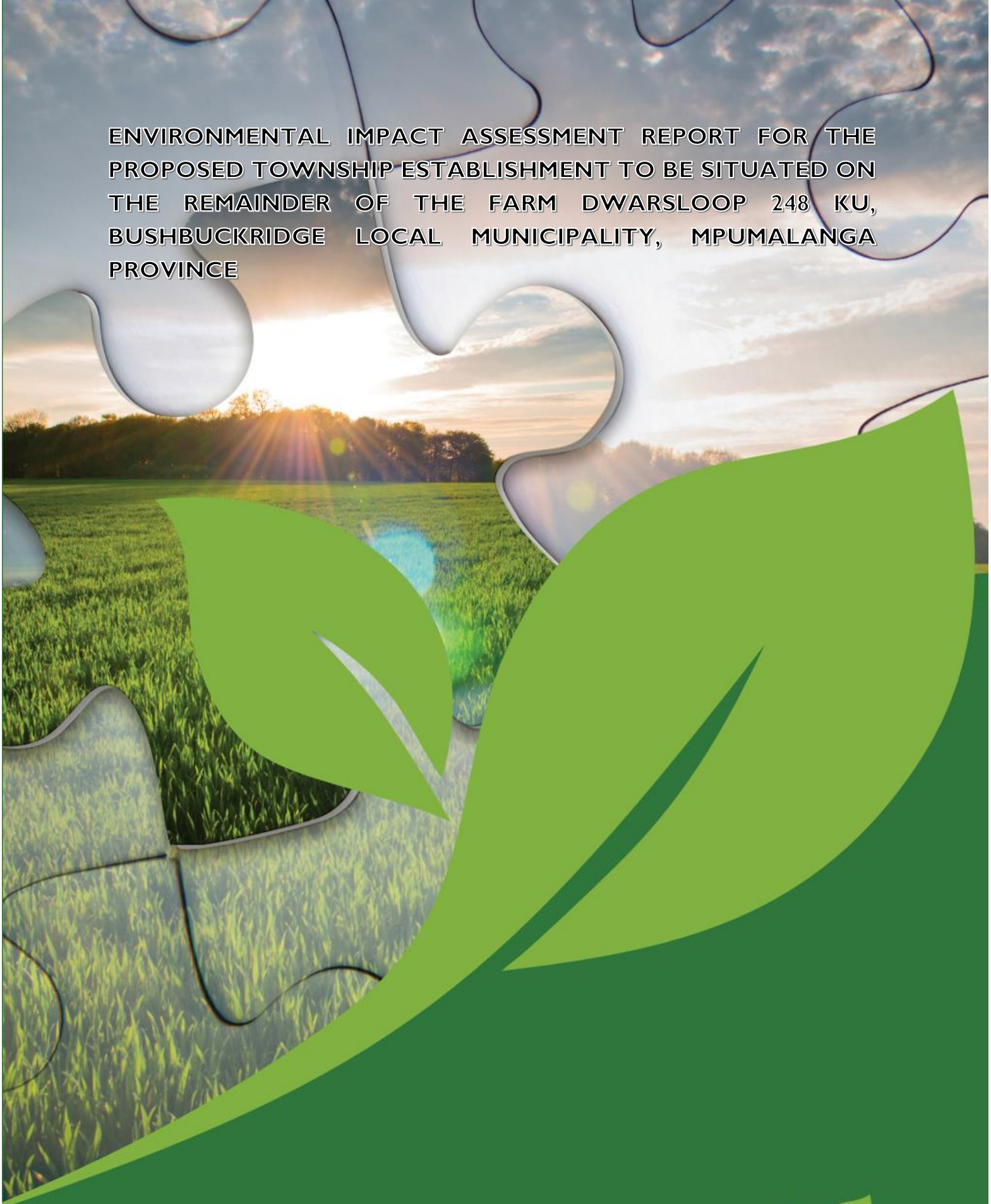
ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED TOWNSHIP ESTABLISHMENT TO BE SITUATED ON THE REMAINDER OF THE FARM DWARSLOOP 248 KU, BUSHBUCKRIDGE LOCAL MUNICIPALITY, MPUMALANGA PROVINCE



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DOCUMENT CONTROL RECORD

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DOCUMENT CONTROL	
Report Title	Environmental Impact Assessment Report for the proposed township establishment to be situated on the Remainder of the Farm Dwarsloop 248 KU, Bushbuckridge Local Municipality, Mpumalanga Province.
Document ID	Consultation/ Draft Environmental Impact Assessment Report
Client	Bushbuckridge Local Municipality
Date	July 2021
Approval	
Name	Mankaleme M. Magoro
Title	Environmental Assessment Practitioner
Signature	

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 Bushbuckridge 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 the Remainder of the Farm Dwarsloop KU. The project area is approximately 54.24 hectares in extent and it is expected to yield 533 stands.

The application for Environmental Authorisation was submitted on the 19th of February 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: **1/3/1/16/1E-309**.

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 31st of March 2021 together with the Plan of Study. MDARDLEA accepted the scoping report on 22nd April 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 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.

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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
BLM	Bushbuckridge Local 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;

(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
(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.

1. INTRODUCTION

1.1. 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.

1.2. 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.

1.3. 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.

2. DETAILS OF THE APPLICANT AND THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1. Details of the Applicant	
Project Applicant	Bushbuckridge Local Municipality
Physical Address	R533 Graskop Road, Opposite Mapulaneng Driving Licensing Testing Center Bushbuckridge, 1280
Contact Person	Mr. Lucas Seshabela
Telephone	013 004 0291
Cell Phone	078 258 7550
Email	lseshabela@yahoo.co.uk / lseshabela@bushbuckridge.gov.za

2.2. Details of the EAP	
Company Name	Leago Environmental Solutions
Physical Address	66 Graham Road, Lombardy Business Park, Block 5, Unit 79, 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.

3. DETAILS OF THE PROPOSED ACTIVITY

3.1. Location of the Proposed Activity

The proposed development/ activity is situated on the Remainder of the Farm Dwarsloop 248 KU within the Bushbuckridge Local Municipality and it is located approximately 11km north of the Bushbuckridge town along the R40 highway.

The site is located roughly at the following coordinates: 24°46'3.44"S; 31°5'19.353"E.

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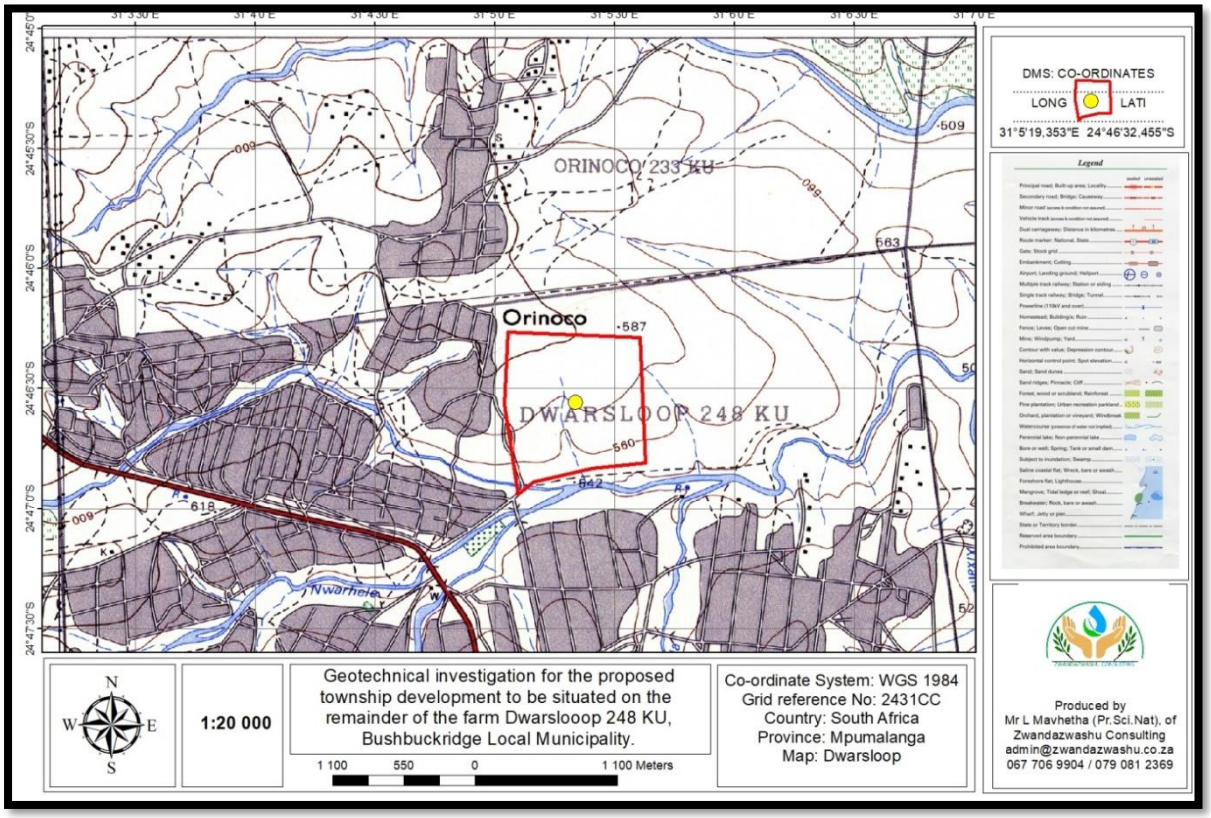


Figure 1: Locality map of the proposed development site.

3.2. Description of Proposed Activity

The proposed activity is a township establishment. The project area is approximately 54.24 hectares in extent, which is expected to yield 533 stands.

The proposed development entails 533 stands for:

- 517 Residential (dwelling units)
- 5 Business site (retail)
- 6 Institutional (crèche and church)

- 1 Educational (primary school)
- 4 Public Open Space

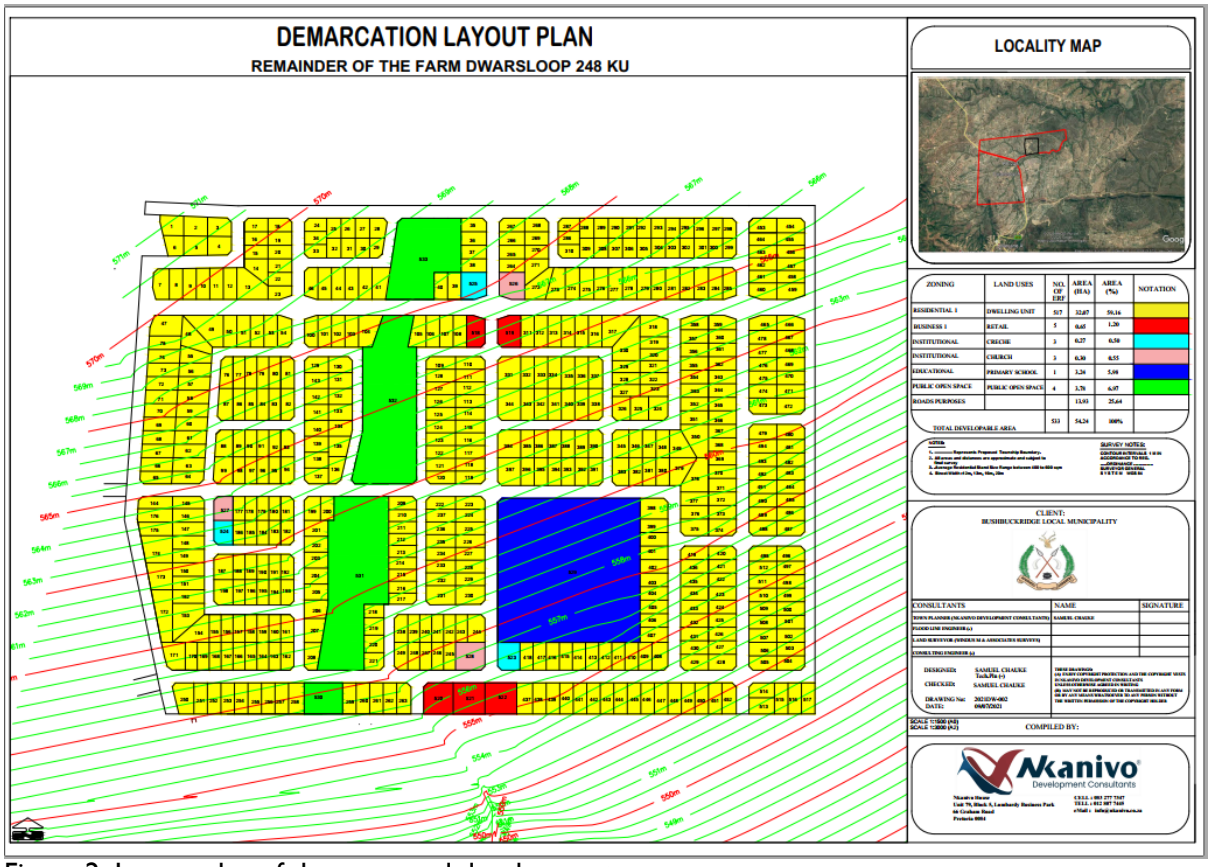


Figure 2: Layout plan of the proposed development

3.3. Current Land-Uses

The proposed development site is used for grazing of domestic animals and also for sand excavation/ mining.

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

4.1. Roads

The proposed development site can be accessed through the existing gravel internal streets within Dwarsloop C / Baromeng Villages.

4.2. Water

The Dwarsloop area water source is the Inyaka Dam Bulk Water Treatment Works (WTW), whose custodian is Bushbuckridge Water.

4.3. Sewer Services

A portion of Dwarsloop area is serviced by the Dwarsloop Waste Water Treatment Works (WWTW) and areas that are currently not serviced by the WWTW currently depend on septic tanks and pit toilets.

4.4. Solid Waste

A regional landfill situated closet to the site will be used to dispose the solid waste. The local municipality will be engaged for collecting and disposing the solid waste.

4.5. Electricity

There is a MV feeder network that supply the area that is Nwarele Orinoco 132/22kV and Substation name is Nwarele Substation.

5. NEED AND DESIRABILITY OF PROPOSED ACTIVITY

- The proposed development site is strategically located adjacent to the existing villages/ township of Orinoco.
- The proposed development will contribute towards improving the housing stock of the area and general livelihood of the residents.
- The proposed development will contribute towards improving the socio-economic status of the area
- The proposed development will aid in eliminating the informal settlements that are due to land invasions.

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

- 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.

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

6.1.1. Site Alternatives:

Site alternatives are not applicable for this project. The site was also selected so that mainly the disturbed land will be developed.

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 reduce 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 Dwarsloop 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, the current design 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 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)

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 000m^2 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 000m^2 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.

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 activity:

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 54.24 Ha.

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 local newspaper namely Hazy View Herald on the 24th February 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

Site notices were placed at various 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.

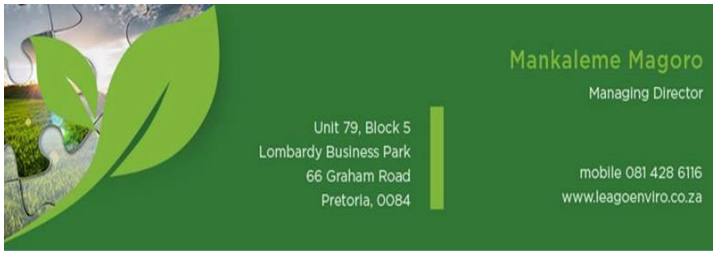
9.2.4. Consultation with Stakeholders

The scoping report was circulated to the stakeholders for observation and comments.

9.2.5. Comments Received

The draft/ consultation EIA report is currently being 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
Mpumalanga Tourism & Parks Agency	P. L Khoza	12/03/2021	Your correspondence of date 03/03/2021 has reference. **1.** Leago Environmental Solutions (Pty) Ltd on behalf of Bushbuckridge Local Municipality is proposing to establish a township of approximately 48.73 ha in extent and is expected to yield 518 stands. These stands are comprised of 504 residential units, 5 business, 3 institutional, 3 place of worship and 2 public open spaces. **2.** The sensitivity of the above farm of which the development will occur was assessed according to the Mpumalanga Biodiversity Sector Plan (MBSP; MTPA, 2014). This sensitivity is assessed in terms of the terrestrial and freshwater assessments. In the MBSP, sensitive areas are identified in terms of	Good day Phumla, I hope you are well. All the comments have been noted and will be adequately addressed. Hope you find this in order. Regards, 

			Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). CBAs and ESAs are deemed to be necessary to ensure protection of biodiversity, environmental sustainability, and human well-being and are to remain unaltered. • According to the terrestrial assessment, the development is proposed to occur within other natural areas, and moderately to heavily modified areas. • According to the freshwater assessment, the proposed development will occur within other natural areas. **3. Recommendations** • The MTPA agrees to the proposed ecological/ biodiversity studies that will be undertaken as part of the EIA process for the site-specific baseline information to be established for the potential impact on the development. • The report should address the following: flora and fauna- conservation important species that need to be avoided or rescue	

			permit to be obtained from the Mpumalanga Tourism and Parks Agency (MTPA) or other relevant authorities (if any) are identified and protected accordingly. Relocation of plants of conservation concern should be included and relocation should be done by specialist with expertise in the area of environmental concern. • All the negative environmental impacts that could arise as a result of this development should be avoided, minimised, mitigated or rehabilitated. • The MTPA is looking forward to receiving and reviewing the draft EIA report once it is available.	
Malele Traditional Council	Mokgadi Chiloane	18/03/2021	OBJECTION: APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT 1998 (ACT 107 OF 1998) ON A PROPOSED	Good Morning Mokgadi, I hope you are well. With regards to the objection lodged on the EIA application that was submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA), please note that the Bushbuckridge

			PORTION OF THE REMAINDER OF THE FARM DWARSLOOP 248 KU. The Malele Tribal Authority under Kgoshi S.E Malele would like to formally lodge an objection and to register as an I&AP on the proposed application for environmental authorisation as per the notice dated 19 February 2021 on the remainder of the farm 248 KU for the proposed development of a standard township with 504 residential 1 (dwelling unit), 5 business 1 (rental), 3 institutional (crèche), 3 places of worship (church), 2 public open spaces and educational (primary school) The reason for objection: The proposed development in question is under the Authority of the Malele Tribal Authority, which has not been consulted.	Local Municipality will arrange with the Malele Traditional Council to rectify the matter. Hope you find this in order. Regards, 

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 flat.

10.2.2. Climate

Dwarsloop can be characterised as semiarid climate which receive approximately 353mm precipitation annually. The average highest temperatures in Dwarsloop, Mpumalanga are 29°C in January and 22°C is the lowest which occurs in the month of July.

10.2.3. Geology of the Area

According to literatures and geological maps of the site, it can be confirmed that the site geology is canning moor tonalite.

10.2.4. Hydrology

According to the geotechnical investigation assessment report, no groundwater seepage was encountered in any of the trial pits excavated as part of the investigation.

10.2.5. Vegetation of Area

The study area is a degraded Shrubland as a result of the removal of the tree component of vegetation structure in the historic past as well as the total removal of vegetation where sand is mined.

10.2.6. Fauna/ Animals

According to the Ecological Study report, only very mobile fauna such as birds, reptiles and small mammals will be able to move around habitats without difficulty and danger.

10.2.7. Historical, Archaeological or Cultural Sites

During the survey of the Heritage Impact Assessment, Stone Age artefacts and a cemetery were recorded on the proposed development site.

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. In order to attain scientifically reliable results, obviously distinct vegetation communities were surveyed by selecting representative sites in each homogenous unit. The vegetation units of Mucina & Rutherford (2006) are used as reference but where necessary communities are named according to a unit's diagnostic floral feature and/or topographical setting or other biophysical features (or a combination of several descriptive features).

By combining the available literature with the survey results, stratification of vegetation communities was possible. 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. The site area can be described as degraded shrubland as result of the removal of the tree component of the vegetation structure in the historic past as well as the total removal of vegetation where sand is mined. This was done for energy and construction purposes by the local population. As result of this the reference state of woodland habitat has been degraded to shrubland with small pioneer and secondary growth trees and individual large trees that have survived from the natural state.

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 site was investigated to record fauna that is actually present as well as field signs of fauna present. The natural habitat is degraded and modified, with a loss of several important ecological components. The larger surrounding area has been transformed to informal settlements and agriculture lands and residential settlements, resulting in a loss of habitat and biota. Only very mobile fauna such as birds, reptiles and small mammals will be able to move around between habitats without difficulty and danger. Amphibians will be resident in the streams and wetlands.

The main watercourse in this sub catchment is the Ndlebesuthu River which is situated directly south of the site, flow in this river is intermittent / seasonal. The river has a sandy bed and banks and sand bars are present within the channel. Phragmites australis reed beds are present on the marginal and in-stream zones. A grass (Sporobolus africanus dominated) covered floodplain is present on the northern bank and forms part of the riparian zone. Most of the obligate riparian vegetation and large trees has been lost and only solitary trees or small clumps of trees remain, species present are Schotia brachypetala, Albizia versicolor, Ficus sur, Diospyros mespiliformis and Sclerocarya caffra.

Conclusions and Recommendations

This investigation identified no sensitive ecological features or biota on site that will be affected by the proposed activity. From the perspective of the ecological report, the site can be considered for the proposed activity. The loss and degradation of habitat has already occurred historically on site and in the general area and it is not likely that the current trend of encroaching settlements and transformation of land can be stopped or reversed. It is advised that the activities in the drainage line is rehabilitated / formalized. The riparian zone and floodplain of the river (that encroaches on to the proposed site) must be protected by a 40m aquatic buffer zone. A 20m aquatic buffer is calculated for the drainage line on site. The local municipality should monitor the area in order to address the seemingly uncontrolled, illegal sand mining activities in watercourses and elsewhere.

11.2. Heritage Impact Assessment

Details of the Specialist:

Heritage Contracts and Archaeological Consulting CC (HCAC)

Private Bag X1049, Suite 34,

Modimolle
0510

Cell: 082 373 8491
Email: jaco@heritageconsultants.co.za

Contact Person: Jaco van der Walt
Area of Expertise: Heritage and Archaeological Specialist

Findings

Stone Age artefacts and a large cemetery were recorded. General site conditions and features on sites were recorded by means of photographs, GPS locations and site descriptions.

Parts of the study area is characterised by high vegetation cover after the recent rains, limiting archaeological visibility. Extensive sand mining resulted in areas of high erosion and in these areas low density scatters of mainly Middle Stone Age (MSA) and possibly isolated occurrences of Later Stone Age (LSA) artefacts were recorded at multiple locations. The artefacts show signs of weathering possibly due to secondary positioning by water. This low-density occurrence of artefacts is referred to as background scatter (Orton 2016) and are generally of low significance.

A large cemetery was identified within the study area and the cemetery contains more than 120 graves of varying designs, mostly dating between 2003 and present. Some of the graves are hidden among the overgrowth around the cemetery which indicated that the cemetery is larger than what is perceived by casual observation.

Due to the low significance of the MSA scatter impacts on these features are low and no mitigation is required for this aspect. The recorded cemetery is of high social significance and impacts on graves can include destruction and disturbance during construction. Without mitigation this would be a high impact. With the implementation of mitigation measures, impacts can be mitigated to an acceptable level.

Recommendations

The following recommendations for Environmental Authorisation apply and the project may only proceed based on approval from SAHRA:

- It is recommended that all identified graves and cemeteries should be retained *in situ* with a 30m around the identified features.

- The possibility of more graves in the study area cannot be excluded and it recommended that this should be confirmed by social consultation prior to construction as well as walk down of the area prior to vegetation clearing by EO.
- Implementation of a chance find procedure for the project

11.3. Engineering Services (Bulk Infrastructures)

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

Water Services

- The Dwarsloop area water source is the Inyaka Dam Bulk Water Treatment Works (WTW), whose custodian is Bushbuckridge Water. The Inyaka Dam is located at GPS coordinates 24°53'9.31"S 31° 5'4.37"E, some 20km north to the Dwarsloop site along the R40 highway. Water is conveyed from the Inyaka Bulk WTW to the existing Dwarsloop command reservoir. The water meter records could not be obtained for further analysis.
- The Dwarsloop reservoirs receive water from the Inyaka WTW bulk line that passes through the village. Dwarsloop area is then supplied water from the reservoirs. The exact capacities of the reservoirs could not be determined but are estimated to have a capacity of 5Mℓ. There is an existing 600mm diameter water bulk line passing through the village, along the R40 highway, and linked to the reservoirs in Dwarsloop.

Sewer Services

- A portion of Dwarsloop area is serviced is serviced by the Dwarsloop Wastewater Treatment Works (WWTW). The design capacity of the wastewater plant is 1.65 Mℓ /day. The actual sewer flow at the works is yet to be established.
- The areas that are not serviced the WWTW currently depends on septic tanks and pit toilets.
- The new development will have a sewer ADWF of 299.7kℓ/d and a gross sewer flow of 344.6kℓ/d. Sewer reticulation must be constructed to service the township on the premise that the following must be in-place:

- The municipality is amenable to connecting the proposed township to the Dwarsloop WWTW to handle the sewer for the township. Or;
- A WWTW package plant to handle the proposed township sewer flows.

A new WWTW will require a water use licence from the Department of Water and Sanitation (DWS).

Solid Waste

A regional landfill situated nearest the site is to be used to dispose solid waste. The local municipality is responsible for connecting and disposing the solid waste. A refuse area with bins will be done onsite and solid waste will be disposed of at the municipal dump site as per the municipal health bylaws.

Recommendations

- If the conditions for the sewer services are not met, then sewer flow may have to be handled onsite, through Enviro Loo toilets.
- If the municipality is not able provide services, then a private company will need to be appointed by the development owners for the service.
- An application to connect the township to the internal streets, has to be approved by road authorities prior to construction.
- It is proposed that additional water sources would be needed to augment the existing water source through boreholes field with a yield of at least 4.5ℓ/s.
- Water reticulation must then be constructed to service the township

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

In terms of section 114 of the National Water Act, Act 36 of 1998 the above-mentioned property is affected by flood water within the 1:100 period from the stream / river as indicated in the floodline report. Development must be done outside of the floodline.

Recommendations

The floodline report recommends 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
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. The storm water attenuation ponds should be located along the lower end of the site, but outside the mainstream area to encourage the infiltration of storm water, whilst silt is collected. The outlet or discharge from the attenuation pond will

be protected with gabion mattresses and other energy dissipaters from where it will be released into the natural drainage areas and stream in a controlled manner.

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.
- 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 runoff, especially until the storm water attenuation pond is complete and functional.
    - ❖ Silt screens must be provided at the catchpits during road/storm water construction.
    - ❖ Topsoil must be conserved on site and prevented from entering the storm water 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:

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 area is situated within the electricity licensed area and supply by Eskom. The Developer will erect the MV and LV overhead line reticulation systems in accordance with Eskom's Electrification Standards (Wood Structures). The internal MV distribution systems shall comprise of "Mink "aluminium conductor steel reinforced configuration on 12m,11m or 9m wooden poles and shall be built to 11kV specifications
- The proposed development township consists of 533 stands and all the stands are not yet electrified.
- MV feeder network that supply the area is Nwarele Orinonco 132/22kV and Substation name is Nwarele Substation.
- The majority of customers are expected to purchase a 20 Amp supply.

Recommendations

- Transformers shall be of the pole mounted type suitably rated to serve anticipated individual LV distributor loads and shall be of the SABS 780 type. All materials supplied by the Developer shall conform to Eskom's Buyer's Guide
- The low voltage feeders shall be three phase 4 core aerial bundle conductor with bare neutral and shall be 70 and 35mm². The LV network is to be constructed in mid-block layout on 7m wood poles. The feeders shall be fused at the transformer pole**.** All LV structures shall be constructed in accordance with Eskom Low Voltage Distribution Standard and specifications.
- Service connections are to be made with a 10mm² concentric cables from a 4-way and 8- way distribution pole top boxes. The service connection shall be a concentric cable in accordance

with SCSSCAAC7. For a 60A supply a 10mm² concentric cables shall be used. The concentric cable used on all new services shall be installed without joints from the pole-top distribution box into the standard passive unit base, which is mounted in the customer's premises.

- It is recommended that the development can be connected according to Eskom Distribution Standard.

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

- The area investigated is underlain by top soils of sand, including residual soils derived from the in-situ weathering of granitic tonalite bedrock.
- The excavation on site is likely to classify as "soft" to an average depth of 1m below existing ground level
- The site under investigation falls under the cunning moor tonalite of the archaean granitic basement which is situated adjacent to the Mpuluzi Granite and Barberton greenstone belt.
- A review of the test pit data indicates that the site is generally underlained by granitic tonalite bedrocks.
- The laboratory tests indicated that material underlying the site exhibits low potential expansiveness.

Recommendations

- It is recommended that all foundations be inspected by a competent person prior to placing any concrete and regular checks on the quality and compaction of the backfill to the terraces should be made.
- The recommended foundation type is a reinforced strip foundation founded on a G6/G7 engineered soil mattress. Reinforcement should be designed by a competent person.

- Foundation trenches for 500mm wide strip footing to be over-excavated to 1.0m wide by 1.6m deep below existing ground level.
- Excavation to be backfill with G6 quality material to a depth of 0.6m existing ground
- level;
- 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

11.8. Traffic Impact Assessment

Details of the Specialist:

Nyeleti Consulting (Pty) Ltd

P O Box 35158

Menlopark

0102

Tel: (012) 361 3629
Email: trikhotso@nyeleti.co.za

Contact Person: Nyeleti Rikhotso
Area of expertise: Engineer

Findings

- Current traffic volumes were determined by means of 12-hour traffic counts. Traffic was counted from 06:00 to 18:00 on Thursday the 12 of November October 2020.
- The morning peak is between 06:45 to 07:45 and the afternoon peak is between 15:45 to 16:45 at the respective intersection.
- The modal split on R40 and Unknown Access Road (Intersection 1) is made up of Light Vehicles (LV) at about 78.4% followed by Taxis at about 13.5%, Buses at 0.2% and Heavy Vehicles (HV) at about 7.9%.
- The existing Intersection at R40 and Unknown Access Road (Intersection 1) operates at average delays of 0.4 seconds and 0.6 seconds for the morning and afternoon peaks respectively.

- The proposed development will generate 299 trips in the morning peak and 260 trips in the afternoon peak.
- It was assumed that traffic growth will be proportional to GDP growth, therefore an annual traffic growth rate of 1.7% for design traffic was assumed.
- Design and Planning Horizon analysis was undertaken for the existing R40 and Unknown Access Road (Intersection 1) intersection.
- The Design Horizon traffic volumes for the R40 and Unknown Access Road (Intersection 1) intersection will operate at acceptable Level of service for both morning and afternoon peaks.
- The average delay for all vehicles is 5.7 seconds and 3.6 seconds for the morning and afternoon peaks at design horizon traffic volumes at the existing R40 and Unknown Access Road (Intersection 1) intersection.
- The average delay for all vehicles is 62.2 seconds and 6.3 seconds for the morning and afternoon peaks at planning horizon traffic volumes at the existing R40 and Unknown Access Road (Intersection 1) intersection.
- NMT and universal access facilities be incorporated in the design and construction of the proposed township establishment development and the roads adjacent to the development
- The access to the development must be designed and constructed such that it meets the Bushbuckridge local municipality requirements by a Professional Engineer or Engineering Technologist.

Recommendations.

- The proposed development should be considered favourably from a traffic engineering point of view by the relevant authorities, given the proposed road upgrades in this report.
- NMT and universal access facilities be incorporated in the development especially on the roads / access that will be used by Public Transport and where the social facilities will be located.
- Detailed designs for the development access 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.

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
High	Beyond ten years

EXTENT	
Low	Project area
Low-medium	Surrounding area
Medium	Within Bushbuckridge Local Municipality
Medium-high	Within Ehlanzeni 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

13. KEY ENVIRONMENTAL IMPACTS

Table 7: The following possible environmental impacts were identified

Environmental issues	Possible cause	Potential impacts
Air Pollution and noise		
Smoke	- Vehicle emissions. - Fires.	- Health problems. - Air pollution. - Public nuisance. - Noise pollution.
Dust	- During construction. - Vehicle operation on roads. - Vegetation clearing.	
Fumes	- Fumes from vehicles. - Fumes from machinery.	
Noise	- 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	- 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.	- Pollution of surface and groundwater. - Health risk. - Lower water quality. - Soil degradation. - Erosion. - Siltation.
Silt deposition in surface water	- Erosion risk due to increased run-off from built up area. - Erosion from cleared areas during construction.	
Pollution from sanitation system	- Leakages of system and incorrect management of sanitation system. - Inadequate measures to prevent sewage spillages. - Overflow of sewage to groundwater.	
Environmental issues	**Possible cause**	**Potential impacts**
Water quantity		
Impact on amount of water resources Available	Over-utilisation of available water.	- Lose scarce resource - Increased pressure on ground water supply sources.
Environmental issues	**Possible cause**	**Potential impacts**
Land/Soil degradation		
Soil contamination and degradation	- 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.	- Soil degradation - Loss of topsoil - Dust formation - Erosion

	- Increased erosion of drainage channels. -Site clearing during construction.	
Environmental issues	**Possible cause**	**Potential impacts**
Biodiversity		
Decline in fauna and flora diversity	- Cleaning of site for construction. - Pollution of soil. - Pollution of water resources. - Physical establishment of development. - Loss of habitat due to establishment of development.	- 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**
Cultural/Heritage		
Possible loss of heritage sites	- Damage / loss during construction. - Damage / loss during operation.	- Possible loss of cultural heritage.
Environmental issues	**Possible cause**	**Potential impacts**
Visual impact		
Impact of the proposed development of sense of place.	- The physical existence of the development.	- Negative impact on landscape quality character. - Negative impact on sense of place.
Visual impact	- Construction site and buildings. - Lights at night. - Presence of new development. - Overhead power lines.	- Obstruction. - Visual intrusion. - Public nuisance.

Environmental issues	Possible cause	Potential impacts
Health and Safety		
Security	- Influx of people to area including construction workers and others after completion.	- Loss of safe and secure environment.
Fires	- Accidental fires. - Burning of waste. - Cooking with fires.	- Threat to health. - Danger to human life.
Environmental issues	**Possible cause**	**Potential impacts**
Socio-economic impacts		
Impact from change of land use from agriculture to township.	- Change of land use to residential, business, institutional, educational, public open spaces and streets.	- Impact negatively on agricultural production. - Land will no longer be used for agriculture.
Impact of the residential and other development on adjacent landowners	- 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, institutional etc.)	- Nuisance and disruption. - Noise pollution. - Air pollution. - Negative visual impact.
Impacts related to the establishment of a construction camp with accommodation	- 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.	Adverse impact on the environment. - Resentment from neighbouring residents.
Impact ground and water pollution	- The presence of a large work force and equipment and machinery during construction causing littering and dumping refuge and builder's rubble on site.	- Soil and water pollution

from littering and waste disposal during construction and operational phases	-Construction activities from heavy vehicles and machinery.	
	- The construction of structures such as open trenches and earth heaps might also hold safety risks for people.	- Safety risks for motorists, passengers, pedestrians and residents of the area
	- A lack of proper ablution facilities for temporary workers during construction.	- Soil and water pollution - Unhygienic conditions - Health risk.
Impact from the provision of structures and infrastructure services	- The development, construction and provision of infrastructure services.	- 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	- 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.	- Negative impact on cultural or heritage resources.
Job creation Ownership	- Temporary jobs during construction phase. - Permanent jobs during operation. - New housing.	- Positive impact – job Creation.

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 Bushbuckridge 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 EMPr
- 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 authorization and develop compliance reports to be submitted to the Department during the construction phase