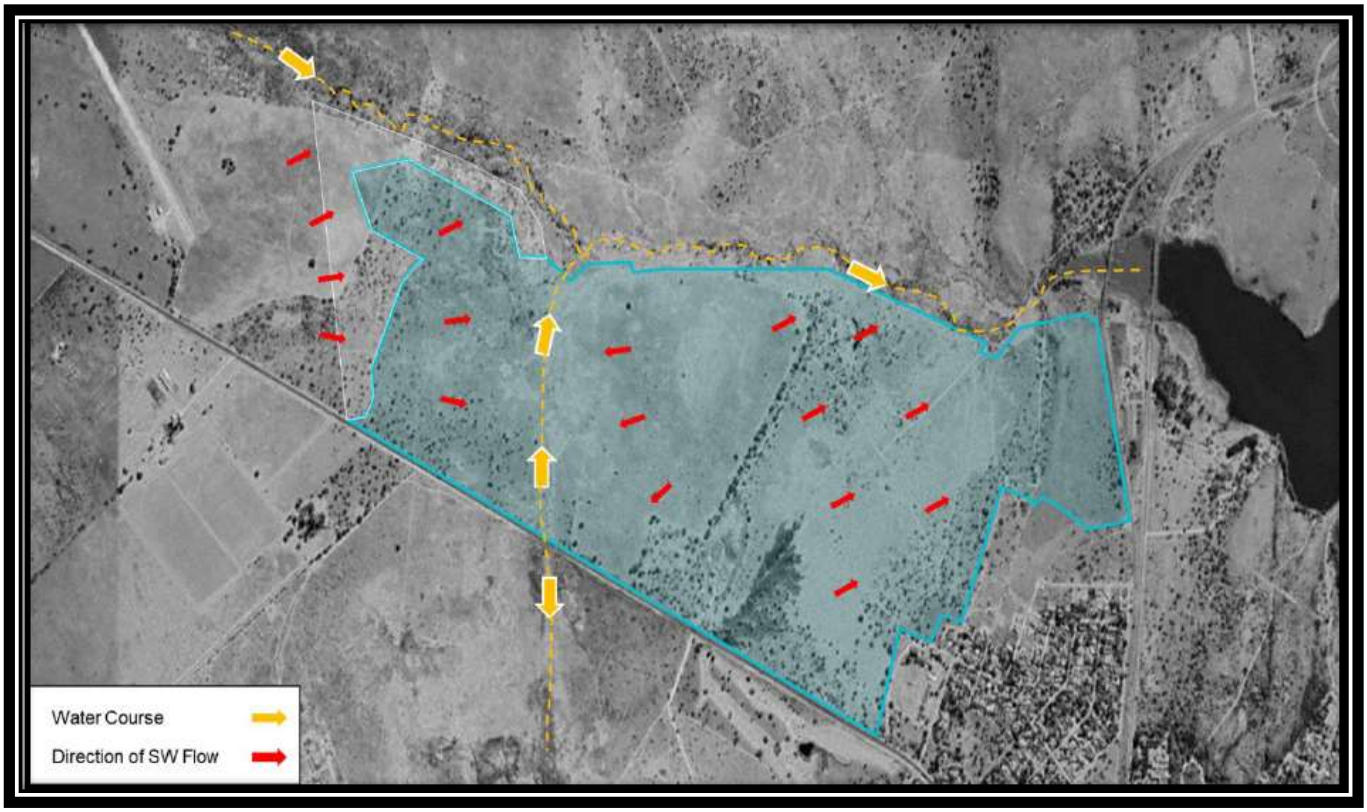


Access to Proposed Development

Storm Water

The Proposed Development is located in a valley with a natural stormwater low-point dividing the eastern and western portions of the development. The natural topography of the area slopes towards the storm water low-point and a watercourse to the north. Due to the natural topography, the area may be prone to stormwater erosion. Urbanisation of the demarcated area will increase the peak storm-water runoff (1-in-2 years recurrence interval) from 4.8 m^3/s to 11.3 m^3/s. The following figure indicates the direction of stormwater flow.

Stormwater infrastructure will be designed to accommodate runoff as surface flow in an open system. This will be achieved by designing internal roadways to disperse stormwater towards the watercourses. Comprehensive information on stormwater attenuation should be presented in the detailed design report of internal services for approval by the municipality.



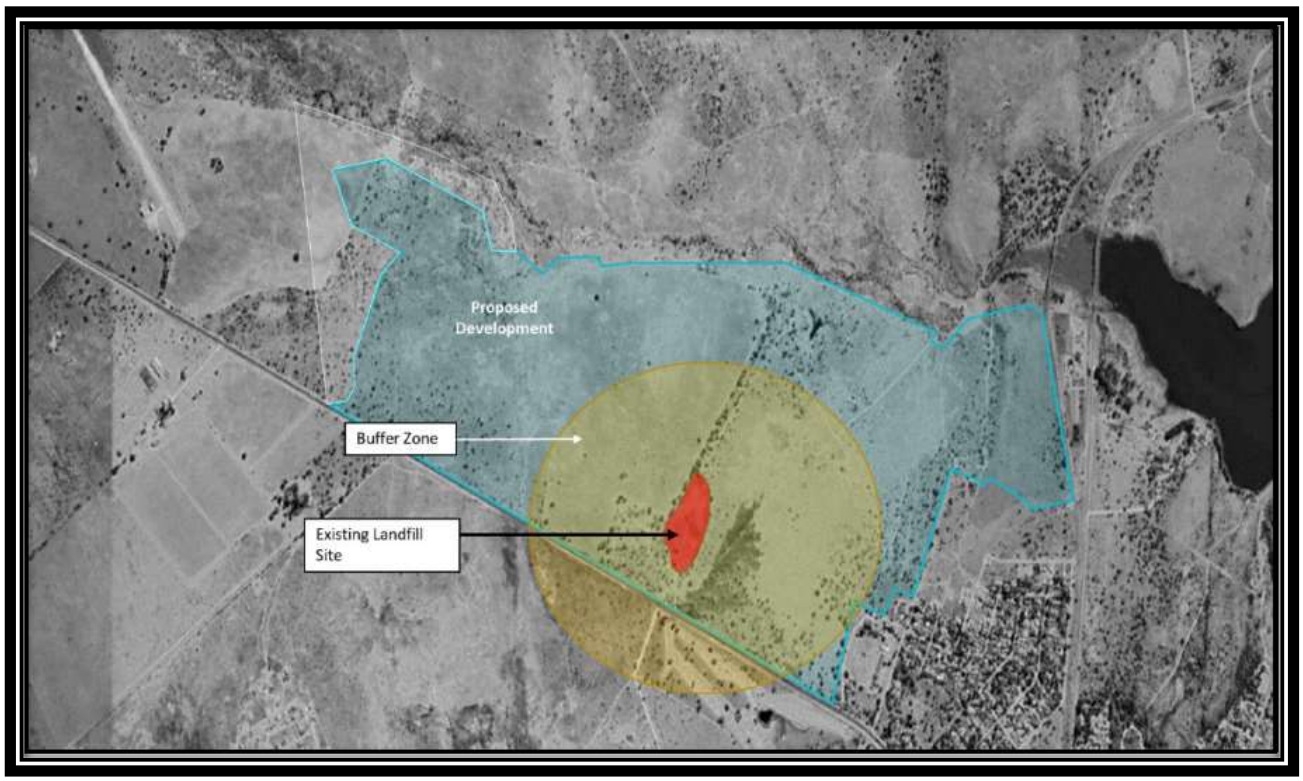
Direction of Storm-water Flow

Solid Waste

Municipal Solid Waste (MSW) removal is a function of the Waste & Environmental Management Division of the MLM. According to the SDF: "*a black bag system is used and a special refuse truck. Large containers are also used in the industrial and business areas"* to facilitate MSW removal.

The community currently theoretically generates an estimated MSW volume of 89.9 tons per day. The Proposed Development will theoretically increase the estimated total MSW to 97.7 tons per day. The estimated increase in MSW will amount to 10.2m³ per day. The encouragement of an integrated waste management system will dramatically reduce MSW and promote Reduce, Reuse and Recycle practices.

As previously mentioned, the existing landfill site is located within the Proposed Development and operate as a G:S:B - municipal landfill site. According to the permit conditions the Schweizer-Reneke landfill site requires a 500 m buffer zone. It is proposed that the capacity of the current landfill site must be established and evaluated. The following figure graphically illustrates the landfill site and buffer zone:



Landfill

4. DESCRIPTION OF THE PROPERTY

The proposed development is situated on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province. Schweizer-Reneke and Ipelegeng form part of the Mamusa Local Municipality which falls under the jurisdiction of Dr Ruth Segomotsi Mompati District Municipality (DRSM) which is the Water Services Authority (WSA).

On a district level, the Dr Ruth Segomotsi Mompati District Municipality is one of the 4 districts in the North West province of South Africa. This vast district has a very scattered rural settlement pattern. The district is located in the barren north-western side of the country, far away from the large towns and cities in the North West Province. It shares its borders with the Free State province to the South, the Northern Cape Province to the West and the Republic of Botswana to the North. The Dr Ruth Segomotsi Mompati District Municipality [DC 39] is approximately 43 700 km² in size (41.67% of the total area of the North West province) and has an estimated population of 480 456 people (13.97% of the total population of the North West province). DRSM has the smallest population of all the district municipalities of the North West province.

The Mamusa Local Municipality is a Category B municipality and spans over an approximate area of 3 681 km² which equates to 7.8 % of the DRSM region. The town of Schweizer-Reneke is located 66 km south-east of Vryburg and 71 km west of Wolmaransstad. Schweizer-Reneke/ Ipelegeng is situated in the Harts River Valley. The Mamusa Local Municipality district is considered rural in nature with agriculture scattered all over the region. The municipal structure consists of five distinct nodes situated on prominent trade routes. The respective urban nodes are:

- **Schweizer-Reneke / Ipelegeng / Charon**
- Amalia / Molatswanene

➢ Glodina
➢ Migdol
➢ Avonster

The township of Ipelegeng is located on the western outskirts of Schweizer-Reneke.

The site extends from the R32 to the south, a narrow non-perennial river, with its active channel and riparian zone, is present to the north of the site (Photo 1). An in-channel dam, the Wentzeldam is located to the northeast of the site. The site is bounded by residential erven and a railway line to the east and open undeveloped land to the west with landing strip beyond. The Existing Solid Waste Site forms part of the site with a 500m buffer zone incorporated into the proposed layout and zoned a municipal 2 stand to be retained (Photo 2).

Vegetation at most of the site is visibly degraded and cover of vegetation in many areas is conspicuously poor (Photo 3). Vegetation at an informal rubbish dump site is transformed. Some areas have been cleared, exposing soil. Low rocky ridges are present at the northeastern part of the site (Photo 4). Indigenous trees at the site include *Vachellia erioloba* (Camel Thorn), *Vachellia hebeclada* subsp. *hebeclada* (Candlepod Thorn; shrub-height at site), *Vachellia karroo* (Sweet Thorn), *Tarchonanthus camphoratus* (Camphor Bush) and *Grewia flava* (Velvet Raisin; shrub-height at site), some Savanna remains in parts of the site.

Photo 1. Narrow and defined active channel at northern parts of the site.
Photo: R.F. Terblanche.

Photo 2. Existing Solid Waste Site

Photo 3. Degraded area at the site.
Photo: R.F. Terblanche

Photo 4. Low Rocky Ridge at the site.
Photo: R.F. Terblanche

Landowner:	Mamusa Local Municipality		
Contact person:	Mr. Ruben Gincane		
Postal address:	PO Box 5, SCHWEIZER-RENEKE		
Postal code:	2780	Cell:	N/A
Telephone:	053 963 1331	Fax:	053 963 2474
E-mail:	gincaner@mamusalm.gov.za		

In instances where there is more than one landowner, please attach a list of landowners with their contact details to this application.

Local authority in whose jurisdiction the proposed activity will fall:	Mamusa Local Municipality		
Municipal Ward No:	9		
Nearest town or districts:	SCHWEIZER-RENEKE		
Contact person:	Mr. Ruben Gincane		
Postal address:	PO Box 5, SCHWEIZER-RENEKE		
Postal code:	2780	Cell:	N/A
Telephone:	053 963 1331	Fax:	053 963 2474
E-mail:	gincaner@mamusalm.gov.za		

Site Co-ordinates	Latitude (S):			Longitude (E):		
Alternative S1 (preferred or only site alternative)	27°	10'	17.03"	25°	18'	34.63"

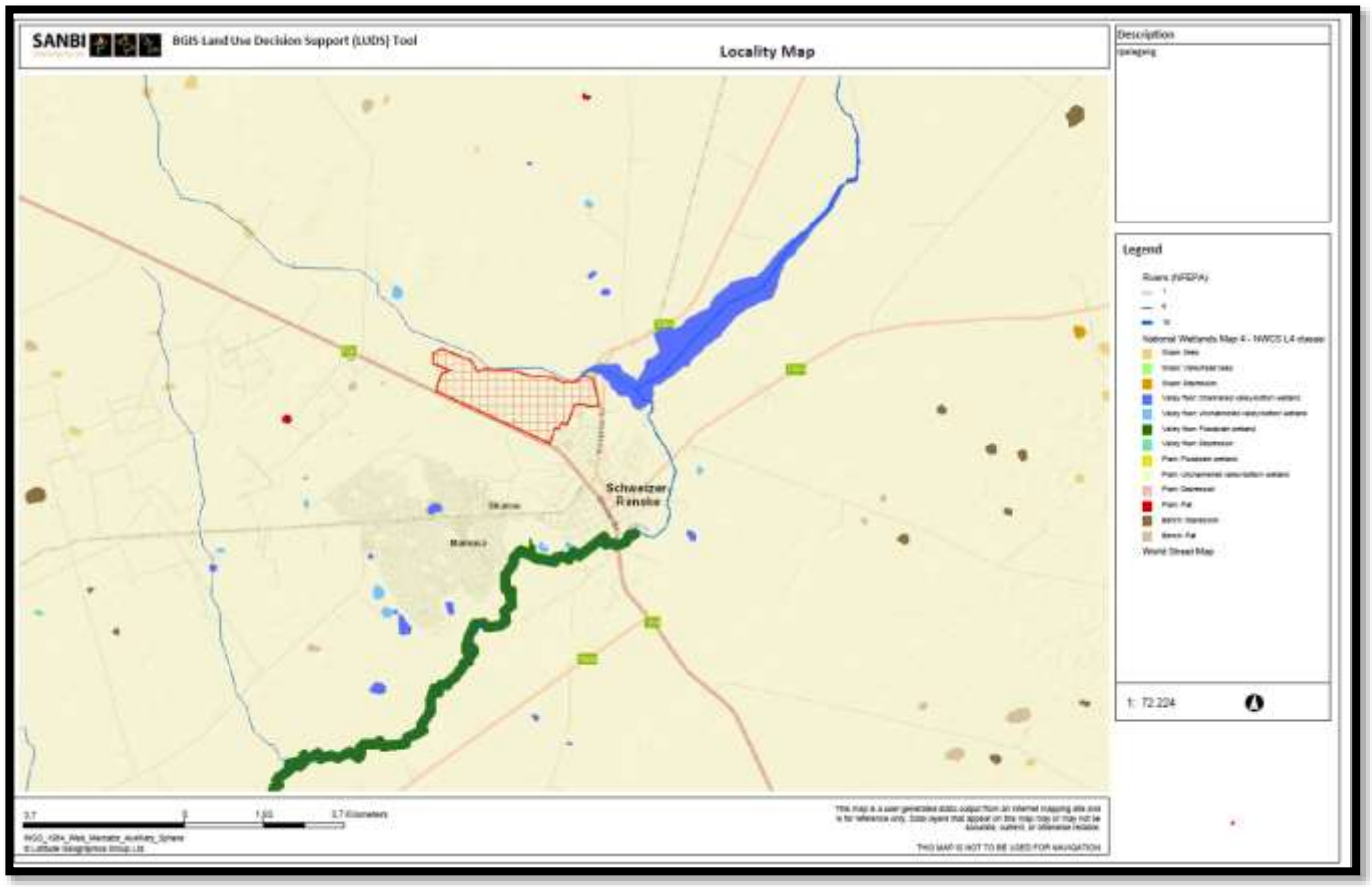


FIGURE 2. LOCALITY MAP

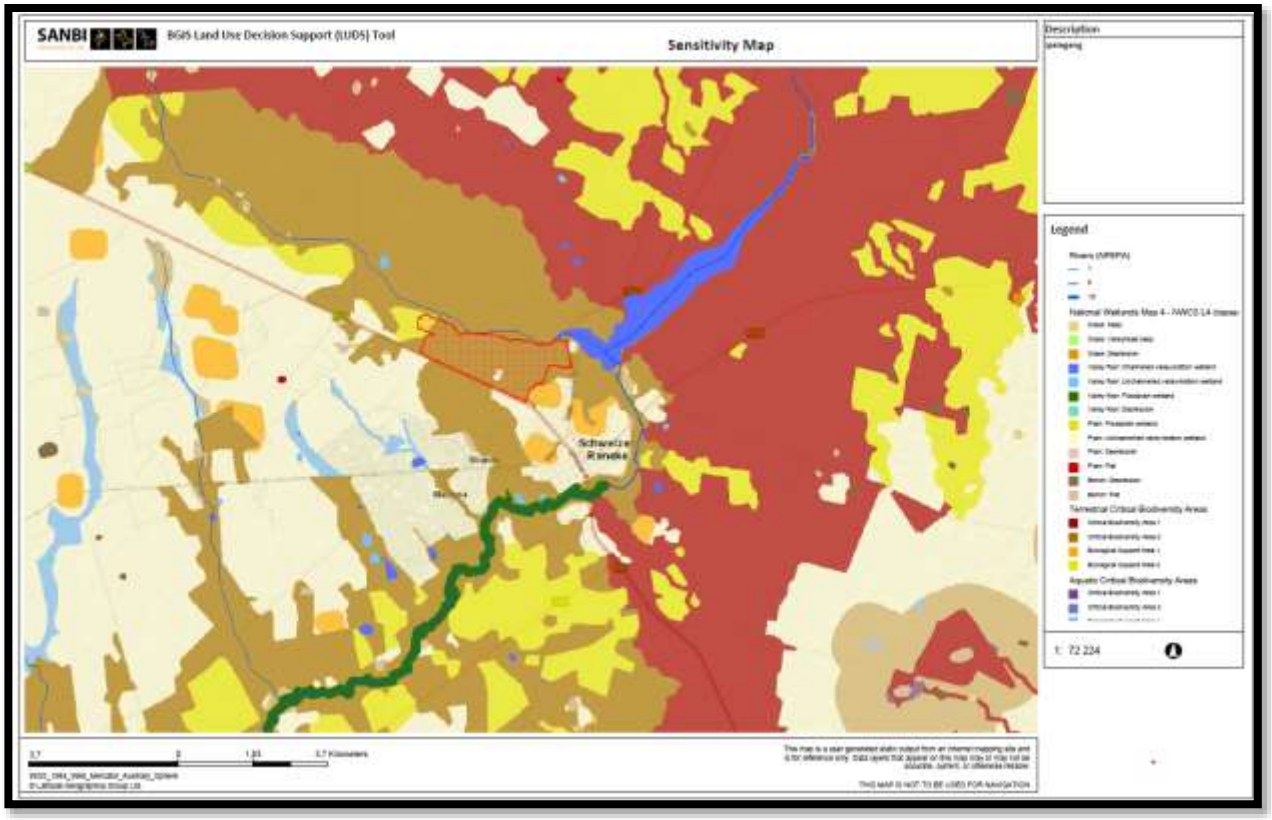


FIGURE 3: SENSITIVITY MAP

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 DEDECT)	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 DEDECT)	7 April 2017
National Water Act (36 OF 1998)	National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and has to ensure ecological	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 DEDECT)	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, DEDECT together with the List of Waste Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment, GN No. 921 of 29 November 2013	Legislation consulted to determine whether a waste licence will have to be obtained for the development.	National & Provincial (DEA And DEDECT)	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) DEDECT 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

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. In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approached to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Mamusa Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities.
Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of household where development is not possible or desirable.
- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.

HOUSING AND STANDS NEEDS

- The waiting list of the municipality currently indicated a need for 6000 houses. This waiting list increased drastically from 3171 units in 2014 (NW Multi Year Development Plan 2014).
- According to the 2013 spatial Development Framework (SDF) for Mamusa Local Municipality there were 804 informal structures not on stands (squatters) and 303 informal structures in backgrounds. (This was also indicated in the 2013 Housing Sector Plan for Mamusa Local Municipality)

- Due to the fact that there are no vacant stands in Schweizer-Reneke/ Ipelegeng Urban area, households are currently squatting on municipal vacant land, parks, school sites and in the backyards and the community already submitted two memorandums to the municipality demanding additional stands

The proposed development is based on the premise that the proposed township area should be a fully integrated human settlement catering not only for low cost subsidised housing but also for other housing typologies including inter alia but not limited to GAP housing, affordable bonded housing, the necessary social, community and recreational facilities as well as opportunities for job creation and employment.

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

The proposed development addresses the need identified by the Mamusa Local Municipality, for the provision of additional mixed land use and social mix, such as the availability of housing for the people of the City.

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 proposed land use composition of the development (excluding public open space & streets) are as follows:

- 1 831 x Stands (Residential Minimum 360 m²)

- 400 x Stands (Residential Minimum 450 m²)
- 69 x Stands (Residential Minimum 600 m²)
- 213 x Dwelling units (Residential 2 – 80DU/ha)
- 5 x Business Stands (Business)
- 3 x Institutional (Church)
- 2 x Authority (Municipal)
- 4 x Institutional (Creche)
- 1 x Institutional (Taxi Rank)
- 1 x Institutional (Secondary School)

The appointed Town and Regional planner have produced the proposed layout plan with the above mix proposed for the township. Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities, schools, etc. and want their living environment 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 as well as retail and 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 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.

The business, and institutional uses (schools, church and creche) on site serves as a range of essential services that can be obtained by people living in its vicinity. In turn, the business nodes act 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 other land parcels will have to be sourced to provide for this need within the community. This will imply that the development will not take place and will result in urban sprawl.

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

8.1 BIO-PHYSICAL ASPECTS

8.1.1 GEOLOGY AND SOIL

The site is underlain by Archean granite and gneiss of the Archean Basement Complex, from the oldest time span in the Randian Erathem. Surficial deposits include the colluvium and Aeolian sand covering the lithology. Locally a transported layer of diamondiferous river terrace gravel was encountered on the centre portion of the site, which was possibly economically mined in the past. No dolomite occurs in the area and no stability investigation is required.

Some minor problems regarding excavatability to 1,5m can be expected on site, but a competent TLB may be required to reach installation depths for services in some places. To ensure the stability of excavations, it will need standard sidewall protection in excavations exceeding 1,5m.

Zoning of the site revealed a zone with constraints regarding the different soil types.

The engineering geological zonation:

Special Development:
Site Class C2/2A:
Highly collapsible soil of aeolian origin with thickness in excess of 0,75m, with more than 10mm movement measured at surface characterizes this zone. Foundations will therefore require special foundation techniques such as proper compaction techniques combined with lightly reinforced strip footings with articulation joints at all internal and external doors and openings with light reinforcement (brickforce) in masonry or even soil replacement by an engineered fill soil raft with G5 quality orbetter. Site drainage and plumbing and service precautions must be used. It is classified as C2 in terms of the SAIEG & NHBRC guidelines (1995) or the SAICE Code of practice (1995), and 2A according to the classification for urban development (Partridge, Wood & Brink).

Site Class C1H1/2A2C:
Medium collapsible soil of aeolian origin underlain by medium expansive and compressible soil with up to 15mm movement measured at surface characterizes this zone. Foundations will therefore require modified normal foundation techniques such as proper compaction techniques and lightly reinforced strip footings with articulation joints at all internal and external doors and openings with light reinforcement (brickforce) in masonry or even soil replacement by an engineered fill soil raft. Site drainage and plumbing and service precautions must be used. It is classified as C1H1 in terms of the SAIEG & NHBRC guidelines (1995) or the SAICE Code of practice (1995), and 2A2C after the classification for urban development (Partridge, Wood & Brink).

Special Development with Risk
Site Class CR/1A3F:
Granite rock outcrop and shallow rock granite or core stones characterize these localized zones and it will require special tools to reach installation depths for services, inducing a higher than normal cost.

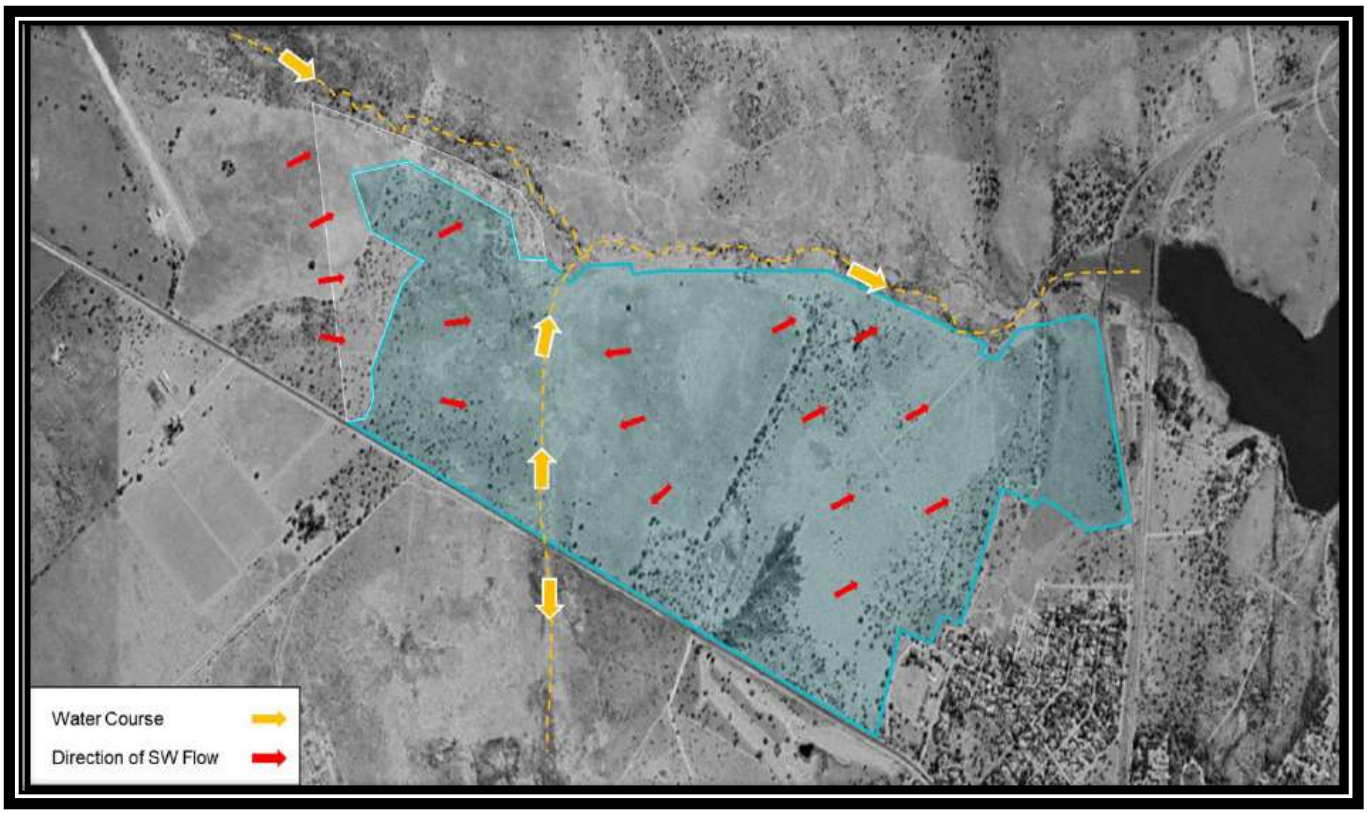
Site Class PQ:
Borrow pits and quarries or areas where spoil or building rubble were dumped need to be rehabilitated by backfilling them with an engineered fill of G5 quality or better, compacted in layers before any development can take place.

Undevelopable:
Site Class PD/3L:
This zone comprises the drainage feature within the 1:100 year flood line, and development should be restricted to outside these areas that may also exhibit a more clayey soil with medium expansive properties. The geotechnical problems encountered will require modified normal to specialfoundation techniques and construction, and proper standard compaction techniques and drainage is required

8.1.2 TOPOGRAPHY

The site is located on a shallow slope towards the northeast. It is situated at between 1302 (at the dam) and 1320 metres above mean sea level. The Proposed Development is located in a valley with a natural stormwater low-point dividing the eastern and western portions of the development. The natural topography of the area slopes towards the storm water low-point and a watercourse to the north. Due to the natural topography, the area may be prone to stormwater erosion. Urbanisation of the demarcated area will increase the peak storm-water runoff (1-in-2 years recurrence interval) from 4.8 m^3/s to 11.3 m^3/s. The following figure indicates the direction of stormwater flow.

Stormwater infrastructure will be designed to accommodate runoff as surface flow in an open system. This will be achieved by designing internal roadways to disperse stormwater towards the watercourses. Comprehensive information on stormwater attenuation should be presented in the detailed design report of internal services for approval by the municipality.



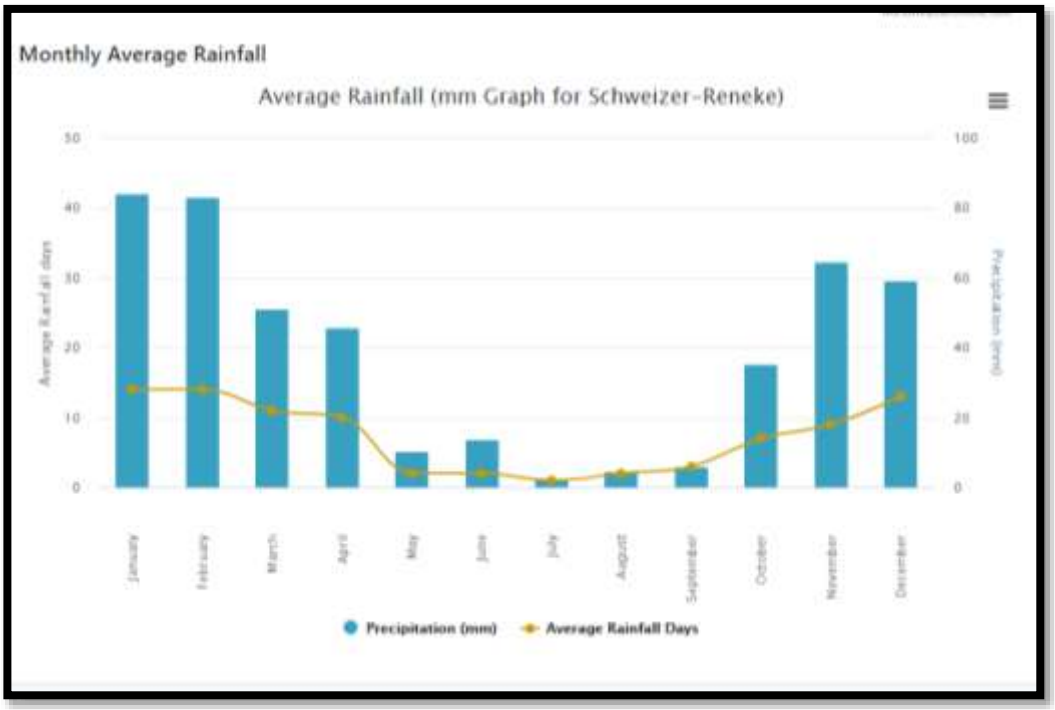
Direction of Storm-water Flow

A detailed site survey have been carried out to establish levels. The Engineering report and the Layout plan will address issues regarding drainage of the site.

8.1.3. CLIMATE

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

8.1.3.1. Rainfall



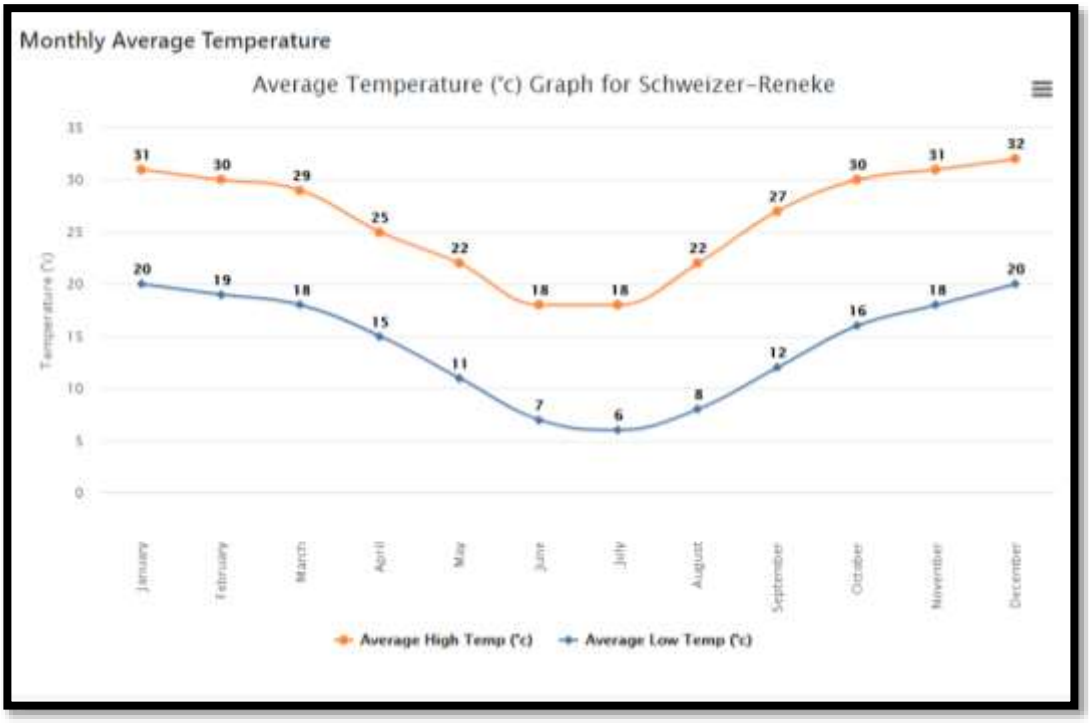
Source: https://www.worldweatheronline.com/schweizer-reneke-weather-averages/north-west/za.aspx
(Visited: 23/06/2021)

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

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

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

8.1.3.2. Temperature



Source: https://www.worldweatheronline.com/schweizer-reneke-weather-averages/north-west/za.aspx
(Visited: 23/06/2021)

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

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

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

8.1.3.3. Wind

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

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

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

Climate Change

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

Water availability and demand has been calculated by the consulting Civil Engineers, to enable a sustainable waterborne sewage system as well as potable water supply for both the existing and future developments in the area.

8.1.4. SURFACE DRAINAGE

The site is located on a shallow slope less than 6% towards the northeast. Plate flow is the dominant drainage pattern on site, and no drainage channel intersects the site. Drainage occurs in a northeasterly direction towards the Harts River and the Wentzel Dam.

A narrow non-perennial river, with its active channel and riparian zone, is present at the northern part of the site. An in-channel dam, the Wentzeldam, is present at the northeastern part of the site. This active channel is narrow but well defined. Note that an existing dirt road with a concrete wall across the watercourse, a railway line as well as a tar road (R506) currently run across the watercourse area which is of medium-high sensitivity. Low concrete wall, where the dirt road crosses at the northeastern parts of the site, results in seasonal impoundment of water near an inlet of the Wentzel Dam.

Non-perrenial active channel ("dry streambed") and in-channel dam at site

Figure 4. Indication the narrow non-perennial river and in-channel dam, at the site, as well as some main disturbances.

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

Riparian zones have distinctive characteristic vegetation which is often visibly distinct from the surrounding vegetation. It is often clearly adapted to different levels of frequency and inundation and distributed accordingly within the broad riparian zone. The more water loving or mesic species are therefore located close to the river channel, while species which are less dependent on water are located further away. It is the ability of species to tolerate different levels of inundation, the need for excessive water availability, or the need for close river proximity for growth, propagation, temperature control and nutrient enrichment which clearly determinate the structural, compositional and functional characteristics of riparian zones (Kemper, 2001).

Riparian zone along the active channel contains indigenous tree species such as *Vachellia karroo*, *Searsia pyroides*, *Searsia lancea*, *Diospyros lycioides* and *Ziziphus mucronata*. Indigenous grass species such as *Cynodon dactylon* and exotic grass species such as *Paspalum dilatatum* are also present at the riparian zone. Alien invasive herb species such as *Oenothera rosea* and *Rumex crispus* are present at the riparian zone/ fringes of the dam. *Persicaria* species (Knotweeds) occur at the permanent zones of watercourse.

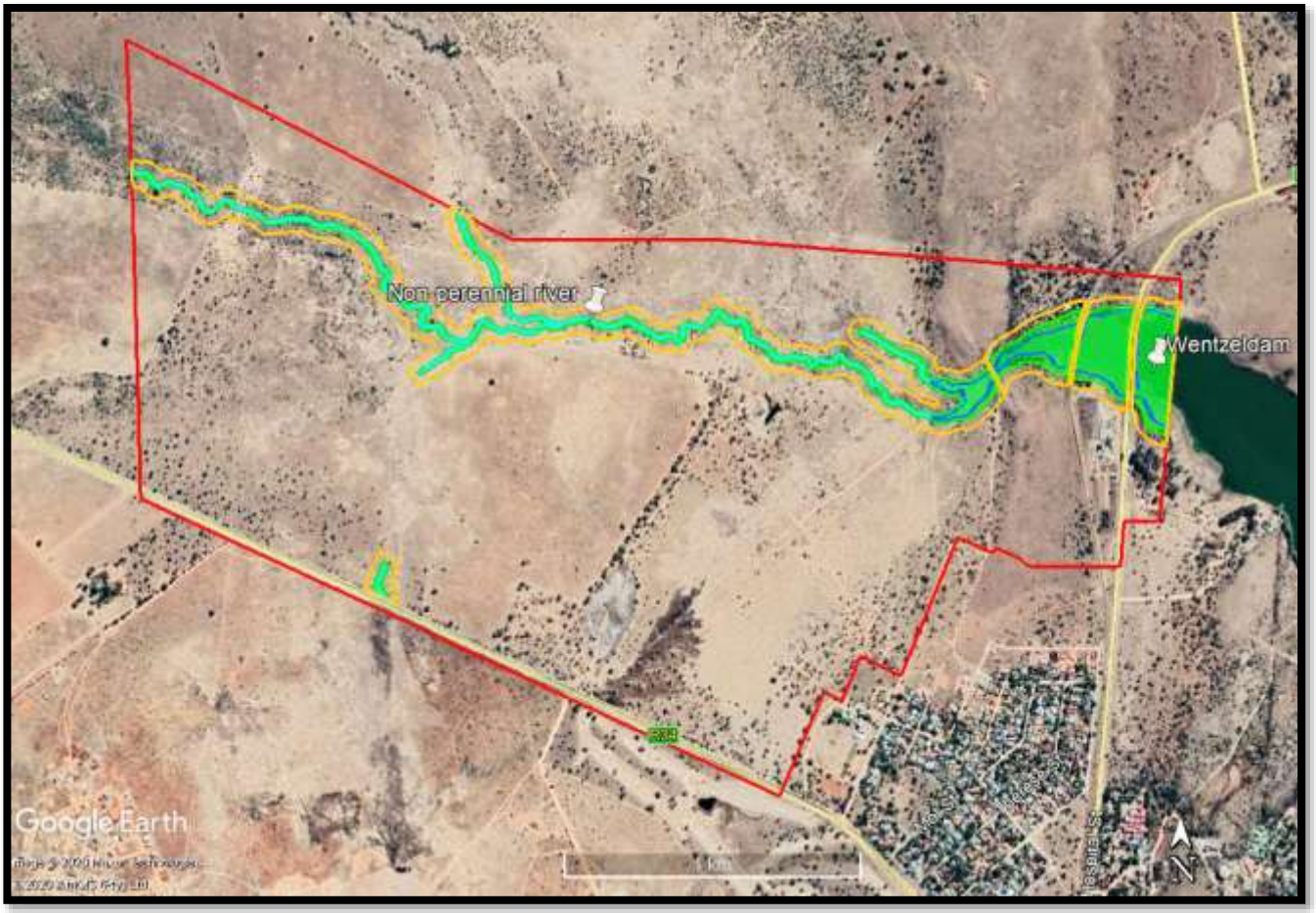


Figure 5. Indication of non-perennial river and in-channel dam, with their riparian zones and buffer zones at the site.

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

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. 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.

8.1.5. GROUND WATER

Seepage and the presence of perennial fluctuations of ground water were not encountered on site, but a seasonal perched water table may exist. A ferruginised profile indicates that some perennial water level fluctuations occur.

Ground water in the form of seepage was not intersected in any test pits during the investigation, but some problems are foreseen and normal water tightening techniques such as damp course on foundation levels are required. The expected high permeability

of the silty sand may lead to leachate from sanitationsystems to reach the ground water, and with the relative shallow residual rock, a closed water borne sewage system is recommended.Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures.Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms. All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

The impact and significance of this variable is considered low, probable but with a low significance.

The project could adversely affect ground water if proper steps are not implemented in order to prevent pollution from reaching the groundwater. If proper mitigation and pollution prevention steps are taken during the planning, implementation and post-construction phases it is highly unlikely that the groundwater will be affected. The eventual influence should therefore be one of low significance, probability and intensity.

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.

8.1.6. WETLANDS AND RIPARIAN ZONES

Wetlands that could be classified as Floodplain Wetlands, Channelled Valley-bottom Wetlands, Unchannelled Valley-bottom Wetlands, Depressions (Pans), Seeps or Wetland Flats appear to be absent at site. Riparian zone along the active channel contains indigenous tree species such as *Vachellia karroo*, *Searsia pyroides*, *Searsia lancea*, *Diospyros lycioides* and *Ziziphus mucronata*. Indigenous grass species such as *Cynodon dactylon* and exotic grass species such as *Paspalum dilatatum* are also present at the riparian zone. Alien invasive herb species such as *Oenothera rosea* and *Rumex crispus* are present at the riparian zone/ fringes of the dam. *Persicaria* species (Knotweeds) occur at the permanent zones of watercourse. The succulent alien invasive plant species *Cylindropuntia imbricata* (Umbricate Prickly Pear) is conspicuous at the site and also at and near the riparian zone.

The non-perennial river at the site, with its riparian zone and buffer zone, is likely to be impacted by the proposed developments, but to a limited extent. If the development is approved the construction should be planned in such a manner that surface flow function well while erosion is limited. There is no distinct indication that interflow plays an important role in the maintenance of the non-perennial river. The geomorphological setting and flow regime should be as similar as possible post development as to prior the development, if the development is approved (in this case there could be some positive impact on the flow regime). Loss of any wetland animal or plant species of particular conservation importance is not expected. Loss of wetland Threatened or Near-Threatened Plants, Mammals, Reptiles, Amphibians and Invertebrates at the proposed footprint appears to be unlikely.

8.1.7. FLORA

The study area is at Ipelegeng, west of Schweizer-Reneke, North West Province, South Africa. Site is situated at the Savanna Biome which is represented by the Schweizer-Reneke Bushveld vegetation type (Mucina & Rutherford, 2006). A brief overview of the vegetation type, which serves as an outline of the ecological context of the site, follows.

SVk 3 Schweizer-Reneke Bushveld
Distribution: Schweizer-Reneke Bushveld is located in the North-West Province of South Africa in an area to the east of Amalia in the west and from farming areas around Broedersput in the north to Never Mind (Christiana District) in the south. Altitude is 1250-1400 m (Mucina & Rutherford, 2006).

Vegetation and landscape features: Plains, slightly undulating plains and some hills, supporting open woodland with a fairly dense shrub layer, with trees *Acacia erioloba, Acacia karroo, Acacia tortilis, Searsia lancea* and shrubs *Acacia hebeclada, Diospyros lycioides, Grewia flava* and *Tarchonanthus camphoratus* (Mucina & Rutherford, 2006).

Geology and soils: Andesitic lavas of the Allanridge Formation of the Ventersdorp Supergroup, sometimes covered with silcrete or calcrete of the Kalahari Group. Deep (0.9-1.2 m) sandy soils, with Hutton and Clovely the dominant soil forms. Land Types: Ah and Ae and some Bc (Mucina & Rutherford, 2006).

Climate: Rainfall in summer with very dry winters. Mean annual precipitation (MAP) about 440 – 520 mm. Frost frequent in winter (Mucina & Rutherford, 2006).

Important taxa of the Schweizer-Reneke Bushveld listed by Mucina & Rutherford (2006): Tall tree: *Acacia erioloba*. Small trees: *Acacia karroo*, *Acacia tortilis* subsp. *heteracantha*, *Rhus lancea*. Tall shrubs: *Asparagus laricinus*, *Diospyros lycioides* subsp. *lycioides*, *Grewia flava*, *Tarchonanthus camphoratus*, *Diospyros pallens*, *Ehretia rigida* subsp. *rigida*, *Gymnosporia buxifolia*, *Rhus tridactyla*. Low shrubs: *Acacia hebeclada* subsp. *hebeclada*, *Aptosimum decumbens*, *Chrysocoma ciliata*, *Gnidia polycephala*, *Pentzia viridis*. Woody climber: *Asparagus africanus*. Graminoids: *Anthephora pubescens*, *Digitaria eriantha* subsp. *eriantha*, *Heteropogon contortus*, *Stipagrostis uniplumis*, *Themeda triandra*, *Aristida congesta*, *Aristida stipitata* var. *spicata*, *Chloris virgata*, *Cynodon dactylon*, *Eragrostis biflora*, *Eragrostis rigidior*, *Eragrostis superba*, *Eragrostis trichophora*, *Sporobolus fimbriatus*. Herbs: *Barleria macrostegia*, *Hermannia tomentosa*, *Hibiscus pusillus*, *Indigofera daleoides*, *Lippia scaberrrima*, *Osteospermum muricatum*, *Pollichia campestris*, *Rhyncosia adenodes*. Geophytic herbs: *Dipcadi papillatum*, *Nerine laticoma*.

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

Vegetation at most of the site is visibly degraded and cover of vegetation in many areas is conspicuously poor. Vegetation at an informal rubbish dump site is transformed. Some areas have been cleared, exposing soil. A conspicuous high frequency of alien invasive weeds occurs at disturbed areas, in particular at hitherto cleared places. A number of alien invasive weed species are present at previously cleared and perviously cultivated areas. These alien invasive weeds include *Argemone ochroleuca* (Mexican Poppy), *Gomphrena celosioides* (Globe Amaranth), *Schkuhria pinnata* (Dwarf Marigold), *Tagetes minuta* (Khaki Weed), *Conyza bonariensis* (Flea Bane), *Datura ferox* (Large Thorn-apple), *Datura stramonium* (Common Thorn Apple), *Richardia brasiliensis* (Mexican Richardia), *Acanthospermum australe* (Prostrate Starbur) and *Xanthium spinosum* (Spiny Cocklebur). The succulent alien invasive plant species *Cylindropuntia imbricata* (Umbricate Prickly Pear) is conspicuous at the site.

Figure 6. Indication of non-perennial river (active channel, riparian zone, buffer zone), in-channel dam and low rocky ridges at the site.

Light blue outline	Route of active channel at the site
Green outline	Riparian zone
Brown outline and shading	Low rocky ridges
Darker blue outline and shading	Artificial Waterbody (In-channel Dam)

Indigenous trees at the site include *Vachellia erioloba* (Camel Thorn), *Vachellia hebeclada* subsp. *hebeclada* (Candlepod Thorn; shrub-height at site), *Vachellia karroo* (Sweet Thorn), *Tarchonanthus camphoratus* (Camphor Bush) and *Grewia flava* (Velvet Raisin; shrub-height at site). The indigenous shrub *Asparagus laricinus* (Wild Asparagus) is found at disturbed places at the site. Indigenous grass species include *Eragrostis lehmanianna, Eragrostis superba, Aristida congesta, Pogonarthria squarrosa, Heteropogon contortus, Melinis repens* and *Tragus berteronianus*. Indigenous forb species and shrublets include *Bulbine narcissifolia*, *Barleria macrostegia* and *Berkheya onopordifolia*. Herbaceous shrub *Gomphocarpus fruticosus* is also at the site. Dwarf shrubs and shrublets at the site include *Felicia muricata*. The widespread succulent *Aloe grandidentata* occurs at several places at the site.

Photo 5. Branches and foliage of *Vachellia erioloba* (Camel Thorn) at the site.
Photo: R.F. Terblanche

One plant species, *Vachellia erioloba* (Camel Thorn) that is not threatened but listed as Protected tree species occurs at the site. In terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister. *Vachellia erioloba* is numerous at some areas at the site. A Camel Thorn Tree Forest or large Camel Thorn trees (>10 m) such as at Kathu and Witsand in the Northern Cape Province, are absent at the site. If the development is approved it is likely that some Camel Thorn trees (*Vachellia erioloba*) should be removed, in which case a permit for removal would be imperative, and should be applied for.

Patches of degraded grassland with some indigenous grass species, herbaceous species and few trees remain at the site. The shrub *Protasparagus laricinus* is conspicuous at the site and its concentrations approach bush encroachment at some places. Indigenous grass species include *Panicum coloratum, Aristida congesta, Aristida adscensionis, Eragrostis lehmanianna, Chloris virgata, Eragrostis superba, Hyparrhenia hirta, Tragus berteronianus* and *Melinis repens*. Indigenous forbs and dwarf shrubs include *Tripteris aghillana*, *Bulbine narcissifolia*, *Barleria macrostegia*, *Hibiscus pusillus*, *Chamaesyce inaquilatera*, *Felicia muricata* and *Ziziphus zeyheriana*. Herbaceous shrub *Gomphocarphus fruticosus* is widespread at the site. Indigenous trees such as *Ziziphus mucronata* (Buffalo-thorn), *Vachellia karroo* (Sweet Thorn) and *Searsia lancea* (Karee) are present.

Photo 6. Patch of savanna that remains at the site.

Photo: R.F. Terblanche

A number of alien invasive weed species are present at previously cleared and previously cultivated areas. These alien invasive weeds include *Datura ferox* (Large Thorn-apple)*, Datura stramonium* (Common Thorn Apple), *Argemone ochroleuca* (Mexican Poppy), *Gomphrena celosioides* (Globe Amaranth), *Schkuhria pinnata* (Dwarf Marigold), *Tagetes minuta* (Khaki Weed), *Conyza bonariensis* (Flea Bane), *Verbena aristigera* (Fine-leaved Verbena), *Plantago lanceolata* (Buckhorn Plantain), *Physalis viscosa* (Sticky Gooseberry) and *Xanthium spinosum* (Spiny Cocklebur).

Two low rocky ridges are found at the northeastern parts of the site.

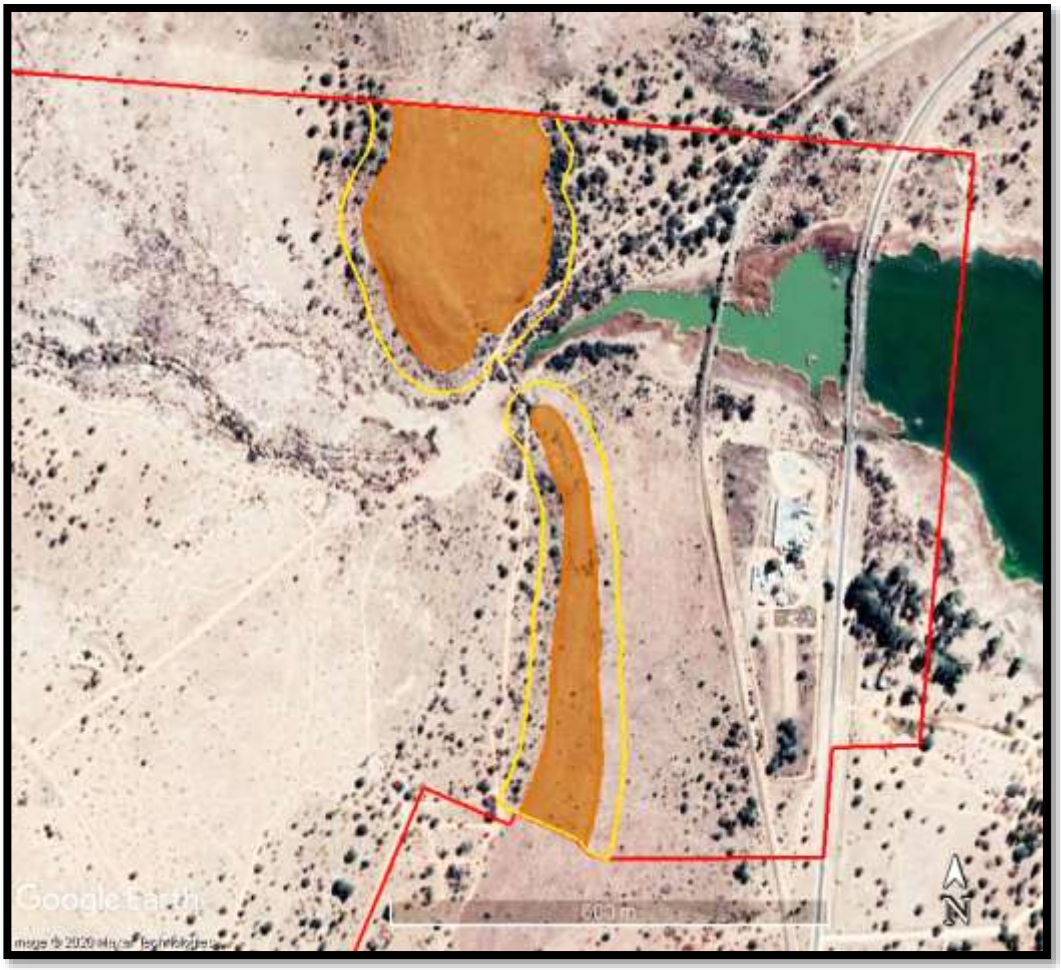


Figure 7 Indication of low rocky ridges and 30 m buffer zones at the northeastern parts of the site.
Brown outline and shading Low rocky ridges
Orange outline and shading Outer edge of buffer zone

Savanna at the site is represented by the Schweizer-Reneke Bushveld vegetation type (SVk 3) which is listed as a Threatened Ecosystem, Vulnerable, according to the National List of Threatened Ecosystems (2011). Terrestrial vegetation at the site has been modified and transformed at parts, in the past and most of the vegetation appears degraded. Some areas contain savanna in fairly natural condition. The scope overall, for the conservation of natural savanna at the site, is small.

8.1.8. FAUNA

Mammals

The following Tables list the possible presence or absence of threatened mammal species, and mammal species of which the status is uncertain, respectively, at the site. Literature sources that were used are Friedman & Daly (2004), Skinner & Chimimba (2005) and Wilson & Reeder (2005). 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.

Mammals of particular conservation concern

Threatened mammal species of the North West Province. Literature sources: Friedman & Daly, (2004), Skinner & Chimimba (2005), Wilson & Reeder (2005). With mammal species which normally needs a large range their residential status does not implicate that they are exclusively dependent on the site or use the site as important shelter or for reproduction. No = Not recorded at site/ Unlikely to be resident at the site. Yes: Recorded at the site/ Likely to be resident at the site.

Species	Threatened Status	Recorded at site during survey	Likely to be found based on habitat assessment
Chrysospalax villosus Rough-haired golden mole	Vulnerable	No	No
Cloeotis percivali Short-eared Trident Bat	Vulnerable/ Near-threatened	No	No
Diceros bicornis Black rhinoceros	Critically Endangered	No	No
Lycaon pictus African wild dog	Endangered	No	No
Loxodonta africana African elephant	Vulnerable	No	No
Mystromys albicaudatus White-tailed mouse	Endangered	No	No
Neamblysomus julianae Juliana's Golden Mole	Critically Endangered	No	No
Panthera leo Lion	Vulnerable	No	No
Rhinolophus blasii Blasi's Horseshoe Bat	Vulnerable	No	No
Smutsia temminckii Ground Pangolin	Vulnerable	No	No

Near threatened mammal species known to occur in the North West Province. Literature sources: Skinner & Chimimba (2005). No = Not recorded at site/ unlikely to be resident at the site. Yes: Recorded at the site/ Likely to be resident at the site.

Species	Threatened Status	Recorded at site during survey	Likely to be found based on habitat assessment
Ceratotherium simum White Rhinoceros	Near threatened	No	No

Data deficient (or uncertain) mammal species of the North West Province. Literature sources: Skinner & Chimimba (2005). No = Not recorded at site/ unlikely to be resident at the site. Yes: Recorded at the site/ Likely to be resident at the site.

Species	Threatened Status	Recorded at site during survey	Likely be a resident at the site
Myosorex varius Forest shrew	Uncertain	No	No

Bird species of particular conservation concern

The possible presence or absence of threatened bird species and near threatened bird species at the site. With bird species which often have a large distributional range, their presence does not imply that they are particularly dependent on a site as breeding location. **No threat to any threatened bird species or any bird species of particular conservation importance are foreseen.**

Threatened bird species of the North West Province. Literature sources Barnes (2000), Hockey, Dean & Ryan, P.G. (2005) and Chittenden (2007). No = Not recorded at site/ Unlikely to use site as breeding area or particular habitat on which the species depends. Yes = Recorded at site/ Likely to use site as breeding area or particular habitat on which the species depends.

Species	Common name	Threatened Status	Recorded at site during survey	Likely to use site as breeding area or habitat
Aegypius tracheliotos	**Lappet-faced Vulture**	Vulnerable	No	No
Anthropoides paradiseus	**Blue Crane**	Vulnerable	No	No
Aquila rapax	**Tawny Eagle**	Vulnerable	No	No
Ardeotis kori	**Kori Bustard**	Vulnerable	No	No
Balearica regulorum	**Grey Crowned Crane (Mahem)**	Vulnerable	No	No
Botaurus stellaris	**Eurasian Bittern**	Critically Endangered	No	No
Circus ranivorus	**African Marsh- Harrier**	Vulnerable	No	No
Crex crex	**Corn Crake**	Vulnerable	No	No
Eupodotis senegalensis	**White-bellied Korhaan**	Vulnerable	No	No
Falco naumanni	**Lesser Kestrel**	Vulnerable	No	No
Geronticus calvus	**Southern Bald Ibis**	Vulnerable	No	No
Gorsachius leuconotus	**White-backed Night-heron**	Vulnerable	No	No
Gypaetus barbatus	**Bearded Vulture**	Endangered	No	No
Gyps africanus	**White-backed Vulture**	Vulnerable	No	No

Gyps coprotheres	**Cape Vulture**	Vulnerable	No	No
Pelecanus rufescens	**Pink-backed Pelican**	Vulnerable	No	No
Polemaetus bellicosus	**Martial Eagle**	Vulnerable	No	No
Rhynchops flavirostris	**African Skimmer**	Endangered	No	No
Sagittarius serpentarius	**Secretarybird**	Vulnerable	No	No
Sarothrura ayresi	**White-winged Flufftail**	Critically Endangered	No	No
Tyto capensis	**African Grass-Owl**	Vulnerable	No	No

* Though some of the above bird species that roams over large areas may ocassionally be found at the site, the site does not appear to be a habitat of particular importance to these birds, and these birds also do not use the site as particular breeding area.

Near threatened bird species of the North West Province. Literature sources Barnes (2000), Hockey, Dean & Ryan, P.G. (2005) and Chittenden (2007). No = Not recorded at site/ Unlikely to be particularly dependent on the site as breeding area or habitat. Yes = Recorded at site/ Likely to be particularly dependant on the site as breeding area or habitat.

Species	Common name	Threatened Status	Recorded at site during survey	Likely to use site breeding area or habitat
Certhilauda chuana	**Short-clawed Lark**	Near threatened	No	No
Charadrius pallidus	**Chestnut-banded Plover**	Near threatened	No	No
Ciconia nigra	**Black Stork**	Near threatened	No	No
Circus macrourus	**Pallid Harrier**	Near threatened	No	No
Eupodotis caerulescens	**Blue Korhaan**	Near threatened	No	No
Falco biarmicus	**Lanner Falcon**	Near threatened	No	No
Falco peregrinus	**Peregrine Falcon**	Near threatened	No	No
Glareola nordmanni	**Black-winged Pratincole**	Near threatened	No	No
Leptoptilos crumeniferus	**Marabou Stork**	Near threatened	No	No
Mirafra cheniana	**Melodious lark**	Near threatened	No	No
Mycteria ibis	**Yellow-billed Stork**	Near threatened	No	No
Phoenicopterus minor	**Lesser Flamingo**	Near threatened	No	No
Phoenicopterus ruber	**Greater Flamingo**	Near threatened	No	No

Rostratula benghalensis	**Greater Painted-snipe**	Near threatened	No	No
Sternia caspia	**Caspian Tern**	Near threatened	No	No
Certhilauda chuana	**Short-clawed Lark**	Near threatened	No	No

***** Though some of the above bird species that roams over large areas may ocassionally be found at the site, the site does not appear to be a habitat of particular importance to these birds, and these birds also do not use the site as breeding area.

Reptiles of particular conservation concern

The following tables list possible presence or absence of threatened reptile or near threatened reptile species in the study area. The Atlas and Red List of Reptiles of South Africa, Lesotho and South Africa (Bates, Branch, Bauer, Burger, Marais, Alexander & de Villiers, 2014) has been used as the main source to compile the list for assessment.

Threatened reptile species in North West Province. Main Source: (Bates, Branch, Bauer, Burger, Marais, Alexander & de Villiers, 2014). No = Reptile species is not a resident on the site; Yes = Reptile species is found to be resident on the site.

Species	Threatened Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment
Crocodylus niloticus Nile Crocodile	Vulnerable	No	No	No

Near threatened reptile species in North West Province. Main Source: Bates, Branch, Bauer, Burger, Marais, Alexander & de Villiers (2014). Though *Homoroselaps dorsalis* has not yet been recorded from the North West Province, its presence in some areas or the Province is anticipated. No = Reptile species is not a resident on the site; Yes = Reptile species is found to be resident on the site.

Species	Threatened Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment
Homoroselaps dorsalis Striped Harlequin Snake	Near threatened	No	No	No

Amphibians of particular conservation concern

Near threatened amphibian species in North West Province. No = Amphibian species is not a resident on the site; Yes = Amphibian species is found to be resident on the site.

Species	Threatened Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment

Pyxicephalus adspersus Giant Bullfrog	Near threatened (Currently Least Concern)	No	No	No

Assessment of invertebrate species of particular conservation concern

Butterflies of particular conservation concern

Threatened butterfly species in North West Province and Gauteng Province. Sources: Henning, Terblanche & Ball (2009), Mecenero *et al*. (2013). Invertebrates such as threatened butterfly species are often very habitat specific and residential status imply a unique ecosystem that is at stake.

Species	Threatened Status	Recorded at site during survey	Residential status at the site: Yes confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
Aloeides dentatis dentatis Roodepoort Copper	**Endangered**	No	Highly unlikely
Chrysoritis aureus Golden Copper	**Endangered**	No	Highly unlikely
Lepidochrysops praeterita Highveld Blue	**Endangered**	No	Highly unlikely
Orachrysops mijburghi Mijburgh's Blue	**Endangered**	No	Highly unlikely

Butterfly species of the North West Province and Gauteng Province that are not threatened and not near threatened but of which are of particular conservation concern and listed in the **Rare** category (Mecenero *et al.*, 2013). No = Butterfly species is unlikely to be a resident at the study area; Yes = Butterfly species is a resident at the study area.

Species	Threatened Status	Recorded at site during survey	Residential status at the site: Yes confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
Colotis celimene amina Lilac Tip	**Rare (Low density)**	No	Highly unlikely
Lepidochrysops procera Savanna Blue	**Rare (Habitat specialist)**	No	Highly unlikely
Metisella meninx Marsh Sylph	**Rare (Habitat specialist)**	No	Highly unlikely
Platylesches dolomitica Hilltop Hopper	**Rare (low density)**	No	Highly unlikely

Beetles of particular conservation priority

Fruit chafer species (Coleoptera: Scarabaeidae: Cetoninae) in the Gauteng Province and North-West Province which are of known high conservation priority.

Species	Threatened Status	Recorded at site during survey	Likely to be resident based on habitat assessment
Ichnestoma stobbiai	Uncertain	No	No
Trichocephala brincki	Uncertain	No	No

Scorpion species of particular conservation priority

Rock scorpion species (Scorpiones: Ischnuridae) species that are of known high conservation priority in the Gauteng Province and North-West Province.

Species	Threatened Status	Recorded at site during survey	Likely to be resident at site based on habitat assessment
Hadogenes gracilis	Uncertain	No	No
Hadogenes gunningi	Uncertain	No	No

Ecological Sensitivity at the site

Ecological sensitivity at most of the site is medium. Ecological sensitivity at some of the conspicuously disturbed areas at the site, such as the extensive dumping area is indicated as low. Ecological sensitivity at the non-perennial active channel, in-channel dam and riparian zone, as well as the low rocky ridges and their buffer zones, is medium-high owing to the importance of these watercourses and low rocky ridges as conservation corridors in the larger area (Figure 6). Note that an existing dirt road with a concrete wall across the watercourse, a railway line as well as a tar road (R506) currently run across the area of medium-high sensitivity.

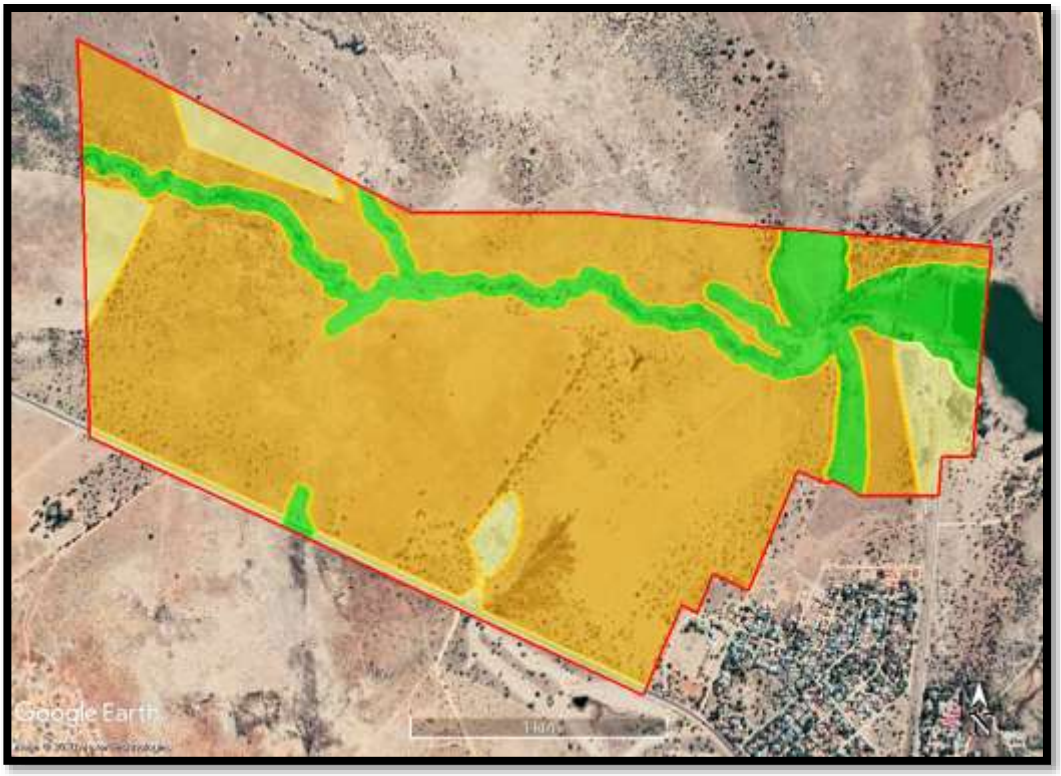


Figure 8 Indications of ecological sensitivity at the site.

Red outline	Boundaries of the site
Light yellow outline and shading	Low Sensitivity
Orange outline and shading	Medium Sensitivity
Green outline and shading	Medium-high Sensitivity

Summary of risks and impacts

Vegetation at most of the site is visibly degraded and cover of vegetation in many areas is conspicuously poor. Vegetation at an informal rubbish dump site is transformed. Some areas have been cleared, exposing soil. Fairly large patches of disturbed savanna still remain at the site. Vachellia hebeclada (Candlepod Thorn) occurs in many clumps at visibly disturbed areas with noticable poor plant cover.

Indigenous trees at the site include Vachellia erioloba (Camel Thorn), Vachellia hebeclada subsp. hebeclada (Candlepod Thorn; shrub-height at site), Vachellia karroo (Sweet Thorn), Tarchonanthus camphoratus (Camphor Bush) and Grewia flava (Velvet Raisin; shrub-height at site). The indigenous shrub Asparagus laricinus (Wild Asparagus) is found at disturbed places at the site. Indigenous grass species include Eragrostis lehmanianna, Eragrostis superba, Aristida congesta, Pogonarthria squarrosa, Heteropogon contortus, Melinis repens and Tragus berteronianus. Indigenous forb species and shrublets include Bulbine narcissifolia, Barleria macrostegia and Berkheya onopordifolia. Herbaceous shrub Gomphocarpus fruticosus is also found at the site. Dwarf shrubs and shrublets at the site include Felicia muricata. The widespread succulent Aloe grandidentata occurs at several places at the site.

A number of alien invasive weed species are present at previously cleared and perviously cultivated areas. The succulent alien invasive plant species Cylindropuntia imbricata (Umbricate Prickly Pear) is conspicuous at the site.

Riparian zone along the active channel contains indigenous tree species such as Vachellia karroo, Searsia pyroides, Searsia lancea, Diospyros lycioides and Ziziphus mucronata. Indigenous grass species such as Cynodon dactylon and exotic grass species such as Paspalum dilatatum are also present at the riparian zone. Alien invasive herbaceous species such as Oenothera rosea and Rumex crispus are present at the riparian zone/ fringes of the dam. Persicaria species (Knotweeds) occur at the permanent zones of the watercourse.

Savanna at the site is represented by the Schweizer-Reneke Bushveld vegetation type (SVk 3) which is listed as a Threatened Ecosystem, Vulnerable, according to the National List of Threatened Ecosystems (2011). Terrestrial vegetation at the site has been modified and transformed at parts, in the past and most of the vegetation appears degraded. Some areas contain savanna in fairly natural condition. The scope overall, for the conservation of natural savanna at the site, is small.

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

One plant species, Vachellia erioloba (Camel Thorn) that is not threatened but listed as Protected tree species occurs at the site. In terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister. Vachellia erioloba is numerous at some areas at the site. A Camel Thorn Tree Forest or large Camel Thorn trees (>10 m) such as at Kathu and Witsand in the Northern Cape Province, are absent at the site. If the development is approved it is likely that some Camel Thorn trees (Vachellia erioloba) should be removed, in which case a permit for removal would be imperative, and should be applied for.

Ecological sensitivity at most of the site is medium. Ecological sensitivity at some of the conspicuously disturbed areas at the site, such as the extensive dumping area is indicated as low. Ecological sensitivity at the non-perennial active channel, in-channel dam and riparian zone, as well as the low rocky ridges and their buffer zones, is medium-high owing to the importance of these watercourses and low rocky ridges as conservation corridors in the larger area (Figure 6). Note that an existing dirt road with a concrete wall across the watercourse, a railway line as well as a tar road (R506) currently run across this area of medium-high sensitivity.

There is little scope for most of the site to be part of a corridor of particular conservation importance, excluding the watercourse (with its bufferzone) and the low rocky ridges. Non-perennial river at the northern part of the site, as well as the low rocky ridges at the northeastern parts of the site are corridors of particular conservation concern.

8.2. SOCIO ECONOMIC FACTORS

8.2.1. SOCIAL AMENITIES

In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approached to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Mamusa Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities.
Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of household where development is not possible or desirable.
- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.

HOUSING AND STANDS NEEDS

- The waiting list of the municipality currently indicated a need for 6000 houses. This waiting list increased drastically from 3171 units in 2014 (NW Multi Year Development Plan 2014).
- According to the 2013 spatial Development Framework (SDF) for Mamusa Local Municipality there were 804 informal structures not on stands (squatters) and 303 informal structures in backgrounds. (This was also indicated in the 2013 Housing Sector Plan for Mamusa Local Municipality)
- Due to the fact that there are no vacant stands in Schweizer-Reneke/ Ipelegeng Urban area, households are currently squatting on municipal vacant land, parks, school sites and in the backyards and the community already submitted two memorandums to the municipality demanding additional stands

The proposed development is based on the premise that the proposed township area should be a fully integrated human settlement catering not only for low cost subsidised housing but also for other housing typologies including inter alia but not limited to GAP housing, affordable bonded housing, the necessary social, community and recreational facilities as well as opportunities for job creation and employment.

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. No sites, features or material of any real cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the assessment. The only sites identified are the remains (foundations) of recent farming related structures, but these are of recent age. The dumping of building rubble also occurs in the area in places.

Access to parts of the study was not possible due to the fact that it is fenced-off and is in the hands of private individuals (tenants renting from the Municipality) and entry to these properties were not possible. However, it is believed that it is highly unlikely that any sites of heritage significance will be impacted by the proposed development. The remains of some farming-related structures were also observed on aerial images (Google Earth) of the study area, but these could not be physically assessed however. There could possibly be more similar sites in the larger area.

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

8.2.5 AESTHETICS

Aesthetics have very little influence as the area is already highly disturbed. Leemhuis Street is situated to the east, and to the north of the existing Kanana Township. The site is situated adjacent to smallholdings directly to the south with the existing Kanana Extension 14 and 15 beyond. The land uses to the south of the application site are therefore primarily residential in nature. Residential neighbourhoods are also found to the north east (Ellaton) and north west (Jouberton) of the application site. Land directly north of the site is still undeveloped and used for agricultural purposes.

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

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

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

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

The proposed development will change the scenic resources of the local area from an undeveloped site to a residential area. The visual intrusion is considered to be moderate as the proposed development partially fits into the surroundings but will be clearly noticeable.

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

9. ENVIRONMENTAL IMPACT ASSESSMENT

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
	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

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
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 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	274,2189 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
	The proposed development area is located within a CBA 1 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 30 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
	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
	A non-perennial river (with its riparian zone and buffer zone) are present at a part of the site.	Duration	Permanent	The 1:100 floodline 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.	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)**
				Implement the mitigation measures as described in the Environmental Management plan..	
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.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non- compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium

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
		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.	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. Appoint a Traffic engineer to assess the traffic volumes and existing road network and determine whether upgrades are necessary	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Loss of indigenous vegetation.	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	274,2189 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
		Duration	Long term		Long term

	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)**
	The development area is located within a CBA1 and the vegetation will be eradicated.	Extent	Local	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.	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.	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.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		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)**
				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.	
	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
	A non-perennial river (with its riparian zone and buffer zone) are present at a part of the site.	Duration	Permanent	The 1:100 floodline 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

	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)**
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.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non- compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					
Geographical		Extent	Local		Local

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)**
Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Magnitude (Intensity)	Medium	Ensure that the development is constructed as planned.	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. Appoint a Traffic engineer to assess the traffic volumes and existing road network and determine whether upgrades are necessary	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Loss of indigenous vegetation.	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.	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	No new employment opportunities will be created during the planning and design phase.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite

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)**
Cultural	No skills enhancement will take place If this option is implemented, the projected boost to the local and regional economy will not take place.	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 Mamusa 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	274,2189 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the 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
	the proposed development area is located within a CBA 1 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
		Duration	Short term		Medium term

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**
	Un-rehabilitated, disturbed surfaces can lead to erosion and dust pollution.	Extent	Local	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	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. Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	The vegetation of the area will be removed during the 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
	A non-perennial river (with its riparian zone and buffer zone) are present at a part of the site.	Duration	Permanent	Construct the infrastructure in accordance with the designs and ensure the natural flow of the river	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		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	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.	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. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel.	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**
				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
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.	Local
		Magnitude (Intensity)	Medium		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	The demand for housing will be partially addressed in the area.	Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Solid waste: The proposed development will add additional solid waste into the existing waste stream of the Mamusa Local Municipalit. Sewage: The proposed development will add additional sewage into the existing sewage stream of the Mamusa Local Municipality. Water supply: The proposed development will add pressure to the water supply of Mamusa Local Municipality's Water.	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
	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 and findings of the Traffic Engineer for upgrading the accesses are implemented	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 (Construction phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
DIRECT IMPACTS:					
Geographical Physical Social Economic	264 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the findings of the Fauna and Flora Habitat survey.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
				Implement the mitigation measures as described in the Environmental Management Plan.	
	The proposed development area is located within a CBA 1 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	The findings of the Geo-Technical Engineer must be adhered 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
		Duration	Short term		Short term

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
	The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats.	Extent	Local	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.	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. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Waste materials such as glass, plastic, metal or paper present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
		Risk	Low	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.	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
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
	Solid waste: The proposed development will add additional solid waste into the existing waste stream of the Mamusa Local Municipality.	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 2: Single land use: Housing only					
Environmental Attribute	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**	**Environmental Attribute**
	Sewage: The proposed development will add additional sewage into the existing sewage stream of the Mamusa Local Municipality. Water supply: The proposed development will add pressure to the water supply of Mamusa 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 Ensure findings of the Traffic Engineer for upgrading the accesses are implemented	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Indigenous vegetationwill 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

ENVIRONMENTAL IMPACT ASSESSMENT (Construction 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 impact on the indigenous vegetationwill be removed.	Duration	Long term	No mitigation measures required.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
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	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

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 3: (No-Go Option)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	and regional economy will not take place.				
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 Mamusa Local Municipality.	Extent Magnitude (Intensity) Probability Significance Reversibility Risk	Local Medium Definite High High Medium	Ensure that the development is constructed and operated as planned.	Local Medium Definite High High 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)**
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	Poorly maintained and serviced infrastructure may cause environmental problems.	Extent Magnitude (Intensity) Probability Significance Reversibility Risk	Local Medium Definite Medium- high High High	It will be the responsibility of the Local Municipality to maintain the infrastructure.	Local Medium Definite High Medium High
Indirect impacts:					
Geographical Physical Social Economic Cultural	Lack of rehabilitation may cause problems	Extent Magnitude (Intensity) Probability Significance Reversibility Risk	Local Medium Definite Medium- high High High	It will be the responsibility of the Local Municipality to ensure that the rehabilitation plan is implemented	Local Medium Definite High Medium 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 Magnitude (Intensity) Probability Significance Reversibility Risk	Local Medium Definite High High Medium	No mitigation measures required.	Local Medium Definite High High Medium
Geographical Physical Social Economic Cultural	Broadened tax base: The proposed development will generate more income for the Mamusa Local Municipality.	Extent Magnitude (Intensity) Probability Significance Reversibility	Local Medium Definite High High	No mitigation measures required.	Local Medium Definite High High

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)**
		Risk	Medium		Medium

10. PUBLIC PARTICIPATION.

10.1 ADVERTISEMENT AND NOTICE

Publication name	Stellalander	
Date published	07/07/2021	
	Latitude	Longitude
Site notice 1 position	27°10'51.15"S	25°19'0.76"E
Site notice 2 position	27°10'16.22"S	25°17'38.59"E
Site Notice 3 Postion	27°10'38.64"S	25°19'14.58"E
Date placed	07/07/2021	

PROOF OF SITE NOTICE AFFIXED IN LINE WITH COVID-19 PROTOCOL: PROTECTIVE GEAR AND SANITIZATION IN PLACE: (SEE BELOW)


ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
(EIR AND SCOPING) READ REF NO: NWP/EIA/28/2021
PROJECT NAME:
PROJECT DESCRIPTION:
CLIENT:
Mamusa Local Municipality
CONSULTANT AND CONTACT PERSON:


ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
(EIR AND SCOPING) READ REF NO: NWP/EIA/28/2021
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.325 Listing Notice 2: Activity no 15) (Government Notice No. R.327 Listing Notice 1: Activity no 20)(and (Government Notice No. R.324 Listing Notice 3: Activity no's 12(h)(iv)). 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)(a),(3)(a&b) and (4)(a&b)). The competent authority is the North West Province: Department of Economic Development, Environment, Conservation and Tourism. The Responsible officer is Ms. N. Mokoteli; Tel: (018) 389 5859 or
PROJECT NAME:
Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer Reneke Townlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.
PROJECT DESCRIPTION:
The proposed clearance of 274,2189 ha of indigenous vegetation in order to establish a township consisting of mixed uses including residential, business, institutional, public open spaces, transport and municipal uses, within 100 meters from a non-perennial stream.
CLIENT:
Mamusa Local Municipality
CONSULTANT AND CONTACT PERSON:
Mr. J.P. De Villiers of AB Enviro Consult cc.
7 Louis Leipoldt Street, Potchefstroom, 2531
Tel: 083 5468 105
Fax: 018 293 0071
E-mail:
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.
Date of this Notice: 7 July 2021


ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
(EIR AND SCOPING) READ REF NO: NWP/EIA/20/321
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.325 Listing Notice 2: Activity no 15) (Government Notice No. R.327 Listing Notice 1: Activity no 28(i)) and (Government Notice No. R.324 Listing Notice 3: Activity no's 12(k)(iv)). 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)(d),(3)(aiiii) and (4)(aiiii)). The competent authority is the North West Province: Department of Economic Development, Environment, Conservation and Tourism. The Responsible officer is Ms. N. Mokotedi: Tel: (018) 389 5969 or
PROJECT NAME:
Environmental Impact Assessment for the proposed clearance of 274,2188 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schreuder Bewle Townlands 62 IQ known as Ipelegeng Extension 12, Moretsele Local Municipality, North West Province.
PROJECT DESCRIPTION:
The proposed clearance of 274,2188 ha of indigenous vegetation in order to establish a township consisting of mixed uses including residential, business, institutional, public open spaces, transport and municipal uses, within 100 meters from a non-perennial stream.
CLIENT:
Moretsele Local Municipality
CONSULTANT AND CONTACT PERSON:
Mr. J.P. De Villiers of AB Enviro Consult cc,
7 Lewis Leipoldt Street, Potchefstroom, 2531
Tel: 083 5405 199
Fax: 018 293 0071
Email: ja@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.
Date of this Notice: 1 July 2021

PROOF OF NEWSPAPER ADVERTISEMENT (STELLALANDER 07/072021)

PAGE 8 STELLALANDER 7 JULY 2021

Geklassifiseerde Advertensies Classified Smalls

Tel: (053) 927 1043 - 6216 - 3747 - 3907
Faks: (053) 927 1044
Posbus/P.O. Box 443, VRYBURG 8600

5 HUISE TE HUUR HOUSES TO LET

17 VOERTUIE TE KOOP VEHICLES FOR SALE

23 SPESIALE DIENSTE SPECIAL SERVICES

6 WOONSTELLE TE HUUR FLATS TO LET

24 VAKANSIE-OORDE HOLIDAY RESORTS

15 ALGEMEEN TE KOOP MISCELLANEOUS FOR SALE

DISTRIBUTION AREA

VOORWAARDES VIR AANVAARDING:

Don't get left behind! Keep up with

Kennisgewings / Legals

NOTICE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS (EIR AND SCOPING) READ REF NO: NWP/EIA/28/2021. 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.325 Listing Notice 2: Activity no 15) (Government Notice No. R.327 Listing Notice 1: Activity no 28(i)) and (Government Notice No. R.324 Listing Notice 3: Activity no's 12(h)(iv)). 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 North West Province: Department of Economic Development, Environment, Conservation and Tourism. The Responsible officer is Ms. N. Mokotedi: Tel: (018) 389 5959 or nmokotedi@nwpg.gov.za PROJECT NAME: Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer Reneke Townlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province. PROJECT DESCRIPTION: The proposed clearance of 274,2189 ha of indigenous vegetation in order to establish a township consisting of mixed uses including residential, business, institutional, public open spaces, transport and municipal uses, within 100 meters from a non-perennial stream. CLIENT: Mamusa Local Municipality. CONSULTANT AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult cc, 7 Louis Leipoldt Street, Potchefstroom, 2531 Tel: 083 548 8105 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. Date of this Notice: 7 July 2021.

K4 7/7

Who caused the mess?

Stellalander-Vryburg- Jackie Mokeng is a local resident and coordinator of the Naledi Vryburg Progressive Organisation.

His organization motivated young people since 2016 to join forces with him in volunteering to clean areas and illegal dumping sites. Jackie and the volunteers also went fixing holes in streets in Colridge to the best of their ability. According to Jackie, in 2016, MEC Tebogo Modise opened a recycling project in Vryburg. Jackie and 47 volunteers received training for the recycling business and even machinery were bought. A venue was identified in the industrial area of Vryburg where the recycling would be operating from. The key for the premises was given to someone else and when Jackie finally received the keys, the place was vandalized. Windows were broken, some machine were tampered with. "Who will fix this place?" Jackie asked. He went to the local municipality in January this year and they referred him to the department of economics and tourism. The department said they gave the place and the municipality must be responsible for the maintenance of the building and be further off assistance. Those two sectors are pointing fingers at one another, but nobody is helping Jackie to get the recycling business up and running. Jackie wanted a meeting with the municipality to clarify the problem, but with no success. He is thrown from one sector to another. And he has to answer to his 47 volunteers on what is happening. Nothing! These volunteers could have been involved in a recycling business and probably receive some remuneration of some sort. The hope is still there, but who caused the mess and who will fix the place? - remains to be seen.

NOTICE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS (EIR AND SCOPING) READ REF NO: NWP/EIA/28/2021. 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.325 Listing Notice 2: Activity no 15) (Government Notice No. R.327 Listing Notice 1; Activity no 28(i)) and (Government Notice No. R.324 Listing Notice 3; Activity no's 12(h)(iv)). 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 North West Province: Department of Economic Development, Environment, Conservation and Tourism. The Responsible officer is Ms. N. Mokotedi: Tel: (018) 389 5959 or nmokotedi@nwpg.gov.za PROJECT NAME: Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer Reneke Townlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province. PROJECT DESCRIPTION: The proposed clearance of 274,2189 ha of indigenous vegetation in order to establish a township consisting of mixed uses including residential, business, institutional, public open spaces, transport and municipal uses, within 100 meters from a non-perennial stream. CLIENT: Mamusa Local Municipality. CONSULTANT AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult cc. 7 Louis Leipoldt Street, Potchefstroom, 2531 Tel: 083 548 8105 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. Date of this Notice: 7 July 2021.

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**
Schweizer Reneke Landbou Unie	**Neighbour**	**Westra Building du Plessis Street Schweizer-Reneke 2780**
Schweizer Reneke uithourit	**Neighbour**	**solene@wasp-sa.co.za**

PROOF OF COVID-19 APPROVED PUBLIC PARTICIPATION PROTOCOLS AS WELL AS PROOF OF LETTER DROP:


GOEDALE

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

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

07/07/2021

Schweizer Reneke landbou unie
Westra Building
du Plessis Street
Schweizer-Reneke
2780

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274,2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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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, JCD, SACNASP)
MR.J.P. DE VILLIERS (M Sc,HED, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)

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

07/07/2021

SCHWEIZER REINECKE UITHOURIT
solene@wasp-sa.co.za

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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MR.J.P. DE VILLIERS (M Sc,HED, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)

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	**Dr. Abe Abrahams**	**053 836 7610**	(053) 831 4534		**Department of Water and Sanitation** **Chief Director: Northern Cape** **Private Bag X6101** **KIMBERLEY** **8300**
Head of Department: North-West Department of Agriculture and Rural Development	**Dr. P. Mokaila**	(018) 389 5146/5104	(018) 392 4377		**Department Agriculture and Rural Development** **Private Bag X2039** **Mmabatho** **2735**
North West Department of Biodiversity	**Head of Department**	018 389 5719/ 5431/ 5688	018 392 4377		**Private Bag X2039** **Mmabatho** **2735**
Dr. Ruth Segomotsi Mompati District Municipality	**The District Municipal Manager: Mr. Jerry Mononela**	053 928 4700 / 053 927 0858	053 927 2401		**PO Box 21, Vryburg, 8600**
Mamusa Local Muncipality	**The Municipal Manager**	053 963 1331	053 963 2474	mainej@mamusa.gov.za	**PO Box 5** **Schweizer Reneke** **2780**
Ward 9, Mamusa	**The Councillor**	053 963 1331	053 963 2474		**PO Box 5** **Schweizer Reneke** **2780**
Eskom	**Mr. Dala**	078 795 1188		dalaME@eskom.co.za	
Transnet	**Mr Nair**	011 351 9001	011 351 9023		**P.O. Box 72501** **Parkview** **South Africa** **2122**

SAHRA				info@sahra.org.za	

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: AB ENVIRO CONSULT
7 LOUIS LEIPOLDT STREET
POTCHEFSTROOM
2531

Enquiries/Navrae Sharecall number/nommer
0860 111 502
www.postoffice.co.za

No	Name and address of addressee / Naam en adres van geadreseerde	Insured amount / Versekerde bedrag	Insurance fee / Versekeringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-Kliëntafskrif
1	Dr P. Mokoka; HOD Agriculture NW Private Bag X2039 Mmabatho 2735					REGISTERED LETTER RC458540950ZA CUSTOMER COPY 301028R
2	Mr L Schutte, NW Dept Biodiversity Private Bag 2039 Mmabatho 2735					REGISTERED LETTER RC458540963ZA CUSTOMER COPY 301028R
3	DCSM Municipality (The District MM) PO Box 21, Vryburg 8600					REGISTERED LETTER RC458540965ZA CUSTOMER COPY 301028R
4	The MM, Mankusy KM, PO Box 5 Schweizer Reneke 2780					REGISTERED LETTER RC458540972ZA CUSTOMER COPY 301028R
5	The Clle Ward 9, Mamusa LM, PO Box 5 Schweizer Reneke, 2780					REGISTERED LETTER RC458541005ZA STOMER COPY 301028R
6	Schweizer Reneke Landbou Unie Westra building, du Plessis Str, Schweizer 2780					REGISTERED LETTER RC458540994ZA CUSTOMER COPY 301028R
7	Transnet Ltd Natl, PO Box 72501 Paulshof, 2122					REGISTERED LETTER RC458541026ZA CUSTOMER COPY 301028R
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos .....

Signature of client
Handtekening van kliënt .....

Signature of accepting officer
Handtekening van aanneembeampte .....

NOORDBRUG 2021-07-07

Date stamp

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof.
Optional insurance of up to R200.00 is available and applies to domestic registered letters only.

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

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

07/07/2021

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

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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E-mail: jp@abenviro.co.za

07/07/2021

Directorate: Biodiversity Management and Conservation
North West Department: Rural, Environment and Agricultural Development
Mr. R. Schaller
Private Bag X2039
Mmabatho
2735

Dear Sir/Madam

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07/07/2021

Department of Water and Sanitation
Regional Chief Director: Northern Cape
Mr Abe Abrahams
28 Central Rd,
Beaconsfield,
Kimberley,
8315

Tel: (053) 830 8800/6 7600

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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E-mail: jp@abenviro.co.za

07/07/2021

TRANSNET
Chief Executive: Mr Ravi Nair
P.O. Box 72501
Parkview
South Africa
2122

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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

07/07/2021

The District Municipal Manager
Dr. Ruth Segomotsi Mompati District Municipality
PO Box 21
Vryburg
8600

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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

07/07/2021

The Municipal Manager Mr. Gincane
Mamusa Local Municipality
PO Box 5
Schweizer Reneke
2780

Dear Sir/Madam

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Reg no. 2000/016653/23

7 Louis Leipoldt Street,
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07/07/2021

The Ward Councillor (Ward 9)
Mamusa Local Municipality
PO Box 5
Schweizer Reneke
2780

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

AB ENVIRO CONSULT was appointed by **Mamusa Local Municipality** to submit an application to the Department of Economic Development, Environment, Conservation and Tourism, North West Province for the above mentioned development.

Attached please find a notification of the development as well as an electronic 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, JCD, SACNASP)
MR.J.P. DE VILLIERS (M Sc,HED, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)

AB ENVIRO-CONSULT CC

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07/07/2021

Eskom
dalaME@eskom.co.za

Dear Sir/Madam

Environmental Impact Assessment for the proposed clearance of 274.2189 ha of indigenous vegetation, located within a critical biodiversity area (CBA 1) and within 100 meters from a non-perennial stream, in order to establish a Township, located on a portion of the farm Schweizer RenekeTownlands 62 HO known as Ipelegeng Extension 12, Mamusa Local Municipality, North West Province.

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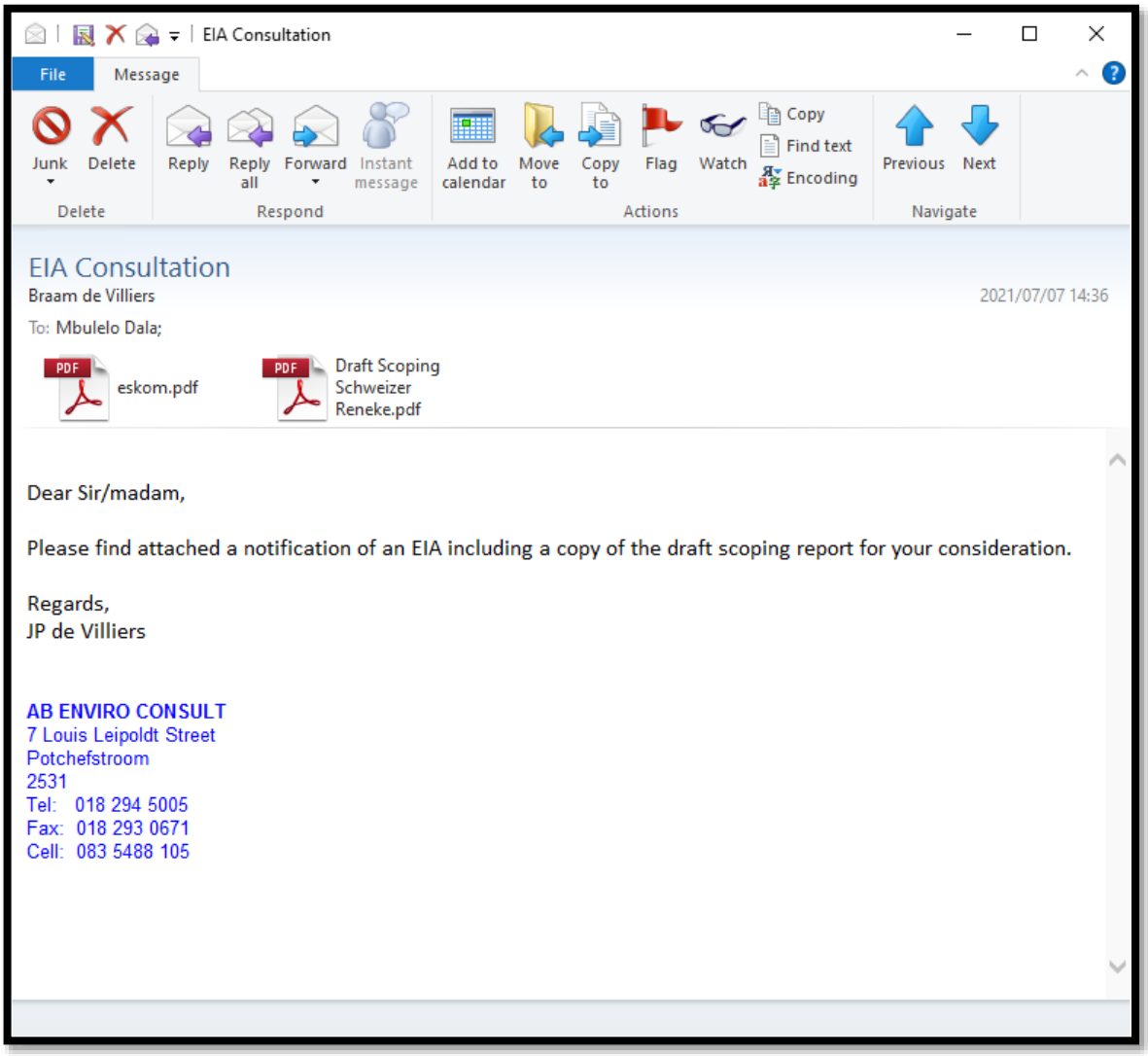
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Draft Scoping Schweizer Reneke.pdf
Dear Sir/madam,
Please find attached a notification of an EIA including a copy of the draft scoping report for your consideration.
Regards,
JP de Villiers
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7 Louis Leipoldt Street
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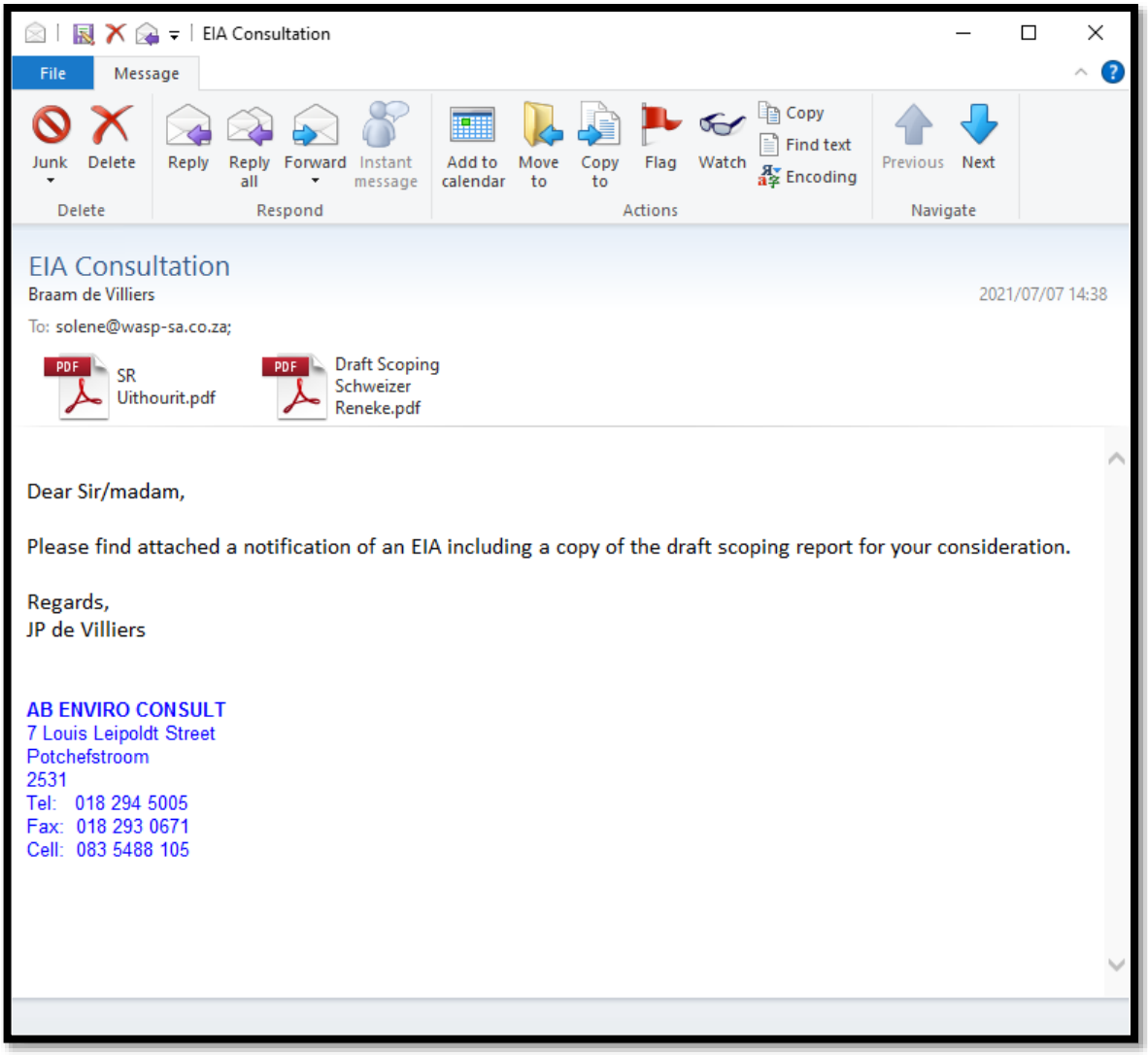
Cell: 083 5488 105



10.4 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Mr. Montshioagae has been leasing the land for the past 25 from the Municipality to graze his cattle. He currently have 160 head of cattle grazing the land. He stated that has not been informed by the Municipality that they intend to use the area for development	The Eap responded that the purpose of the Public Participation Process is to obtain the inputs from the community. His concern is noted and the EAP advised him to lease with the Municipality in this regard. It also seemed that his lease is on a year-to-year basis and the EAP informed Mr. Montshioagae that it is not invisaged that construction will start within the next year.

10.5 COMMENTS AND RESPONSE REPORT

I&AP registered:	Comment received:	Response by the EAP:
Mr. John Montshioagae 078 228 5422	Mr. Montshioagae has been leasing the land for the past 25 from the Municipality to graze his cattle. He currently have 160 head of cattle grazing the land. He stated that has not been informed by the Municipality that they intend to use the area for development.	The Eap responded that the purpose of the Public Participation Process is to obtain the inputs from the community. His concern is noted and the EAP advised him to lease with the Municipality in this regard. It also seemed that his lease is on a year-to-year basis and the EAP informed Mr. Montshioagae that it is not invisaged that construction will start within the next year.

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.

In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approached to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Mamusa Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities.
Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of household where development is not possible or desirable.
- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.

HOUSING AND STANDS NEEDS

- The waiting list of the municipality currently indicated a need for 6000 houses. This waiting list increased drastically from 3171 units in 2014 (NW Multi Year Development Plan 2014).
- According to the 2013 spatial Development Framework (SDF) for Mamusa Local Municipality there were 804 informal structures not on stands (squatters) and 303 informal structures in backgrounds. (This was also indicated in the 2013 Housing Sector Plan for Mamusa Local Municipality)
- Due to the fact that there are no vacant stands in Schweizer-Reneke/ Ipelegeng Urban area, households are currently squatting on municipal vacant land, parks, school sites and in the backyards and the community already submitted two memorandums to the municipality demanding additional stands

The proposed development is based on the premise that the proposed township area should be a fully integrated human settlement catering not only for low cost subsidised housing but also for other housing typologies including inter alia but not limited to GAP housing, affordable bonded housing, the necessary social, community and recreational facilities as well as opportunities for job creation and employment.

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion",* whilst ensuring that such growth is *"ecologically sustainable".* In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is

required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably
The 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).

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

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 as well as retail and 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 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 other land parcels will have to be sourced to provide for this need within the community. This will imply that infill development will not take place and will result in urban sprawl.

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 appointed Town and Regional planner have produced the proposed layout plan with the above mix proposed for the township. Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities, schools, etc. and want

their living environment 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 as well as retail and 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 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.

The business, and institutional uses (schools, church and creche) on site serves as a range of essential services that can be obtained by people living in its vicinity. In turn, the business nodes act 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 other land parcels will have to be sourced to provide for this need within the community. This will imply that the development will not take place and will result in urban sprawl.

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 DEDECT 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, **Mamusa Local Municipality** 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 has been appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He will also designed the proposed infrastructure.
4) A Traffic engineer has been appointed to determine the impact of the additional traffic generated by the proposed development on the existing road network and suitability of the access to the development as well as considering

5) The town and regional planner have designed the proposed layout of the development informed by the surveyer's and floodline engineer's findings.
6) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
7) A Fauna and Flora specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
8) A Wetland specialist has been appointed to determine the impact of the proposed development on the watercourses of the area.
9) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
10) Desk top studies were conducted and alternatives assessed.
11) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
12) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
13) 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.
14) 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

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
		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 (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) The Draft Scoping report will be submitted to the Department
3) The final Scoping report will be submitted to the Department by upon receipt of the approval of the Draft Scoping Report.
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 DEDECT
- ❖ 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 JP de Villiers** declare under oath that I:

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

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.

Department of Environmental Affairs and Tourism. 1998. *Guideline Document - EIA Regulations*. Pretoria, DEAT.

Department of Environmental Affairs. 1988. *Climate of South Africa, climate statistics up to 1984*. Weather Bureau (WB40). Pretoria, Government Printer.

Department of Transport, 19--. *Climate of South Africa Part 1 Climate statistics.* Weather Bureau (WB20). Pretoria Government Printer.

S. Cliff. 2015. Environmental Scoping report for the proposed high density residential township "Tanganani extension 7", to be located on a part of Portion 119 of the farm Diepsloot 388 JR, City of Johannesburg Municipality, Gauteng