

**ESTABLISHMENT OF NEW
CULTIVATED FIELDS ON
REMAINING EXTENT OF PORTION
3 (ONVERWAG) OF THE FARM
ELANDS DRIFT 159, WINDSORTON**

**JUNE 2023
DRAFT ENVIRONMENTAL IMPACT
REPORT**

Ref Nr: NC/EIA/03/FB/DIK/WIN1/2023



Details of Role Players

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EXECUTIVE SUMMARY

INTRODUCTION

Riverton Resources (Pty) Ltd. (hereunder referred to as Riverton Resources) has appointed BioBlue Environmental Sustainability (Pty) Ltd (hereunder referred to as BioBlue) as an independent Environmental Assessment Practitioner (EAP) to undertake the required Scoping and Environmental Impact Assessment (S&EIA) in terms of the National Environmental Management Act 1998 (Act No. 107 Of 1998) EIA Regulation 2014 as amended; for the proposed clearance of indigenous vegetation on the Remaining Extent of Portion 3 (Onverwag) of the Farm Elands Drift 159, near Windsorton, Dikgatlong Local Municipality in the Northern Cape Province. The purpose of vegetation clearance of the site is to establish new cultivated fields and expand their existing farming operations.

SITE LOCATION

The proposed project area is situated approximately 8.5km south of the town of Windsorton in the Northern Cape Province. Access can be gained by driving on the R374 road from Windsorton to Barkly West and turning left on an unnamed road, driving past Holpan cemetery.

BRIEF PROJECT DESCRIPTION

The applicant proposes to establish up to 180 ha of new cultivated fields by clearing natural vegetation within the boundaries of the farm that is approximately 480ha in extent. The total hectares established, and final layout will depend on the outcome of the various specialist studies to be conducted. The adjacent land-uses are agricultural in nature with mining activities also forming part of the areas near Windsorton and some historic mining activities on the farm portion.

LEGISLATIVE REQUIREMENTS

In terms of the EIA Regulations of 2014 and activities listed in Listing Notice 2, the following listed activities are deemed applicable to the proposed development based on the information provided by the project proponent, the consultants, and specialists.

Listing Notice No.	Activity No.	Activity Description
2 (GN R 325 2017)	15	The project requires that an area of 180 hectares of indigenous vegetation be

		cleared for cultivation purposes.
3 (GN R 324 2017)	12 (g) Northern Cape	The Clearance of an area if 300 square meters or more

ALTERNATIVES

The word “alternatives”, as described in Chapter 1, Regulation 1, Sub-regulation (1) of the EIA Regulations of 2014 (GN No. R. 326), in relation to a proposed activity, means different ways of meeting the general purpose and requirements of the activity which may include alternatives to the Property on which or location where the activity is proposed to be undertaken;

- Type of activity to be undertaken;
- Design or layout of the activity;
- Technology to be used in the activity; or
- Operational aspects of the activity; and
- Includes the option of not implementing the activity.

Alternative site layouts of the proposed cultivated fields will be investigated during the Environmental Impact Assessment process. No other alternatives, such as technology, will be investigated at this stage as the project only entails the establishment of new cultivated fields.

PUBLIC PARTICIPATION

Scoping Phase

The proposed project and S&EIR have been widely announced with and invitation extended to the public to register as I&APs and to actively participate in the Public Participation Process. The following PP was conducted:

- Print media advertisements that were placed in the Noordkaap Bulletin on the 8th of September 2022.
- Identified key stakeholders were contacted telephonically or by email and informed of the proposed clearance and the S&EIR process.
- Site notices indicating where the proposed project site is located was placed around the site.

No comments were received from I&APs on the DSR.

Environmental Impact Reporting Phase

All registered I&APs will be notified of the start of the Environmental Impact Reporting Phase and the availability of the Draft EIR for a period of 30 days (23rd of June 2023 to the 25th of July 2023). An advertisement was placed in the Noordkaap Bulletin and personal letters will be sent via email to all registered I&APs.

Hard copies of the BIDs and draft EIR will also be placed at the Windsorton police station located within the town of Windsorton. The identified I&APs on the prepopulated stakeholder database will be sent an email with a link (dropbox or fileshare) to the report.

The Report will be made available on our website.

SPECIALIST ASSESSMENTS

As the project entails the proposed clearance of natural vegetation, the following specialist studies were conducted as part of the Environmental Impact Assessment Process:

- Terrestrial Biodiversity Assessment (Fauna and Flora)
- Wetland Screening
- Heritage Impact Assessment
- Aquatic Impact Assessment

IMPACT STATEMENT

The proposed project entails the clearance of natural vegetation and thus, the main impacts on the site and surrounding environment will be the fragmentation of the natural vegetation and intact habitat. Most of the impacts will be experienced during the construction or establishment phase as removal of natural vegetation and altering the landscape to allow for crop production is the main aim of the project.

Possible impacts can also be experienced during the operational phase of the project; however, these impacts can easily be mitigated by implementing the proposed mitigation measures such as implementing a monitoring and eradication plan for alien and invasive species.

The proposed project is situated within an area that is characterised by agricultural activities with natural areas adjacent to it. The largest extent of the proposed clearance area is characterised by Kimberley Thornveld vegetation that is not considered threatened.

However, much of the vegetation on site was in a good ecological condition, and due to its size and limited disturbances, rates high in its functional integrity and medium SEI.

The main impacts from the proposed clearance of vegetation and establishment of new cultivated fields are the following:

- Fragmentation of natural vegetation and intact habitats
- Impact on ecological process such as fires that will be suppressed around the cultivated fields which could lead to bush densification.
- Impact on and loss of terrestrial fauna habitat.
- Alteration of the faunal community through altered food production.
- Preventing faunal dispersal through impairing the ecological corridor is considered moderately significant.
- Contamination of soil and downstream water resources.
- Increased dust generation.
- Impacts on cultural significant sites.

Impacts can also be experienced during the operational phase such as proliferation and spread of alien and invasive species into adjacent natural areas, pollution of soil and water resources and deterioration of intact natural habitats. These impacts and the possible impacts during the establishment phase can be mitigated by implementing the proposed mitigation measures such as the following:

- Keep the graves found at Point F (Refer to Heritage Impact Assessment) fenced and protected.
- If any cultural artifacts or graves are found during site clearance or operational activities, then the activities must be ceased in that area and the ECO informed.
- Implementation of a continuous eradication plan for alien and invasive species around the site and natural areas.
- Rehabilitation and monitoring of certain sections of the ESA.
- Clear demarcation of the proposed / authorised clearance footprints and conservation of the adjacent natural areas, buffer zones and the northern corridor (100 to 200m wide).
- Continuous service and maintenance of tractors and equipment on site. Establishing dedicated re-fuelling and service areas.
- The establishment of vegetative filter strips around existing cultivated fields and new proposed clearance areas.
- All natural areas that will not be developed for agricultural activities will be retained as no-go areas.

- Conduct quarterly water quality monitoring.

CONCLUSION AND RECOMMENDATIONS

The process within this EIR demonstrated through the description of activity and the assessment of impacts that the proposed development does not have any fatal flaws. The impacts on the natural vegetation will be permanent on the proposed footprint areas but will be limited to these areas with the implementation of the mitigation measures as recommended within this report as well as the specialist reports.

The Impact Assessment has also identified essential mitigation measures that will mitigate all other impacts associated with the activity to within acceptable levels. The layout plan incorporates the advice of specialists to minimize the impact on the environment.

The EAP is of the opinion that the development should be granted Environmental Authorization based on the assessment above as the negative impacts can be mitigated to a satisfactory level. The following mitigation measures must be included in the Environmental Authorization:

- An Environmental Control Officer must be appointed prior to the commencement of construction
- The authorized area to be cleared must be clearly demarcated
- All reports, including monitoring reports must always be available on site.
- A complaints register must be drafted and kept up to date, with responses on any complaints recorded with each complaint.
- The applicant, site manager, staff and any contractor must adhere to all mitigation measures in the EMP. The EMP is a legally binding document to all parties involved in the construction of the activity.
- An Alien and Invasive monitoring and eradication programme must be compiled and implemented throughout the construction and operational phases.
- No trees and other cleared material may be dumped within the adjacent natural areas.
- Vehicles and Equipment have to be maintained throughout the operations and drip trays and spill kits need to be available on site.
- Drainage line and riparian areas must be demarcated and clearly marked as a no go areas and the Northern corridor must be kept intact.

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GLOSSARY OF TERMS

- "Activity" means an activity identified in Government Notice Number R718 of 2009, and GNR. 324, R. 325, and R. 327, of 2017 as a listed activity.
- "Alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to property, activity, design or technology.
- "Applicant" means a person who has submitted or intends to submit an application. "Application" means an application for Environmental Authorization in terms of the EIA regulations, 2014 (as amended).
- "Associated Infrastructure," means any building or infrastructure that is necessary for the functioning of a facility or activity or that is used for an ancillary service or use from the facility.
- "Biodiversity" The variety of life occurring in an area, including the number of different species, the genetic wealth within each species, and the natural habitat where they are found.
- "Borehole" Includes a well, excavation or any artificially constructed or improved underground cavity that can be used for the purpose of: • intercepting, collecting or storing water in or removing water from an aquifer; • observing and collecting data and information on water in an aquifer; or • re-charging an aquifer.
- "Cultural significance" This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.
- "Cumulative impact" in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
- "Environmental Impact Assessment" in relation to an application to which scoping must be applied, means the process of collecting, organizing, analysing, interpreting and communicating information that is relevant to the consideration of that application.
- "Environment" The environment has been defined as "The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group". These circumstances include biophysical, social, economic, historical, cultural and political aspects.
- "Environmental Assessment Practitioner" Person or company, independent of the applicant (developer), that manages the environmental assessment process of a proposed project on behalf of the applicant.

- "Environmental Impact Report" In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.
- "Environmental Management Programme" means a programme presenting management and mitigation measures in relation to identified or specified activities envisaged in Chapter 5 of the National Environmental Management Act and described in regulation 34.
- "Heritage resources" This means any place or object of cultural significance. It also includes archaeological resources. Scoping Report Page 8 of 45
- "Interested and Affected Party" means an interested and affected party contemplated in section 24(4) (d) of the Act, and which in terms of that section includes - (a) Any person, group of persons or organization interested in or affected by an activity; and (b) Any organ of state that may have jurisdiction over any aspect of the activity.
- "Public Participation Process" means a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters;
- "Registered Interested and Affected Party", in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42.
- "Species of Conservation Concern" All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.
- "Significant impact" means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
- "The Act" means the National Environmental Management: Waste Act, 1998 (Act No.59 of 2008).

DECLARATION OF INDEPENDENCE

The independent Practitioner

I, **Zander Liebenberg** declare that I –

- act as the independent Environmental Practitioner for the Environmental Impact Report;
- this report covers the Environmental Impact Assessment aspects only and no other scope of work was requested for this study and the information should be interpreted with caution;
- do not have and will not have financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
- have no and will have any vested interest in the proposed activity proceeding;
- undertake to disclose, to the competent authority any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2010;
- BioBlue accepts no responsibility for the accuracy of any third-party data used in the production of this report.



Signature of Author and Reviewer – Zander Liebenberg Pri.Sci. Nat (Reg.No. 117291) EAPASA
Registered EAP

Date – 2023/06/10

1 ENVIRONMENTAL IMPACT ASSESSMENT REPORT REQUIREMENTS

The EIA Regulations of 2014 as amended in (GN No. R. 326) stipulate how an S&EIR is undertaken; therefore, the Scoping Report has been drafted in accordance with **Appendix 3 (3)** of the EIA Regulations of 2014 as amended (GN No. R. 326). Below provides a document map indicating section of the report where all required information has been provided and address as per the Appendix 2 of the Regulations.

Table 1: Document Map

APPENDIX 3 REQUIREMENTS	SECTION IN REPORT
a) details of— i. the EAP who prepared the report; and ii. the expertise of the EAP, including a curriculum vitae.	Page ii and Section 3.2, Appendix F for Declaration and Curriculum Vitae
b) the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including— i. the 21 digit Surveyor General code of each cadastral land parcel; ii. where available, the physical address and farm name; iii. where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 2.1
c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is— i. (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or ii. on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 2.1 and 2.2 for description and coordinates, Appendix A for A3 plans.
d) a description of the scope of the proposed activity, including— i. all listed and specified activities triggered; ii. a description of the activities to be undertaken, including associated structures and infrastructure;	Section 2.2 for project description and 2.3 for the layout, Appendix A Layouts, Section 4.1-4.2 for listed activities.
e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 4.1 – 4.3
f) a motivation for the need and desirability for the proposed development including the need and desirability of the	Section 2.4

APPENDIX 3 REQUIREMENTS	SECTION IN REPORT
activity in the context of the preferred location;	
g) a motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report	Section 2.3
h) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including— i. details of all the alternatives considered; ii. details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; iii. a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; iv. the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; v. the impacts and risks identified 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 footprints for the activity were investigated, the motivation for not considering such; and x. a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report;	Section 5 (Alternatives) Section 7 and Appendix E (Public Consultation. Section 8 (Baseline Environment) Section 11 (Impact Assessment) Section 13 (Impact Statement) Section 14 (Conclusion and Recommendations)
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 development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including— i. a description of all environmental issues and risks that were identified during the environmental impact	Section 9 (Specialist Assessments), Section 10 (Summary of Findings and Recommendations of the Specialist

APPENDIX 3 REQUIREMENTS	SECTION IN REPORT
- 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;	reports) Section 11 (Impact Assessment)
j) an assessment of each identified potentially significant impact and risk, including— i. cumulative impacts; ii. the nature, significance and consequences of the impact and risk; iii. the extent and duration of the impact and risk; iv. the probability of the impact and risk occurring; v. the degree to which the impact and risk can be reversed; vi. the degree to which the impact and risk may cause irreplaceable loss of resources; and vii. the degree to which the impact and risk can be mitigated;	Section 11 (Impact Assessment)
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;	Section 10
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 development footprint on the approved site as contemplated in the accepted scoping report 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;	Section 13 Appendix A Figure 2 and 3 in this report
m) based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;	Section 10 and 14 Appendix G - EMPr
n) the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;	Section 5, 13 and 14
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	Section 10, 11, 13 and 14
p) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	Section 12
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	Section 13 and 14

APPENDIX 3 REQUIREMENTS	SECTION IN REPORT
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	Section 14
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 v. responses by the EAP to comments or inputs made by interested or affected parties;	Appendix F (EAP Declaration) Section 7 (Public Participation Process) and Appendix E
t) where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Not Applicable
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	Not Applicable
v) any specific information that may be required by the competent authority.	Not Applicable
w) any other matters required in terms of section 24(4)(a) and (b) of the Act.	Not Applicable

2 INTRODUCTION

Riverton Resources (Pty) Ltd. (hereunder referred to as Riverton Resources) has appointed BioBlue Environmental Sustainability (Pty) Ltd. (hereunder referred to as BioBlue) as an independent Environmental Assessment Practitioner (EAP) to undertake the required Scoping and Environmental Impact Assessment (S&EIA) in terms of the National Environmental Management Act 1998 (Act No. 107 of 1998) EIA Regulations 2014 as amended; for the proposed clearance of indigenous vegetation on Remaining Extent of Portion 3 (Onverwag) of the Farm Elands Drift 159, near Windsorton, Dikgatlong Local Municipality in the Northern Cape Province.

The purpose of this application for clearance of natural vegetation is to establish new cultivated fields to expand their current agricultural operations.

2.1 PROJECT LOCATION

The proposed project area is situated approximately 8.5km south of the town of Windsorton in the Northern Cape Province. Access can be gained by driving on the R374 road from Windsorton to Barkly West and turning left on an unnamed road, driving past Holpan cemetery.

The centre coordinates of the site are 28°24'46.34"S; 24°42'28.37"E

Table 2: Farm Portions and 21SG Codes

Farm	21SG Code
Remaining Extent of Portion 3 (Onverwag), Elands Drift 159	C00700000000015900003

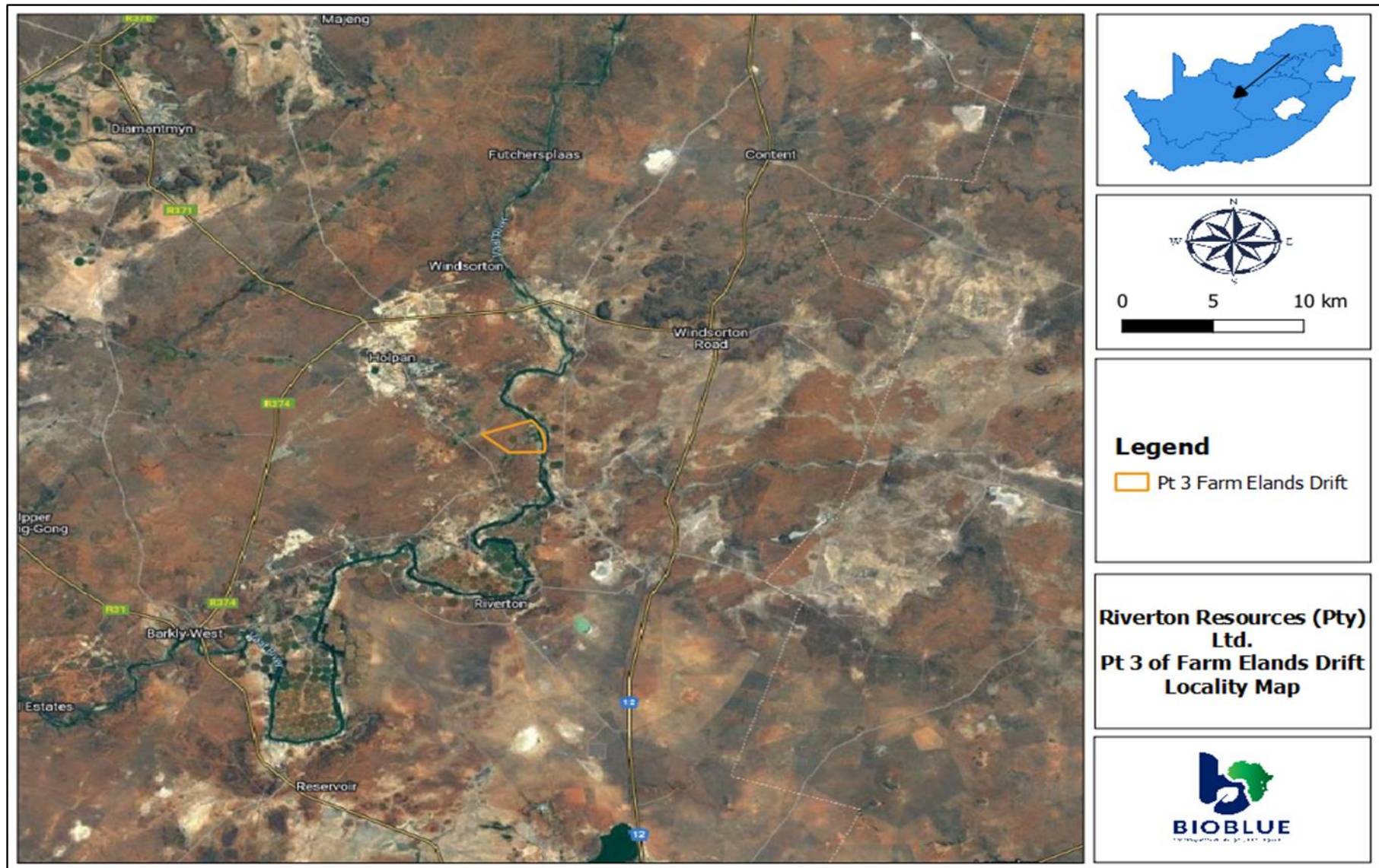


Figure 1: Locality Map

2.2 PROJECT DESCRIPTION

The applicant proposes to establish up to 180 ha of new cultivated fields by clearing natural vegetation within the boundaries of the farm that is approximately 480ha in extent. The total hectares established, and final layout will depend on the outcome of the various specialist studies to be conducted. The adjacent land-uses are agricultural in nature with mining activities also forming part of the areas near Windsorton and some historical mining activities located within the farm boundary.

The client would like to establish several cultivated fields to plant several different crops and create additional job opportunities for people living in the Windsorton region. Crops that are doing well in the region is maize, soybeans, sweet beans, sunflowers, and crops that can be used as animal feeds such as lucerne.

The planned fields would incorporate all recommendations and mitigation measures from the specialists to aim to have minimal impact on the environment. The client proposes to clear 180 Ha of new cultivated fields.

The water for irrigating the centre pivot point irrigation systems would be withdrawn from the river. A Water-use licence application has been applied for to obtain additional abstraction from the Vaal River.

2.3 LAYOUT

The final layout will depend on the inputs from the various specialists working on the project. Layout alternatives will be investigated throughout the Environmental Impact Assessment Process.

Two layout alternatives were prepared.

Layout Option 1 – Investigated Area (Figure 2) – Not Considered

This area was investigated as the preferred layout option, as it preserved the proposed Northern Corridor and a buffer area around the north-western drainage line. The proposed layout was also situated outside of the ESA area that the fauna specialist required as no-go area for new development. However, upon further investigation graves were located within the small 20ha area and thus this layout option will not be considered.

Preferred Layout Option 1 – Figure 3 below

The preferred alternative is a version of the investigated area with the Northern corridor being preserved as well as the buffer around the north-western drainage line and the ESA. However, we removed the 20ha area where the graves are located from this layout and

created an additional 20ha area where 2 x 10ha centre pivots could be located. What is good about this layout is that it still borders the existing operations and leaves a northern and southern corridor.

Alternative Layout Option 2 – Figure 4 below

The proposed Alternative reduces the cleared area to 171ha. This layout option is also situated outside of the ESA, preserves the graves and the Northern corridor. The difference is that the site will have a larger preserved area to the north and the west and no corridor to the south. This is also an option that the Department could consider authorising should the preferred layout not be considered.

2.4 NEED AND DESIRABILITY

Food security is becoming more of a concern in recent years (Nationally and Internationally) with the government putting efforts into promoting agricultural activities and development in the country. The Department of agriculture has rolled out a number of programmes to encourage and assist farming activities and ventures in the country. The Northern Cape Province is not as well known for its commercial crop farming operations such as for example, the Free State Province, however, the river systems flowing through the Province, provide crucial natural resources to the Province where commercial crop farming activities can be established.

The municipality is fairly rural, and its economic activity is largely based on mining and agriculture. Riverton Resources have existing agricultural operations on the farm portion and the desirability for the expansion of these activities are a result of the fact that the company is in process of obtaining a new Water-use License for abstraction of water for irrigation from the Vaal River that borders the farm.

The project will create additional job opportunities within the municipality that is in dire need of economic growth and new investment, and it will also contribute to food security, taxes paid out to local government and also additional opportunities that will be created for external service providers.

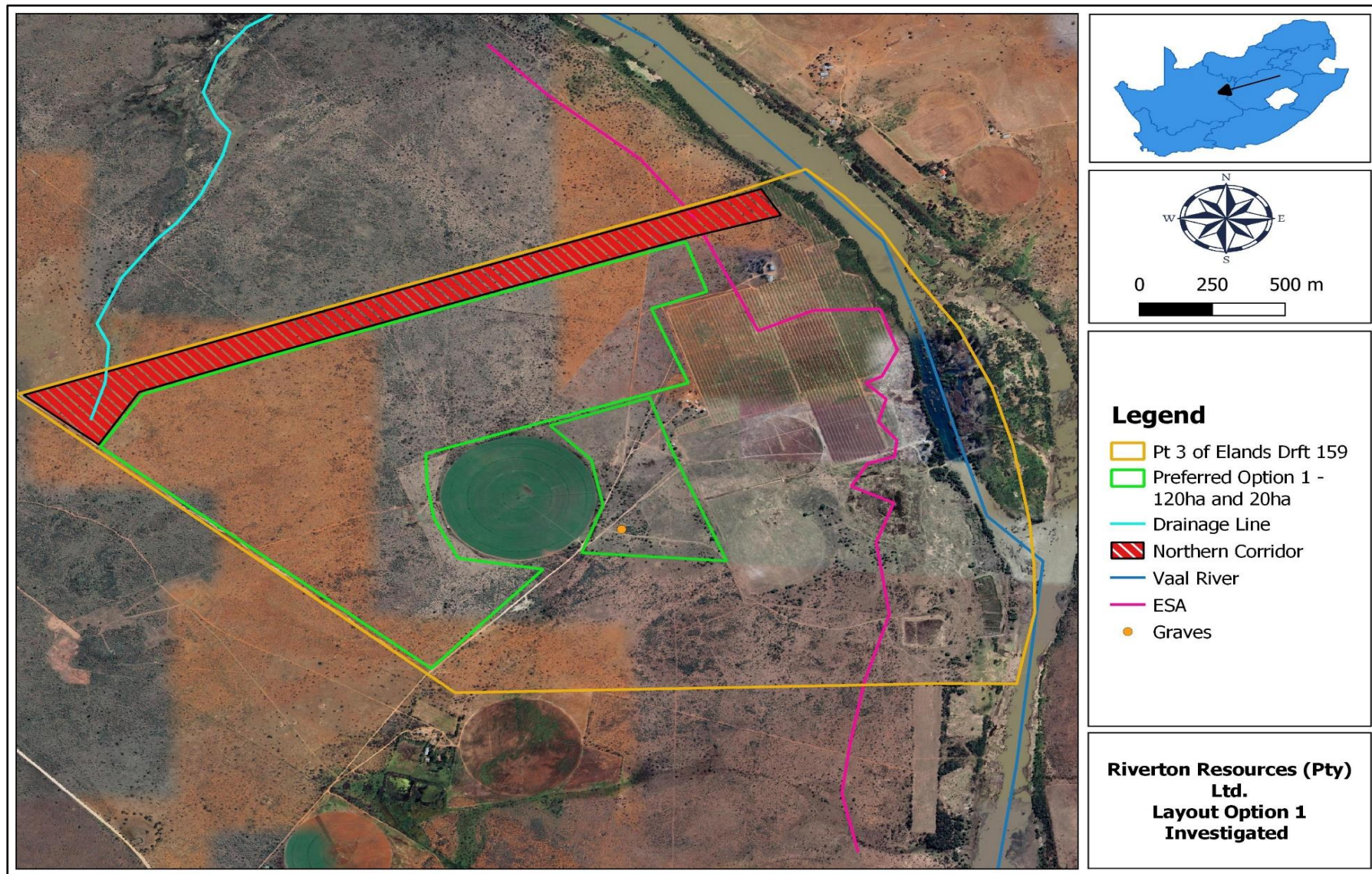


Figure 2: Layout Option 1 – Investigated area – Not Considered due to the graves found within the site.

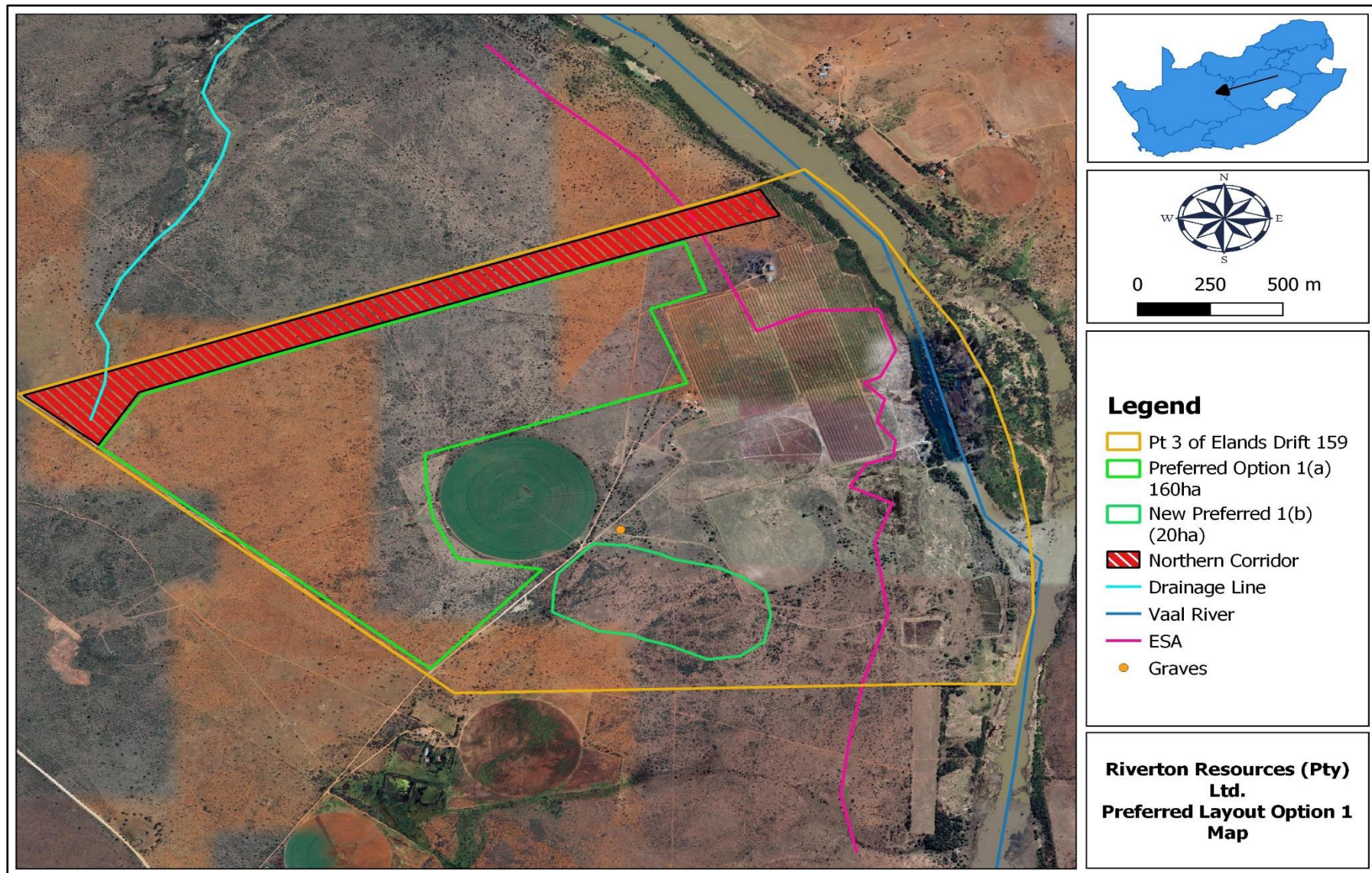


Figure 3: Preferred Layout Option 1

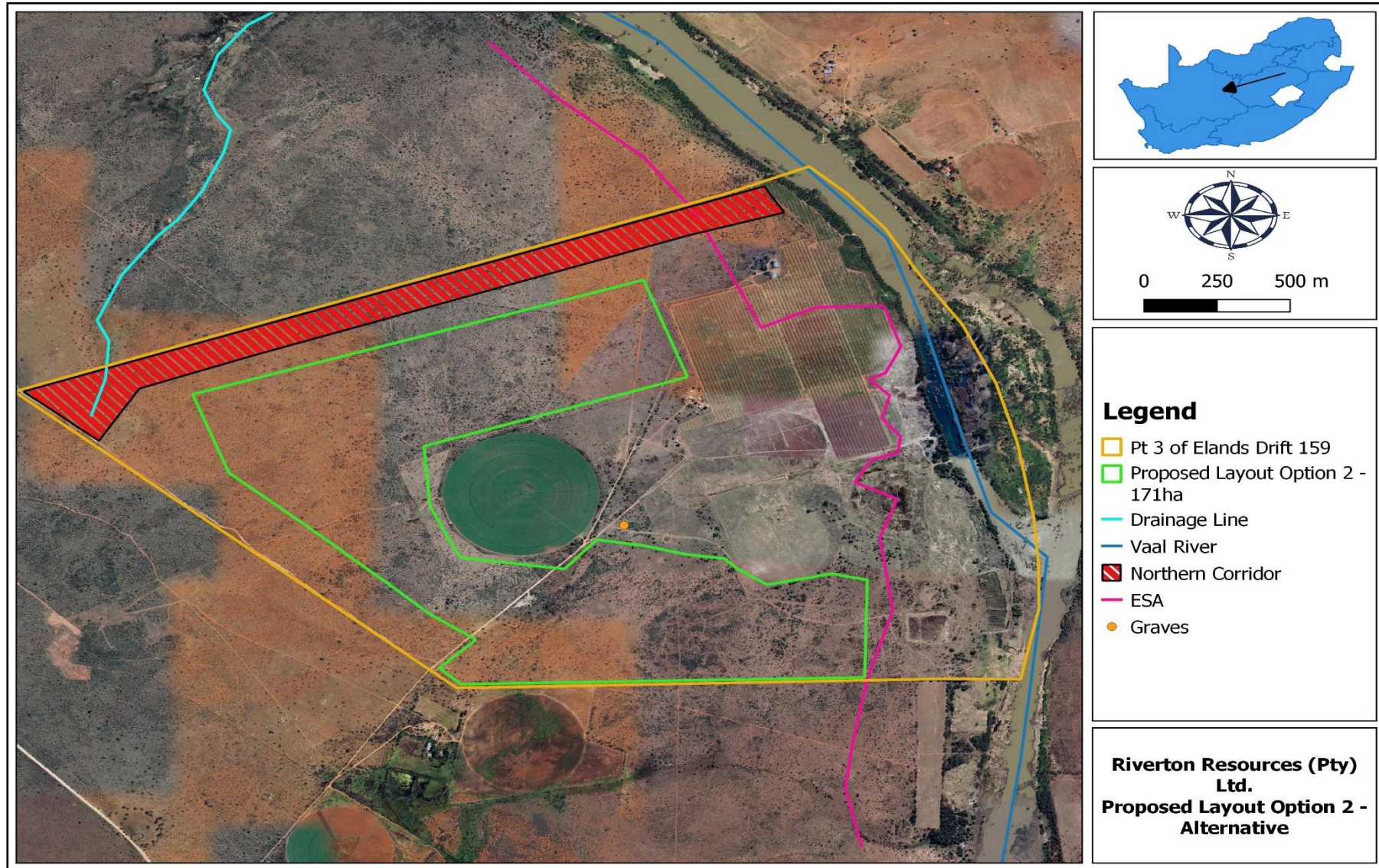


Figure 4: Proposed Alternative Layout – Option 2

3 DETAILS OF THE ROLE PLAYERS

3.1 DETAILS OF THE APPLICANT

Please refer to page (ii).

3.2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

The EAP is Zander Liebenberg on behalf of BioBlue Environmental Sustainability (Pty) Ltd, Mr. Liebenberg has a BSc and a B.Sc. Hons in Environmental Science from the University of the Northwest Potchefstroom Campus and has over 7 years of experience in the Environmental Management Field (refer to Annexure B for the EAP CV). The EAP has experience in conducted the following processes:

- Basic Assessment, Scoping and Environmental Impact Assessment
- Waste License Application, Water Use License Applications
- Environmental Auditing and Monitoring
- Public Consultation and Stakeholder Engagement

The details of the EAP are stipulated on page (ii).

4 LEGISLATIVE REQUIREMENTS

4.1 ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS OF 2014 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)

Section 24 (5) and 44 of NEMA asserts that the Minister or Member of the Executive Council (MEC) may make regulations pertaining to applications under NEMA. The Minister (of Environmental Affairs) has made such regulations and the latest were published on 04 December 2014, Amended in April 2017. The EIA Regulations focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

In terms of the EIA Regulations of 2014 and activities listed in Listing Notice 2, the following listed activities are deemed applicable to the proposed development based on the information provided by the project proponent and specialists.

Table 3: Triggered Activities in Terms of the EIA Regulations of 2014 as amended.

Listing Notice No.	Activity No.	Activity Description
2 (GN R 325 2017)	15	The project requires that an area of 180 hectares of indigenous vegetation be cleared for cultivation purposes.
3 (GN R 324 2017)	12 (g) Northern Cape	The Clearance of an area if 300 square meters or more

The listed activities include activities that could potentially have a detrimental impact on the social and biophysical state of the prevailing environment and as such, the applicant is required to obtain an EA by way of an S&EIR process in order undertake the project.

The environmental studies will follow a two-phased approach in accordance with the EIA Regulations of 2014:

- Environmental Scoping Phase; and

- Environmental Impact Reporting Phase.

This report is the Draft Environmental Impact Report (EIR) and assesses the impacts described during the scoping phase and presents the specialist findings as well as the proposed recommendations.

4.2 OTHER RELEVANT LEGISLATION

4.2.1 Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) as amended has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the locus standing of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of NEMA. Section 24 in the Bill of Rights of the Constitution asserts that: Everyone has the right -

- To an environment that is not harmful to their health or well-being; and
- 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.

4.2.2 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended (NHRA), legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments (including roads) exceed 300 metres in length. The proposed development falls in neither of the stipulated thresholds.

4.2.3 Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)

The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) as amended (CARA), is to provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and/or resources as well as the vegetation and the combating of weeds and invader plants; and for matters connected therewith. In terms of the amendments to the Regulations under the CARA, landowners are legally responsible for the control of alien species on their properties.

4.2.4 National Environmental Management Waste Act 2008 (Act No. 59 of 2008)

The act regulates the management of waste for all types of developments and activities which pose a threat to the environment in terms of the act. Waste is currently a very serious topic around the world and all efforts to minimise and recycle waste are currently being encouraged by government and international agencies. It is therefore important for any development to manage waste in a sensible way and in line with the waste hierarchy where the preference is always minimisation.

4.2.5 Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

This Act is to provide for the health and safety of persons at work; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

4.2.6 Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)

The Act recognises that everyone has a Constitutional right of access to any information held by the state and by another person when that information is required to exercise or protect any rights. The purpose of the Act is to foster a culture of transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their rights. In light of this Act, the S&EIR process includes PP which in essence is a platform for communities affected by the proposed development as well as any other persons with interest to be given access to the information that forms part of this process so as to give comments and raise concerns about the proposed development. The Interested and Affected Parties (I&APs), State Departments and other stakeholders are afforded a period of 30 days, for each draft report (DSR and Draft EIR), to comment on the content of that draft report. The comments received from I&APs,

State Departments and other Stakeholders are incorporated into a CRR which forms part of each final report (FSR and Final EIR), the final report inclusive of the CRR will be submitted to the DESTEA for decision making.

4.3 NATIONAL AND PROVINCIAL POLICIES AND/OR GUIDELINES

4.3.1 Integrated Environmental Management

Integrated Environmental Management (IEM) is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the proposed development process. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend to encourage a pro-active approach to sourcing, collating, and presenting information in a manner that can be interpreted at all levels.

The Department of Environmental Affairs (DEA) IEM Information Series guidelines will form part of the literature consulted during this S&EIR process. Of particular relevance are the:

- Companion Guideline on the Implementation of the Environmental Impact Assessment Regulations (DEA, 2012); and
- Public Participation in the EIA Process (DEA, 2010).

Previous documents published by the DEA as part of the 2006 guideline series include:

- Guideline 3: General guide to the EIA Regulations;
- Guideline 4: Public participation; and
- Guideline 5: Assessment of alternatives and impacts.

4.3.2 Dikgatlong LM IDP 2018/2019

The plan for the municipal service delivery and infrastructure planning. The IDP identifies areas of opportunity and improvement and lays out the plan to achieve the municipal mandate in terms of the Local Government Municipal Systems 2000 (Act 32 of 2000).

5 PROJECT ALTERNATIVES

The word “alternatives”, as described in Chapter 1, Regulation 1, Sub-regulation (1) of the EIA Regulations of 2014 (GN No. R. 326), in relation to a proposed activity, means different ways of meeting the general purpose and requirements of the activity which may include alternatives to the-

Property on which or location where the activity is proposed to be undertaken;

- Type of activity to be undertaken;
- Design or layout of the activity;
- Technology to be used in the activity; or
- Operational aspects of the activity; and
- Includes the option of not implementing the activity.

5.1 SITE ALTERNATIVE

No feasible site alternatives exist for the proposed clearing project. The applicant owns the properties on which the activity will be undertaken.

5.2 TYPE OF ACTIVITY AND TECHNOLOGY

The proposed farming activities will use the latest technology for the construction, operation and management of the activities on site as well as any ancillary infrastructure. No technology alternatives were therefore considered as the development will use materials and methods in line with best practices for cultivation and to reach the required product output based on supplier requirements.

5.3 LAYOUT ALTERNATIVE

The preferred layout and alternative layout were established with inputs from the Specialist assessments and considering all factors throughout the Environmental Impact Assessment Process.

Layout Option 1 – Investigated Area (Figure 2) – Not Considered

This area was investigated as the preferred layout option, as it preserved the proposed Northern Corridor and a buffer area around the north-western drainage line. The proposed layout was also situated outside of the ESA area that the fauna specialist required as no-go area for new development. However, upon further investigation graves were located within the small 20ha area and thus this layout option will not be considered.

Preferred Layout Option 1 – Figure 3 below

The preferred alternative is a version of the investigated area with the Northern corridor being preserved as well as the buffer around the north-western drainage line and the ESA. However, we removed the 20ha area where the graves are located from this layout and created an additional 20ha area where 2 x 10ha centre pivots could be located. What is good about this layout is that it still borders the existing operations and leaves a northern and southern corridor.

Alternative Layout Option 2 – Figure 4 below

The proposed Alternative reduces the cleared area to 171ha. This layout option is also situated outside of the ESA, preserves the graves and the Northern corridor. The difference is that the site will have a larger preserved area to the north and the west and no corridor to the south. This is also an option that the Department could consider authorising should the preferred layout not be considered.

The preserved natural areas will be utilised for grazing and these areas including the ESA will be monitored for Alien and weed species that need to be removed as part of mitigation measures to be implemented.

5.4 THE NO-GO ALTERNATIVE

This option assumes that a conservative approach will be followed which would ensure that the environment is not impacted upon in anyway and the site remains in its current state. Should the Competent Authority decline the application, the 'No-Go' option will be followed, and the status quo of the site will remain. Should the CA consider the 'No-Go' option; the property will remain in its current state and will not add additional value to the area in terms of development and by providing employment to the local people. Currently cattle farming is conducted on this specific area and thus, this will continue. The majority of the site is in its natural form; however, some areas have been impacted by agriculture and mining.

6 SCOPING REPORTING PHASE

The S&EIR process for the proposed development is comprised of two main phases, namely the Scoping Phase and the EIR Phase. This report documents the tasks that have been undertaken as part of the Scoping Phase and that will be undertaken as part of the EIR Phase. The Scoping Phase serves to define the scope of the later detailed assessment of potential impacts resulting from a proposed development and to establish the baseline conditions of the receiving environment. The Scoping Phase has been undertaken in accordance with the requirements of *Appendix 2 of the EIA Regulations of 2014 (GN No. R. 326)* and the *IEM Information Series (DEAT, 2002)*.

The objectives of the Scoping Phase are to:

- Ensure that the process is open and transparent and involves the relevant Authorities, the project proponent, and key stakeholders;
- Identify the important characteristics of the affected environment;
- Ensure that feasible and reasonable alternatives are identified and selected for further assessment;
- Determine possible impacts of the proposed project on the biophysical and socio-economic environment and associated mitigation measures; and
- Ensure compliance with the relevant legislation.

The Scoping Report represents the findings of the draft Scoping Phase of the proposed development, and the purpose of the report is, therefore, to document these findings in the form of a Draft and Final Scoping Report.

The Draft and Final Scoping reports have been submitted to the Department and a formal letter was received from the Department to confirm receipt of the Final Scoping Report on the 6th of April 2023.

6.1 CONSULTATION WITH THE COMPETENT AUTHORITY

Consultation with the Northern Cape Department of Environmental Affairs has commenced and will follow through until the conclusion of the environmental impact assessment for the proposed development. To date the authority consultation included the following:

- Submission, to the Department, of a completed EA application form together with applicable appendices in terms of the EIA Regulations (2014) promulgated under NEMA as well as the Draft Scoping Report;
- The department issued an application reference number; and
- Draft Scoping report has been sent to the department and I&APs for comments.

- The Final Scoping Report was submitted to the Department and a formal letter was received.

The Background regarding the proposed development is provided to other relevant Authorities, together with a registration and comment form, formally requesting the input into the S&EIR process. The Authorities include inter alia:

Table 4: Relevant Authorities Consulted

Name	Email Addresses	Company/Organisation
	info@dalrrd.gov.za queries@dalrrd.gov.za	Department of Agriculture, Land Reform and Rural Development
Mr. Seiphemo Ms. Dawn	SeiphemoD@dws.gov.za LeFleurD@dws.gov.za	Department of Water and Sanitation
	info@ncpg.gov.za ematolweni@ncpg.gov.za (Speaker)	Northern Cape Provincial Government
		Northern Cape Economic Development Agency
Mr. Lucas Ms. Mothibi	Kenneth.lucas@fbdm.co.za Thapelo.plaatjie@fbdm.co.za	Francis Baard District Municipality
	info@dikgatlong.gov.za ; abrahamnthoba@dikgatlong.co.za	Dikgatlong Local Municipality

The Draft Scoping Report was made available to the Local Municipality and District Municipality.

7 PUBLIC PARTICIPATION PROCESS

The purpose of the Public Participation Process, as per Chapter 6, Regulation 40 of the EIA Regulations of 2014 as amended (GN No. R 326), is to provide access to all information that reasonably has or may have the potential to influence any decision with regard to an application unless access to that information is protected by law. This must include consultation with, every state department that administers a law relating to a matter affecting the environment relevant to an application for an EA, all organs of state which have jurisdiction in respect of the activity to which the application relates, and all potential or registered (where relevant) I&APs.

The PP process is therefore undertaken in terms of the legislative requirements, *Chapter 6, Regulation 39 - 43 of the EIA Regulations of 2014, as amended, (GN No. R. 326)* as follows:

7.1 IDENTIFICATION OF KEY STAKEHOLDERS AND I&APs

The identification and registration of I&APs will be an ongoing activity during the course of the environmental impact assessment of the proposed development. BioBlue will develop, maintain and constantly update an electronic I&AP database for the application process. As such I&APs were identified using the following:

- Existing I&AP databases for other projects within the study area;
- Placement of advertisements in newspapers;
- Placement of site notices at the proposed development site and any alternatives; and
- Discussions with relevant Authorities and adjacent landowners

I&APs representing the following sectors of society have also been identified in terms of *Chapter 6, Regulation 41, of the EIA Regulations*):

- Provincial Authorities;
- Local Authorities;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent Landowners.

Refer to Appendix E5 for the stakeholder database.

7.2 NOTIFICATIONS AND ADVERTISEMENTS

The proposed development and S&EIR process will be widely announced with an invitation to the public to register as I&APs and to actively participate in the PP process. This will be achieved using:

- Print media advertisements that were placed in the Noordkaap Bulletin on the 8th of September 2022.
- Identified key stakeholders who will be contacted telephonically or by email and informed of the proposed development and the S&EIR process;
- The identified I&APs will be invited to comment on the content of the Draft EIR through letters via Email; (Appendix E5)
- Adverts indicating where the Draft EIR will be made available and placed at public locations and around the site.

In accordance with the requirements of the EIA Regulations of 2014, the I&AP registration period commenced with the advertisement of the proposed development in newspapers and the placement of site notices. As stated, the purpose of the advertisements and site notices is to notify the public of the proposed development and to invite the public to register as I&APs and comment on the DSR.

7.3 PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

The DSR was made available to the public for review and commenting for a legislative period of 30 days (from 8th of September 2022 to 10th of October 2022).

The identified I&APs on the prepopulated stakeholder database was sent an email with a link (dropbox or fileshare) to the report. The Report made available on our website and a hard copy was placed at the Windsorton Police station.

7.4 FINAL ENVIRONMENTAL SCOPING REPORT

There are no legislative requirements for the FSR to undergo a PP process; however, the comments received from I&APs (Appendix E Scoping Phase) during the review of the DSR are incorporated into a Comments and Response Report (CRR) (Refer to Appendix E Scoping Phase). The FEIR was handed in with all the comments and responses from all authorities and parties after the completion of the DEIR and the appropriate time have lapsed.

7.5 PUBLIC REVIEW OF THE ENVIRONMENTAL IMPACT REPORT

All registered I&APs will be notified of the start of the Environmental Impact Reporting phase and the availability of the Draft EIR for a period of 30 days.

8 BASELINE ENVIRONMENT

8.1 SURROUNDING LANDING USE

The proposed site is surrounded mainly by areas of agricultural and mining activities. There are still large tracks of land deemed to be natural vegetation. The Vaal River forms the eastern boundary of the site, and the applicant has existing water rights for abstraction from the river with additional water rights being applied for currently.

8.2 BIOPHYSICAL ENVIRONMENT

8.2.1 CLIMATE

The site falls within a semi-arid region. Annual temperatures range from a maximum of 40°C in the height of the summer months and rainfall mainly occurs in the form of thunderstorms. The winters are extreme with temperatures often below 0°C experienced during June, July and August. Average rainfall of the area is between 200mm and 250mm per annum.

8.2.2 TOPOGRAPHY

The general topography of the site is flat with a gentle slope to the eastern boundary where the land slopes down to the Vaal River.

8.2.3 BIODIVERSITY

The site falls within the Savannah Biome. The site is situated within the Kimberley Thornveld. In its natural state, this vegetation unit comprises an open grass layer, with much uncovered soils. The tree layer is dominated by thorny species of the *Vachellia* genus and a well-developed shrub layer.

The vegetation of the Vaal River forms part of the Highveld Alluvial Vegetation. This vegetation occurs along alluvial drainage lines and floodplains along rivers and its tributaries embedded in the Grassland and Savannah Biome. The vegetation comprises riparian thickets, which are mostly dominated by *Vachellia* karroo, accompanied by seasonally flooded grassland and disturbed herb lands that are often dominated by alien plants.

8.2.4 HYDROLOGY

The Vaal River forms the eastern boundary of the site and flows in a southerly direction. There is a non-perennial drainage line situated in the most western corner of the site and flows out of the site in a northerly direction. This was dry during the initial site inspection.



Figure 5: Sensitive Areas (Water Features)

8.3 SOCIO-ECONOMIC CONTEXT

Information in this section is obtained from the Frances Baard District Municipality IDP 2020/2021 as the Local Municipality documents are not available.

Dikgatlong Local Municipality falls within the Francis Baard District Municipality which is situated within the eastern parts of the Northern Cape Province.

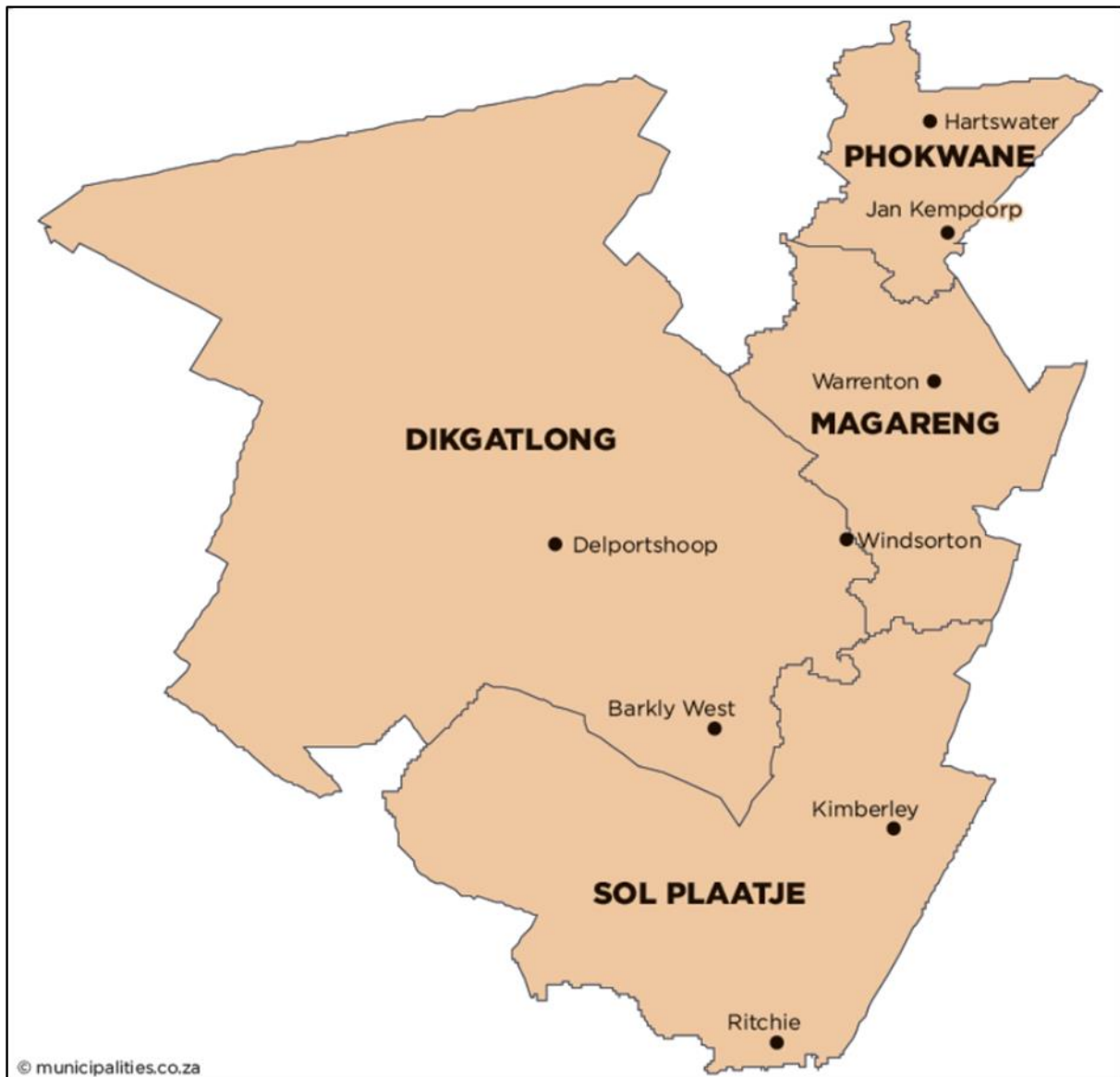


Figure 6: Map of the Municipality and Local Municipality boundaries (Municipalities.co.za)

8.4 POPULATION

The population of Dikgatlong comprises 12% of the population of the District Municipality, with the DM having a population of 387 741 people.

According to the 2016 community survey as depicted in the figure below, the Dikgatlong Local Municipality had a slight population increase from 46 839 to 48 164.

Table 3 also indicates that 27% of the population is between the ages of 19 and 35 which also is important to take note of as these age groups are in dire need of new job opportunities.

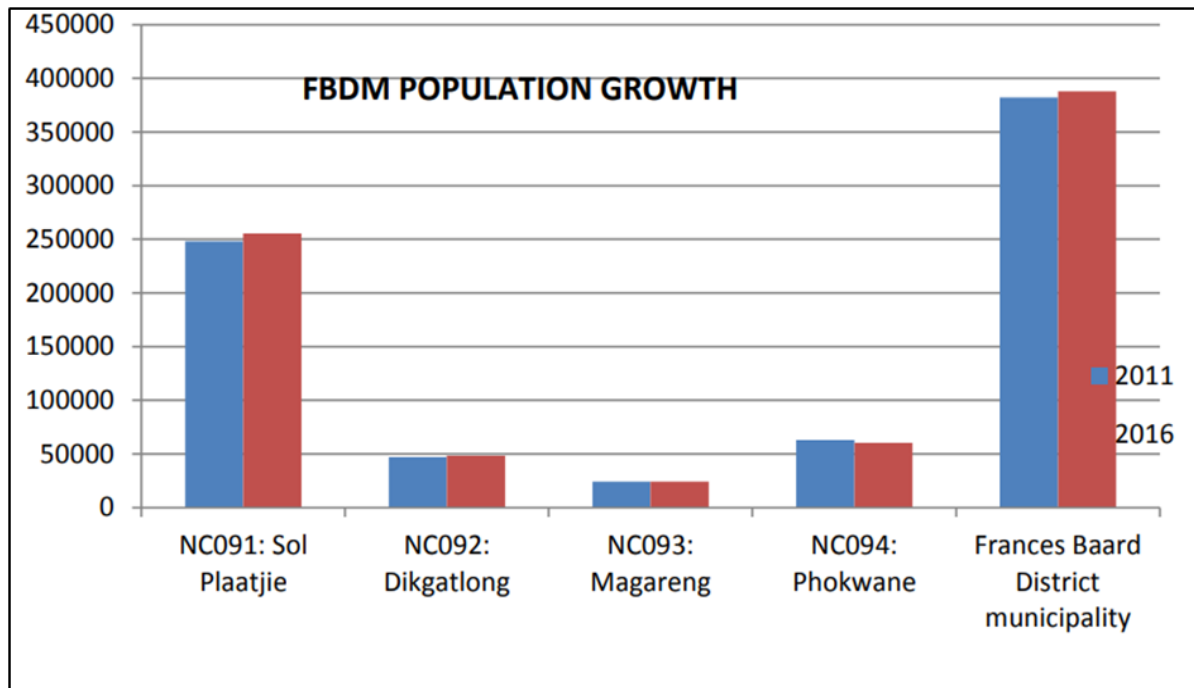


Figure 7: Population

Table 5: Age distribution (Francis Baard IDP 2017)

AGE	0 – 6	7 - 18	19 – 25	26 - 35	36 - 40	41 – 50	51 - 65	66 - 116
FBDM Actual	53847	83007	46632	58747	27374	44330	44794	29010
FBDM Age Distribution %	14%	21%	12%	15%	7%	11%	12%	7%
Sol Plaatje	34138	52640	31330	40449	18465	30341	29156	18831
Dikgatlong	6815	11438	5733	6572	3208	5236	5759	3402
Magareng	3414	5664	2962	2980	1572	2652	2685	2131
Phokwane	9480	13265	6607	8746	4129	6101	7193	4646

8.5 ECONOMIC

The Francis Baard District Municipality has the strongest economic potential in the Northern Cape, accounting for 36% of the provincial GDP. Agriculture and Mining accounts for 14% of the employment composition, but agriculture can also form part of the most sustainable

sectors in the province if development is done right and thus forms a large part of the future development plans.

The province is mainly characterized by mining and agriculture, however the IDP indicates that the province is facing threats of depleting minerals in the province. Agriculture has been identified as the key job driver in the country.

8.5.1 Employment

As stated in the IDP the Northern Cape as a whole is still characterized by high levels of unemployment and low levels of education. Unemployment levels have been increasing since 2010, with the Local Municipality having a 44% unemployment rate according to statistics in the IDP.

9 SPECIALIST ASSESSMENTS

9.1 TERRESTRIAL FAUNA SPECIES ASSESSMENT

General Introduction

The project area / site (458 ha) lies approximately 7km south-east of Holpan, adjacent to and west of the Vaal River, within the Dikgatlong Local Municipality (Frances Baard District), in the Northern Cape Province. The project proposes to convert approximately 180ha of the site to crop agriculture.

The site is ranked as medium (2 bird SCCs) sensitivity for animal species. The eastern extent of the property along the Vaal River is ranked as very high sensitivity (ESA) for terrestrial and aquatic biodiversity; the remainder is ranked as low sensitivity. This report constitutes an animal species specialist report and includes a high-level assessment of terrestrial biodiversity features of relevance to terrestrial fauna.

Site Characterisation

The site was assessed over the 4th and 5th October 2022. The weather was sunny and warm and suitable for fauna surveys. The site is composed largely of bushveld (with scattered patches of rocky bushveld and historical disturbance that appears to be related to possible surface mining) and agricultural land (current crop agriculture and historical crop areas), with the Vaal River forming eastern boundary of the site and supporting patches of wetland and a narrow corridor of riverine woodland.

Animal Species

The following is relevant in terms of vertebrates:

- Neither of the SCCs, Ludwig's Bustard (*Neotis ludwigii*) and the Secretarybird (*Sagittarius serpentarius*), nor evidence (nests / tracks) of the SCCs were noted on site despite good visibility at site for these large and fairly conspicuous birds. Both species are considered unlikely to be breeding on site and considered possible foragers in the immediate area.
- The site is not considered to contribute significantly to the overall conservation of the SCCs.
- The proposed development will not exclude the species from utilising the site or significantly reduce the value of the site to the species.

- The development may indirectly impact the species by impacting their invertebrate prey species through use of pesticides; considered to be of low significance as it is an existing activity on site.
- Historically (last decade) recorded TOP species are limited to three avian species, none of which can be conclusively excluded from site. The lack of adequate carrion on site may reduce the likelihood of the White-backed Vulture (*Gyps africanus*) and limited ideal habitat on site may reduce the likelihood of the Lanner Falcon (*Falco biarmicus*). Other than current anthropogenic activity on site, there is nothing to prevent the Kori Bustard (*Ardeotis kori*) from occurring on site.
- Eight other TOP species (Black-footed Cat, Honey Badger, Cape Fox, Southern African Hedgehog, Pangolin, Martial Eagle, Lesser Kestrel and Giant Bullfrog) cannot be conclusively excluded from site based on known distribution and habitat requirements (anthropogenic activity on site will dissuade species from site). It must be stated that no recent records occur on site for any of these species, but many are bushveld and scrub species, which if present, will persist in remaining natural habitat units in the greater area.
- None of the endemic species historically recorded in the area or likely in the area are restricted and the area is not an area of faunal endemism.
- Congregatory water birds may utilise the Vaal River, but the on-site habitat is limited, and no significant populations are expected on site.

The following is relevant in terms of invertebrates:

- No invertebrate SCCs are listed for the project area in the Environmental Screening Report.
- No TOP butterflies / Odonata / scorpions / spiders were recorded for the QDGS or recorded from site.

Terrestrial Biodiversity

The only desktop feature of relevance to the site is the Vaal River and its riverine corridor (ESA). This is in line with the terrestrial biodiversity sensitivity status afforded the site. The survey findings agree with the desktop ecological status given to the site insofar as these relate to terrestrial fauna (interconnected faunal habitats and ecological connectivity). The single NFEPA wetland on site was dry, was partially impacted by historical agricultural and disturbed by servitudes (powerline and gravel roads).

Site Ecological Importance and Impact Statements

Overall site sensitivity is presented below. The SEI scores indicate:

- Medium SEI: Minimisation and restoration mitigation required. Development activities of medium impact acceptable followed by appropriate restoration activities. The fact that only 180ha (just over half of the remnant bushveld area) is proposed for development, means that minimisation has been met.
- Very Low SEI: Minimisation mitigation required. Development activities of medium to high impact acceptable and restoration activities may not be required.



Figure 8: Site Ecological Importance (SEI) overlaid onto Google Earth imagery.

The potentially more significant impacts assessed in this report include:

- Loss of terrestrial fauna habitat is considered moderately significant.
- Alteration of faunal community through altered food production is considered moderately significant.
- Preventing fauna dispersal through impairing the ecological corridor is considered moderately significant.
- Contamination to land and downstream areas through runoff is considered moderately significant.

Conclusion & Recommendations

The proposed development footprint requires an additional 180ha of land to convert to crop fields. From the overall site sensitivity assessment and SEI assessment:

- The following areas should not be considered for development:

- The MEDIUM SEI areas overlapping the demarcated ESA (Plan 5).
 - The drainage line (Plan 4). Apply appropriate buffer as per wetland specialist / hydrologist.
- The following areas should be prioritised for development:
- LOW SEI areas (Plan 5).
- Prioritisation should be given to orchards rather than crop fields where these areas are within the demarcated ESA (Plan 5) as orchards will be more stable landscapes with less anthropogenic activity (will not require the cyclic annual activities associated with annual crops). Once established, the orchards will provide some continuation of arboreal habitat associated with bushveld and riverine woodland, although this benefit to fauna may be quite limited.
- Other considerations for the proposed development:
 - Maintain the northern (preferred as it connects to the drainage line in the west) OR southern bushveld area along the property boundary to maintain an ecological corridor (150-200m) between the inland bushveld to the west and the Vaal River (water source to local fauna) to the east. No new fencing is to be erected across this ecological corridor.
 - Keep any additional crop fields / orchards adjacent to existing LOW SEI (Plan 5) areas to reduce the risk of creating isolated and fragmented patches of bushveld habitat.

The following additional recommendations are relevant:

- All natural areas that will not be developed for agricultural activities will be retained as no-go areas – no activity will take place in these areas. No material (rocks, soil, plant material) will be dumped in these areas. Such material will be placed in existing disturbed areas.
- Recommendations of the flora specialist and wetland specialist must be implemented on site (goes to preserving and improving habitat for fauna).
- The mitigation measures stipulated in the impact tables of Section 6 and Section 7 of this report and that of the flora report must be included within the environmental management plan report and implemented on site

9.2 TERRESTRIAL VEGETATION AND HABITAT ASSESSMENT

Riverton Resources proposes the clearing of vegetation for cultivation on Part 3 of the farm Elands Drift, South of Windsorton. Dimela Eco Consulting was tasked by BioBlue Environmental

Sustainability with undertaking the terrestrial vegetation and habitat assessment to determine the vegetation sensitivity towards the proposed clearing.

The national web-based Screening Tool classifies most of the site as being of a “Low” Terrestrial Biodiversity Sensitivity, while the eastern extent, along the Vaal River, is classified as “Very-high” as it falls in an Ecological Support Area (ESA) associated with the Vaal River. Furthermore, most of the site is classified as “Medium” plant species sensitivity, except for the cultivated areas. The medium plant sensitivity indicate that suitable habitat is present for at least one threatened species, as listed in the screening tool report, albeit not confirmed. This report undertook a habitat assessment for plant species of conservation concern and a resulting plant species compliance statement.

The terms of reference were as follows:

Complete a compliance statement in line with the terrestrial biodiversity protocols, including:

- Supply background information on the site relating to conservation plans and threatened ecosystems;
- Field survey focusing on areas classified as high biodiversity sensitivity (outcrops, riparian vegetation, grassland) to determine the state of the vegetation and vegetation communities present;
- Report and map describing the broad vegetation communities found on the sites and its conservation importance and function within the landscape (If relevant);
- Map indicating ecologically sensitive vegetation groupings; and
- Impact assessment and recommendation to mitigate potential impacts.

Include in the above a plant species compliance report.

- Report and map the habitat for plant species of conservation concern for which suitable habitat is present on the site or were confirmed to occur.
- Depending on the results, a plant species assessment may be recommended.

The following limitations are applicable, although not considered fatal flaws to the study:

- Vegetation studies should be conducted during the growing season of all plant species that may potentially occur. This may require more than one season's survey with two visits undertaken preferably during November and February. This report relied on a single site visit undertaken on the 4th and 5th of October 2022.
- No spring rain was experienced prior to the field survey.

- About half the site was burnt. Although this hampered the identification of grasses and estimate of cover abundance, it stimulated forb growth and numerous forbs were flowering.
- The grass layer in the vegetation that was not burnt was dense and could have obscured smaller species.
- Although a 30m buffer area was applied around the site, the specialist did not directly assess neighbouring land.

Vegetation groups and Site Ecological Sensitivity

An historic aerial image dated 1978 shows the extent of cultivation on the site at that time. These areas are still cultivated, and the most western land now comprise a pivot. Aerial images also show additional surface disturbances, including dams, in the south-eastern corner of the site in the year 2018 (likely alluvial diamond mining).

At the time of this assessment, the surface disturbances on the south-eastern corner ceased and the area was vegetated by indigenous, pioneer grasses and some forbs. Cattle grazed the historic cultivated land. The most western cultivation included a center-pivot irrigation. Land in the north-eastern section of the site, was planted with trees, presumably nuts. Some historical disturbances took place east of the farm access road and the area include soil heaps, a trench and possibly a drainage line.

The site vegetation comprised largely of *Tarchonanthus camphoratus* shrubveld, with *Senegalia mellifera* dominance on rockier and deeper soils. An ephemeral drainage line was present in the western extent of the site, while possible drainage lines in clayey soils were embedded within the *Tarchonanthus camphoratus* shrubveld. The eastern portion of the site comprised *Searsia lancea* riparian woodland. The vegetation was delineated in broad groups and a sensitivity rating applied as follows:

Broad vegetation community	Site Ecological Importance (SEI) – mitigation
Modified land	Very Low (Minimise)
Secondary vegetation: • Grassy plains; • Vachellia karroo dominated	Very low (Minimise)
Shrubveld: • <i>Tarchonanthus camphoratus</i> shrubveld • <i>Senegalia mellifera</i> shrubveld	Medium (Minimise & Restore)
Ephemeral and dry drainage lines	Medium (Minimise & Restore)

Broad vegetation community	Site Ecological Importance (SEI) – mitigation
<i>Searsia lancea</i> riparian woodland	High (Avoid & Minimise)

Concluding Terrestrial vegetation statement

The vegetation on the site is not unique and the Kimberley Thornveld vegetation is not considered threatened. However, much of the vegetation on the site was in a good ecological condition, and due to its size and limited disturbances, rates high in its functional integrity and scores a medium SEI. The screening tool rates the site as low terrestrial biodiversity sensitivity as the area is not classified as important to conservation in the provincial conservation plan, within a protected area or within a listed ecosystem. However, as the vegetation is largely natural and functional, the SEI rating classified most of the site as being of medium sensitivity, with the riparian area, that forms part of the Northern Cape Critical Biodiversity Areas (CBA) Map.

The main long-term impact is likely on ecological processes. Fire will be suppressed around cultivated, which could have an impact on the vegetation structure and composition, resulting in bush densification and a loss of species diversity. The main mitigation measure to consider is to ensure that open, naturally vegetated areas remain through the cleared areas as ecological corridors, while clustering the cleared areas as far as possible. This could assist the movement of pollinators and the continuation of ecological processes.

Cumulative impacts are limited. The area that the site is situated in is located west of the Vaal River. Several pivot irrigation systems, as well as historical and probably existing mining is taking place along and around the river. Thus, clearing of additional vegetation on the sites will reduce the remaining natural vegetation in this area. However, currently, this vegetation is not threatened and the possible impact on threatened plant species are considered low.

This report therefore has no objection to the clearing on the site, if mitigation measures as listed in this report be adhered to as a minimum.

Plant species of conservation concern: compliance statement

The national screening tool classifies the site as medium sensitivity for plant species of conservation concern, listing one species Vulnerable species. This report shortlisted another species that may also be present in the area and the results are as follows:

- Appendix C lists a Vulnerable species (as listed in the screening tool) and a Near-threatened species that was short-listed to have a possibility of occurring.
- No plant species of conservation concern were recorded in walked transects.
- Suitable habitat is present for both species. The possibility of occurring for both species are rated as medium to low, and the habitat assessment agrees with the screening tool report which indicates much of the site as being of medium to low plant species sensitivity.
- It is recommended that no clearing takes place in alluvial vegetation (*Searsia lancea* riparian woodland) and a buffer area as set out by a hydrologist / wetland- or aquatic specialist. This will protect the Vulnerable species if present.
- The Near-threatened species is more likely present in rocky areas which is usually not suitable for cultivation. This species was not listed in the screening tool, but added by the specialist as there are historical records for this species in the larger area that the site is situated in. It is recommended that if rocky areas are to be cleared, the clearance footprint be scanned in advance to verify whether this species is present (medium to low possibility of occurrence).
- Two (2) geophytes that was historically classified as Declining were recorded on the site. Both species have been reclassified to Least Concern, however their numbers are still declining. In addition, these species are provincially protected. Only one of these species, *Boophone distichia*, is likely to be impacted on, as the other (*Crinum cf bulbipsernum*) grew within the riparian area.

Protocol summary

For ease of reference, the following table summarises results of the assessment as per the main requirements of the Protocols for Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial (Vegetation) Biodiversity as published on 20 March 2020.

Biodiversity (vegetation) aspect	Result
Northern Cape Critical Biodiversity Areas (CBA) Map:	Most of the sites fall within 'Other Natural Areas'. Such areas have not been identified as a priority for conservation in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructural functions. The site assessment confirmed that the vegetation was largely natural state and recommend that the vegetation clearing be clustered, while keeping as much of the vegetation in a natural state as possible.

Biodiversity (vegetation) aspect	Result
	The Vaal River that forms the eastern boundary is classified as an Ecological Support Area (ESA), and other than alluvial mining, the area is in a good ecological condition. The vegetation comprises <i>Searsia lancea</i> riparian woodland and was classified as high sensitivity and no-go areas for the proposed vegetation clearing.
Strategic Source (SWSA): Water Areas	The site is not situated within a SWSA. The Southern Ghaap Plateau Ground Water Source Area (GWSA) is situated about 85km west of the site and the Hertzogville GWSA about 67km east of the site.
Threatened ecosystem:	The project area is not within a listed ecosystem and the proposed vegetation clearing is too small to have a direct impact on the conservation status of Kimberley Thornveld.
Ecological drivers and processes in savanna	Frost, fire, and grazing maintain the herbaceous grass and forb layer and prevent the establishment of thickets or encroachment by trees into grasslands (Tainton, 1999). Fire is a natural disturbance caused by lightning, and regular burning is therefore essential for maintaining the structure and biodiversity of grasslands. If fire is prevented due to activities such as the urbanised environment that the site is situated in, the vegetation structure degrades, and alien species could eventually dominate the natural vegetation. This will also lead to a decrease in species diversity as species adapted to fire and grazing will eventually decrease or die-off. Suppression of fire around the cultivated land, could alter the vegetation structure and composition. This could lead to the densification by indigenous species such as the <i>Vachellia karroo</i>, <i>Tarchonanthus camphorathus</i>, <i>Senegalia mellifera</i> and <i>Asparagus</i> species already present on the site. The plants themselves are thus not the problem, but their increased abundance or encroachment into the open bushveld will alter species diversity as some species (grass and forb species) could die-off.
Sensitive Areas and No go areas	The <i>Searsia lancea</i> riparian woodland, as well as the ephemeral drainage line on the site should not be cleared.
Plant species of conservation concern: compliance statement	The national screening tool classifies the site as medium sensitivity for plant species of conservation concern. • Appendix C lists a Vulnerable species (as listed in the screening tool) and a Near-threatened species that was short-listed to have a possibility of occurring. • No plant species of conservation concern were recorded in walked transects • Suitable habitat is present for both species. The possibility of occurring for both species are rated as medium to low

Biodiversity (vegetation) aspect	Result
	and the habitat assessment agrees with the screening tool report which indicates much of the site as being of medium to low plant species sensitivity. • It is recommended that no clearing takes place in alluvial vegetation (<i>Searsia lancea</i> riparian woodland) and a buffer area as set out by a hydrologist / wetland- or aquatic specialist. This will protect the Vulnerable species if present. • The Near-threatened species is more likely present in rocky areas which is usually not suitable for cultivation. This species was not listed in the screening tool, but added by the specialist as there are historical records for this species in the larger area that the site is situated in. It is recommended that if rocky areas are to be cleared, the clearance footprint be scanned in advance to verify whether this species is present (medium to low possibility of occurrence). • Two (2) geophytes that was historically classified as Declining were recorded on the site. Both species have been reclassified to Least Concern, however their numbers are still declining. In addition, these species are provincially protected. Only one of these species, <i>Boophone distichia</i>, is likely to be impacted on, as the other (<i>Crinum cf bulbipsernum</i>) grew within the riparian area.
Main impacts:	The main impacts related to the clearing of vegetation will take place during the clearing activities. Once the crop areas are operational, the impacts are likely to be contained to the cleared areas with minimum edge effects. The following impacts are expected, but can be mitigated: • Destruction of natural vegetation • Destruction of protected plant species • Potential increase in invasive vegetation • Degradation of remaining natural vegetation • Bush densification (impact ecological processes such as fire) • Potential pollution of the soil and water
Cumulative impacts:	• Potential increase in crop fields
Residual impacts:	• Trampling and edge effects during clearing and operation • Operational impacts such as pollution and litter • Fire suppression that could result in a change in the vegetation structure and composition

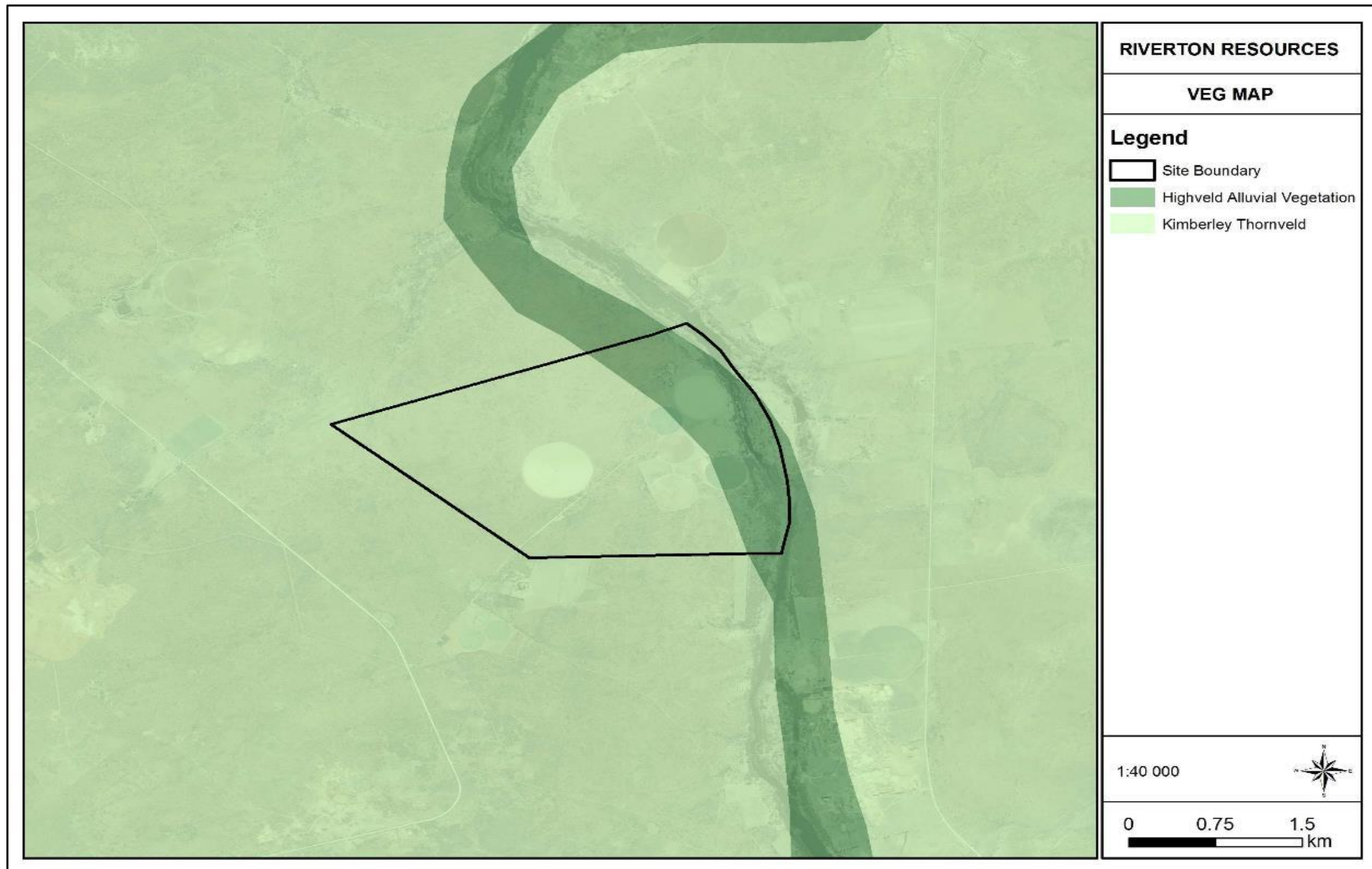


Figure 9: Vegetation as per the national vegetation assessment (Mucina and Rutherford, 2006; Skowno et al, 2019).



Figure 10: The site in relation to the Northern Cape Critical Biodiversity Map

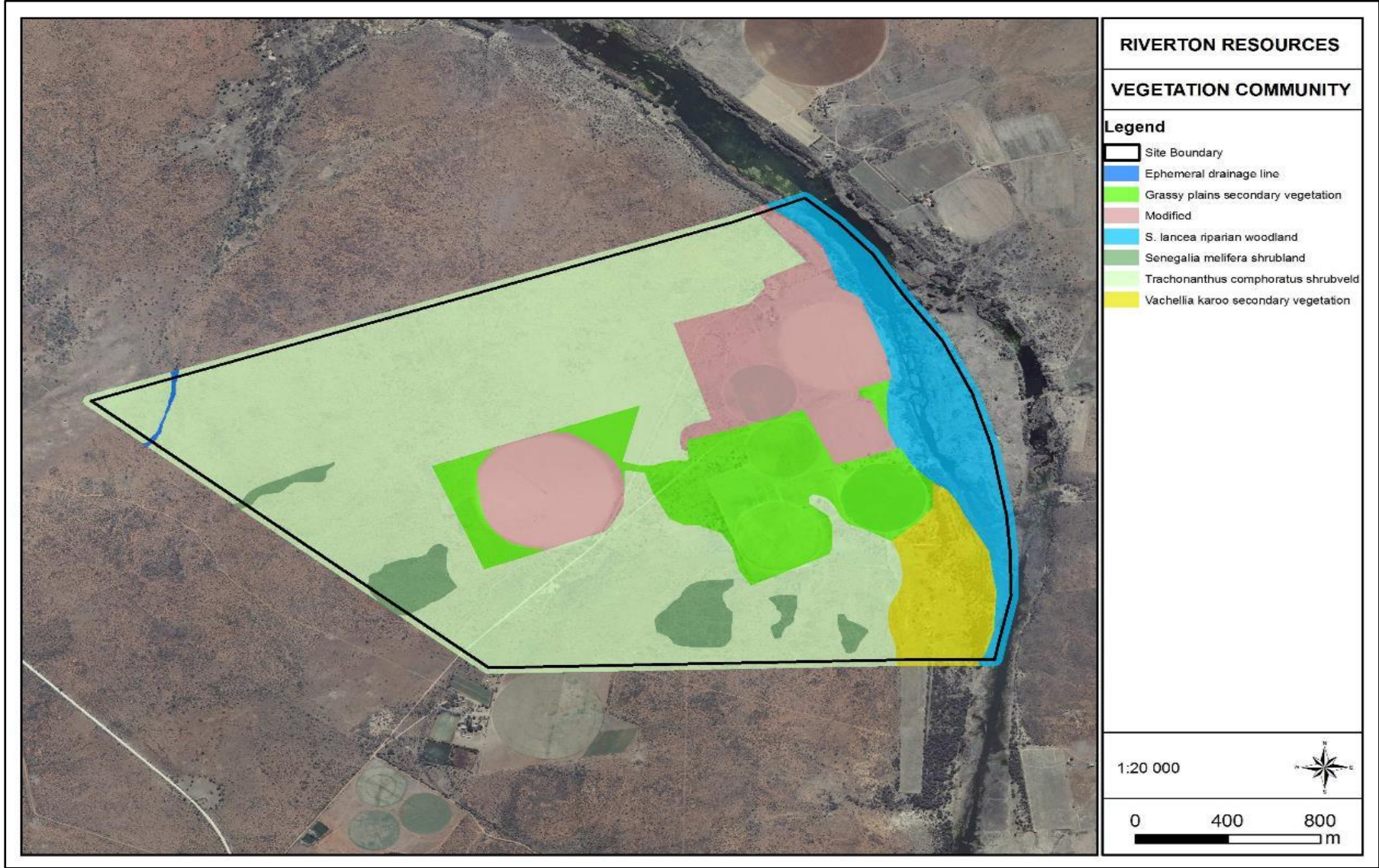


Figure 11: Broad vegetation groups on the site.

9.3 WETLAND ASSESSMENT

Wetlands play an important role in water security through the recharge of groundwater which in turn leads to the replenishing of aquifers as well as by augmenting stream and river flow which in many instances sustains them throughout the year. The soils together with the vegetation in a wetland act as sponges which keeps the water long after the rains have passed and then slowly lets water trickle out into rivers and streams during the dry periods, thus sustaining flow year-round. Wetland vegetation counter acts erosion by binding and stabilising the soil, dissipating energy from stream flow and storm events as well as being able to rapidly recover from storm events. Wetland systems provide a variety of ecosystem goods and services either directly or indirectly.

FIELD SURVEY: WETLAND DELINEATION & SCREENING

The field survey primarily consists of determining the presence of wetlands, if present their delineation and classification of wetland according to Hydrogeomorphic (HGM) type, Vegetation structure and species diversity were noted along with soil characteristics and ecological degrading features such as erosion, pollution inputs, and alien invasive vegetation. The catchment condition was also taken into consideration. The wetland delineation and screening are conducted on foot by walking transects. The data gathered should be captured by taking photos to compile a photographic database, writing down important information on a notepad as well capturing GPS data.

The wetland delineation procedure is based on the legislatively required methodology as described by DWAF (2008), now known as the Department of Water Affairs and Sanitation (DWS). The methodology is known as the Identification and Delineation of Wetlands and Riparian Areas. The wetland delineation procedure is aimed at identifying the outer edge of the temporary zone of the wetland, which marks the boundary between the wetland and adjacent terrestrial areas.

The guidelines also state that locating the outer edge of the temporary zone, specific indicators need to be employed namely:

- Terrain Unit Indicator (location in the landscape with highest likelihood of occurrence);
- Soil form Indicator (wetland soil forms which are associated with frequent and prolonged saturation).
- Vegetation Indicator (presence of hydrophytes); &

- Soil wetness Indicator (evidence of hydric conditions indicated by a wetness signature in the soil profile).

The wetland boundary is determined as the edge of the temporary zone of the wetland where the hydric indicators are encountered within the top 50cm of the soil surface. A Dutch soil auger was used to extract the soil samples to a depth of 50cm. All soil samples were evaluated in hand for soil composition, colour, number, and size of mottles as well as wetness. The soil wetness indicator and the vegetation indicator were the main indicators used with the other indicators fulfilling a confirmatory role. Soil samples were taken at regular intervals by walking transects from the permanent wet zones in a perpendicular direction to the wetland until terrestrial habitat was encountered across the different study sites. In general soils change as one moves from one position in a landscape to another, this strongly correlates with elevations in the hillslope catena.

The soil changes along the wetness gradient from temporary through seasonal to permanently wet, with soil colour becoming darker greyish as there is progressed towards the permanent zone. The change in soil colour is the result of an increasing degree of wetness, clay, and nutrients as one moves down the slope of a wetland. Reduction under anaerobic soil conditions happens in the following sequence: N – Nitrogen, Fe – Iron, Mn – Manganese, S – Sulphur, C – Carbon. The strong sulphuric smell associated with wetland soils are confined to the permanent wet zone of wetlands. The soil in and around a wetland shows signs of wetness which aids in the establishment of wetlands and their boundaries. These indicators include Portion 3 of the farm Elands Drift 159 Aquatic biodiversity compliance statement 13 gleying (signs of wetness in a sandy matrix and gleyic lithic properties). In many instances soil samples are extracted from the soft plinthic B-horizon. It is characterised by a distinct degree of mottling indicating a fluctuating water table and a more permanent water table at depth.

RESULTS & CONCLUSION

Portion 3 of the farm Elands drift 159

It was evident from the site survey and the desktop study that no wetlands are present on the focus area of Portion 3 of the farm Elands Drift 159, thus the proposed expansion of agricultural activities won't impact upon any wetland or aquatic habitat. This necessitated an aquatic biodiversity statement.

The national freshwater ecosystem priority areas (NFEPA) & the national screening tool

Based on current outputs of the NFEPA database, no NFEPA wetlands were identified within the boundaries of the study site. The study site falls within the Lower Vaal Water Management Area (WMA) and the Vaal Downstream/Bloemhof. According to the National Screening Tool's

aquatic biodiversity theme the study site has a **Low** sensitivity classification.

Wetland verification

By following the methodology as described in this statement no wetland habitat belonging to any HGM classification was found to be present within the boundaries of the study site. The soil samples that were extracted from a depth of 50 cm showed no signs of wetness. There was also no hydrophilic vegetation (obligate or facultative) recorded of any kind. By implementing the methodology as discussed in this report it was found that no wetland indicators were found to be in place and consequently no wetlands of any kind were present.

9.4 AQUATIC ECOLOGICAL ASSESSMENT

BioBlue Environmental Sustainability (Pty) Ltd has been appointed by Riverton Resources (Pty) Ltd. as independent specialists to assess the integrity of the aquatic resources in the vicinity of the planned new cultivated fields in the Windsorton area, Northern Cape Province. The purpose of the assessment is to survey the general habitat integrity, habitat conditions for aquatic macro-invertebrates, and diatoms within the associated river that could be affected by the proposed cultivation of new fields areas.

A site visit was conducted on the 04th September 2022. River conditions were assessed and evaluated surrounding the area where the proposed clear for cultivated fields will occur. The only water way in the vicinity of the proposed activity is the Vaal River.

One monitoring point was selected for the evaluation. The monitoring point had adequate habitat to conduct an SASS evaluation and Diatom analyses were also collected for additional information.

Various anthropogenic impacting activities were observed at the monitoring sites, which included upstream mining instream mining and diversion of the river channel, vegetation clearing for a pump station, farming activities such as cattle grazing and crop production informal and formal miniactivities and informal settlements with rural toilets. The catchment is impacted by various sources of pollution and erosion within the drainage lines and riparian areas play a role in the degradation of the systems.

Table 6: Summary of Findings

Quaternary Catchment Area	C91E
Water Management Area (WMA)	Vaal WMA
Ecoregion	Southern Kalahari
Applicable River(s)/Stream	The proposed clearance and opening of new cultivation fields situated west of the Vaal River. One monitoring point within the Vaal River was monitored as a baseline study to use as monitoring sites once operation commences.
Impacts observed at the study area	Various anthropogenic impacting activities were observed at the monitoring sites, which included farming activities such as cattle grazing and crop production. Rural informal settlements with pit toilet infrastructure and upstream instream mining activities

This assessment aims at establishing baseline conditions in the aquatic systems near the area where the proposed clearance and opening of new cultivation fields will occur. The objectives are to identify any impacts that could occur during the construction and utilisation of the proposed clearance and opening of new cultivation.

The main findings of this report have been summarised below:

- The IHI results show that the habitat of the Vaal River upstream site is **moderately modified (C category)** and the site had manmade structures, flow modification and a nearby abstraction point. The riverbanks at both monitoring points were in good condition with heavily vegetated at some points.
- The IHAS results of the monitoring point within the Vaal River show that the sites are in an **Adequate** condition for supporting a diverse aquatic macro-invertebrate community. The sites have sufficient water, flow and habitat present. Sensitive families were sampled as indicated by the SASS5 and ASPT scores.
 - Some of the water quality constituents meet the recommended guidelines. However, exceeding concentrations of Nitrates, Total dissolved solids (TDS) and Turbidity were observed for the applicable guidelines. Most of the exceedances are likely due to surface runoff from roads, ineffective water treatment plants, informal farming practises where livestock roams in the vicinity of the river or informal settlements where pit toilets are used. Overall, the current results indicate **Good** Water Quality conditions in the systems.
- Based on the aquatic macroinvertebrate assessment, the monitoring site on the Vaal River, were classed as **Natural (A category)**. Sensitive families were sampled due to good water quality, sufficient flow and habitat availability at the site.
- The diatom index indicated that the monitoring site is **Moderately Modified (C Category)**.
 - Based on the results of the **DWS Risk Assessment**, all components scored a low to moderate impact, which was revised and can be further reduced to a low application of various mitigation measures.
 - The **Recommended Mitigation Measures** should be followed by the client to ensure the potential impacts are limited or completely negated during the construction and operational phases of the proposed project.
 - A **Water Use License (WUL)** is required for the proposed irrigation [practises that is proposed, in line with Notice 509 of 26 August 2016, which was drafted in accordance with Section 21 of the National Water Act No. 36 of 1998.

Table 7: Summary sites assessment and water quality variable results. Yellow blocks are indications of values higher than the TWQR

Sites Assessed	Variables	Units of Measure	Riverton	TWQR
Water Quality Results	pH	pH Units	8.6	6.5 – 9.0
	EC	mS/m	37.8	<150
	Turbidity	N.T.U	15	<10

	Sulphates	mg/l	69	<100
	TDS	mg/l	258	<25
	Nitrates	mg N/l	0.2	<0.1
	Ortho-phosphate	mg P/l	0.1	<0.5
	Faecal Coliforms	counts/100 ml	10	<150
	<i>E. coli</i>	counts/100 ml	7	<130
Bio-monitoring Results	Diatoms		C/D	
	IHI		C	
	IHAS		adequate	
	No of Taxa		26-	
	SASS Score		176-	
	ASPT		6.8-	
	PES		A	

Overall, the River conditions were in a good quality and the development would have a minimal impact on the current condition of the river.

10 SUMMARY OF FINDINGS AND RECOMMENDATIONS OF THE SPECIALIST REPORTS

10.1 FINDINGS AND RECOMMENDATIONS – VEGETATION ASSESSEMENT

The larger study area comprises open bushveld wherein cultivation, grazing and historical mining has impacted on the landscape. At the time of this assessment, the surface disturbances on the south-eastern corner ceased and the area was vegetated by indigenous, pioneer grasses and some forbs. Cattle grazed the historic cultivated land. The most western cultivation included a center-pivot irrigation. Land in the north-eastern section of the site, was planted with trees, presumably nuts. Some historical disturbances took place east of the farm access road and the area include soil heaps, a trench and possibly a drainage line.

The site vegetation comprised largely of *Tarchonanthus camphoratus* shrubveld, with *Senegalia mellifera* dominance on rockier and deeper soils. An ephemeral drainage line was present in the western extent of the site, while possible drainage lines in clayey soils were embedded within the *Tarchonanthus camphoratus* shrubveld. The eastern portion of the site comprised *Searsia lancea* riparian woodland. The vegetation was delineated in broad groups and a sensitivity rating applied as follows:

Broad vegetation community	Site Ecological Importance (SEI) – mitigation
Modified land	Very Low (Minimise)
Secondary vegetation: - Grassy plains; <i>Vachellia</i> karroo dominated	Very low (Minimise)
Shrubveld: <i>Tarchonanthus camphoratus</i> shrubveld <i>Senegalia mellifera</i> shrubveld	Medium (Minimise & Restore)
Ephemeral and dry drainage lines	Medium (Minimise & Restore)
<i>Searsia lancea</i> riparian woodland	High (Avoid & Minimise)

Recommendations:

- The new clearing activities are kept as close as possible to existing areas of low and very low SEI. Thereby indirect and cumulative impacts can be reduced, and larger open spaces can be conserved.
- Allow for naturally vegetated corridors through the cultivated areas. Narrow slithers of vegetation in-between cultivated areas play a role in ecological processes; however, these areas are prone to edge effects and low in species diversity. Therefore, open spaces should be as large as possible and preferably connected by the narrower vegetation in between crop areas.
- Keep the vegetation clearing in Medium SEI categories as small as possible and align with already modified areas. Endeavour to utilise as much Very low SEI as possible and the areas of Medium SEI bordering it, taking care to allow for some open space towards the river.
- Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern.
- Rockier areas are likely to support a Near Threatened succulent and should be scanned for such species prior to clearing.
- If the CBA area and a large, unfragmented patch of the surrounding Kimberley Thornveld are conserved, and mitigation measures as listed in this report are implemented as a minimum, the proposed clearing of vegetation can proceed.

10.2 FINDINGS AND RECOMMENDATIONS – FAUNA ASSESSMENT

From the desktop ecological assessment, the following ecological features are of relevance to terrestrial fauna:

- The site is ranked as medium (2 bird SCCs) sensitivity for animal species.
- The eastern extent of the property along the Vaal River is ranked as very high sensitivity (ESA) for terrestrial and aquatic biodiversity;
- the remainder is ranked as low sensitivity

From the site visit the following were observed:

Neither of the SCCs, Ludwig's Bustard (*Neotis ludwigii*) and the Secretarybird (*Sagittarius serpentarius*), nor evidence (nests / tracks) of the SCCs were noted on site despite good visibility at site for these large and fairly conspicuous birds. Both species are considered unlikely to be breeding on site and considered possible foragers in the immediate area. The site is not considered to contribute significantly to the overall conservation of the SCCs. The proposed development will not exclude the species from utilising the site or significantly

reduce the value of the site to the species. The development may indirectly impact the species by impacting their invertebrate prey species through use of pesticides; considered to be of low significance as it is an existing activity on site.

Eight other TOP species (Black-footed Cat, Honey Badger, Cape Fox, Southern African Hedgehog, Pangolin, Martial Eagle, Lesser Kestrel and Giant Bullfrog) cannot be conclusively excluded from site based on known distribution and habitat, requirements (anthropogenic activity on site will dissuade species from site). It must be stated that no recent records occur on site for any of these species, but many are bushveld and scrub species, which if present, will persist in remaining, natural habitat units in the greater area. No invertebrate SCCs are listed for the project area in the Environmental Screening Report. No TOP butterflies / Odonata / scorpions / spiders were recorded for the QDGS or recorded from site.

The following was advised:

Maintain the northern (preferred as it connects to the drainage line in the west) OR southern bushveld area along the property boundary to maintain an ecological corridor (150-200m) between the inland bushveld to the west and the Vaal River (water source to local fauna) to the east. No new fencing is to be erected across this ecological corridor. Keep any additional crop fields / orchards adjacent to existing LOW SEI (Plan5) areas to reduce the risk of creating isolated and fragmented patches of bushveld habitat. The mitigation measures of this report and that of the flora report must be included within the EMP.

10.3 FINDINGS AND RECOMMENDATIONS – HERITAGE IMPACT ASSESSMENT

Leonie Marais was appointed to carry out a Phase 1 Heritage Impact Assessment (HIA) for the proposed establishment of new cultivated fields on the Remaining Extent of Portion 3 (Onverwag) of the Farm Elands Drift 159. The site visit took place on 17th May 2023.

Why a Phase 1 Heritage Impact Assessment is required:

This project may potentially impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

The objective of this Phase 1 Heritage Impact Assessment (HIA) was to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities.

A baseline study was conducted to identify and compile a comprehensive inventory of sites of cultural heritage within the proposed project area, which include:

- (i) all sites of archaeological interest;
- (ii) all buildings and structures older than 60 years;
- (iii) landscape features include sites of historical events or providing a significant historical record or a setting for buildings or monuments of architectural or archaeological importance, historic field patterns and graves.

The baseline study also included desk-top research and a field survey.

The desktop research was conducted to analyse, collect and collate extant information. The desktop research included:

- Search of the list of declared heritage sites protected by the National Heritage Resources Act, 1999 (Act no. 25 of 1999);
- Search of publications on local historical, architectural, anthropological, archaeological and other cultural studies;
- Search of other unpublished papers, records, archival and historical documents through public libraries, archives, and the tertiary institutions; and
- Search of cartographic and pictorial documents and maps.

The above baseline categories are sufficient for a report of this nature.



Figure 12: Investigated site area

No heritage sites are present on the area earmarked for development. An informal cemetery is located in the greater study area but will not be impact on by the proposed development.

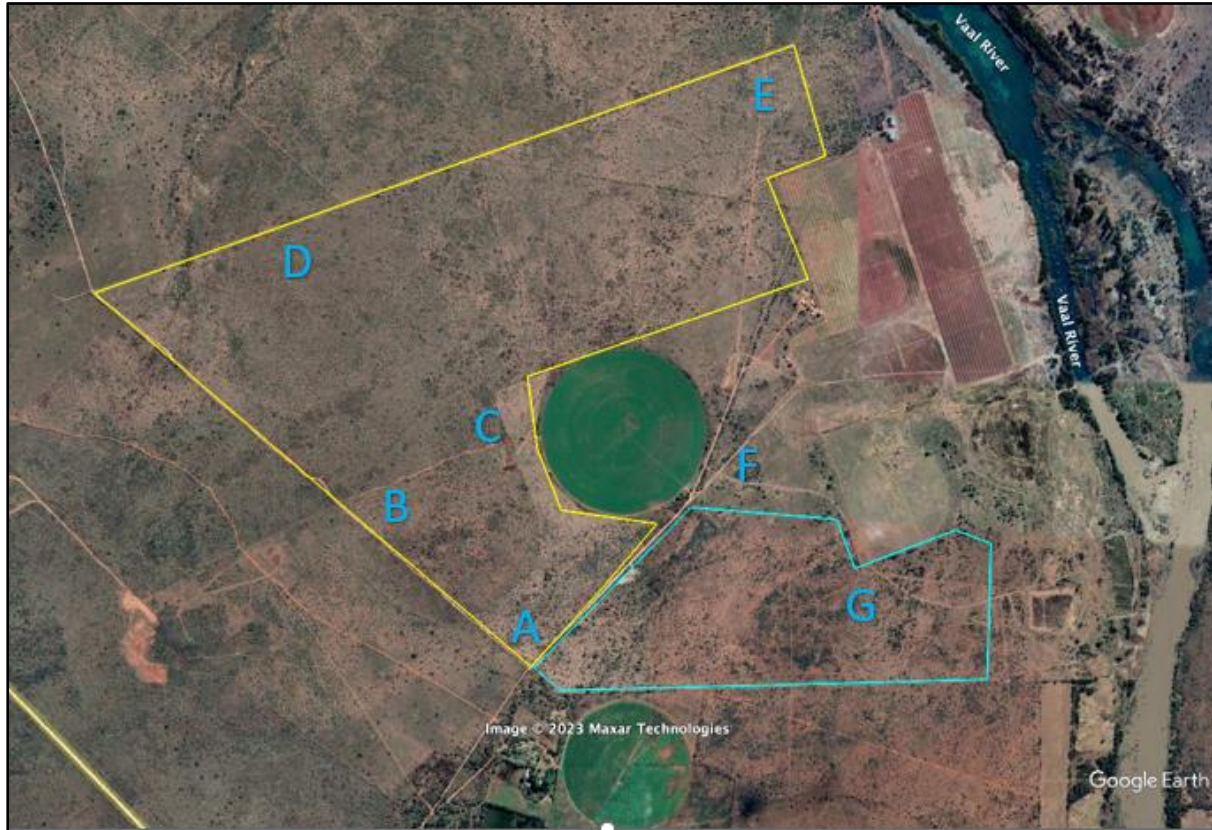


Figure 13: Photograph F indicates a small informal cemetery that should be avoided.

Recommendations:

It should be noted that the sub-surface archaeological, paleontological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate. This aspect should form part of the EMPr.

Mitigation Measures:

- As there are no visible heritage sites or items in the study area no mitigation is necessary in terms of heritage;
- In the case of the discovery of subsurface archaeological, paleontological, and/or historical material as well as skeletal remains a heritage practitioner must be contacted to assess the find and make recommendations; and
- Mitigation will only be in terms of the natural environment and will be covered in the Environmental Management Programme (EMPr).

10.4 FINDINGS AND RECOMMENDATIONS – WETLAND ASSESSMENT

It was evident from the site survey and the desktop study that no wetlands are present on the focus area of Portion 3 of the farm Elands Drift 159, thus the proposed expansion of agricultural activities won't impact upon any wetland or aquatic habitat. This necessitated an aquatic biodiversity statement.

10.5 FINDINGS AND RECOMMENDATIONS – AQUATIC ASSESSMENT

The site is situated near the Vaal River. The river appeared to be in a Natural state even though anthropogenic disturbances were observed upstream of the project site.

The development will have a minimum influence on the river system if a clear boundary is kept between the Clearing sites and the river. Filter strips must be planted to minimize agricultural run-off and during construction sedimentation must be prevented and dust control administered. There should be no disturbance of drainage lines that lead to the river and a buffer zone must be implemented with regards to the river and the drainage lines.

11 IMPACT ASSESSMENT

The Scoping Report and Plan of Study for the Environmental Impact Assessment has been drafted and the Impact Assessment is undertaken in line with the requirements of Appendix 3 of the EIA Regulations (2014) as amended.

11.1 IMPACT ASSESSMENT METHODOLOGY

The following assessment methodology has been used for the purpose of assessing impacts because of the construction / establishment and operational phases also including the assessment of the cumulative impacts of the proposed establishment of the new agricultural operations.

The impacts arising from the activities are included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Table 8: Impact Assessment Table

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).
	International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase. Usually < 1 to 5 years
	Medium Term	The impact will last up to the end of the development phases, where after it will be entirely negated. Usually 5 – 15 years.

development.	Long Term	The impact will continue or last for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Moderate	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.		
	Improbable	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Probable	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Probable	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Table 9: Impact Significance Methodology

The Significance of Environmental Impacts is to be assessed by means of the following method: Significance = Probability x Severity . Probability describes the likelihood of the impact actually occurring, and is rated below:	
Improbable	Rating = 2
Probable	Rating = 3

Highly Probable	Rating = 4
Definite	Rating = 5
The Severity rating is calculated by multiplying Intensity with Duration.	
The Intensity factor is described below:	
Low Intensity	Factor 1
Moderate Intensity	Factor 2
High Intensity	Factor 3
The Duration factor is described below:	
Short term	Factor 2
Moderate term	Factor 3
Long term	Factor 4
Permanent	Factor 5
The Severity rating obtained from the above calculations are discussed below:	
Low severity (Rating 2)	Calculated values 2 to 4
Moderate severity (Rating 3)	Calculated values 5 to 8
High severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16 or more
Severity factors below 3 indicate no impact	
A Significance Rating = Severity Rating x Probability Rating. The significance rating should influence the development project as described below:	
Low Significance (Rating 4 – 6)	Positive Impact and negative impacts of Low significance should have no influence on the proposed development project.
Moderate Significance (Rating 7 to 12)	Positive Impact – Should indicate that the proposed project should be approved. Negative impact – Should be mitigated or mitigation measures should be stipulated before the proposed project can be approved.
High Significance (Rating 13 – 18)	Negative Impact – Should weigh towards decision to terminate the proposed project if not mitigation measures can be implemented. Mitigation measures should be

	stipulated and performed to reduce the significance to at least low significance.
Very High Significance (Rating 19 – 25 and more)	

Mitigation – The impacts that are generated by the development can be minimised if measures are implemented to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation – Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;

Low: The impact is of little importance, but may require limited mitigation;

Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and

High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation will be rated on the following scale:

No significance: The impact will be mitigated to the point where it is regarded as insubstantial; **Low:** The impact will be mitigated to the point where it is of limited importance;

Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;

Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of

significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;

Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and

High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. To establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

$$\text{Calculation 1:} \quad \text{Significance Rating (WOM)} = (\text{Extent} + \text{Intensity} + \text{Duration} + \text{Probability}) \times \text{Weighting Factor}$$

Identifying the Potential Impacts with Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Consideration will also be given to potential cumulative impacts as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the proposed project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment.

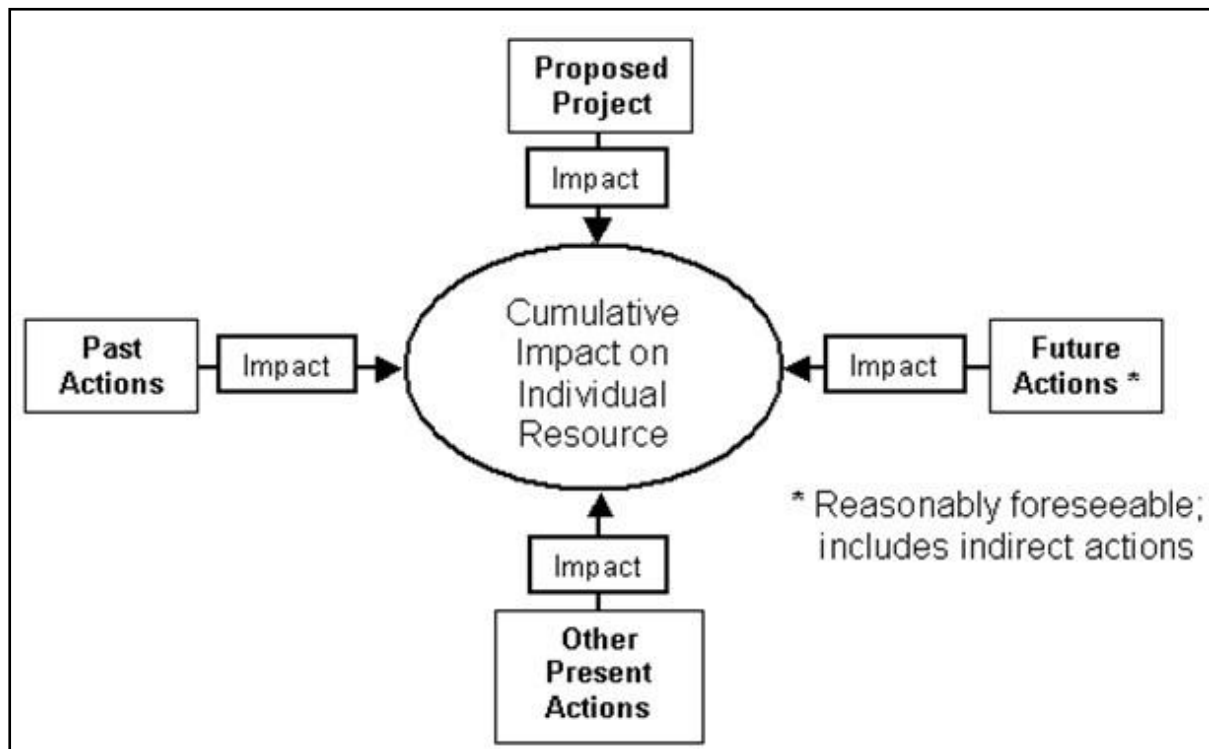


Figure 14; Cumulative impacts illustration
(<https://www.environment.fhwa.dot.gov/nepa/QAimpact.aspx>)

An indication of the degree of confidence (low, medium or high) that there is, in the predictions made for each impact, based on the available information and the specialist /. EAP's level of knowledge and expertise will also be reported. The Degree of confidence will however not be taken into account in the determination of consequence or probability.

This assessment is initially done for the scenario where no mitigation measures are implemented. Mitigation measures will then be identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented) The results of the assessment of the significance of the residual impacts will then be linked to decision-making by Authorities.

11.2 IDENTIFIED POTENTIAL IMPACTS

The potential impacts associated with the proposed development have been identified through the scoping process and categorised in terms of biophysical and socio-economic parameters. The identified potential impacts will be investigated in detail within the Impact Assessment Phase of this S&EIR process.

The identification of key issues and the assessment of the significance of impacts within the process are thus aimed at giving input in the planning phases of the proposed development and ensuring the most viable and least environmentally sensitive environment is utilised for the proposed development.

11.2.1 Construction / Establishment Phase

- Loss of Biodiversity
- Loss of habitat for fauna species
- Increase in noise due to site preparation;
- Introduction of heavy agricultural vehicles into the proposed development area;
- Potential impact on ambient air quality (dust generation);and
- Potential socio-economic impacts (both positive and negative).
- Dust generation and possible sedimentation runoff into the river.

11.2.2 Operational Phase

- Increased noise generation, during operational phase;
- Loss of habitat corridor for fauna species
- Potential pollution of surface water resources;
- Health and Safety;
- Air quality impacts due to fugitive dust from ploughing.
- Agricultural runoff and eutrophication.

Table 10: Construction Phase – Impact Table – Preferred Option 1

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Clearance of vegetation for cultivated fields.	Probability = 4 Intensity = 3 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $4 \times 3 = 12$ Moderate Negative Significance	- It is proposed that vegetation clearance only occurs within the necessary footprint area of the new cultivated fields. Vegetation should only be removed when necessary to minimise erosion on the proposed site. - The delineated natural corridor area to the north should be protected and kept intact. - The Natural area on the Southern side of the property should be kept intact. - Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. - Keep the proposed buffer zone from the river on the western side of the property and avoid the ESA with any new proposed developments. - Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern. This	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $3 \times 2 = 6$ (Low Significance)

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		will be conserved with the Northern Corridor. - Rockier areas are likely to support a Near Threatened succulent and should be scanned for such species prior to clearing. - All Threatened or near threatened species should be well known by Site Management and avoided. - Prevent vehicular access into natural areas beyond the demarcated area to be cleared. - Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.	
Loss of Fauna & Flora Habitat and protected species	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $4 \times 3 = 12$ Moderate Negative Significance	- The delineated natural corridor to the North should be protected and any disturbance adjacent to the proposed clearance area should be avoided. - Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern (Corridor on the Northern side of the property).	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $3 \times 2 = 6$ (Low Significance)

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		• Rockier areas are likely to support a Near Threatened succulent and should be scanned for such species prior to clearing. • Contractors / clearing team should familiarize themselves with the provincial protected geophyte species (Ammocharis and Boophone) and the Near Threatened succulent, Lithops lesleii Appendix C). If found during clearing, the species should be relocated to outside of the proposed clearing footprint and monitored for survival for at least two years. • Declared weeds and invader plant species should be controlled and eradicated by the means of an eradication and monitoring programme. • Keep all proposed natural areas, Natural. This including river buffer zone(western side of the property), corridor (Northern Side of the property) and natural area (Southern side of the property). • No fences in natural areas to maximize the movement of animals. • Avoid all nesting birds that are	

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		seen and do not disturb animals in natural areas.	
Potential Increase in invasive vegetation	Probability = 3 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	• Alien invasive species, in particular category 1b species that were identified within the study area, should be removed from the development footprint and immediate surrounds, prior to clearing or soil disturbances. By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation. • All alien seedlings and saplings must be removed as they become evident for the duration of clearing. • Continuously monitor the emergence of alien invasive plant species on the site and remove such species as soon as they become apparent.	Probability = 2 Intensity = 1 Duration = 2 Severity = $1 \times 2 = 2$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		Focus on areas where alien invasive or weed species are already established like the riparian vegetation.	
Nature: Loss of ecological connectivity (drainage)	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	- Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern. - Maintain the northern corridor (preferred as it connects to the drainage line in the west) or southern bushveld area to create an ecological corridor (150-200m) between the inland bushveld to the west and the Vaal River (water source to local fauna). - Ensure this area is free of fences or consider palisade fencing. If fencing is absolutely necessary, consider crawl spaces for at least porcupine-sized animals and fence height set for a medium sized buck to clear (approximately 1.0-1.5m). Where fencing is needed this will be around the crop fields or orchards only. - No electrified fencing is to be used and where absolutely	Probability = 2 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $2 \times 3 = 6$ Low Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		- required for safety. - Keep out of all proposed natural areas.	
Loss of, or disruption to, SCC species	Probability = 3 Intensity = 3 Duration = 2 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	- Ensure that unhindered access for fauna is maintained along the ecological corridor and natural areas. As SCC birds are known to re-use nests, consideration should be given to incorporating any nesting areas if the species are observed to be nesting on site. - All site management and staff on site must undergo environmental awareness training which must include the prohibition of any harm or hindrance to any indigenous fauna species. - Ensure safe speed limits in the area. - Keep as little as possible disturbance within the natural areas.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance
Soil and Surface Water Pollution	Probability = 3 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	The following precautions need to be taken to minimize the effects of accidental hydrocarbon spillages. Tractors and other farming equipment need to be maintained on a regular basis and checked for leakages	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		every morning. - If re-fuelling is to be done on site, drip trays need to be available. - Do not spray crops with chemicals when good rainfalls are expected or during times of high winds.	
Dust Generation: Impact on air quality and vegetation	Probability = 4 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	During the clearance of vegetation, dust will be generated by the activities. - Only the footprint area of the sites should be cleared and only when necessary to minimise the impact of dust on the surrounding natural areas. - Average speed limits should be communicated to all staff. - Access roads should be maintained and no new unnecessary roads should be established.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance
Employment Opportunities	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance	The proposed expansion will create a possible 15 job opportunities. The local communities should be approached to fill these positions as far as possible. Structures should be established to ensure appropriate development and transfer of skills	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Increased run-off due to hard and exposed surfaces from exposed soils.	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	to the local community. The farming operation must ensure that the proposed activities are well managed and do not lead to erosion of the valuable topsoil layer. • Clearance of vegetation should only be implemented once necessary. • Contours and other management measures should be implemented to ensure that runoff from storm events is minimized. • If possible clear in the winter when rains are minimum.	Probability = 2 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $2 \times 3 = 6$ Low Negative Significance
Negative impacts on possible cultural heritage aspects	Probability = 2 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $2 \times 3 = 6$ Low Negative Significance	Keep the graves found at point F (Refer to Heritage Impact Assessment) fenced and protected. If any other graves or cultural significant finds are found during clearance activities, activities in that area should be stopped and the ECO contacted.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance

Table 11: Construction Phase – Impact Table – Alternative layout Option 2

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Clearance of vegetation for crop fields.	Probability = 4 Intensity = 3 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $4 \times 3 = 12$ Moderate Negative Significance	- It is proposed that vegetation clearance only occurs within the necessary footprint area of the new cultivated fields. Vegetation should only be removed when necessary to minimise erosion on the proposed site. - The delineated natural corridor area to the North should be protected and kept as large as possible. This corridor should extend on the western boundary if Layout two is authorised. Keep a clear buffer between the cultivated field and the River on The Southern Side of the Property - Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. - Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern. - Rockier areas are likely to support a Near Threatened	Probability = 4 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $4 \times 2 = 8$ (Moderated significance)

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		succulent and should be scanned for such species prior to clearing. - All Threatened or near threatened species should be well known by contractors and avoided. - Maintain riparian areas and implement rehabilitation and monitoring measures. - Prevent vehicular access into natural areas beyond the demarcated area to be cleared. Do not build any additional road on the Eastern side of the property.	
Loss of Fauna & Flora Habitat and protected species	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $4 \times 3 = 12$ Moderate Negative Significance	- The delineated natural corridor should be protected and any disturbance adjacent to the proposed clearance area should be avoided. - Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of conservation concern. - Adhere to the proposed corridor and do not remove natural vegetation in the area on the Northern and Eastern part of the property. - Rockier areas are likely to	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $3 \times 2 = 6$ (Low Significance)

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		support a Near Threatened succulent and should be scanned for such species prior to clearing. - Contractors / clearing team should familiarize themselves with the provincial protected geophyte species (Ammocharis and Boophone) and the Near Threatened succulent, Lithops lesleii (Appendix C). If found during clearing, the species should be relocated to outside of the proposed clearing footprint and monitored for survival for at least two years. - Declared weeds and invader plant species should be controlled and eradicated by the means of an eradication and monitoring programme.	
Potential Increase in invasive vegetation	Probability = 3 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	Alien invasive species, in particular category 1b species that were identified within the study area, should be removed from the development footprint and immediate surrounds, prior to clearing or soil disturbances. By removing these species,	Probability = 2 Intensity = 1 Duration = 2 Severity = $1 \times 2 = 2$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation. • All alien seedlings and saplings must be removed as they become evident for the duration of clearing. • All vehicles and equipment that enters the site must be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the areas to be cleared. • Continuously monitor the emergence of alien invasive plant species on the site and remove such species as soon as they become apparent.	
Nature: Loss of ecological connectivity (drainage)	Probability = 4 Intensity = 2 Duration = 4 Severity = 2 x 4 = 8 (Moderate)	• Avoid the ephemeral drainage line and surrounding area as the shale could support a plant species of	Probability = 3 Intensity = 2 Duration = 3 Severity = 2 x 8 = 8 (Moderate)

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	- conservation concern. Maintain the northern (preferred as it connects to the drainage line in the east) or southern bushveld area to create an ecological corridor (150-200m) between the inland bushveld to the west and the Vaal River (water source to local fauna). - Ensure this area is free of fences or consider palisade fencing. If fencing is absolutely necessary, consider crawl spaces for at least porcupine-sized animal and fence height set for a medium sized buck to clear (approximately 1.0-1.5m). Where fencing is needed this will be around the crop fields or orchards only. - No electrified fencing is to be used and where absolutely required for safety. - Keep a Corridor at the western side of the property and keep it natural.	Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Significance
Loss of, or disruption to, SCC species	Probability = 3 Intensity = 3 Duration = 2 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	Ensure that unhindered access for fauna is maintained along the ecological corridors. As SCC birds are known to re-use nests, consideration should be given to incorporating	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		any nesting areas if the species are observed to be nesting on site. - All contractors and staff on site must undergo environmental awareness training which must include the prohibition of any harm or hindrance to any indigenous fauna species. - Ensure safe speed limits in the area. - Stay out of the 50m buffer zone of the river and use the ESA as guideline area.	
Soil and Surface Water Pollution	Probability = 3 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	The following precautions need to be taken to minimize the effects of accidental hydrocarbon spillages. - Tractors and other farming equipment need to be maintained on a regular basis and checked for leakages every morning. - If re-fuelling is to be done on site, drip trays need to be available. - Do not spray crops with chemicals when good rainfalls are expected or during times of high winds.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance
Dust Generation: Impact on air	Probability = 4	During the clearance of	Probability = 2

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
quality and vegetation	Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	vegetation, dust will be generated by the activities. - Only the footprint area of the sites should be cleared and only when necessary to minimise the impact of dust on the surrounding natural areas. - Average speed limits should be communicated to all staff. - Access roads should be maintained, and no new unnecessary roads should be established.	Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance
Employment Opportunities	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance	The proposed expansion will create a possible 15 job opportunities. The local communities should be approached to fill these positions as far as possible. Structures should be established to ensure appropriate development and transfer of skills to the local community.	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance
Increased run-off due to hard and exposed surfaces from exposed soils.	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Negative Significance	The farming operation must ensure that the proposed activities are well managed and do not lead to erosion of the valuable topsoil layer. Clearance of vegetation should only be implemented once	Probability = 2 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $2 \times 3 = 6$ Low Negative Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		necessary. - Contours and other management measures should be implemented to ensure that runoff from storm events is minimized. - Clear vegetation in winter times when rainfall is at it lowest to reduce run off.	
Negative impacts on possible cultural heritage aspects	Probability = 2 Intensity = 2 Duration = 3 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $2 \times 3 = 6$ Low Negative Significance	Keep the graves found at point F (Refer to Heritage Impact Assessment) fenced and protected. If any other graves or cultural significant finds are found during clearance activities, activities in that area should be stopped and the ECO contacted.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance

Table 12: Impacts Associated with the Operational Phase

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Agricultural Impact and land use change	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance	The proposed expansion will increase the potential of the agricultural activities on the land. The new expansion areas should be utilised productively and sustainably.	Probability = 4 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity Rating) (Rating 3) Significance = $3 \times 4 = 12$ Moderate Positive Significance
Clearance of Vegetation for the	Probability = 3	After Clearance, the land must	Probability = 2

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
proposed establishment of new cultivated fields	Intensity = 3 Duration = 2 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	be cleared of rubbish, surplus materials and equipment and must be left in a condition as close as possible to that prior to clearing. Measures must be implemented to prevent operational activities from impacting on the adjacent vegetation. Machinery may not turn or park within the natural areas. Drift from chemical herbicides and pesticides must be prevented. No operational activities may directly impact on the watercourses or veer from dedicated roads. Limit the use of chemicals (pesticides and herbicides) and do not spray in windy conditions. Pesticides may impact on pollinators and lead to a decline in species diversity and densities. Do not prevent the movement of	Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		mammals and insects, except to safeguard crops (e.g. grazing antelope)	
Loss of Fauna & Flora Habitat and protected species	Probability = 3 Intensity = 3 Duration = 2 Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	Operational activities may not trample natural vegetation and work should be restricted to previously disturbed footprint. Prevent operational activities from impacting on adjacent vegetation and prevent drift from chemical herbicides and pesticides. Keep out heavy machinery out of natural areas.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance
Potential Increase in invasive vegetation	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 3 = 6$ Low Negative Significance	A management programme should be established to minimize the proliferation of invasive species and eradicate them where possible. Staff should receive environmental awareness training assist with implementing these management measures.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance
Bush Densification – Bushveld is prone to bush densification whereby open bushveld, in the	Probability = 4 Intensity = 2 Duration = 3	Plants in this group are not alien plants, but indigenous plants that	Probability = 2 Intensity = 2 Duration = 2

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
absence of good veld management, become denser and dominated by stands of encroacher species.	Severity = $2 \times 3 = 6$ (Moderate Severity) (Rating 3) Significance = $4 \times 3 = 12$ Moderate Negative Significance	tend to become abnormally abundant when the area is degraded or mismanaged. - Monitor the establishment of dense stands of encroacher species and remove or thin as soon as detected. - Ensure that areas outside of the operational footprint that were disturbed, are adequately rehabilitated and prevent dense stands of encroacher species.	Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance
Soil and Surface Water Pollution	Probability = 3 Intensity = 2 Duration = 4 Severity = $2 \times 4 = 8$ (Moderate Severity) (Rating 3) Significance = $3 \times 3 = 9$ Moderate Negative Significance	The following precautions need to be taken to minimize the effects of accidental hydrocarbon spillages. - Tractors and other farming equipment need to be maintained on a regular basis and checked for leakages every morning. - If re-fuelling is to be done on site, drip trays need to be available. - No vehicles may be washed within naturally vegetated areas, except	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance

Potential Impacts	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
		in suitably designed and protected areas. • Strictly prohibit littering and make adequate dustbins available. • During spraying, prevent drift into natural vegetation. • Only sprays that are non-destructive for aquatic organism must be used. • Never spray before big weather events. • Plant filter crops to reduce eutrophication and agricultural runoff.	
Loss of Ecological connectivity (Drainage line and ESA)	Probability = 3 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 4$ (Low Severity) (Rating 2) Significance = $3 \times 2 = 6$ Low Negative Significance	Demarcate no-go areas to ensure no inadvertent activity occurs in these areas. Do not place any obstacles in this area (no cleared trees are to be dumped in the area). Allow movement of animals in natural areas.	Probability = 2 Intensity = 2 Duration = 2 Severity = $2 \times 2 = 2$ (Low Severity) (Rating 2) Significance = $2 \times 2 = 4$ Low Negative Significance

12 ASSUMPTIONS AND LIMITATIONS

12.1 ASSUMPTIONS

The scope of the EIA is limited to assessing the potential impacts associated with the proposed development, therefore the effect on the surrounding environment is based on the current land-use.

All information provided by the applicant is deemed valid and correct at the time it was provided.

12.2 LIMITATIONS / GAPS IN KNOWLEDGE

The study is limited by the amount of detailed information that could be provided at the time of modelling. The information collected by the EAP and specialists are deemed sufficient to submit a detailed environmental impact assessment for review by the Competent Authority.

13 IMPACT STATEMENT

The proposed project entails the clearance of natural vegetation and thus, the main impacts on the site and surrounding environment will be the fragmentation of the natural vegetation and intact habitat. Most of the impacts will be experienced during the construction or establishment phase as removal of natural vegetation and altering the landscape to allow for crop production is the main aim of the project.

Possible impacts can also be experienced during the operational phase of the project; however, these impacts can easily be mitigated by implementing the proposed mitigation measures such as implementing a monitoring and eradication plan for alien and invasive species.

The proposed project is situated within an area that is characterised by agricultural activities with natural areas adjacent to it. The largest extent of the proposed clearance area is characterised by Kimberley Thornveld vegetation that is not considered threatened. However, much of the vegetation on site was in a good ecological condition, and due to its size and limited disturbances, rates high in its functional integrity and medium SEI.

The main impacts from the proposed clearance of vegetation and establishment of new cultivated fields are the following:

- Fragmentation of natural vegetation and intact habitats
- Impact on ecological process such as fires that will be suppressed around the cultivated fields which could lead to bush densification.
- Impact on and loss of terrestrial fauna habitat.
- Alteration of the faunal community through altered food production.
- Preventing faunal dispersal through impairing the ecological corridor is considered moderately significant.
- Contamination of soil and downstream water resources.
- Increased dust generation.
- Impacts on cultural significant sites.

Impacts can also be experienced during the operational phase such as proliferation and spread of alien and invasive species into adjacent natural areas, pollution of soil and water resources and deterioration of intact natural habitats. These impacts and the possible impacts during the establishment phase can be mitigated by implementing the proposed mitigation measures such as the following:

- Keep the graves found at Point F (Refer to Heritage Impact Assessment) fenced and protected.
- If any cultural artifacts or graves are found during site clearance or operational activities, then the activities must be ceased in that area and the ECO informed.
- Implementation of a continuous eradication plan for alien and invasive species around the site and natural areas.
- Rehabilitation and monitoring of certain sections of the ESA.
- Clear demarcation of the proposed / authorised clearance footprints and conservation of the adjacent natural areas, buffer zones and the northern corridor (100 to 200m wide).
- Continuous service and maintenance of tractors and equipment on site. Establishing dedicated re-fuelling and service areas.
- The establishment of vegetative filter strips around existing cultivated fields and new proposed clearance areas.
- All natural areas that will not be developed for agricultural activities will be retained as no-go areas.
- Conduct quarterly water quality monitoring.

14 CONCLUSION AND RECOMMENDATIONS

The process within this EIR demonstrated through the description of activity and the assessment of impacts that the proposed development does not have any fatal flaws. The impacts on the natural vegetation will be permanent on the proposed footprint areas but will be limited to these areas with the implementation of the mitigation measures as recommended within this report as well as the specialist reports.

The Impact Assessment has also identified essential mitigation measures that will mitigate all other impacts associated with the activity to within acceptable levels. The layout plan incorporates the advice of specialists to minimize the impact on the environment.

The EAP is of the opinion that the development should be granted Environmental Authorization based on the assessment above as the negative impacts can be mitigated to a satisfactory level. The following mitigation measures must be included in the Environmental Authorization:

- An Environmental Control Officer must be appointed prior to the commencement of construction
- The authorized area to be cleared must be clearly demarcated
- All reports, including monitoring reports must always be available on site.
- A complaints register must be drafted and kept up to date, with responses on any complaints recorded with each complaint.
- The applicant, site manager, staff and any contractor must adhere to all mitigation measures in the EMPr. The EMPr is a legally binding document to all parties involved in the construction of the activity.
- An Alien and Invasive monitoring and eradication programme must be compiled and implemented throughout the construction and operational phases.
- No trees and other cleared material may be dumped within the adjacent natural areas.
- Vehicles and Equipment have to be maintained throughout the operations and drip trays and spill kits need to be available on site.
- Drainage line and riparian areas must be demarcated and clearly marked as a no go areas and the Northern corridor must be kept intact.

Environmental Authorization:

Should the Competent Authority decide to grant the Environmental Authorization for this application then the clearance of vegetation is the only non-operational aspect. The applicant will require 3 years to complete this aspect in phases.

15 REFERENCES

- ✚ National Environmental Management Act 1998 (Act 107 of 1998) Environmental Impact Assessment Regulations, 2014 as amended.
- ✚ Fisher R. 2017 Frances Baard District Municipality Wetland Report Local Action for Biodiversity (Lab), USAID/Southern Africa
- ✚ Integrated Development Plan, 2020-2021 Dikgatlong Local Municipality.
- ✚ National Environmental Management Act 1998 (Act 107 of 1998) Environmental Impact Assessment Regulations, 2014 as amended.
- ✚ Kasl. Barbara, Riverton Resources Agricultural Development, Terrestrial Fauna Species Assessment, October 2020.
- ✚ Eyssell A. 2020 Vegetation Clearing: Proposed clearing of indigenous vegetation on Prt 3 of the Farm Elands Drift south of Windsorton, Terrestrial Vegetation and Habitat Assessment.
- ✚ Leonie Marais, Heritage Practitioner, Phase 1 Heritage Impact Assessment (HIA) for the proposed Establishment of new cultivated fields on Remaining Extent of Portion 3 (Onverwag) of the Farm Elands Drift 159, Windorton District.