

**CONSULTATION ENVIRONMENTAL IMPACT ASSESSMENT
REPORT FOR THE PROPOSED TOWNSHIP ESTABLISHMENT TO
BE SITUATED ON PORTIONS 4, 5, 13, 22 AND THE REMAINDER
OF PORTION 12 OF THE FARM GEMSBOKSPRUIT 229 JR,
THEMBISILE HANI LOCAL MUNICIPALITY, MPUMALANGA**

Unit 79, Block 5
Lombardy Business Park
66 Graham Road
Pretoria, 0084

Mobile (+27) 81 428 6116

mankaleme@leagoenviro.co.za
leagoenviro.co.za

leago
Environmental Solutions

DOCUMENT CONTROL RECORD

Document Prepared By:

Leago Environmental Solutions
Unit 79, Block 5, Lombardy Business Park,
66 Graham Road
Pretoria
0084

Tel: 012 807 7445

Cell No: 081 428 6116

Email: Mankaleme@leagoenviro.co.za or info@leagoenviro.co.za

DOCUMENT CONTROL

Report Title	Consultation Environmental Impact Assessment Report for the proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR, Thembisile Hani Local Municipality, Mpumalanga Province.
Document ID	Consultation/ Draft Environmental Impact Assessment Report
Client	Thembisile Hani Local Municipality
Date	August 2021
Approval	
Name	Ms. Mankaleme M. Magoro
Title	Environmental Assessment Practitioner
Signature	

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR

EAP DECLARATION OF INDEPENDENCE

I **Mankaleme M. Magoro** in my capacity as an Environmental Assessment Practitioner, hereby declare that I-

- Act as an independent consultant;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- As a registered member of the South African Council for Natural Scientific Professions, will undertake our profession in accordance with the Code of Conduct of the Council, as well as any other societies to which we are members; and
- Based on information provided to us by the project proponent, and in addition to information obtained during this study, have presented the results and conclusion within the associated document to the best of our professional judgement.

Signature of EAP:

Date Signed.....

EXECUTIVE SUMMARY

Leago Environmental Solutions was appointed by Nkanivo Development Consultants on behalf of the Thembisile Hani Local Municipality as an Independent Environmental Assessment Practitioner (EAP) to undertake a Scoping and Environmental Impact Assessment (S&EIR) for the proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR. The project area is approximately 116.66 hectares in extent and it is expected to yield 941 stands.

The application for Environmental Authorisation was submitted on the 10th of May 2021 to the Competent Authority; Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA) under Regulation 982 to 985 as amended by Regulation 324 to 327 of the National Environmental Management Act (No. 107 of 1998) and was assigned the reference number: **1/3/1/16/IN-279**.

The scoping report was made available to the interested and affected parties (I&APs) for a period of 30 days for observation and comments and the Final Scoping report was submitted to the competent authority on the 22nd June 2021 together with the Plan of Study. MDARDLEA accepted the scoping report on 2nd July 2021 and the acceptance letter was sent to the EAP on the 03 August 2021 in terms of Regulation 22(a) of the NEMA Regulations and advised the Environmental Assessment Practitioner (EAP) to proceed with undertaking the environmental impact assessment in accordance with the tasks that are outlined in the plan of study for environmental impact assessment.

Specialist recommendations were also taken into consideration when compiling this report. This draft/consultation EIA report will be submitted to the MDARDLEA and will also be made available to interested and Affected Parties for observation and comments for a period of 30 days. Once the comments are received, they will be taken into consideration when compiling a Final EIA report which will be submitted to the MDARDLEA for decision making.

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR

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ACRONYMS AND ABBREVIATIONS

MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
CA	Competent Authority
EMPr	Environmental Management Plan Report
NEMA	National Environmental Management Act
S&EIR	Scoping and Environmental Impact Reporting
EIAr	Environmental Impact Assessment
I&AP	Interested and Affected Parties
EIA	Environmental Impact Assessment
EA	Environmental Authorisation
SAHRA	South African Heritage Resource Agency
SAHRIS	South African Heritage Resource Information Systems
MPHRA	Mpumalanga Provincial Heritage Resource Authority
CBAs	Critical Biodiversity Areas
ESAs	Ecological Support Areas
ESA	Ecological Support Area
THLM	Thembisile Hani Local Municipality
NDM	Nkangala District Municipality
PPP	Public Participation Process
MTPA	Mpumalanga Tourism and Parks Agency
HIA	Heritage Impact Assessment
Ha	Hectares
No.	Number
TIA	Traffic Impact Assessment
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Office

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NEMA REQUIREMENTS

According to Appendix 3 of the NEMA Regulations 2017, the environmental impact assessment process must be undertaken in line with the approved Plan of Study for Environmental Impact Assessment. The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

Objectives of the Environmental Impact Assessment

The objective of the environmental impact assessment process is to, through a consultative process;

- (a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- (b) Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report;
- (c) Identify the location of the development footprint within the approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- (d) Determine the—
 - (i) Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
 - (ii) Degree to which these impacts—
 - (aa) Can be reversed;
 - (bb) May cause irreplaceable loss of resources, and
 - (cc) Can be avoided, managed or mitigated;
- (e) Identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
- (f) Identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
- (g) Identify suitable measures to avoid, manage or mitigate identified impacts; and
- (h) Identify residual risks that need to be managed and monitored.

Scope of assessment and content of the environmental impact assessment reports

An environmental impact assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include-

- (a). details of-
 - (i). the EAP who prepared the report; and
 - (ii). the expertise of the EAP, including a curriculum vitae;
- (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; and
 - (iii). where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;
- (c). a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is-
 - (i). a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;
 - (ii). on land where the property has not been defined, the coordinates within which the activity is to be undertaken;
- (d). a description of the scope of the proposed activity, including-
 - (i). all listed and specified activities triggered and being applied for; and
 - (ii). a description of the associated structures and infrastructure related to the development;
- (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;
- (g). a motivation for the preferred development footprint within the approved site;
- (h). a full description of the process followed to reach the proposed development footprint within the approved site, including:
 - (i). details of the development footprint alternatives considered;
 - (ii). details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
 - (iii). a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;
 - (iv). the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
 - (v). the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-
 - (aa) can be reversed;

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- (bb) may cause irreplaceable loss of resources; and
- (cc) can be avoided, managed or mitigated;
- (vi). the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;
- (vii). positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- (viii). the possible mitigation measures that could be applied and level of residual risk;
- (ix). if no alternative development locations for the activity were investigated, the motivation for not considering such; and
- (x). a concluding statement indicating the preferred alternative development location within the approved site;
 - (i). a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including-
 - (i). a description of all environmental issues and risks that were identified during the environmental impact assessment process; and
 - (ii). an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;
 - (j). an assessment of each identified potentially significant impact and risk, including cumulative impacts;
 - (i). the nature, significance and consequences of the impact and risk;
 - (ii). the extent and duration of the impact and risk;
 - (iii). the probability of the impact and risk occurring;
 - (iv). the degree to which the impact and risk can be reversed;
 - (v). the degree to which the impact and risk may cause irreplaceable loss of resources; and
 - (vi). the degree to which the impact and risk can be mitigated;
 - (k). where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;
 - (l). an environmental impact statement which contains-
 - (i). a summary of the key findings of the environmental impact assessment;
 - (ii). a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and

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

I. INTRODUCTION

I.1. Compilation of EIA Report

This report was compiled by Leago Environmental Solutions on acceptance of the submitted scoping report and advice from the Competent Authority to proceed with the tasks contemplated in the plan of study for environmental impact assessment. The report was compiled according to the NEMA Regulations of 7 April 2017 promulgated in terms of Chapter 5 of the National Environmental Management Act (No. 107 of 1998) stipulating the information that is necessary for the competent authority to consider the application.

I.2. Terms Of Reference

The objective of this study is to conduct an environmental impact assessment. The broad terms of reference for an assessment exercise are to:

- Conduct an in-depth investigation into biophysical aspects, and socio economic aspects focusing on key issues;
- Address the issues that were identified during the scoping process and investigation, which are associated with this planned project;
- Advise the proponent about the potential impacts (positive and negative impacts) of their planned development, as well as the implications for the design, construction and operational phases of the project;
- Identify possible measures to mitigate the potential impacts of the planned project;
- Address the cumulative impact of all aspects of the planned development as well as recommend possible mitigating measures.

I.3. Information on the Methodology of EIA.

This report addresses the biophysical as well as the socio-economic environments. The information was captured in the following manner:

- Site visits to determine the setting, visual character and land-uses in the area;
- I & APs were informed and consulted by phone, newspaper advertisement, emails, letters and notice boards/ site notices
- Identifying positive, as well as negative issues;
- Specialist studies done by independent specialists in areas where impacts were identified;
- Making recommendations and presenting guidelines for the mitigation of impacts identified during this exercise.

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2. DETAILS OF THE APPLICANT AND THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1. Details of the Applicant	
Project Applicant	Thembisile Hani Local Municipality
Physical Address	Stand 24, Kwaggafontein C, eMpumalanga
Contact Person	Mr. Madumetja Tsebe
Telephone	013 986 9191
Email	Tsebem@thembisilehanilm.gov.za

2.2. Details of the EAP	
Company Name	Leago Environmental Solutions
Physical Address	Unit 79, Block 5, Lombardy Business Park, 66 Graham Road, Pretoria, 0084
Contact Person	Mankaleme M. Magoro
Telephone	012 807 7445
Cell Phone	081 428 6116/ 072 410 2325
Email	Mankaleme@leagoenviro.co.za / info@leagoenviro.co.za

Qualifications	Bachelor of Earth Sciences in Mining and Environmental Geology
Professional Affiliation	SACNASP (Reg. No: 120970)
Expertise	Key competencies and experience include environmental impact assessments, environmental management plans, public participation process, geotechnical investigation studies and project management.

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3. DETAILS OF THE PROPOSED ACTIVITY

3.1. Location of the Proposed Activity

The proposed development/ activity is situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gembokspruit 229 JR. Additionally, the proposed project area is located approximately 19.1km away from Kwaggafontein and 11.1km from Vlakraagte via Absalom road.

The site is located roughly at the following coordinates: 25°24'10"S; 28°54'17"E.

SG 21 Digit Code(s):

T0JR0000000022900004
 T0JR0000000022900005
 T0JR0000000022900013
 T0JR0000000022900022
 T0JR0000000022900012

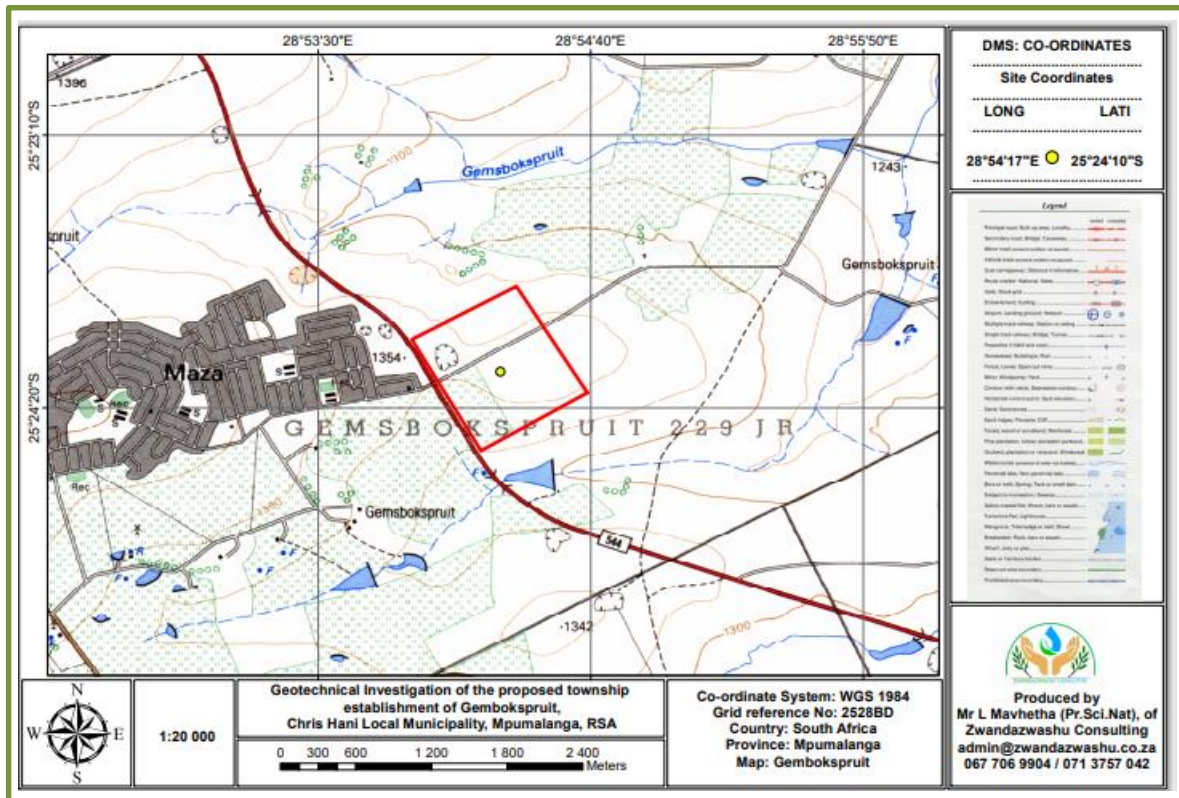


Figure 1: Locality map of the proposed development site.

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gembokspruit 229 JR

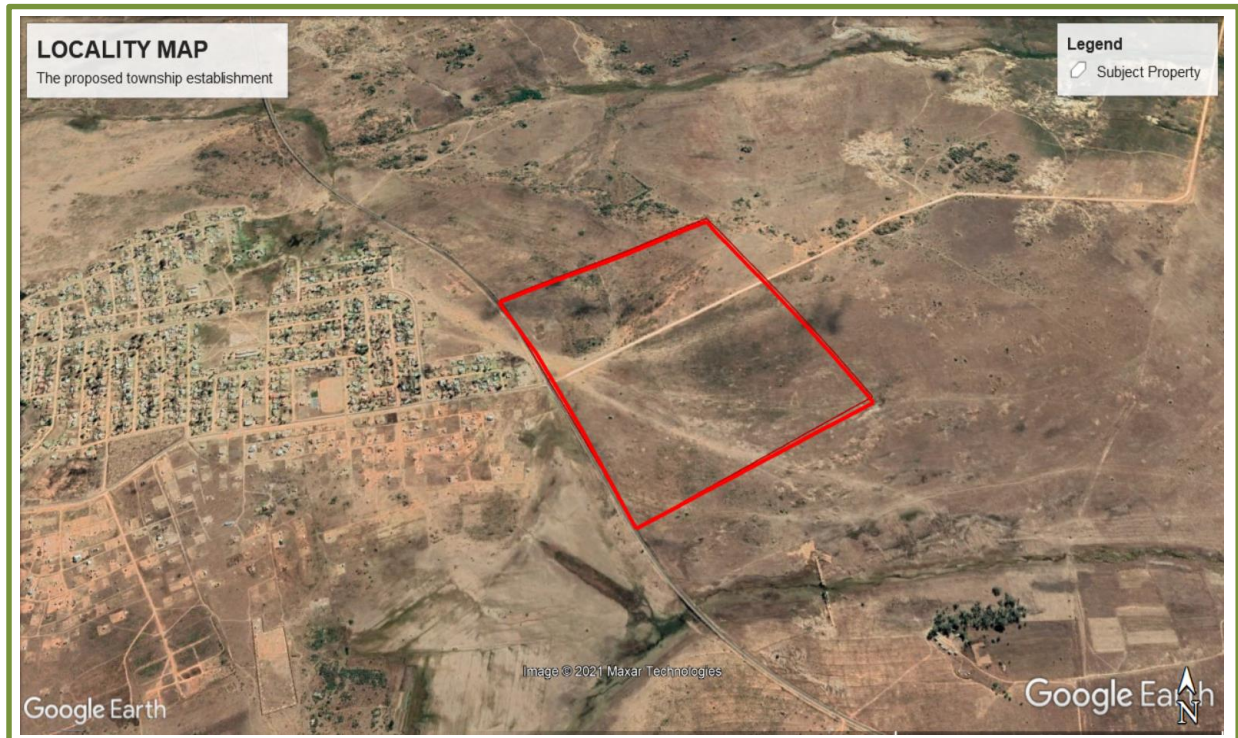


Figure 2: Aerial image of the proposed development site.

3.2. Description of Proposed Activity

The proposed activity is a township establishment. The project area is approximately 116.66 hectares in extent and it is expected to yield 941 stands.

The proposed development entails 941 stands for:

- 914 Residential 1
- 9 Business 1
- 1 Light Industrial
- 1 Municipal (Municipal Purposes)
- 4 Educational (School/Creche)
- 1 Municipal (Thusong Centre)
- 5 Place of Worship
- 6 Public Open Space

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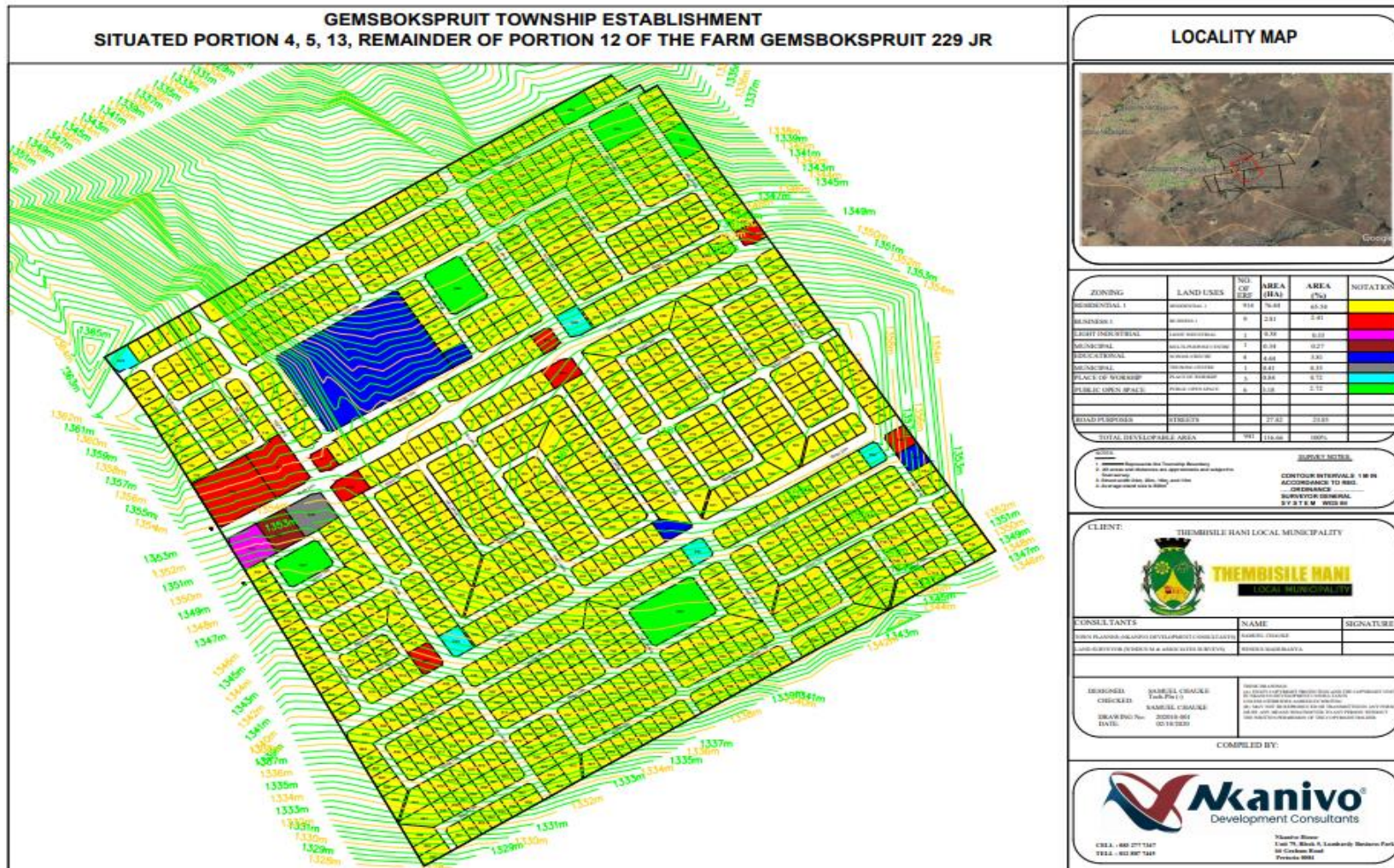


Figure 2: Layout plan of the proposed development

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3.3. Current Land-Uses

The proposed development site is used for grazing of domestic animals.

4. THE FOLLOWING ASSOCIATED INFRASTRUCTURE AND SERVICES ARE ALSO ENVISAGED FOR THE DEVELOPMENT:

4.1. Roads

The proposed development site can be accessed through a Provincial gravel road D2918 which connects Gembokspruit and Kwaggafontein.

4.2. Water

It is recommended that the proposed development site be directly serviced from the Buhlebesizwe/ Gembokspruit reservoir. The current reservoir is approximately 5 kilometres away from the proposed development site, with an estimated 88-meter difference in ground elevation between the reservoir and the development site. As a result of the elevation difference the proposed bulk water can take advantage of the gravity and deliver water to the proposed site.

4.3. Sanitation

The proposed development area has no existing sewer reticulation system. The surrounding areas of Gembokspruit and Kwaggafontein all make use of VIP toilets by means of dry sanitation.

4.4. Storm Water

There is a concrete channel which connects the storm water which collect the storm water flow from Gembokspruit Township on D2918 that discharges to a box culvert, the flow then discharges towards the watercourse.

4.5. Electricity

The proposed development is located approximately 9.3km east-northeast from the Eskom Gembokspruit 132/2kV Substation. No electrical reticulation networks exist within the project area of the proposed development so the proposed development can be connected through the existing electrical infrastructure.

5. NEED AND DESIRABILITY OF PROPOSED ACTIVITY

- The proposed development site is strategically located next to the current boundaries of the existing villages/ township of Vlakgaate.

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- The proposed development site can be accessed via the Somphalali gravel road.
- The proposed development will contribute towards improving housing stock of the area and general livelihood of the residents.

The development's location is therefore desirable due to its location in terms of:

- The existing road leading to the existing village which will provide access to the proposed development area.
- There will be sites for business opportunities for the residents in the surrounding area.
- Furthermore, the development will eventually be integrated with the environment, have proper service provision and it will be well planned.
- It will create job opportunities (permanent and temporary), ensure social upliftment of the area, create investment opportunities and create a sustainable development environment.
- The proposed development will not have a significant detrimental impact on the surrounding areas and is not in conflict with the adjacent land uses.

6. ALTERNATIVES

The EIA Regulations stipulate that a requirement of the Scoping Process is to investigate feasible and reasonable alternatives to the project proposal.

The EIA Regulations define “Alternatives”, in relation to a proposed activity, as “different means of meeting the general purpose and requirements of the activity, which may include alternatives to –

- (a) The property on which or location where it is proposed to undertake the activity
- (b) The type of activity to be undertaken
- (c) The design or layout of the activity
- (d) The technology to be used in the activity
- (e) The operational aspects of the activity

The concept of alternatives is aimed at ensuring that the best among all possible options in all aspects (environmental, economic, etc.) is selected. The option of not carrying out the proposed actions (no-go option) or developments is discussed to demonstrate environmental conditions without the project.

This means that for any project that is proposed, there should be a number of possible proposals or alternatives for accomplishing the same objectives or meeting the same need. Alternatives that would still meet the objective of the original proposal, but which would also have an acceptable impact on the environment (referring to physical, biological, aesthetic/visual) must be considered.

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6.1. FEASIBLE AND REASONABLE ALTERNATIVES CONSIDERED FOR THE PROPOSED ACTIVITY:

6.1.1. Site Alternatives:

Due to land availability, the proposed development site is the only site that has been identified for establishing a township. Therefore, site alternatives are not applicable for this project.

6.1.2. Activity Alternatives:

The current preferred activity is deemed to be the only feasible activity alternative as this activity will result in improved housing which can accommodate more people and eliminate the number of informal settlements.

No other activities were considered in this application due to the assessed need and feasibility of the proposed activity.

6.1.3. Design Alternatives:

The unique character and appeal of Gembokspruit were taken into consideration with the design philosophy. Various layout alternatives were considered by the applicant and town planners, also taking terrain and environmental constraints into account, hence the current design/ layout plan being the result, however there is a possibility of a layout alternative that will still meet the objective of the project scope.

6.1.4. Operational Aspects

The operational aspects of the activity relate to the improved housing for the local community. No other alternatives were deemed feasible other than the proposed activity.

6.1.5. NO-GO ALTERNATIVES

This option would come into effect if this assessment reveals fatal flaws in the process. To date no fatal flaws have been revealed. The no-go alternative of not developing the proposed site would leave the environment in the current state.

7. LEGISLATION, POLICIES AND GUIDELINES

The following is a broad overview of the relevant policy and legal requirements, but not limited to, applicable to the proposed project.

7.1. The Constitution of the Republic of South Africa (No. 108 of 1996)

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gembokspruit 229 JR

The Constitution is the most important part of a legislation that provides a framework for the environmental management in South Africa. Section 24 of the Constitution encourages the prevention of pollution and ecological degradation and also promotes sustainable ecological developments.

According to Chapter 2 of the Bill of Rights, everyone has the right to:

- An environment that is not harmful to their health or wellbeing,
- To have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that:
 - Prevent pollution and ecological degradation
 - Promote conservation and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

7.2. National Environmental Management Act (No. 107 of 1998)

The National Environmental Management Act generally known as “NEMA” is South Africa’s overarching framework for environmental legislation. The NEMA Act sets out the principles of Integrated Environmental Management (IEM). NEMA aims to promote sustainable development, with wide-ranging implications for national, provincial, and local government. Included amongst the key principles is that all development must be environmentally, economically and socially sustainable and that environmental management must place people and their needs at the forefront, and equitably serve their physical, developmental, psychological, cultural and social interest. Section 2 of NEMA, sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that may significantly affect the environment. Section 24, as amended, states that the activities that may significantly affect the environment and require authorization or permission by law must be investigated and assessed prior to approval. These activities are listed in Government Notice R324, R325 and R327, 07 April 2017.

7.3. Environmental Impact Assessment Regulations, 2017

The Environmental Impact Assessment (EIA) Regulations, 2017, promulgated in terms of Section 24(5) of the National Environmental Management Act (No.107 of 1998) are divided into 3 Listing Notices, GNR 324, GNR 325 and GNR 327. GNR 327 defines activities which will trigger the need for a Basic Assessment and GNR 325 defines activities which trigger an Environmental Impact Assessment (EIA) process. If activities from both Listing Notices are triggered, then an EIA process will be required. Regulation 324 defines certain additional listed activities per province.

7.4 National Environmental Management: Biodiversity Act (Act 10 of 2004)

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The National Environmental Management: Biodiversity Act (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, which includes:

- 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.

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

In terms of Section 38 of the Heritage Resources Act, a Heritage Impact Assessment has to be undertaken for the following developments:

- Any development or other activity which will change the character of a site
- Exceeding 5 000m² in extent; or
- Involving three or more existing erven or subdivisions thereof; or
- Involving three or more erven or divisions thereof which have been consolidated within the past five years; or
- The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- The re-zoning of a site exceeding 10 000m² in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Section 38 of the NHRA makes provision for developers to apply for a permit before any heritage resource may be damaged or destroyed.

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

To provide for the conservation of the natural agricultural resources of the Republic of South Africa by the preservation of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

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8. NEMA LISTED ACTIVITIES TO BE APPLIED FOR:

The Minister of Environmental Affairs and Tourism passed Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act (No.107 of 1998). The most recent regulations came into place on the 7th April 2017 and therefore all applications must be made in terms of these NEMA Regulations.

The purpose of this process is to determine the possible negative and positive impacts of the proposed development on the surrounding environment and to provide measures for the mitigation of negative impacts and to maximise positive impacts.

Notice No. R 982 to 985, specifically 983, 984 and 985 as amended by Notice No. 324 to 327 list activities that must be considered in the process to be followed. The activities listed in GNR 984 as amended by GNR 325 requires that the Scoping and EIA process be followed. The applicant is therefore applying for the following listed activities:

Number and Date of the Relevant Notice:	Activity No (s) In terms of the Relevant Notice	Applicable Listed Activity
GNR. 325, Activity No. 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The clearance of an area of 116.66 Ha.
GNR. 327, Activity No. 28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The development of residential, business, industrial, municipal (Multi-purpose centre), Educational, Municipal (Thusong Centre), Place of Worship and Public Open Spaces

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	excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes	
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Table 3: Listed activity triggered by the development.

9. PUBLIC PARTICIPATION

9.1. Introduction and Objectives

As an important component of the EIA process, the public participation process involves public inputs from interested and affected parties (I&APs) according to NEMA Regulations.

The key objectives of the public participation process are to:

- Identify a broad range of I & APs, and inform them about the proposed project;
- Understand and clearly document all issues, underlying concerns and suggestions raised by the I & APs; and
- Identify areas that require further specialist investigation.

9.2. Methodology

The public participation process was undertaken in accordance with the plan of study as part of the Scoping Report that was accepted in terms of Regulation 22 (a) of the NEMA Regulations. The following activities have already been undertaken as part of this process:

- Advertisement on the local newspaper
- On-site notices/ notice boards
- Delivery of notices to the landowners adjacent to the proposed development site.
- Phone calls and email consultation with stakeholders

9.2.1. Newspaper Advertisement

The proposed project was advertised in the Daller Newspaper on the 07th May 2021 to inform people about the project and to request them to register their names and comment on the proposed development.

9.2.2. Site Notices

Laminated site notices were placed at various key points around the proposed development site.

9.2.3. Background Information Notices/ Letters

Notices/ letters regarding the background information of the proposed development activity were also hand delivered to the landowners/ occupiers located next to the proposed development site.

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Reports were also available at **Leago Environmental Solutions** office in Pretoria and could be sent to I&APs by email or courier upon request.


9.2.4. Consultation with Stakeholders

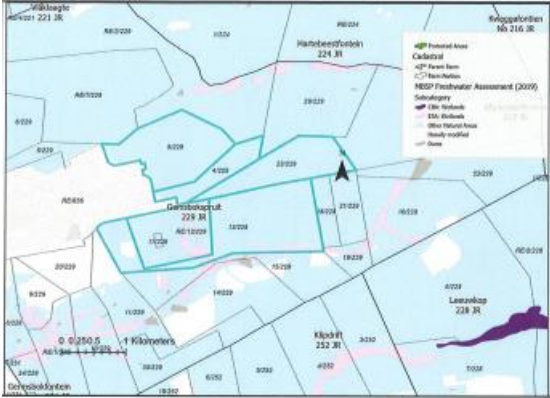
This Consultation EIA report will also be circulated to the interested and affected parties for observation and comments for a period of 30-days. Below are the comments received from the scoping phase of the project.

9.2.5. Comments and Responses


The draft/ consultation EIA report will be circulated for comments. Below are the comments received during the Scoping Phase of the project.

Table 4: Summary of key issues raised by the I & AP's:

Organisation	Name	Date Received	Comments Received	Response
MTPA	Thabile Mnisi	11 June 2021	<p>SUBJECT: MTPA COMMENTS ON THE SCOPING REPORT FOR THE PROPOSED TOWNSHIP ESTABLISHMENT TO BE SITUATED ON PORTIONS 4,5,13,22 AND THE RE OF PORTION 12 OF THE FARM GEMSBOKSPRUIT 229, THEMBSILE HANI LM, MPUMALANGA PROVINCE.</p> <p>With reference to your correspondence reference LEAGO OF 24 May 2021, herewith our comments:</p> <p>MTPA has no objection to the proposed development because the proposed site consists of a transformed area. The MBSP based terrestrial biodiversity Map (Figure 1), indicates the status of Other Natural Areas and Freshwater assessment (Fig.2), indicates ONA and a small portion</p>	<p>Good day Thabile,</p> <p>I hope you are well.</p> <p>All the comments have been noted and will be adequately addressed in the EIA phase of the project.</p> <p>Hope you find this in order.</p> <p>Regards,</p> 

			 <p>Fig 2: MBSP based freshwater assessment indicating the ESA wetland system.</p>	
PWRT	M.J Mojapelo	03 May 2021	<p>RE: ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED TOWNSHIP: PORTIONS 4, 5, 13, 222 AND THE REMAINDER OF PORTION 12 OF THE FARM GEMSBOKSPRUIT 299 JR</p> <p>This is with reference to your EIA dated 29 April 2021.</p> <p>We are at this stage unable to give comprehensive comments as we do not know as yet what the final route of the above will be.</p>	<p>Good day Sir,</p> <p>I hope you are well.</p> <p>Kindly see below the link to access the EIA reports (Consultation Scoping Report, Environmental Management Plan and Specialist Studies) for the proposed township establishment to be situated on Portion 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR, Mpumalanga Province.</p> <p>https://we.tl/t-w8vclBx9Ew</p> <p>Hope you find this in order</p> <p>Regards,</p>

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			<p>We shall be able to give our comments after or towards the finalization of your E.I.A, which will be on all affected Provincial Roads under the jurisdiction of Mpumalanga Department of Public Works, Roads and Transport.</p>	 <p>Mankaleme Magoro Managing Director</p> <p>Unit 79, Block 5 Lombardy Business Park 66 Graham Road Pretoria, 0084</p> <p>mobile 081 428 6116 www.leagoenviro.co.za</p>
SAHRA	Nokukhanya Khumalo	26 July 2021	<p>LETTER</p> <p>In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)</p> <p>Attention: Thembisile Hani Local Municipality</p> <p>The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR.</p> <p>The SAHRA issued an interim comment dated 01/07/2021 noting the submission of the Scoping report and the heritage impact assessment report. SAHRA stated that they will await submission of the draft EIA report and its appendices before issuing further comments.</p>	

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR

			<p>The case status was changed to submitted and a SPLUMA motivational report was submitted.</p> <p>Thank you for submitting the SPLUMA motivational report by Nkanivo Development Consultants (Pty) Ltd, however SAHRA still awaits the submission of the draft EIAR before processing the case further.</p>	
DARDLEA	Charity Mthimunye	04 August 2021	<p>CONSULTATION SCOPING REPORT: THE PROPOSED TOWNSHIP ESTABLISHMENT ON PORTIONS 4, 5, 13, 22 AND 12 OF THE FARM GEMSBOKSPRUIT 229 JR, THEMBISILE HANI LOCAL MUNICIPALITY</p> <p>The consultation scoping report which was submitted by you in respect of the above mentioned application and received by the department on the 10 May 2021 has been reviewed and here are the comments:</p> <ul style="list-style-type: none"> • It would be preferred that access road through the existing D2918 gravel be 	<p>RE: THE PROPOSED TOWNSHIP ESTABLISHMENT TO BE SITUATED ON PORTIONS 4, 5, 13, 22 AND THE REMAINDER OF PORTION 12 OF THE FARM GEMSBOKSPRUIT 229 JR, THEMBISILE HANI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE</p> <p>Below are the addressed comments/ issues raised by the department for the above mentioned project:</p> <ol style="list-style-type: none"> I. The dust control measures that must be taken into consideration are addressed in the Environmental Management Plan.

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			<p>tarred in order to minimise dust and thus reducing air pollution.</p> <ul style="list-style-type: none"> • The department would like to get clarity about the issue of water considering the size of the proposed development and the fact that water is a scarce resource for most of the areas within the Thembisile Hani Local Municipality. • The Department has noted that there will be specialist studies undertaken and incorporated within the Final Scoping Report including the Engineering Services Report. • All the comments from the I&APs must be considered. <p>Please draw the applicant's attention the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.</p>	<ol style="list-style-type: none"> 2. A confirmation letter indicating that the capacity of all basic services (basic infrastructure) will be available has been requested from the Thembisile Hani Local Municipality and it will be included in the Final Environmental Impact Assessment Report. 3. Specialist studies undertaken in relation to the above mentioned activity are included as appendix 4 of this Consultation Environmental Impact Assessment Report. 4. Please refer to Table 4 of the Environmental Impact Assessment Report. <p>We hope you find the above in order.</p>
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The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gemsbokspruit 229 JR

10. ENVIRONMENTAL ASPECTS

10.1 LITERATURE REVIEW

Literature pertinent to this area and its immediate environs has been reviewed.

10.2. DESCRIPTION OF THE ENVIRONMENT

10.2.1 Topography

The slope of the proposed development site is generally gentle and slightly steep from north towards the southern direction.

10.2.2. Climate

The proposed development is characterized by sunny summers with occasional thunder showers. Winters are mild, sunny dry days with crisp to cold nights with occasional frost occurring during winter seasons.

10.2.3. Geology of the Area

The site under investigation falls under the Lebowa granite suite of Bushveld complex. It must be noted that outcrops which were observed were outside the area under investigation. However, those outcrops reveal the phaneritic texture granatoid rocks which are predominately composed of felsic minerals such as quartz, plagioclase feldspars and mafic (amphiboles and pyroxene) accessory minerals. Based on the physical properties of the rock samples and geological maps review of the site; the lithology of the site is to coarse grained granites. The site has thick layers' residual sandy gravel at the upper layer and second layer respectively.

10.2.4. Hydrology

According to the geotechnical investigation assessment report, no natural groundwater seepage was encountered in any of the trial pits excavated as part of the investigation and there is no indication of temporary perched water tables in the soil profile, not even at the contact between soil and bedrock. Groundwater seepage is not expected to be problematic at shallow depths on this site.

10.2.5. Vegetation of Area

According to the Ecological Study report, the site's vegetation structure is classified as short closed shrubland as the shrub *Lopholaena coriifolia* is locally dominant on the southern and north-western sections of the proposed development area. There is also *Vachellia* woodland vegetation which is found mainly to the north of the road and is dominated by shrubs and small trees of *Vachellia* Karroo and it varies from an open to a closed structure, with less trees in the eastern section. The site area is subject to overgrazing and trampling by cattle.

10.2.6. Fauna / Animals

According to the Ecological Study report, literature review indicates that a diverse group of reptiles may utilize the larger study area and also indicates that a diverse group of birds may utilize the larger study area. More than 300 species' range of distribution falls within the study area which includes twelve Red Data Listed species. No Red Data or Endemic species were observed during the survey.

10.2.7. Historical, Archaeological or Cultural Sites

According to the Heritage Impact Assessment report, no heritage features were noted within the study area. However, there are three settlements, each with their own kraal, 100m – 150m to the south of the study area. Other walling and a grave occur 300m+ to the north and northeast.

11. SUMMARY OF FINDINGS AND RECOMMENDATIONS OF SPECIALIST STUDIES AND SPECIALISED PROCESSES.

The necessary specialist studies have been performed in areas where possible negative impacts were identified. Specialist studies conducted in relation to the proposed development are:

11.1. ECOLOGICAL ASSESSMENT

Details of the Specialist:

Afrika Enviro & Biology

P.O. BOX 2980

White River

1240

Cell: 072 623 1845

Email: danie.aeb@gmail.com

Contact Person: Danie van der Walt

Area of Expertise: Wetland & Biodiversity Assessment Specialist

Findings

Vegetation & Habitats

Floral diversity was determined by completing survey transects and sample sites along all the different habitats within the physiographic zones represented in the study area (Deal et al. 1989a). In order to attain scientifically reliable results, obviously distinct vegetation communities were surveyed by selecting representative sites in each homogenous unit (Mathews et al. 1992).

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The survey transects and sites in the affected areas were also intensively searched for important species and the potential for Red Data Listed (RDL) and other important species were established and cross referenced with PRECIS Data for the relevant quarter degree grid/s (POSA) as obtained from the SANBI data base. The aim was to identify distinct vegetation types and to establish their integrity and representation in the study area.

- **Short closed shrubland**

This natural habitat remains intact on the southern and north-western sections of the proposed development area. The vegetation structure is classified as short closed shrubland as the shrub *Lopholaena coriifolia* is locally dominant. Shallow, solid sandstone outcrops are present and where the abovementioned species forms dense stands in broken areas and around the outcrops. Other woody vegetation is present in the shelter provided by the outcrops typically include *Gymnosporia buxifolia*, *Searsia lancea*, *Searsia pyriodes* and *Euclea undulata*. Forbs and wild flowers are sparse and limited to sandy areas. Species present are *Babiana hypogea*, *Crossandra fruticulosa*, *Helichrysum cephaloideum*, *Helichrysum rugulosum* and *Senecio affinis*. As is evident on aerial images the area is subject to overgrazing and trampling by cattle and this fact is affirmed by large stands of the invasive forb, *Stoebe vulgaris*, which is an indicator of poor veld management.

Grass cover is dominated by *Hyparrhenia hirta*, *Aristida adscensionsis* and *A. congesta*. No Red Data Listed (RDL) or endemic species were recorded. Biodiversity is relatively low and the ecological importance and sensitivity is Medium.

- **Vachellia woodland**

This habitat is found mainly to the north of the road and is dominated by shrubs and small trees of *Vachellia karoo*. It varies from an open to a closed structure, with less trees in the eastern section. It is evident that larger trees of this species is absent as result of wood harvesting by the local human population. Grass cover is dominated by *Hyparrhenia hirta* and *Loudetia simplex*. Forbs and wild flower diversity is very low, with examples of *Dicoma anomala*, *Helichrysum rugulosum*, *Berkheya radula* and *Hermannia transvaalensis* being recorded.

Other shrubs and small trees present are *Euclea undulata*, *Senegalia caffra*, *Dichrostachys cinerea*, *Aloe marlothii*, stunted examples of *Sclerocarya birrea* and *Protea caffra* (very few present). No Red Data Listed (RDL) or endemic species were recorded. Biodiversity is relatively low and the ecological importance and sensitivity is Medium.

- **Rocky outcrop habitat**

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This habitat includes the dolerite outcrops to the north of the road. These outcrops vary from small, low outcrops to prominent outcrops forming a ridge in the northern section. The small outcrops are mainly barren but the large outcrops and ridge is well covered with woody vegetation. Shrubs and small trees include *Rhoicissus dentata*, *Grewia flava*, *Euclea undulata*, *Vachellia karroo*, *Senegalia caffra*, *Combretum molle*, *Dombeya rotundifolia*, *Erythrina lysistemon*, *Searsia lancea*, *Rhoicissus dentata*, *Gymnosporia buxifolia*, *Ozoroa paniculosa* and *Faurea saligna*.

Succulents include *Aloe marlothii* and *Aloe greatheadii*. These outcrops also provide a niche for specialized fauna and a refuge for fauna in general. No Red Data Listed (RDL) or endemic species were recorded. Biodiversity is medium and the ecological importance and sensitivity is High.

Terrestrial Fauna

The fauna investigation is based on a desktop study verified by cross reference with available habitats of the study area in order to establish the faunal potential. All fauna that were observed during field trips and floral surveys were also recorded. However, selected survey sites were searched for fauna and habitats were identified during the vegetation surveys so as to establish the faunal potential of a particular area.

The literature review indicates that a diverse group of birds may utilize the larger study area. More than 300 species' range of distribution falls within the study area which includes twelve Red Data Listed species. No Red Data or Endemic species were observed during the survey.

Potentially, the natural habitats on site will offer refuge to all invertebrate groups with the available habitats on site. This consists of a large number of species for which field searches are too extensive to be accommodated for the present scope of this study. Picker et. Al. (2002) can be referred to so as to get an idea of the large invertebrate diversity that can be expected in the study area. No Red Data invertebrates are expected in the study area. The transformation of this land will have a large ecological footprint and it is anticipated that it will have a significant impact on invertebrates at site level if the

Recommendations

- Before construction commences the site must be investigated for the possible presence of slow moving and sub terrain fauna that must be relocated or assisted.
- Once site preparation commences, any fauna that are disturbed and comes out of hiding must be allowed to escape to the natural surroundings.

11.2. HERITAGE IMPACT ASSESSMENT

Details of the Specialist:

Umlando Archaeological Surveys and Heritage Management

PO Box 102532

Meerensee

3901

Cell: 083 658 5362

Email: umlando@gmail.com

Contact Person: Gavin Anderson

Area of Expertise: Archaeologist/Heritage Impact Assessor

Findings

Desktop Study

No known heritage sites exist in the study area. No national monuments, battlefields, or historical cemeteries are known to occur within the study area. The 1939 aerial photograph indicates that there are no built structures in the study area. The 1964 and 1984 1:50 000 topographical maps indicates that there are no known structures within the study area. However, there are three settlements to the south that border the development, some buildings to the northeast, and a grave to the east. These features are mostly 100m+ away from the study area except for the three settlements. The area has no palaeontological sensitivity.

Field Survey

The soil is very thin on the upper slopes that are covered in boulders a quartz rocks. This is normally a sign of low historical human occupation. No heritage sites were recorded within the study area. There are three settlements with remnants of stone walling to the south of the study area. They vary from 120m to 165m from the border of the study area, and are thus not directly affected by the development. The settlements consist each of house floor foundations with a rectangular or circular stone walled kraal down slope from it. No human graves were noted, but they could exist.

The settlements do not occur on the 1939 aerial photographs, but are noted on the 1964 topographical map. They thus date between 1939 and 1964. The settlements are more than 100m away from the development and thus do not need further mitigation. The location of these three settlements must be noted in the management plan for the development to ensure access roads, etc. does not impact on the site.

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Recommendations

No heritage sites were noted within the study area. The three settlements may have human graves and should not be affected in any manner, especially by access roads. The development must ensure that the three settlements are clearly demarcated before construction occurs, since human graves could occur within the settlements.

11.3. ENGINEERING SERVICES (BULK INFRASTRUCTURES)

Details of the Specialist:

Ukhozikazi Projects (Pty) Ltd
322 Whisken Avenue
Midrand
1684

Tell: 010 206 9054

Email: gugu@ukhozikazi.co.za

Contact Person: Gugu Mthethwa

Area of Expertise: Engineer

Findings

Water Services

The Municipality does not have its own dedicated water supply and must depend on other Water Service Authorities to provide bulk water. Around 55 MI/day comes from a variety of sources, including 15 MI/day from the City of Tshwane Metropolitan Municipality, 5 MI/day from the Dr J S Moroka Local Municipality, and 35 MI/day from Rand Water. The water source is not always reliable and does not always exceed the 55MI/day mark, which is mostly due to pump failures and vandalism.

Over the summer, when water demands and usages are higher, there are major water supply shortages. Furthermore, the majority of bulk water supply pipelines are made of asbestos and have reached the end of their useful life, as it is the case on the pipeline that supplies Kwamhlanga and other communities. Vandalism of water facilities, air valve leaks, theft of manhole chamber covers, and a lack of knowledge about water use and conservation are among the other supply issues within the Municipal area.

There is no internal water reticulation system in the proposed area of portions 4, 5, 13, 22, and the remainder of portion 12 of the farm Gemsbokspruit 229 JR. Muzimuhle/ Gemsbokspruit is a serviced settlement near the proposed development site that will most likely be linked to the proposed site.

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The nearest reservoirs are 12ML each both located in Kwaggafontein E which is approximately 4.5km from the proposed site. The second closest existing water storage tank is a 11ML reservoir located in Buhlebesizwe also known as Vlaklaagte -Aa which is approximately 5km from the proposed site. The Buhlebesizwe reservoir (officially known as Gemsbokspruit Reservoir) is currently the main water supply to Gemsbokspruit, the reservoir is supplied from the Thembalethu Reservoir which is operated by Rand Water. There is an identified borehole located on the South East end of Muzimuhle/ Gemsbokspruit, this borehole forms part of the municipality's effort of supplying additional water to the area and surrounding parts, but it was not commissioned.

Sanitation

A large portion of the municipal population currently lacks adequate sanitation facilities and is served below RDP standards. Pit latrines are available in most parts of the municipal area. Only Kwamhlanga and Tweefontein K have water borne sewerage systems. The rest of the population only has access to VIP toilets. There is currently an existing sewer pipeline between the Tweefontein K wastewater treatment works and Tweefontein while sanitation in the municipality is primarily constituted of pit latrines.

Recommendations

Water Use

Bulk Water Supply Option 1

The new development site be directly serviced from the Buhlebesizwe/ Gemsbokspruit reservoir (Coordinates 25°23'40.06"S, 28°51'18.94"E). The current reservoir is approximately 5 kilometres away from the proposed development site, with an estimated 88-meter difference in ground elevation between the reservoir and the development site. As a result of the elevation difference the proposed bulk water can take advantage of the gravity and deliver water to the proposed site.

Bulk Water Supply Option 2

The new development site be directly serviced from the two Kwaggafontein E reservoirs (Coordinates 25°22'0.49"S, 28°55'50.62"E). The current reservoir site is approximately 4.5 kilometres away from the proposed development site, with an estimated 28meter difference in ground elevation between the reservoir and the development site. The proposed site is higher in elevation in comparison to the existing reservoir site. As a result, the proposed bulk water line will require a booster pump station to deliver bulk water the proposed site at the required functioning pressure.

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Sanitation

Install VIP toilets that meet the design consideration and basic human settlement needs as stipulated in the Neighbourhood Planning and Design Guide (Also known as the Redbook) 2019 version.

11.4. FLOODLINE REPORT

Details of the Specialist:

Dalimede Projects (PTY) LTD

No. 11 Pierre street, IT Park RentCo

Building, Office 6,

Bendor, 0699

Cell: 079 368 8414

Email: admin@dalimede.com

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineering, Flood line and Storm Water

Findings

The catchment topography is composed of mainly flat areas. The topographic elevation ranges from 1290m to 1420m above sea level. The landscape soils are mostly with slow infiltration rates with restricted permeability (Schulze, 2010). The soils are classified to have a moderately high runoff potential. There was one catchment that was delineated, the catchment area is within the Olifants Water Management Area.

The Mean Annual Precipitation (MAP) of the catchment was determined from weather stations gridded from in the vicinity of the site. The MAP for the catchment is estimated to be 668mm. The HEC-RAS model was used to determine the flood line during the event of a flood for any return period, and in this case the 1:100-year floods were modelled.

Recommendations

It is recommended that a buffer zone of 20m should be provided between the 1:100 flood line and any proposed development.

11.5. STORM WATER MANAGEMENT PLAN

Details of the Specialist:

Dalimede Projects (PTY) LTD

The proposed township establishment to be situated on Portions 4, 5, 13, 22 and the Remainder of Portion 12 of the Farm Gembokspruit 229 JR

No. 11 Pierre street, IT Park RentCo
Building, Office 6,
Bendor, 0699

Cell: 079 368 8414

Email: admin@dalimede.com

Contact Person: Litmos Mthunzi

Area of Expertise: Civil Engineering, Flood line and Storm Water

Findings

The proposed storm water management system has been designed to be self-regulating with no external control. It will aim to collect run-off into rainwater harvesting tank, swales, underground pipes with an attenuation pond to attenuate and manage the increase in flow between the pre and post development stages from the transformed areas.

The run-off from the roofs, gutters and downpipes shall be collected in rainwater harvesting tanks considering any overflows being dispersed overland into swales and ultimately collected into underground storm water systems and contained in two storm water attenuation ponds. Hardened areas, like roads and parking areas will be routed overland, collected in kerbs and channels and into grid inlets or catchpits where it is collected in concrete storm water pipes and diverted into the two storm water attenuation ponds along the lower boundary of the site where increased flow will be attenuated, whilst silt is deposited.

Recommendations

- That the storm water design parameters used in the design of the storm water management system are accepted and approved.
- The detail design of the storm water system includes recommendations of this plan.
- Rainwater harvesting should be encouraged at all residential dwellings.
- Rainwater harvesting tanks should be included in building plans submitted to the municipality for building plan approval.
- The storm water attenuation ponds should be constructed off-channel before draining into the stream.
- The storm water system must be kept separate from the sewerage system.

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- All chemicals, cement, fuel and other hazardous material used during construction should be stored in controlled areas and not lower than the internal road.
- Concentration of storm water should be prevented where possible, but energy dissipaters should be provided in areas of concentration.
- On completion of every construction phase within the development, comprising the construction of buildings, roads and parking areas, all remaining exposed embankments and open areas must be vegetated as soon as possible, including the use of “Soilsaver”, where necessary.
- During the construction phase, the following aspects shall be closely monitored by the ECO to ensure the contractor complies:
 - ❖ Temporary berms and cut-off drains must be provided on site to collect run-off, especially until the stormwater attenuation pond is complete and functional.
 - ❖ Silt screens must be provided at the catchpits during road/stormwater construction.
 - ❖ Topsoil must be conserved on site and prevented from entering the stormwater system.
 - ❖ Exposed embankments, cut/fill slopes and open areas must be vegetated as soon as possible to reduce runoff.
 - ❖ Dust control during construction must be always applied.
 - ❖ Excess spoil material from topsoil or bulk earthworks must be placed in areas or even removed entirely off site to minimise silt deposition, scouring and soil erosion.
 - ❖ Post construction, all exposed areas must be covered in vegetation, grass or landscaped.

11.6. ELECTRICAL REPORT

Details of the Specialist:

Buro Tech Consulting Engineers CC

PO Box 59887

Karenpark

0118

Cell: 082 600 8328

Email: nicovw@burotech.co.za

Contact Person: Nico Van Wyk

Area of Expertise: Engineer

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Findings

- No electrical reticulation networks exist within the project envelope of the proposed Gemsbokspruit.
- The proposed township is located approximately 9.3km east-northeast (straight line distance) from the Eskom Gemsbokspruit 132/22kV Substation.
- Transformers on the Gemsbokspruit substation 22kV feeder are used to step down the electricity from 22kV to 231-Volt for use in the adjacent township.
- Low Voltage (LV) electrical reticulation in the adjacent township is done with Aerial Bundled Conductors (ABC) on wooden poles with connections to the houses via concentric “airdac” concentric cables.
- Metering is typically done using prepaid metering systems. Eskom will prescribe the metering requirements.

Conclusion

The final estimated maximum demand for the new development is calculated to be 3 400 kVA (3.4MVA). Given current new built & upgrade construction activities on the 22kV feeders from the Gemsbokspruit substation, it must be assumed that sufficient spare capacity will be available to service this proposed development but needs to be confirmed by Eskom.

11.7. GEOTECHNICAL INVESTIGATIONS

Details of the Specialist:

Zwandazwashu Consulting (Pty) Ltd

Unit 01A Stanford Park

817 16th Road

Randjespark, Midrand, 1685

Cell: 079 081 2369/ 067 706 9904

Email: admin@zwandazwashu.co.za

Contact Person: Mavhetha Lavhelesani

Area of Expertise: Geologist

Findings

- Residual soil was encountered in all test pits except TPI7, TPI8, TPI9, and TP20 with an average thickness of 0.93m in the range 0.25 to 2.7m below ground level.

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- The Granite parent rock underlies the residual sandy gravel soils and was encountered in all test pits.
- Natural ground water seepage was not encountered in any of the test pits and there is no indication of temporary perched water tables in the soil profile, not even at the contact between soil and bedrock.
- The site under investigation is characterized by sunny summers with occasional thunder showers. Winters are mild, sunny dry days with crisp to cold nights with occasional frost occurring during winter seasons, Winds are typically fluctuating in a north-east direction and can reach maximum speed of >28km/h at certain times of the year (August to December).
- The site under investigation falls under the Lebowa granite suite of Bushveld complex.
- The topsoil is characterised by an upper stratum of sandy silt which have an average thickness of 0.37m in the range 0 to 0.65m below ground level. It is characterised by soils which can typically be described as “Slightly moist, greyish, intact, Loose to Medium dense, ~Sandy Silt.”
- The site is predominately underlain by sandy gravel > sandy silt >with low content of clay and laboratory results of all the samples analyzed exhibit a low potential expansiveness.
- The site is generally underlain by non-cohesive soils with low plasticity index and laboratory results indicate that the samples have a low clay content and high gravel content.
- Seismic hazard maps of South Africa produced by Kijko (2003), show the site is situated in the area where the peak ground acceleration is greater than 10% probability of exceedance in a 50-year period is approximately 0.12 to 0.16g. This area is a low seismic hazard area and the construction materials to be used (gravel) are in harmony with the naturally occurring site conditions. As a result, no major problems are foreseen in this regard.
- This site showed no signs of previous subsidence occurrences. Furthermore, there is no evidence or record of active underground mining in the immediate vicinities that might cause drop in the ground water level thus triggering ground subsidence. The site is a not a dolomitic land, so it cannot be subject to doline formation.
- According to the research done, there are no records of wide shallow underground mining activities directly below this site. There is no dolomite or limestone underlying the site so the chances of dolomite related sinkhole formation are unlikely.
- The probability of landslides and mudslides occurring at this area are rare. This is primarily due to the climatic conditions and composition of residual soil in this particular area. Also, this is primarily due to the low relief and slightly steep gradient of the area.
- It was noted during trail pit excavations that the sidewalls retain its initial condition without crumbling. This is a good indication for the behaviour of the materials; excavated ground must retain its stature vertically without unsupported.

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Conclusion and Recommendations

Foundations on residual soils

Residual soils were encountered at various, uneven depths with an average of 0.93m below the ground level. Therefore, the recommended foundation type is a reinforced strip foundation. Reinforcement should be designed by a competent person. The following construction procedures apply:

- All topsoil to be stripped to spoil;
- Foundation trenches for 500mm wide strip footing to be over-excavated to 1.0m wide by 1.3m deep below existing ground level;
- Excavation to be backfill with G6 quality material to a depth of 0.6m existing ground level; (material on site can be utilised as backfill material)
- G6 material to be compacted in 150mm thick layers to 93% Mod AASHTO density at -1% to +2% OMC;
- Strip footings 500mm wide and adequately reinforced should be constructed at a depth of 0.6m;
- The allowable bearing capacity should be limited to 150kPa on the engineered soil mattress;
- Articulation joints at some internal doors and all external doors;
- Light reinforcement in masonry;

Foundations on a slightly weathered Granite

The medium hard rock granite is encountered at a depth of 0.5m below existing ground level. The recommended foundation type is a normal strip foundation onto the medium hard rock granite. The following construction procedures apply:

- All topsoil to be stripped to spoil;
- Foundation excavation to the slightly weathered, medium hard rock at an average depth of 0.8m below existing ground level;
- The excavation onto the weathered Granite to be hand cleaned and all loose material to be removed;
- A concrete blinding to be cast to onto cleaned rock surface prior to casting foundations;
- The allowable bearing capacity should be limited to 300kPa on the weathered Granite bedrock.

11.8. TRAFFIC IMPACT ASSESSMENT

Details of the Specialist:

Ajayi-Jantjies-Adams and Associates (AJA Consulting)

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PO Box 2890
Faerie Glen
0043

Tel: 012 991 1993

Email: mongamo@ajacce.co.za

Contact Person: Mongamo Jantjies

Area of expertise: Engineer

Findings

- Access to the proposed development is proposed via Somphalali Road which in turn intersects with Road R544.
- The Road R544 and Somphalali Road (Station 1) intersection, the morning peak hour is from 06h45 to 07h45 and the afternoon peak is from 15h00 to 16h00. The intersection peak hour volumes are 232 and 251 vehicles per hour for the morning and afternoon peaks respectively.
- At Station PI Light Vehicles make up about 86% of the vehicles, followed by Taxis at about 8%, then Heavy Vehicles (HV) at about 6% and Buses at 0.21%.
- The Road R544 and Somphalali Road (Station 1) Intersection operates at acceptable Levels of Service (LOS) for both the morning and afternoon peaks under the prevailing traffic conditions.
- The Average Delays for all vehicles are 2.9 and 2.4 seconds for the morning and afternoon peaks respectively.
- The ratio of Demand Volume to Capacity (v/c) ratio for the intersection is 0.096 and 0.076 for the morning and afternoon peaks respectively.
- The proposed development will generate trips to the proposed access / exit point and will generate additional traffic on the road network based on the proposed Site Development Plan.
- The proposed development will generate 3202 daily trips, 723 morning peak trips, 617 afternoon peak trips and 975 weekend peak trips.
- The traffic to be generated by the proposed development will gain access mainly via the existing intersection of Road R544 (Absalom Road) and Somphalali Road.
- The intersection requires upgrades on the minor road legs of the intersection.
- The upgraded Road R544 and Somphalali Road (Station 1) Intersection operates at acceptable Levels of Service (LOS) for both the morning and afternoon peaks under the Design Horizon traffic conditions.

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- The Average Delays for all vehicles are 10.4 and 9.2 seconds for the morning and afternoon peaks respectively.
- The ratio of Demand Volume to Capacity (v/c) ratio for the intersection is 0.555 and 0.409 for the morning and afternoon peaks respectively.

Recommendations

- The proposed development should be considered favourably from a traffic engineering point of view by the relevant authorities given the proposed road, public transport and NMT upgrades.
- The proposed development should make provision for safe sidewalks and/or walkways for pedestrians and cyclists within the road reserve.
- Detailed designs for the proposed road improvements should be undertaken by a professional engineer / technologist with suitable road design experience.

12. ENVIRONMENTAL IMPACT DETERMINATION AND EVALUATION

12.1. Methodology to assess the impacts

To assess the impacts on the environment, the process has been divided into two main phases namely the Construction phase and the Operational phase. The activities, products and services present in these two phases have been studied to identify and predict all possible impacts.

In any process of identifying and recognising impacts, one must recognise that the determination of impact significance is inherently an anthropocentric concept. Duinker and Beanlands, (1986) in DEAT 2002, Thompson (1988), in DEAT 2002 stated that the significance of an impact is an expression of the cost or value of an impact to society.

However, the tendency is always towards a system of quantifying the significance of the impacts so that it is a true representation of the existing situation on site. This has been done by using wherever possible, legal and scientific standards which are applicable.

The significance of the aspects/impacts of the process have been rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

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The consequence matrix use parameters like severity, duration and extent of impact as well as compliance to standards. Values of 1-5 are assigned to the parameters that are added and averaged to determine the overall consequence. The same process is followed with the likelihood that consists of two parameters namely frequency and probability. The overall consequence and the overall likelihood are then multiplied to give values ranging from 1 to 25. These values as shown in the following table and are used to rank the significance.

Table 5: Significance Ratings

Significance	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1-4.9	5-9.9	10-14.9	15-19.9	20-25

Table 6: Description of the parameters used in the matrixes

SEVERITY	
Low	Low cost/high potential to mitigate. Impacts easily reversible, non-harmful insignificant change/deterioration or disturbance to natural environments.
Low-medium	Low cost to mitigate small/ potentially harmful moderate change/deterioration or disturbance to natural environment.
Medium	Substantial cost to mitigate. Potential to mitigate and potential to reverse impact. Harmful Significant change/ deterioration or disturbance to natural environment.
Medium-high	High cost to mitigate. Possible to mitigate great/very harmful, very significant change/deterioration or disturbance to natural environment.
High	Prohibitive cost to mitigate. Little or no mechanism to mitigate. Irreversible. Extremely harmful Disastrous change/deterioration or disturbance to natural environment.

DURATION	
Low	Up to one month
Low-medium	One month to three months
Medium	Three months to one year
Medium-high	One to ten years

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High	Beyond ten years
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EXTENT

Low	Project area
Low-medium	Surrounding area
Medium	Within Thembisile Hani Local Municipality
Medium-high	Within Nkangala District
High	Regional, National and International

FREQUENCY

Low	Once a year or once during operation
Low-medium	Once in 6 months
Medium	Once a month
Medium-high	Once a week
High	Daily

PROBABILITY

Low	Almost never/almost impossible
Low-medium	Very seldom/highly unlikely
Medium	Infrequent/unlikely/seldom
Medium-high	Often/Regularly/Likely/Possible
High	Daily/Highly likely/definitely

COMPLIANCE

The following criteria are used during the rating of possible impacts

Low	Best practise
Low-medium	Compliance
Medium	Non-compliance/conformance to Policies etc. – Internal
Medium-high	Non-compliance/conformance to Legislation etc. – External
High	Directive, prosecution of closure or potential for non-renewal of licences or rights

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13. KEY ENVIRONMENTAL IMPACTS

Table 7: The following possible environmental impacts were identified

Environmental Issues	Possible cause	Potential impacts
Air Pollution and Noise		
Smoke	<ul style="list-style-type: none"> • Vehicle emissions • Fires 	<ul style="list-style-type: none"> • Health problems • Air pollution • Public nuisance • Noise pollution
Dust	<ul style="list-style-type: none"> • During construction • Vehicle operation on roads • Vegetation clearing 	
Fumes	<ul style="list-style-type: none"> • Fumes from vehicles • Fumes from machinery 	
Noise	<ul style="list-style-type: none"> • Construction machinery and vehicles • Presence of construction camp • Operation noise (music and people) 	
Environmental issues	Possible cause	Potential impacts
Water Quality		
Pollution of water sources	<ul style="list-style-type: none"> • Spillage of fuel & oil from vehicles • Spillage of building material e.g. cement etc • Migration of contaminants off the site • Solid waste in storm water • Littering 	<ul style="list-style-type: none"> • Pollution of surface and groundwater • Health risk • Lower water quality • Soil degradation • Erosion • Siltation
Silt deposition in surface water	<ul style="list-style-type: none"> • Erosion risk due to increased run-off from built up area • Erosion from cleared areas during construction 	
Pollution from sanitation system	<ul style="list-style-type: none"> • Leakages of system and incorrect management of sanitation system • Inadequate measures to prevent sewage spillages • Overflow of sewage to groundwater 	

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Environmental issues	Possible cause	Potential impacts
Water quantity		
Impact on amount of water resource available	<ul style="list-style-type: none"> • Over-utilisation of available water 	<ul style="list-style-type: none"> • Lose scarce resource • Increased pressure on ground water supply sources
Environmental Issues	Possible cause	Potential impacts
Land/Soil Degradation		
Soil contamination and degradation	<ul style="list-style-type: none"> • Spillages of oil, chemicals from machinery & vehicles • Removal of vegetation during clearing for construction • Sewerage spillages • Erosion due to increased runoff from built-up areas • Increased erosion of drainage channels • Site clearing during construction 	<ul style="list-style-type: none"> • Soil degradation • Loss of topsoil • Dust formation • Erosion
Environmental issues	Possible cause	Potential impacts
Biodiversity		
Decline in fauna and flora diversity	<ul style="list-style-type: none"> • Cleaning of site for construction • Pollution of soil • Pollution of water resources • Physical establishment of development • Loss of habitat due to establishment of development 	<ul style="list-style-type: none"> • Loss of biodiversity • Loss of habitat • Negative impact on biodiversity • Negative impact on rare /endangered/ endemic species and habitats
Environmental issues	Possible cause	Potential impacts

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Cultural/Heritage		
Possible loss of heritage sites	<ul style="list-style-type: none"> • Damage / loss during construction • Damage / loss during operation 	<ul style="list-style-type: none"> • Possible loss of cultural heritage
Environmental issues	Possible cause	Potential impacts
Visual impact		
Impact of the proposed development of sense of place.	<ul style="list-style-type: none"> • The physical existence of the development. 	<ul style="list-style-type: none"> • Negative impact on landscape quality character. • Negative impact on sense of place.
Visual impact	<ul style="list-style-type: none"> • Construction site and buildings • Lights at night • Presence of new development • Overhead power lines 	<ul style="list-style-type: none"> • Obstruction • Visual intrusion • Public nuisance
Environmental issues	Possible cause	Potential impacts
Health and Safety		
Security	<ul style="list-style-type: none"> • Influx of people to area including construction workers and others after completion 	<ul style="list-style-type: none"> • Loss of safe and secure environment • Threat to health • Danger to human life
Fires	<ul style="list-style-type: none"> • Accidental fires • Burning of waste • Cooking with fires 	
Environmental issues	Possible cause	Potential impacts
Socio-economic impacts		
Impact from change of land use from agriculture to township.	<ul style="list-style-type: none"> • Change of land use to residential, business, institutional, educational, public open spaces and streets 	<ul style="list-style-type: none"> • Impact negatively on agricultural production

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		<ul style="list-style-type: none"> • Land will no longer be used for agriculture
Impact of the residential and other development on adjacent landowners	<ul style="list-style-type: none"> • Noise from construction activities • Dust generated by construction vehicles and from site preparation • The visual impact of lights • The visual impact of residential and other units (business, educational etc.) 	<ul style="list-style-type: none"> • Nuisance and disruption • Noise pollution • Air pollution • Negative visual impact
Impacts related to the establishment of a construction camp with accommodation	<ul style="list-style-type: none"> • Location of construction camp. • Environmental impacts of construction activities e.g. spillage of hazardous liquids such as oil and fuel onto the soil surface. • Accommodation of construction teams on site • Littering, accidental fires, collecting of firewood and poaching. • Undesirable visitors to the area. 	<ul style="list-style-type: none"> • Adverse impact on the environment • Resentment from neighbouring residents
Impact ground and water pollution from littering and waste disposal during construction and operational phases	<ul style="list-style-type: none"> • The presence of a large work force and equipment and machinery during construction causing littering and dumping refuse and builder's rubble on site • Construction activities from heavy vehicles and machinery 	<ul style="list-style-type: none"> • Soil and water pollution
	<ul style="list-style-type: none"> • The construction of structures such as open trenches and earth heaps might also hold safety risks for people 	<ul style="list-style-type: none"> • Safety risks for motorists, passengers, pedestrians and residents of the area
	<ul style="list-style-type: none"> • A lack of proper ablution facilities for temporary workers during construction. 	<ul style="list-style-type: none"> • Soil and water pollution

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		<ul style="list-style-type: none"> • Unhygienic conditions • Health risk.
Impact from the provision of structures and infrastructure services	<ul style="list-style-type: none"> • The development, construction and provision of infrastructure services 	<ul style="list-style-type: none"> • Pollution from sanitation systems • Pollution of water resources • Negative visual impact of overhead power lines and electricity supply and waste removal • Soil erosion as a result of the construction of internal roads and water reticulation networks
Impact on archaeological /cultural / social features	<ul style="list-style-type: none"> • The development of structures and infrastructure services for residential and other sites • Clearing of construction sites • Construction of access roads • Excavation of trenches for the installation of underground pipelines and cables 	<ul style="list-style-type: none"> • Negative impact on cultural or heritage resources
Job creation Ownership	<ul style="list-style-type: none"> • Temporary jobs during construction phase • Permanent jobs during operation • New housing 	<ul style="list-style-type: none"> • Positive impact – job creation

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14. CONCLUSIONS

The purpose of this report is to provide MDARDLEA with sufficient information regarding the potential impacts of the development to make an informed decision regarding the approval of the proposed township establishment.

The proposed development has no fatal flows in terms of the biophysical and socio economic environment. In fact, it is believed that proposed development compliments the required and desired balance to be achieved between the socio-economic and environmental factors.

The Environmental Management Plan and all the mitigation measures provided in the specialist reports should be strictly adhered to, therefore mitigating impacts as far as possible. Should this site not be developed, it will remain as isolated and an unconnected area that will be vulnerable to crime and potential illegal informal occupation.

15. RECOMMENDATIONS

The EAP recommends that the “township establishment” option which has been identified as the preferred alternative is used. It is further recommended that this application be approved with the following conditions:

- All the requirements from the Thembisile Hani Local Municipality be adhered to including,
- The conditions of the Environmental Authorisation from the Competent Authority (MDARDLEA)
- The responsibilities to obtain any further authorisations and/or licenses will rest on the proponent of the project, **PRIOR** to any activities on site
- Communication or awareness must be undertaken to the project team to ensure maximum participation and compliance to the EMP
- All of the recommendations in the specialist reports that are included as a part of this application should be implemented & strictly adhered to in order to counteract adverse and cumulative impacts to the biophysical & social environments
- The EMP attached and the mitigation measures related to it must be adhered to at all times and the appointed ECO must ensure that the developer complies with the EMP.
- An ECO must be appointed to monitor compliance with the authorisation and develop compliance reports to be submitted to the Department during the construction phase.

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