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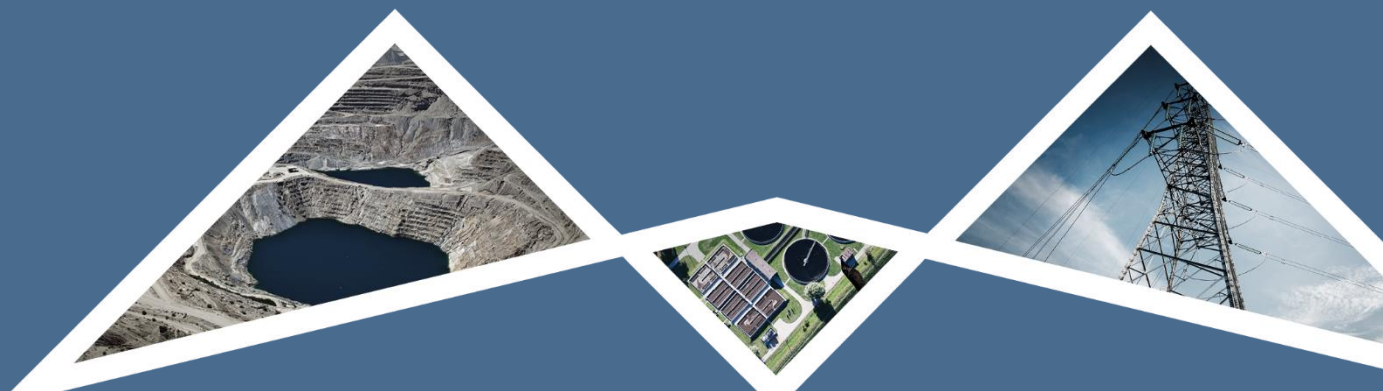
T 011 789 7170 E info@eims.co.za W www.eims.co.za

BASIC ASSESSMENT REPORT

GAMOHAAN SEVEN MILES 22KV POWERLINE

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	NAME	SIGNATURE	DATE
COMPILED:	Cheyenne Muthukarapan	Submitted electronically	2022/10/06
CHECKED:	Liam Whitlow	Submitted electronically	2022/10/06
AUTHORIZED:	Liam Whitlow	Submitted electronically	2022/10/06

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Table of Contents

List of Abbreviations	1
1 Introduction	1
1.1 Report Structure	1
1.2 Details of EAP	6
1.3 Specialist consultants	6
2 Description of the Project Area	7
3 Overview and Scope of the Proposed Activity	7
4 Policy and legislative context	10
4.1 Constitution of the Republic of South Africa	10
4.2 The National Environmental Management Act	10
4.3 The National Heritage Resources Act	10
4.4 Additional South African Legislation	11
5 Need and Desirability of the proposed activities	13
6 Motivation for the overall preferred site, activities and technology alternatives	31
7 Full Description of the process followed to reach the proposed preferred alternatives within the site	31
7.1 Details of development footprint alternative	31
7.1.1 Property	31
7.1.2 Type of activity	31
7.1.3 Design or Technology Alternatives	31
7.1.4 Operational aspects	31
7.1.5 Option of not implementing	31
7.2 Details of the Public participation followed	32
7.2.1 Identification of I&AP's	32
7.2.2 List of interested and affected parties Identified and Notified	32
7.2.3 Notification of I&AP's	32
7.3 Summary of Issues Raised by I&AP's	33
7.4 The environmental attributes associated with the alternatives	33
7.4.1 Socio-economic Context	33
7.4.2 Geology	34
7.4.3 Vegetation type	34
7.4.4 Ecosystem Protection Level and Threat Status	34
7.4.5 Ramsar Sites and World Heritage Sites	35
7.4.6 Description of current land Uses	45
7.5 Impacts and risks identified	45
7.6 Impact assessment methodology	46
7.6.1 Determination of Environmental Risk	46
7.6.2 Impact Prioritisation	48



7.7	Anticipated Impacts of the Proposed Activity	50
7.8	The possible mitigation measures that could be applied and the level of risk	52
8	Assessment methodology of impacts	54
9	Impact assessment of each of the potentially significant impacts and risks	55
10	Summary of specialist report	63
11	Summary of Key Findings	64
12	Proposed Impact Management Objectives and Outcomes	67
13	Description of Any Assumptions, Uncertainties And Gaps In Knowledge	67
14	Reasoned Opinion as to Whether the Proposed Activity Should or Should Not Be Authorised	69
14.1	Reasons Why the Activity Should be Authorised or Not	69
14.2	Conditions That Must Be Included in The Authorisation	69
15	Period for Which the Environmental Authorisation Is Required	69
16	Undertaking	69
17	Financial Provision	70
18	Bibliography	71

List of Figures

Figure 1:	Locality Map of the proposed Gamohaan Seven Miles 22kV Powerline	1
Figure 2:	Eskom Infrastructure Network in the Kuruman Area	30
Figure 3:	Some of the protected indigenous flora species recorded – A) <i>Vachellia erioloba</i> ; B) <i>Aloe hereroensis</i> ; C) <i>Lessertia frutescens</i> subsp. <i>frutescens</i> ; and D) <i>Bulbine abyssinica</i>	36
Figure 4:	Geological Map (Council of Geosciences, Pretoria) indicates that the proposed development is underlain by the Kalahari Group, Kogelbeen Formation and the Kuruman Formation	40
Figure 5:	Map Illustrating the Vegetation Types associated with the region	41
Figure 6:	Map illustrating the Ecosystem Threat Status associated with the proposed project area	42
Figure 7:	Map illustrating the Ecosystem Protection Level	43
Figure 8:	Map illustrating the habitats identified in the Project area	44
Figure 9:	Mitigation hierarchy (Research Gate, 2019)	52
Figure 10:	Final Composite Map for the proposed project	66

List of Tables

Table 1:	Report Structure	1
Table 2:	EAP Details	6
Table 3:	Project Area Description	7
Table 4:	Listed and Specific Activity	9



Table 5: Applicable legislation and guidelines overview	11
Table 6: Needs and desirability analysis for the proposed powerline	14
Table 7: Plant Species of Conservation Concern expected to occur in the application area (BODATSA-POSA, 2016)	35
Table 8: Mammal species recorded within the project area	37
Table 9: Summary of habitat types delineated within the Project Area	37
Table 10: Criteria for Determining Impact Consequence	46
Table 11: Probability Score	47
Table 12: Determination of Environmental Risk.....	47
Table 13: Significance Classes	48
Table 14: Criteria for Determining Prioritisation	48
Table 15: Determination of Prioritisation Factor.....	49
Table 16: Environmental Significance Rating.....	49
Table 17: Positive and Negative Impacts of the Proposed Project.....	51
Table 18: Pre-mitigation significance and Final significance	52
Table 19: Potential impacts Identified and associated mitigation measures.....	55
Table 20: Summary of Specialist Findings.....	63

Appendices

Appendix A: Details and Experience of the EAP

Appendix B: Public Participation

Appendix C: Maps

Appendix D: Specialist Reports

Appendix E: Impact Assessment Table

Appendix F: DEFF Screening Tool

Appendix G: Environmental Management Programme



LIST OF ABBREVIATIONS

BA	:	Basic Assessment
BPG	:	Best Practice Guidelines
CARA	:	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
CBA	:	Critical Biodiversity Area
DEA	:	Department of Environmental Affairs
DFFE	:	Department of Forestry, Fisheries and the Environment
DHSWS	:	Department of Human Settlements, Water and Sanitation
EA	:	Environmental Authorisation
EAP	:	Environmental Assessment Practitioner
ECA	:	Environmental Conservation Act (Act No. 73 of 1989)
EIA	:	Environmental Impact Assessment
EMPr	:	Environmental Management Programme Report
HIA	:	Heritage Impact Assessment
I&APs	:	Interested and Affected Parties
IDP	:	Integrated Development Plan
KPI	:	Key Performance Indicator
LED	:	Local Economic Development
NEMA	:	National Environmental Management Act (Act No. 107 of 1998)
NEM:BA	:	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NEM:PAA	:	National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
NFA	:	National Forests Act (Act No. 84 of 1998)
NHRA	:	National Heritage Resources Act (Act No. 25 of 1999)
PDA	:	Palaeontological Desktop Assessment
PPP	:	Public Participation Process
SAHRA	:	South African Heritage Resources Agency
SAHRIS	:	South African Heritage Resources Information System
SDF	:	Spatial Development Framework
TOPS	:	Threatened or Protected Species
VTU	:	Vegetation Type Units



1 INTRODUCTION

The applicant, Eskom Holdings Soc. Ltd, Eskom Distribution – Northern Cape Operating Unit (hereafter referred to as Eskom, wishes to construct a 22kV powerline from the existing Gamohaam Sub-station towards Seven Miles where it will cross the Kuruman watercourse. The proposed construction of the powerline will require an Environmental Authorisation (EA) for the removal of indigenous vegetation and a General Authorisation (GA) for the crossing of the Kuruman watercourse. The proposed development will include the installation of a wooden pole of about 30cm in diameter for each pylon structure (~ 86 pylons required). A vertical drill will create a hole and the pole will be dropped in the hole by a crane. No cementing will be necessary. EIMS has been appointed by Eskom to undertake the EA and GA process for the project.

The proposed new 22kV powerline route will run from the existing Gamohaam substation along the R31 provincial road toward Kuruman town where the powerline will turn north at the Bathlaros intersection for 1,1km towards the community of Mamoratwe at which point the powerline will turn east towards Seven Miles where it will cross the Kuruman watercourse. The section of the proposed powerline that runs parallel to the R31 and then turns north towards Mamoratwe will require the surface removal of indigenous vegetation, using chainsaws and cutters, which will require an EA prior to commencement of the activity. The proposed powerline will be located on the remaining extent of the Farm Kuruman Reserve 690 (Figure 1). The proposed powerline can be divided into two sections. The Section 1 route runs parallel to R31. A preferred and alternative route for section 1 has been identified as indicated in Figure 1. Section 2 consists of only the preferred route as the route will run through an existing servitude towards the established community of Mamoratwe. The start, middle and end coordinates of the proposed powerline are:

- Start Point (Preferred): 27°22'45.905"S, 23°21'40.352"E;
- Start Point (Alternative): 27°22'45.476"S, 23°21'40.622"E;
- Middle Point (Preferred): 27°23'23.399"S, 23°22'55.254"E;
- End Point: 27°22'10.47"S, 23°24'11.682"E.

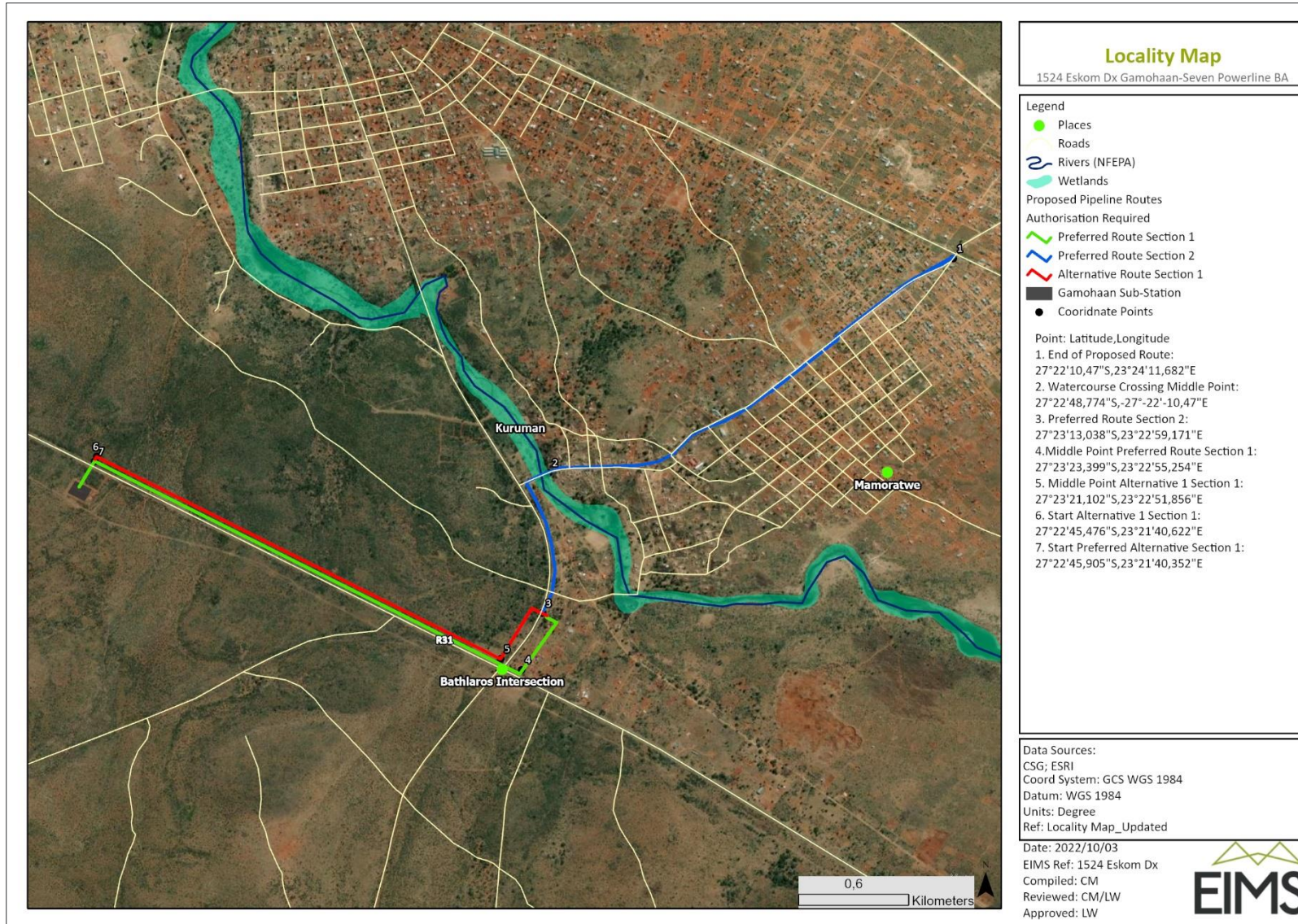


Figure 1: Locality Map of the proposed Gamohaam Seven Miles 22kV Powerline



1.1 REPORT STRUCTURE

This report has been compiled in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: Report Structure

Environmental Regulation	Description	Section in Report
NEMA EIA Regulations, 2014		
Appendix 1(3)(a):	Details of – The EAP who prepared the report; and The expertise of the EAP, including a curriculum vitae;	Section 1.2 Section 1.2
Appendix 1(3)(b):	The location of the activity, including: <ul style="list-style-type: none"> • The 21-digit Surveyor General code of each cadastral land parcel; • Where available, the physical address and farm name; and • Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties; 	Section 2
Appendix 1(3)(c):	A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – <ul style="list-style-type: none"> • A linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; • On land where the property has not been defined, the coordinates within which the activity is to be undertaken; 	Section 1 and 2
Appendix 1(3)(d):	A description of the scope of the proposed activity, including – <ul style="list-style-type: none"> • All listed and specified activities triggered and being applied for; and • A description of the activities to be undertaken including associated structures and infrastructure; 	Section 3
Appendix 1(3)(e):	A description of the policy and legislative context within which the development is proposed including –	Section 4



Environmental Regulation	Description	Section in Report
NEMA EIA Regulations, 2014		
	<ul style="list-style-type: none"> • An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and • How the proposed activity complies with and responds to the legislation and policy context plans, guidelines, tools frameworks, and instruments; 	
Appendix 1(3)(f):	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;	Section 5
Appendix 1(3)(g):	A motivation for the preferred site, activity, and technology alternative;	Section 6 and Section 7.1
Appendix 1(3)(h):	<p>A full description of the process followed to reach the proposed alternative within the site, including:</p> <ul style="list-style-type: none"> • Details of all the alternatives considered; • Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; • 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; • The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage, and cultural aspects; • The impacts and risks identified for each alternative including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts – <ul style="list-style-type: none"> ○ Can be reversed; ○ May cause irreplaceable loss of resources; and ○ Can be avoided, managed, or mitigated; • The methodology used in determining and ranking the nature, significance, consequences, extent duration and probability of potential environmental impacts and risks associated with the alternatives; • 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; • The possible mitigation measures that could be applied and level of residual risk; 	<p>Section 7</p> <p>Section 7.1</p> <p>Section 7.2</p> <p>Section 7.3</p> <p>Section 7.3</p> <p>Section 7.4</p> <p>Section 7.5</p> <p>Section 7.5, 7.6 and 9</p> <p>Section 7.8</p> <p>Section 8</p> <p>Section 8</p>



Environmental Regulation	Description	Section in Report
NEMA EIA Regulations, 2014		
	<ul style="list-style-type: none"> • The outcome of the site selection matrix; • If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and • A concluding statement indicating the preferred alternatives, including preferred location of the activity; 	Section 9
Appendix 1(3)(i):	<p>A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including –</p> <ul style="list-style-type: none"> • A description of all environmental issues and risks that were identified during the environmental impact assessment process; and • 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; 	Section 8
Appendix 1(3)(j):	<p>An assessment of each identified potentially significant impact and risk, including –</p> <ul style="list-style-type: none"> • Cumulative impacts; • The nature, significance and consequence of the impact and risk; • The extent and duration of the impact and risk; • The probability of the impact and risk occurring; • The degree to which the impact and risk can be reversed; • The degree to which the impact and risk may cause irreplaceable loss of resources; and • The degree to which the impact and risk can be mitigated; 	Section 9
Appendix 1(3)(k):	<p>Where applicable, a summary of the findings and impact management measures identified in 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 report;</p>	Section 10
Appendix 1(3)(l):	<p>An environmental impact statement which contains –</p> <ul style="list-style-type: none"> • A summary of the key findings of the environmental impact assessment; • A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and 	Section 11



Environmental Regulation	Description	Section in Report
NEMA EIA Regulations, 2014		
	<ul style="list-style-type: none"> A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives; 	
Appendix 1(3)(m):	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPR;	Section 12
Appendix 1(3)(n):	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 14.2
Appendix 1(3)(o):	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 13
Appendix 1(3)(p):	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 14
Appendix 1(3)(q):	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 monitoring requirements finalised;	N/A
Appendix 1(3)(r):	An undertaking under oath or affirmation by the EAP in relation to: <ul style="list-style-type: none"> The correctness of the information provided in the reports; The inclusion of comments and inputs from stakeholders and I&Ps; The inclusion of inputs and recommendations from the specialist reports where relevant; and Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; 	Section 16
Appendix 1(3)(s):	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Not applicable
Appendix 1(3)(t):	Any specific information that may be required by the competent authority; and	None



Environmental Regulation	Description	Section in Report
NEMA EIA Regulations, 2014		
Appendix 1(3)(u):	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	None



1.2 DETAILS OF EAP

EIMS was appointed by the Applicant to fulfil the role of Environmental Assessment Practitioner (EAP) to compile this report. The contact details of the EAP's who compiled the report are as follows:

Table 2: EAP Details

Name of Practitioner	Mr Liam Whitlow (Project Director/EAP)	Ms Cheyenne Muthukarapan (Project Manager/ Consultant)
Tel No.:	011 789 7170	011 789 7170
Fax No.:	086 571 9047	086 571 9047
E-mail:	liam@eims.co.za	cheyenne@eims.co.za

In terms of Regulation 13 of the EIA Regulations, 2014, an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BA process and the compilation of this report are attached as Appendix A.

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 28 years' experience in conducting EIAs, including many EIA's for mines and mining related projects.

Mr Liam Whitlow's professional experience, gained over more than 18 years, lies mainly with environmental impact assessments including project managing significantly large EIA's in the mining and infrastructure sectors. Liam's other experience includes ISO14001, Site Assessments, Water-use licensing, Environmental monitoring, and Environmental Management Plans. Liam's experience lies mainly within South Africa, but he has been involved in projects in both Lesotho and Botswana.

Ms Cheyenne Muthukarapan holds a Bachelor of Science degree in Environmental and Geographical Science from the University of Cape Town and an Advanced Diploma in Business Project Management from the University of Cape Town. Her expertise lies in impact assessments, public consultation/participation processes and sustainability consulting. She has participated in numerous public/stakeholder consultations in relation to environmental impacts, and the formulation of sustainable solutions to various environmental problems.

1.3 SPECIALIST CONSULTANTS

Specialist studies have been undertaken to address the key impacts that require further investigation, and these include:

- Ecological and Aquatic Assessment (undertaken by the Biodiversity Company); and
- Heritage and Palaeontological Assessment (undertaken by PGS (Pty) Ltd).



The specialist studies involved the gathering of data relevant to identifying and assessing environmental impacts that may occur as a result of the proposed project. These impacts were assessed according to pre-defined impact rating methodology (Section 8). Mitigation / management measures to minimise potential negative impacts or enhance potential benefits are put forward in this BA Report. The specialist reports that informed this BA report are included in Appendix C.

2 DESCRIPTION OF THE PROJECT AREA

Table 3 indicates the details of the project area for the proposed project including details on the project location as well as the distance from the proposed project area to the nearest towns.

Table 3: Project Area Description

Project Area	The proposed new 22kV powerline route will run from the existing Gamohaam substation along the R31 provincial road toward Kuruman Town where the powerline will turn north at the Bathlaros intersection for 1,1km towards the community of Mamoratwe at which point the powerline will turn east towards Seven Miles where it will cross the Kuruman watercourse.
Farm Name	The proposed linear activity will be located on portion 0 (remaining extent) of the farm Kuruman Reserve 690.
Local Municipality	Ga-Segonyana Local Municipality.
District Municipalities	John Taolo Gaetsewe District Municipality.
Distance from the nearest town	Approximately 10km of the Town Kuruman.
21 Digit Surveyor General code for affected property	C04100000000069000000

3 OVERVIEW AND SCOPE OF THE PROPOSED ACTIVITY

The proposed project will include the construction of a 22kV powerline using wooden pole structures. Selected vegetation, using chainsaws and cutters, will be trimmed and/or cleared where necessary of indigenous vegetation for section 1 of the proposed route. As far as possible, the topsoil will not be disturbed during the construction process. A vertical drill will be used to drill a 2m to 3m deep hole in which the 30cm diameter wooden pole will be placed. The wooden poles will be placed in the hole using a crane. Due to the precision of the drill no cementing will be required. The erection of the wood pole structures after the structure has been assembled (the wood pole is fitted with a crossarm and 3 isolators) will take 3 days. Automatic stringing gear will be used to string the conductors between the poles. During the lifespan of the powerline on-going maintenance will be performed annually. Eskom maintenance staff and contractors employed by Eskom will undertake the maintenance works as required.

The clearance of indigenous vegetation for section 1 of the powerline will require environmental authorisation. Section 2 of the proposed powerline will cross the Kuruman watercourse and will require a general authorisation. An application for a general authorisation registration has been lodged with the Department of Human Settlements, Water and Sanitation (DHSWS). No clearance of vegetation will be required for section 2 of the powerline as the powerline will use an existing servitude running through the established community, however, several camel thorn trees will need to be trimmed or cut where necessary along the route.. The placement of poles along the road for section 2 of the powerline will alternate on either side of the main road. The construction of the proposed powerline will use existing access roads therefore, no additional access routes will be required. The construction camp will either be located at the existing Gamohaam Sub-station, or the applicant will use an unoccupied, clear plot within the community.



Table 4 outlines the activities applied for in terms of the NEMA for the proposed construction of the powerline.



Table 4: Listed and Specific Activity

Name of activity	Aerial extent of the activity	Listed Activity	Applicable listing notice	Environmental authorisation
Clearance of indigenous vegetation	The proposed activity will require the clearing of indigenous vegetation of more than 300 square metres inside a Critical Biodiversity Area 2 (CBA 2) and an Ecological Support Area. Approximately 30 000 square meters of vegetation will be impacted, where necessary for the construction of the powerline. Chainsaws and cutters will be used to trim and/or remove the vegetation. Topsoil disturbance will be limited to only where necessary. In addition, approximately 30 Camel Thorn Trees will be impacted, either through cutting or trimming, during the construction process.	X	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p>G. Northern Cape: ii. Within critical biodiversity areas identified in bioregional plans.</p>	X



4 POLICY AND LEGISLATIVE CONTEXT

4.1 Constitution of the Republic of South Africa

The constitution of any country is the supreme law of that country. The Bill of Rights in chapter 2 section 24 of the Constitution of South Africa Act (Act No. 108 of 1996) makes provisions for environmental issues and declares that: *“Everyone has the right –*

- a) to an environment that is not harmful to their health or well-being; and*
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
 - i. prevent pollution and ecological degradation;*
 - ii. promote conservation; and*
 - iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”**

The BA and associated impact mitigation actions are conducted to fulfil the requirement of the Bill of Rights.

4.2 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT

The main aim of the National Environmental Management Act, 1998 (Act 107 of 1998 – NEMA) is to provide for co-operative governance by establishing decision-making principles on matters affecting the environment. In terms of the NEMA EIA Regulations, the applicant is required to appoint an EAP to undertake the EIA process, as well as conduct the public participation process towards an application for EA. In South Africa, EIA’s became a legal requirement in 1997 with the promulgation of regulations under the Environment Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed and reported on to the competent authority responsible for granting the relevant EA. On 21 April 2006, the Minister of Environmental Affairs and Tourism (now Department of Environment, Forestry and Fisheries – DFFE) promulgated regulations in terms of Chapter 5 of the NEMA. These regulations, in terms of the NEMA, were amended in June 2010 and again in December 2014 as well as April 2017. The NEMA EIA Regulations, 2014, as amended, are applicable to this project. Exploration activities officially became governable under the NEMA EIA Regulations in December 2014 with the competent authority identified as the DMRE.

The objective of the EIA Regulations is to establish the procedures that must be followed in the consideration, investigation, assessment and reporting of the listed activities that are triggered by the proposed project. The purpose of these procedures is to provide the competent authority with adequate information to make informed decisions which ensure that activities which may impact negatively on the environment to an unacceptable degree are not authorised, and that activities which are authorised are undertaken in such a manner that the environmental impacts are managed to acceptable levels.

In accordance with the provisions of Sections 24(5) and Section 44 of the NEMA the Minister has published Regulations (GN R. 982) pertaining to the required process for conducting EIA’s in order to apply for, and be considered for, the issuing of an EA. These EIA Regulations provide a detailed description of the EIA process to be followed when applying for EA for any listed activity. Table 4 above identifies the applicable listed activity that requires environmental authorisation.

4.3 THE NATIONAL HERITAGE RESOURCES ACT

The National Heritage Resources Act (NHRA) (Act 25 of 1999) stipulates that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34(1) of the NHRA states that, “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. Heritage assessments are included as a component of Environmental Impacts Processes required by NEMA. The NEMA 23(2)(b) states that integrated



environmental management should, "...identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage".

A study of subsections (23)(2)(d), (29)(1)(d), (32)(2)(d) and (34)(b) of the NHRA and their requirements reveals the compulsory inclusion of the identification of cultural resources, the evaluation of the impacts of the proposed activity on these resources, the identification of alternatives and the management procedures for such cultural resources for each of the documents noted in the Environmental Regulations.

4.4 ADDITIONAL SOUTH AFRICAN LEGISLATION

Additional legislation may be applicable to the proposed project. These are presented in Table 5 below.

Table 5: Applicable legislation and guidelines overview

Applicable Legislation and Guidelines	Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA)	Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GN R. 151 dated 23 February 2007, as amended in GN R. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed. In addition, the Alien and Invasive Species Regulations serve to define and regulate the various categories of Alien and Invasive Species and were recently updated and published in terms of NEM:BA in the Government Gazette No. 43735 of 25 September 2020. The 2020 Alien and Invasive Species Regulations and Lists were recently extended as published in the Government Gazette No. 44182, 24th of February 2021.	The project will involve the clearance of more than 300 hectares of indigenous vegetation for the purposes of constructing the powerline. Several TOPS species were recorded by the specialist during the site visit, and therefore a TOPS permit must be obtained should any of these species be impacted upon.
National Environmental Management: Waste Act (No. 59 of 2008) National Environmental Management	Waste generation	Waste from the construction of the powerline will not trigger a listed activity in terms of GN 921, Category A, B or C, hence no Waste Management Licence will be applied for.
National Environmental Management: Air Quality Act (No. 39 of 2004) and National Dust Control Regulations (2013)	Section 9 and the EMPr assesses the impact of the generation of dust during the construction of the powerline	Mitigation measures relating to the management of dust impacts are included in the EMPr.



Applicable Legislation and Guidelines	Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
National Environmental Management: GNR 2313 Adoption of the Standard for the development and expansion of power lines and substations within identified geographical areas and the exclusion of this infrastructure from the requirement to obtain an EA	6. The Standard and the exclusions do not apply in the following instances: 6.1 Where any part of the infrastructure occurs on an area for which the environmental sensitivity for any environmental theme is identified as being very high or high by the national web based environmental screening tool and confirmed to be such through the application of the procedures set out in the Standard;	The Terrestrial Biodiversity Theme was classified as Very high/High by the national web-based screening and was also confirmed by the specialist appointed as very high/high.
SANS 10103 (Noise Regulations)	Section 9 and the EMPr assesses the impact of noise impacts during the construction of the powerline.	Mitigation measures relating to the management of noise impacts are included in the EMPr.
Occupational Health and Safety Act (No. 85 of 1993)	Refer to section 9 and the EMPr. General duties of employers to their employees	Mitigation measures ensuring the health and safety of employees are included in the EMPr.
National Forests Act (Act No. 30 of 1998)	Species listed as protected under the National Forests Act may not be disturbed in any manner without the appropriate permit	Section 1 of the proposed project area is situated amongst natural indigenous vegetation. Several Camel thorn trees will be impacted during the construction process. A permit will be required for the cutting or trimming of this protected species.
Northern Cape Nature Conservation Act (Act No 9. Of 2009)	The Northern Cape Nature Conservation Act provides inter alia for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province.	Section 1 of the proposed project area is situated amongst natural indigenous vegetation. A permit may be required for site clearing and/ or for the destruction of any nationally or provincially listed protected species.
Integrated Development Plan (IDP) of John Taolo Gaetsewe District Municipality	The IDP for the district provides a situational analysis of the state of the district and proposed programmes to address the needs of the district.	Section 5 below provides the need an desirability for the proposed project.
Integrated Development Plan (IDP) of Ga-Segonyana Local Municipality	The IDP for the local municipality provides a situational analysis of the state of the municipality and proposed programmes to address its needs. Strategic Goal I1: Develop and maintain infrastructural and	Section 5 below provides the need an desirability for the proposed project.



Applicable Legislation and Guidelines	Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
	community services allows for the growth of electricity infrastructure.	

5 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The proposed powerline project forms part of an electrification project funded by the Department of Mineral Resources and Energy (DMRE) and is dependent on the completion of the Gamohaan 132kV/ 22kV sub-station (CN-STM-1704-4140). Furthermore, the proposed powerline will provide relief to constraints currently experienced on the Riries- Maruping 22kV overhead line, as indicated by the orange network in Figure 2, during the peak period. The integrated development plan (IDP) of John Taolo Gaetsewe District Municipality, indicated that there is a need for electricity in the Seven Miles and Mokala-Mosesane residential areas and is identified as one of the high priority needs of the community. This project will unlock capacity for the new electrification loads in the areas.

The project will provide several benefits as listed below:

- Additional capacity will be created to supply the growth on the network;
- Improved network flexibility; and
- Electrification of communities.

Conversely, should the project not be implemented the following consequences would be experienced:

- Additional capacity will not be created to supply the growth from future Electrification projects and future developments by other customers;
- Negative impact on the feeder's performance; and
- Negative impact on economy.



Table 6: Needs and desirability analysis for the proposed powerline.

Ref No.	Question	Analysis Discussion
1	Securing ecological sustainable development and use of natural resources	
1.1	<p>How were the ecological integrity considerations taken into account in terms of: Threatened Ecosystems, Sensitive and vulnerable ecosystems, Critical Biodiversity Areas, Ecological Support Systems, Conservation Targets, Ecological drivers of the ecosystem, Environmental Management Framework, Spatial Development Framework (SDF) and global and international responsibilities.</p>	<p>After running the National Web based Environmental Screening Tool (Appendix F) specialist studies that were identified included:</p> <ul style="list-style-type: none"> • Landscape/ Visual Impact Assessment; • Archaeological and Cultural Heritage Impact Assessment; • Palaeontology Impact Assessment; • Terrestrial Biodiversity Impact assessment; • Aquatic Biodiversity Impact Assessment; • Socio-economic Impact Assessment; • Plant Species Assessment; and • Animal Species Assessment. <p>After further desktop analysis of the proposed project area, as well as a site visit, a terrestrial biodiversity and wetland assessment and a heritage and palaeontological assessment was considered necessary by the EAP and was conducted by the required specialists. The Terrestrial biodiversity and wetland assessment includes an assessment of aquatic biodiversity, plant species and animal species. The decision of required specialist studies was informed based on the location of the proposed project, and the nature of the activity. Both the preferred and alternative routes for section 1 of the proposed powerline falls within a naturally vegetated area and section 2 falls within an established residential community. The proposed powerline crosses the Kuruman Watercourse. A landscape/visual impact assessment was considered unnecessary as only the surface clearance of vegetation will be required. In addition, section 2 of the proposed route falls within an established residential community and therefore, the proposed powerline route will be consistent with the existing land use of the surrounding environment.</p>



Ref No.	Question	Analysis Discussion
		<p>The specialist impact assessments involved the gathering of data relevant to identifying and assessing environmental impacts that may occur because of the proposed powerline. These impacts were assessed according to the EIMS pre-defined impact significance rating methodology (Section 8). The specialists have also recommended appropriate mitigation/ management or optimisation measures to minimise potential negative impacts or enhance potential benefits, respectively.</p> <p>The integrated development plan (IDP) of John Taolo Gaetsewe District Municipality, indicated that there is a need for electricity in the Seven Miles and Mokala-Mosesane residential areas and is identified as one of the high priority needs of the community. This project will unlock capacity for the new electrification loads in the areas.</p>
1.2	<p>How will this project disturb or enhance ecosystems and / or result in the loss or protection of biological diversity? What measures were explored to avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts?</p>	<p>Refer to baseline ecological information in Section 7.4, and the impact assessment and mitigation measures in Section 8 of this Report and the EMPr. Efforts will be made to avoid any identified impacts/ disturbance to sensitive environmental features. Efforts will be made to avoid any identified impacts/ disturbance to sensitive environmental constraints.</p>
1.3	<p>How will this development pollute and / or degrade the biophysical environment? What measures were explored to either avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts?</p>	<p>Refer to the alternatives considered for this project in Section 7, the baseline ecological information in Section 7.4 and the impact assessment and mitigation measures in Section 8 and 9 of this Report.</p>
1.4	<p>What waste will be generated by this development? What measures were explored to avoid waste, and where waste could not be</p>	<p>Waste impacts includes the storage of organic waste and littering during the construction of the proposed powerline. Refer to Section 7.1 for alternatives considered and Section 9 and the EMPr for possible impact and mitigation measures relating to waste.</p>



Ref No.	Question	Analysis Discussion
	<p>avoided altogether, what measures were explored to minimise, reuse and / or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	
<p>1.5</p>	<p>How will this project disturb or enhance landscapes and / or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts?</p>	<p>Heritage and Palaeontological specialist assessments were conducted to identify any possible impacts from the proposed activities and mitigation measures. Refer to Appendix A for copies of the specialist reports. The possible impacts and associated mitigation measures as identified by the specialist was also included as part of Section 9 and the EMPr.</p>
<p>1.6</p>	<p>How will this project use and / or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts?</p>	<p>Soil is considered a non-renewable resource due to the extremely long period it takes for soil to form through natural erosion, etc. Section 9 identifies potential risks to erosion and provides proposed mitigation measures to reduce erosion of exposed soils.</p>
<p>1.7</p>	<p>How will this project use and / or impact on renewable natural resources and the ecosystem of which they are part? Will the use</p>	<p>No renewable resources are anticipated to be used and no impacts on renewable resources are expected as a part of the proposed activities.</p>



Ref No.	Question	Analysis Discussion
	of the resources and / or impacts on the ecosystem jeopardise the integrity of the resource and / or system considering carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	
1.7.1	Does the proposed project exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)?	It is not anticipated that the project will exacerbate the increased dependency of the natural resources. However, the proposed project will contribute towards to economic growth in the area.
1.7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used?	Section 1 of the proposed route will require the surface removal of natural vegetation for the construction process. This area will be rehabilitated post-construction. Section 2 of the route falls within an established residential community. The proposed powerline will have minimal impact of the natural resources in the area. The alternative will be for the powerline to not be constructed. .
1.7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	While the proposed project will not reduce the dependency on the natural resource, the proposed powerline will allow for the electrification of the Seven-Miles community therefore, reducing constraints on the existing electricity network. This will allow for future economic growth in the area.
1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts	



Ref No.	Question	Analysis Discussion
1.8.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	<p>The exact number and location of each protected plant species within the proposed development footprint is not known however the Biodiversity Specialist did identify the presence of, or high probability of occurrence of, certain protected plant species. The EMPr includes a requirement for a specialist walkthrough to identify any protected species within the development footprint and to oversee the relocation of these plants, if required, prior to any construction.</p> <p>Additionally, chance finds with regards to cultural heritage and palaeontology is a possibility during construction of the powerline. A chance find protocol was developed by the heritage/ palaeontology specialist.</p>
1.8.2	What is the level of risk associated with the limits of current knowledge?	The uncertainties mentioned in 1.8.1 above have been mitigated in the EMPr, which if followed, will attribute a low risk to any uncertainties.
1.8.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	<p>A specialist Biodiversity impact assessment was undertaken to determine the impacts on ecology. Based on the findings of the specialist study, no fatal flaws were identified which would prohibit the construction of the powerline. Furthermore, the clearing of vegetation would not cause a significant impact on the ecological status of the surrounding environment. Suitable mitigation measures have been put forward for the identified impacts and this is considered adequate in terms of a risk-averse and cautious approach to the development.</p>
1.9	How will the ecological impacts be resulting from this development impact on people's environmental right in terms following?	
1.9.1	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	Refer to the identified impacts, their assessment and recommended mitigation measures in EMPr. The proposed powerline will not have a negative impact on access to resources or any loss of amenities.



Ref No.	Question	Analysis Discussion
1.9.2	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Refer to the identified impacts, their assessment and recommended mitigation measures in the EMPr. In summary, the only positive impacts will be to the local economy through the electrification of the Seven-Miles area.
1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to baseline ecological information in Section 7.4.1, and the impact assessment and mitigation measures in the EMPr. No dependencies are expected to be negatively impacted on. The proposed powerline is not anticipated to negatively impact on any resources that might be used by the surrounding communities. If any cultural or heritage resources are identified during development, a chance find procedure as described by the heritage specialist will be implemented to mitigate any negative impacts. The proposed project will result in the electrification of the Seven-Miles area.
1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report. The proposed project will result in the temporary surface loss of natural vegetation however, the impact is anticipated to be low.
1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Refer to Section 7.1 for details of the alternatives considered, as well as this section of the Report for the advantages and disadvantages of the proposed activity. An alternative for section 1 of the route was assessed, however, the impacts of the alternative remain the same as that of the preferred route. The no-go alternative was also considered in this assessment.
1.13	Describe the positive and negative cumulative ecological / biophysical impacts bearing in mind the size, scale, scope and nature of the	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr. The proposed project will contribute to the temporary surface loss of natural vegetation and could potentially impact on cultural resources if a chance find occurs. The proposed powerline will allow for the greater electrification of the Seven-Miles area and could further result in greater economic growth in



Ref No.	Question	Analysis Discussion
	project in relation to its location and existing and other planned developments in the area?	the region. A positive cumulative impact is expected as the proposed project will reduce constraints experienced in the current network.
2	Promoting justifiable economic and social development	
2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following?	
2.1.1	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks or policies applicable to the area,	Strategic Goal I1: Develop and maintain infrastructural and community services as per the IDP for Ga-Segonyana, indicates that there is opportunity for new projects to provide electricity to communities. This is consistent with the IDP for the District Municipality. The electrification of the Seven-Miles area could result in economic growth as it will allow for further development in the area.
2.1.2	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	The LM has no Spatial Development Framework (SDF) or Land Use Scheme (LUS) to date. However, even though a small project, the proposed powerline aligns with the municipalities ideals as set out in the IDP as it will contribute to sustainable economic growth and electrification, which is much needed in the municipality. This is further exacerbated by the municipality's Strategic Goal I1: Develop and maintain infrastructural and community services.
2.1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	The preferred location for proposed powerline falls within a CBA area and an established residential community The proposed project aligns with the surrounding land uses.
2.1.4	Municipal Economic Development Strategy ("LED Strategy").	The LM has no LED to date. However, even though a small project, the proposed powerline aligns with the municipalities ideals as set out in the IDP as it will contribute to sustainable economic growth and electrification, which is much needed in the municipality. This is further exacerbated by the municipality's Strategic Goal I1: Develop and maintain infrastructural and community services. Additional electrification in the area could lead to further developments in the area.
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate	Job creation for local residents as far as reasonably possible, if possible. Should the project proceed, there will be additional electrification of the Seven-Miles area. Identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr.



Ref No.	Question	Analysis Discussion
	elements/aspects), and specifically also on the socio-economic objectives of the area?	
2.2.1	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	The proposed development aligns and compliments the Strategic Goal I1: Develop and maintain infrastructural and community services of the LM IDP.
2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	Issues raised at community meetings, as identified in the LM IDP, includes issues relating to electricity. This project provides an opportunity to resolve some of the challenges experienced by the affected community.
2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	The need for additional electrification will support the growth of the community and in the long-term economic growth through increased opportunities for development in the area.
2.5	In terms of location, describe how the placement of the proposed development will:	
2.5.1	Result in the creation of residential and employment opportunities in close proximity to or integrated with each other.	Should the project proceed, local labourers will be utilised as far as possible for the construction process.
2.5.2	Reduce the need for transport of people and goods.	The proposed project will not have an increase on the need for transportation of goods and people as the proposed project will allow for greater electrification in the area.
2.5.3	Result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification	The proposed project will not have an increase in the use of public transport as the proposed project will allow for greater electrification in the area.



Ref No.	Question	Analysis Discussion
	and the achievement of thresholds in terms public transport),	
2.5.4	Compliment other uses in the area,	The section 1 of the proposed powerline will require the temporary removal of surface vegetation. Section 2 of the powerline is consistent with the existing land use as it will run through an existing residential community.
2.5.5	Be in line with the planning for the area.	Refer to item 2.1.2 of this table (above).
2.5.6	For urban related development, make use of underutilised land available with the urban edge.	The proposed powerline will be constructed in existing servitudes where possible.
2.5.7	Optimise the use of existing resources and infrastructure.	The proposed new powerline will relieve constrain on the exiting electricity network optimising the operation of the existing network.
2.5.8	Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement).	Refer to Section 7.1 of this Report.
2.5.9	Discourage "urban sprawl" and contribute to compaction / densification.	The proposed project will not have an impact on urban sprawl and compaction/densification as the project location is the construction of a powerline for an existing community.
2.5.10	Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs.	Refer to items 2.5.7 to 2.5.9 of this table (above).



Ref No.	Question	Analysis Discussion
2.5.11	Encourage environmentally sustainable land development practices and processes.	The proposed project will utilise existing servitudes as far as possible. Furthermore, the additional electricity capacity in the area will result in a more stable electricity supply limiting the community's reliance on other sources for energy provision.
2.5.12	Consider special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.).	See item 1.7.3 of this table (above).
2.5.13	The investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential).	The proposed project will allow for future contribution to the local, regional and national Gross Domestic Product (GDPs), and also to the local communities through promotion of development in the area.
2.5.14	Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area.	The proposed locality will transect natural vegetation and utilise existing servitudes where possible. Therefore, no sense of history or heritage will be lost.
2.5.15	In terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	The proposed project will have little impact on settlement patterns. Section 2 of the proposed powerline falls within an existing community and the additional electricity capacity could result in more people moving into the area. Section 1 of the powerline is classified as a CBA which is not demarcated for residential development.
2.6	How was a risk-averse and cautious approach applied in terms of socio-economic impacts	
2.6.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	The assumptions and limitations are presented in Section 13 of this report.
2.6.2	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic	The level of risk is low as the project is not expected to have negative impacts on socio-economic conditions.



Ref No.	Question	Analysis Discussion
	vulnerability and sustainability) associated with the limits of current knowledge?	
2.6.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	As the proposed project is a new development a cautious approach has been applied. An extensive public participation process was undertaken to ensure that the local community and relevant authorities were notified of the proposed project.
2.7	How will the socio-economic impacts resulting from this development, impact on people's environmental right in terms of the following:	
2.7.1	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and in the EMPr. In summary the predominant negative effects identified are associated with the impact on the CBA as a result of the clearance of surface vegetation.
2.7.2	Positive impacts. What measures were taken to enhance positive impacts?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr. In summary, local employment will be prioritised, if possible.
2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	Refer to the identified impacts, their assessment and recommended mitigation measures in 9 of this Report. The proposed development will have a significant positive impact on human-wellbeing and ecosystem services as additional electricity infrastructure in the area will improve the quality of life for the community. There will be a negative impact on the ecology of the area as natural vegetation will need to be cleared in order to construct section 1 of the proposed powerline. These impacts could be minimised if the proposed mitigation measures are carried out.
2.9	What measures were taken to pursue the selection of the "best practicable	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report. Additionally, see item 2.8 of this table (above).



Ref No.	Question	Analysis Discussion
	environmental option" in terms of socio-economic considerations?	
2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr. The preferred alternative for section 1 is considered the best practicable environmental option as the alternative for section 1 is considered to be more sensitive from an ecological perspective.
2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	By conducting a EIA and EIA process, with an adequate public participation process, the applicant ensures that equitable access to the environment has been considered. Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr.
2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 this Report and the EMPr.
2.13	What measures were taken to:	



Ref No.	Question	Analysis Discussion
2.13.1	Ensure the participation of all interested and affected parties.	<p>Refer to the public participation process undertaken to date in Section 7.2 of this Report. Public participation and consultation will continue during the BAR public review and comment period.</p> <p>Advertisements as well as site notices were distributed in and around the project area in English and Setswana to assist in understanding the project. The notices and advertisements included contact details for easy access to the public participation specialist if any additional information is required by anyone from the public. The public is encouraged to participate and provide input which will then be recorded and submitted with the relevant reports to the competent authority.</p>
2.13.2	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
2.13.3	Ensure participation by vulnerable and disadvantaged persons,	
2.13.4	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	
2.13.5	Ensure openness and transparency, and access to information in terms of the process,	
2.13.6	Ensure that the interests, needs and values of all interested and affected parties were considered, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge,	
2.13.7	Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein will be promoted?	



Ref No.	Question	Analysis Discussion
2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	Refer to the public participation process undertaken to date in Section 7.2 of this Report. Public participation and consultation will continue during the BAR public review and comment period. Furthermore, refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr.
2.15	What measures have been taken to ensure that current and / or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	The construction contractors will be educated prior to construction using toolbox talks on the environmental and health risks that may occur within their work environment. Appropriate personal protective equipment will be issued to workers.
2.16	Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1	The number of temporary versus permanent jobs that will be created.	Limited jobs may be created during the construction of the powerline however, it is recommended that where possible local labour is utilised.
2.16.2	Whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area).	
2.16.3	The distance from where labourers will have to travel.	



Ref No.	Question	Analysis Discussion
2.16.4	The location of jobs opportunities versus the location of impacts.	
2.16.5	The opportunity costs in terms of job creation.	
2.17	What measures were taken to ensure:	
2.17.1	That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment.	The BA process requires governmental departments to communicate regarding any application. In addition, all relevant Departments and key stakeholders have been notified about the project by the EAP and registered as Interested and Affected Parties who will continue to be notified and engaged with regarding the project throughout the application process.
2.17.2	That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures.	The BA process requires governmental departments to communicate regarding any application. In addition, all relevant Departments and key stakeholders have been notified about the project by the EAP and registered as Interested and Affected Parties who will continue to be notified and engaged with regarding the project throughout the application process.
2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	Refer to the public participation process undertaken to date in Section 7.2 of this Report. Public participation and consultation will continue during the BAR public review and comment period. Furthermore, refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr. Electricity is a basic need as per the Constitution and additional infrastructure will support the national and local electricity network.
2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Refer to the identified impacts, their assessment and recommended mitigation measures in Section 9 of this Report and the EMPr.
2.20	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or	Refer to the EMPr associated with this BA.



Ref No.	Question	Analysis Discussion
	minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	
2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Refer to Section 7.1 for details of alternatives considered in this Report.
2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Refer to the identified impacts, their assessment and recommended mitigation measures. Refer to section 9 of this Report and the EMPr.

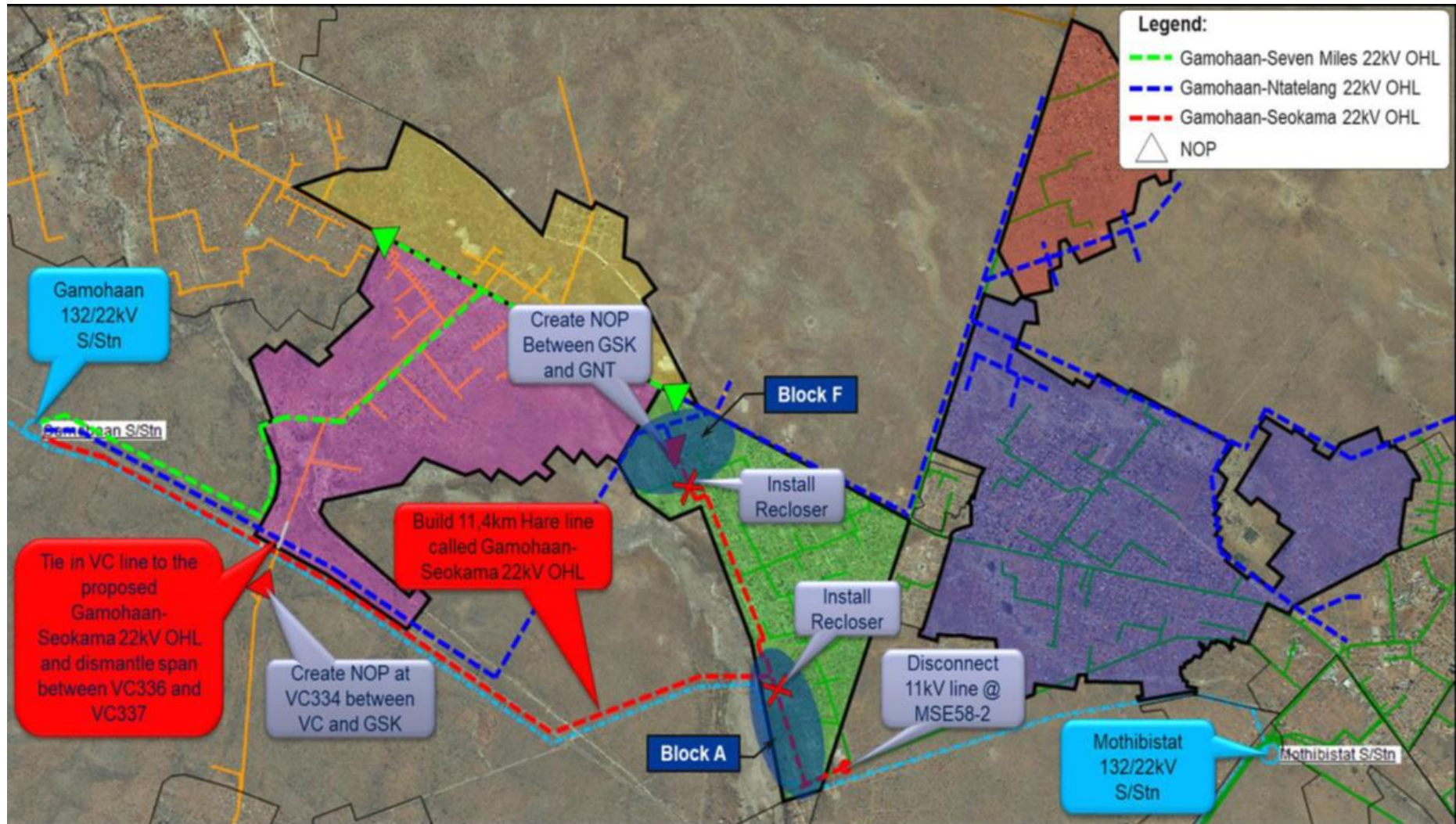


Figure 2: Eskom Infrastructure Network in the Kuruman Area



6 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVES

The proposed project involves the construction of a 22kV powerline leading from the Gamohaan Sub-station towards Seven Miles. The assessment of alternative sites was limited to an alternative for section 1 of the powerline route and the no-go alternative. No alternative route was provided for section 2 of the powerline as it falls within an existing servitude.

Consultation with affected interested and affected parties and on-going consultation will be undertaken in order to keep them informed about the proposed project activities as well as to capture any comments and concerns they may have regarding the construction of the powerline.

7 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

This section describes the specific site area and the location of site features, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

7.1 DETAILS OF DEVELOPMENT FOOTPRINT ALTERNATIVE

The proposed powerline footprint is expected to impact on a fraction of a single farm portion of which it transverses. The proposed powerline is approximately 7km in length. The existing servitude and avoidance of the removal of protected trees is the primary driver for the route of the section 2 of the powerline. An alternative was provided for section 1 of the powerline however, the alternative is not the preferred route as the alternative route would be set further back from established access routes and could potentially require the relocation of informal traders in the area and is more ecologically sensitivity. The proposed linear activity is to be located approximately 10km north of Kuruman Town.

7.1.1 PROPERTY

No assessment of alternative properties was assessed as the access route and existing servitudes to the benefiting community is located on Farm Kuruman Reserve 690. It is not anticipated that the proposed powerline will affect the continuation of the long terms land uses.

7.1.2 TYPE OF ACTIVITY

The proposed project involves the construction of a powerline, and the applicant is mandated as an electricity utility. Due to the nature of the proposed activity, no assessment of alternative activities was assessed.

7.1.3 DESIGN OR TECHNOLOGY ALTERNATIVES

The option of using 132kV double circuit structures for the 22kV power line was consider in order to reduce the number of line routes coming out of Gamohaan Substation. The option however will be too expensive and also because the 22kV power lines has to terminate at different locations in or to supply specific areas the utilisation of double circuit structures will not be feasible.

7.1.4 OPERATIONAL ASPECTS

The powerline will allow for additional capacity to the network and allow for improved network flexibility. Furthermore, it will relieve strain on the existing Riries- Maruping 22kV powerline currently servicing the area. Due to the nature of the proposed project, no alternative operational aspects were considered in this assessment.

7.1.5 OPTION OF NOT IMPLEMENTING

The no go alternative would imply that no new powerline will be constructed. The proposed new powerline will allow for the electrification of the the Seven Miles and Mokala-mosesane residential areas and will provide



additional capacity and flexibility to the network. If the EA is not granted, the existing powerline servicing parts of the area will remain constrained during peak periods. Furthermore, no additional capacity will be created. This will impact on future electrification and development projects in the area. The no-go alternative will negate the potential negative and positive impacts associated with the proposed project.

7.2 DETAILS OF THE PUBLIC PARTICIPATION FOLLOWED

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant Interested and Affected Party's (I&AP's) are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

The landowners and other pre-identified key I&AP's were sent an initial notification letter during August to September 2022, disseminated via email, fax, and registered mail. I&AP's were provided an initial registration period to register for the proposed project. Subsequent notifications will be sent as I&APs are identified and registered.

All pre-identified and registered I&APs have been notified of the availability of the BAR for review and comment. All comments received during this period will be included in this BAR and submitted to the Commenting Authority. A full description of the Public Participation Process has been included in the Comments and Responses Report which is attached as Appendix B to this report.

7.2.1 IDENTIFICATION OF I&AP'S

An initial I&AP list was compiled using WinDeed searches to determine the contact details of the registered landowners of the project affected properties and surrounding properties. The I&AP database includes amongst others: landowners, communities, regulatory authorities, and other specialist interest groups. Additional I&APs have been registered during the initial notification and call to register period. The I&APs database will continue to be updated throughout the duration of the BA process. A full list of I&APs is attached in Appendix B.

7.2.2 LIST OF INTERESTED AND AFFECTED PARTIES IDENTIFIED AND NOTIFIED

Interested and affected parties have been identified and notified of the proposed project:

- Department of Human Settlements, Water and Sanitation (Regional Office);
- Ga-Segonyana Local Municipality;
- John Taolo Gaetsewe District Municipality;
- Landowners;
- Local Ward Councillor;
- National Department of Forestry, Fisheries and the Environment;
- Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform;
- Northern Cape Department of Roads Transport and Public Works;
- Northern Cape Department of Social Development;
- Provincial Land Claims Commissioner;
- South African Heritage Resource Agency (SAHRA);
- South African National Roads Agency Limited (SANRAL); and
- Tribal Chief and community leader.

Refer to Appendix B for the full list of I&APs.

7.2.3 NOTIFICATION OF I&AP'S

All I&AP's were notified of the EA Application via the following one or more of the following methods:

- Registered letters, emails and/or faxes where available;



- Placement of English and seStwana A1 Correx Site Notices in various locations within and surrounding the proposed project area; and
- Placement of a newspaper advert in the local newspaper with adequate circulation in the project area.

Refer to Appendix B for proof of notification sent to I&APs and for proof of correspondence with I&APs. Notification documents sent to all pre-identified I&AP's included the following information:

- The proposed project area;
- List of activities to be authorised;
- Scale, nature, and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity;
- Sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land;
- The purpose of the proposed project;
- Details of the affected properties (including parent farm and portion);
- Details of the NEMA Regulations that must be adhered to;
- Date by which comment, concerns and objections must be forwarded through to EIMS; and
- Contact details of the Environmental Assessment Practitioner (EAP).

I&AP's were provided an opportunity to register as I&AP's for the proposed project from the 19th August 2022 until the 19th September 2022. I&AP's were also notified of the availability of the BAR which has been made available for 30 days from the 7th October 2022 until the 8th November 2022 for public review and comment. Comments obtained during the BAR public review and comment period and the responses will be included in the final submission to the DFFE.

7.3 SUMMARY OF ISSUES RAISED BY I&AP'S

Any comments received during the PPP to date have been included in Appendix B. Refer to the I&AP database in Appendix B for a full list of preidentified and registered interested and affected parties. Comments received to date include requests to be registered on the I&AP database and for information relating to the proposed project. No concerns regarding the proposed powerline have been raised to date.

7.4 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

This section of the report has been compiled with input from various specialists that were appointed to undertake the specialist assessments for the application area. Refer to Appendix D for a copy of the specialist reports undertaken. The following specialist studies were undertaken:

- Terrestrial Biodiversity and Wetland Assessment- The Biodiversity Company; and
- Heritage and Palaeontological Impact Assessment- PGS Heritage

7.4.1 SOCIO-ECONOMIC CONTEXT

The proposed project will be situated on portion 0 (remaining extent) of the farm Kuruman Reserve 690 as identified in Figure 1. The proposed linear activity is to be located approximately 10km north of the town Kuruman along the R31. The application area falls within the Ga-Segonyana Local Municipality and the John Taolo Gaetsewe District Municipality, Northern Cape Province. The project area falls within ward 12 of Ga-Segonyana LM.



Ga-Segonyana Local Municipality (LM) is a former cross-boundary municipality with areas in the Northern Cape and Northwest. The municipal jurisdiction consists of 33 residential areas within a radius of approximately 80 km in and around Kuruman and has approximately 104 408 residents (2016 census). The municipality's economy is mainly based on the surrounding mining and agricultural activities. According to 2011 Census, the LM has a population breakdown of approximately 87,0% are black African, 7,6% are coloured, 4,6% are white, and 0,4% are Indian/Asian. Other groups make up 0,4% of the population. In terms of education, 4,9% completed primary school, 34,3% completed secondary school, 23,7% completed Grade 12, 10,0% have some form of higher education and only 9,7 % have no schooling.

Of the 33 989 economically active people (employed and unemployed but looking for work), 58.7% (19940 people) are employed. In terms of employment status 3895 people are classified as discouraged work-seekers, 10154 are unemployed and 25238 people are not economically active.

There are 3143 households in the municipality, with an average household size of 3 persons per household. Of the households in the municipality, 19.9% have access to piped (tap) water inside the dwelling/institution, 20,2% have access to piped water inside their yard, and 91,2% of households have access to electricity for lighting.

The 2011 Census shows that there is a broad distribution of incomes across households in the LM with the largest portion, 17.9 % of households earning between R19 601 – R38 200 per annum. Approximately, 16.1% of all households earn no income.

7.4.2 GEOLOGY

Geological maps, as depicted in Figure 4 indicates that the proposed development is underlain by the Kalahari Group as well as the Kogelbeen Formation (Campbell Rand Subgroup) and the Kuruman Formation (Asbestos Hill Subgroup), both of the Ghaap Group. The proposed development is underlain by sediments of the Transvaal Supergroup of the Griqualand West Basin. In Griqualand West the Ghaap Group is subdivided in the oldest Schmidtsdrif, middle Campbell Rand and youngest Asbestos Hills and Koegas Subgroups. The proposed development is located on the western border of the Kaapvaal Craton (McCarthy & Rubidge 2005, Eriksson et al. 2006).

7.4.3 VEGETATION TYPE

As illustrated in Figure 5, the proposed project area is situated within the Savanna Biome. The savanna vegetation of South Africa represents the southernmost extension of the most widespread biome in Africa (Mucina & Rutherford, 2006). Major macroclimatic traits that characterise the Savanna biome include seasonal precipitation; and a (Sub) tropical thermal regime with no or usually a low incidence of frost (Mucina & Rutherford, 2006).

The savanna biome is the largest biome in South Africa, extending throughout the eastern and north-eastern areas of the country. Savannas are characterised by dominant grass layers, over-topped by a discontinuous, but distinct woody plant layer. At a structural level, Africa's savannas can be broadly categorised as either fine-leaved (microphyllous) savannas or broad-leaved savannas. Fine-leaved savannas typically occur on nutrient rich soils and are dominated by microphyllous woody plants of the Mimosaceae family (Common genera include *Vachellia* and *Albizia*) and a generally dense herbaceous layer.

The savanna biome is comprised of 6 parent bioregions and a total of 87 different vegetation types. The proposed project area is situated within the Kuruman Thornveld of the Eastern Kalahari Bushveld Bioregion as indicated in Figure 5 below. It is noted that the Kuruman Mountain Bushveld habitat occurs just west of the project area.

7.4.4 ECOSYSTEM PROTECTION LEVEL AND THREAT STATUS

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function, and composition, on which their ability to provide ecosystem services ultimately depends (Skowno et al., 2019). Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concern (LC), based on the proportion of each ecosystem type that remains in good ecological condition (Skowno et al., 2019). The project area was superimposed on the terrestrial



ecosystem threat status (Figure 6). As seen in this figure, the project area is situated within an ecosystem that is listed as LC. Ecosystem protection level tells us whether ecosystems are adequately protected or under protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected, or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Skowno et al., 2019).

The project area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development (Figure 7). Based on Figure 7, the terrestrial ecosystem associated within the assessment area is rated as 'Not Protected'. This means that this ecosystem is not protected in areas such as national parks or other formally protected areas.

7.4.5 RAMSAR SITES AND WORLD HERITAGE SITES

No Ramsar sites or World heritage sites are located within the project area.

7.4.5.1 TERRESTRIAL ECOSYSTEMS

Based on the Plants of Southern Africa (BODATSA-POSA, 2019) database, 650 plant species have the potential to occur in the project area and its surroundings. Of the 650-plant species, two (2) species is listed as being species of conservation concern (SCC). They are described in Section 5.1.2.2 of the Ecological Specialist Report (Appendix E) and listed in Table 7 below.

Table 7: Plant Species of Conservation Concern expected to occur in the application area (BODATSA-POSA, 2016)

Family	Species	Conservation Status	Endemism
Acanthaceae	<i>Barleria media</i>	VU	Indigenous, Endemic
Cleomaceae	<i>Cleome conrathii</i>	NT	Endemic

7.4.5.2 VEGETATION ASSESSMENT

The vegetation assessment was conducted throughout the extent of the project area. A total of 45 flora species were recorded during the vegetation assessment including 40 indigenous species (Figure 3) and 5 naturalised exotics (including 2 listed invasive species).

Approximately 130 protected *Vachellia erioloba* (Camel Thorn) trees were observed along or nearby to the proposed powerline routes within the project area. This species is a nationally protected tree as per the National Forests Act (No. 30 of 1998) and may not be disturbed in any manner without the appropriate permit. Furthermore, a number of provincially protected plants were also recorded during the assessment, including a single Schedule 1 and six Schedule 2 protected species. These plants are protected in line with the Northern Cape Nature Conservation Act (No. 9 of 2009). According to the act the plants may not be disturbed in any manner without the appropriate permit, subject to certain provisions within the act.



Figure 3: Some of the protected indigenous flora species recorded – A) *Vachellia erioloba*; B) *Aloe hereroensis*; C) *Lessertia frutescens* subsp. *frutescens*; and D) *Bulbine abyssinica*

7.4.5.2.1 ALIEN AND INVASIVE PLANTS

The National Environmental Management: Biodiversity Act, Act No. 10 of 2004, (NEM:BA) is the national legislation that incorporates the mandatory regulation of Invasive Alien Plant (IAP) species, and in September 2020 the most current lists of IAP Species were published in terms of NEM:BA (in Government Gazette No. 43726 of 18 September 2020). The Alien and Invasive Species Regulations serve to define and regulate the various categories of Alien and Invasive Species and were recently updated and published in terms of NEM:BA in the Government Gazette No. 43735 of 25 September 2020. The 2020 Alien and Invasive Species Regulations and Lists were recently extended as published in the Government Gazette No. 44182, 24th of February 2021.

Legislation calls for the removal and control of Category 1 IAP species. In addition, unless authorised thereto in terms of the National Water Act, no land user shall allow Category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse. Below is a brief explanation of the three categories in terms of the NEM:BA:

- **Category 1a:** Invasive species requiring compulsory eradication. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.
- **Category 1b:** Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued.
- **Category 2:** Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones. Species existing outside of a regulated area shall be classified as category 1b.
- **Category 3:** Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities: import, possess, grow, breed, move, sell, buy or accept as a gift - involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones as these will be classified as category 1b species.

Note that according to the regulations, any person who has under his or her control a category 1b listed invasive species must immediately:



- Notify the competent authority in writing;
- Take steps to manage the listed invasive species in compliance with:
- Section 75 of the NEM:BA;
- The relevant local invasive species management programme developed in terms of regulation 4, and any directive issued in terms of section 73(3) of the NEMBA.

Only 2 prominent IAP species were recorded within the project area, namely *Melia azedarach* and *Opuntia ficus-indica*, which are both listed as Category 1b invasive species and thus must be controlled according to a project specific IAP management plan (*Melia azedarach* is listed as a Category 3 species in urban areas). It is noted that the species were not considered to be dominant within the landscape, and the *Melia azedarach* trees were generally limited to the eastern portions of the project area, within the township area and surrounds, and the *Opuntia ficus-indica* cacti were mostly found sparsely scattered across the western portions.

7.4.5.3 FAUNA

The faunal assessment was completed based on a field assessment for the proposed project area. The outcome of the field assessment is provided below.

7.4.5.3.1 AVIFAUNA

A total of 51 avifauna species were observed during the field survey, with the majority of the species recorded foraging, perching, or flying along the Kuruman river. No SCC were observed; however, it is noted that most bird species are provincially protected according to Schedules 1 and 2 of the Northern Cape Nature Conservation Act (No. 9 of 2009). The list of bird species identified during the assessment is provided in Appendix D.

7.4.5.3.2 MAMMALS AND HERPETOFAUNA

Four mammal species were recorded during the field assessment and no herpetofauna species were observed during the assessment. No fauna SCC were recorded, however a larger number of mammal and herpetofauna species are expected to occur in the area.

Table 8: Mammal species recorded within the project area

Species	Common Name	Conservation Status	
		SANBI (2022)	IUCN (2021)
<i>Cynictis penicillata</i>	Yellow Mongoose	LC	LC
<i>Herpestes sanguineus</i>	Slender Mongoose	LC	LC
<i>Lepus capensis</i>	Cape Hare	LC	LC
<i>Rhabdomys pumilio</i>	Xeric Four-striped Mouse	LC	LC

7.4.5.4 HABITAT ASSESSMENT

The main habitat types identified across the Project Area of Influence were initially delineated largely based on aerial imagery, and these main habitat types were then refined based on the field coverage and data collected during the survey. Three habitats (one of which includes three wetland types) were delineated in total, and these are mapped in Figure 8 below.

The three habitats are briefly discussed in the sub-sections that follow, and a summary of the habitat types delineated within the project can be seen in [Table 9](#). It is noted that the wetland habitat unit is sub-divided into three wetland types.

Table 9: Summary of habitat types delineated within the Project Area

Habitat Type	Description	Dominant Flora	Habitat
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			Sensitivity
Transformed	Partially functional habitat that has been transformed by development and related edge effects, or other forms of significant disturbance activities.	Exotic weeds and IAP species such as <i>Melia azedarach</i> .	Low
Modified Thornveld	Dense thornveld habitat of a functionality that has been partially impacted by nearby development and associated activities.	Small trees such as <i>Senegalia mellifera</i> subsp. <i>detinens</i> , <i>Euclea undulata</i> , <i>Searsia burchellii</i> , and <i>Tarchonanthus camphoratus</i> . Large <i>Vachellia erioloba</i> (protected) trees were common in certain areas.	Medium
Wetland	Comprised of three wetland types, namely Channelled valley bottom, Unchanneled valley bottom, and Depression wetlands. These areas have been confirmed as permanently or seasonally wet and are considered to play an important functional role in this typically dry region.	The Channelled valley bottom wetland was the only wetland type to show a clear difference in its vegetation profile, as it is associated with the permanent Kuruman river. Common species included <i>Typha capensis</i> and <i>Cyperus</i> spp.	Medium - High

7.4.5.4.1 TRANSFORMED HABITAT

This habitat unit represents those areas of the project area that are considered to have only a low level of functionality from a terrestrial ecology perspective. Vegetation is almost entirely limited to exotic flora and IAPs, and no SCC fauna are likely to nest or regularly forage in these areas. Transformed portions represent just over 50% of the total habitat of the project area, and the most common features include township housing developments, roads, and cleared land.

The ecological services provided by this habitat are limited due to the extensive cover of impermeable surfaces and the large amount of bare land. Locally common bird species will forage and nest in the larger trees, however the area may not be considered a functional movement corridor.

7.4.5.4.2 MODIFIED THORNVELD HABITAT

Modified Thornveld is the second largest habitat unit within the project area, only marginally smaller than the Transformed unit, and is limited to the western sections. The habitat closely represents the historical regional vegetation type as the most dominant species are as characterised by Mucina & Rutherford (2006), however, the edge effects of major roadways and the adjacent township development have resulted in the partial degradation of this habitats functionality (there are signs of regular human and domestic animal ingress).

This habitat provides important ecological services to the surrounding region, including runoff and erosion control enabling rainwater percolation, nutrient cycling within the topsoil layers supporting the healthy functioning of indigenous flora and re-seeding processes, carbon sequestration, and foraging and nesting resources for livestock and local indigenous fauna species (including occasional SCC). The wood from local trees serves as an important local resource to communities, and the seed pods of the protected *Vachellia erioloba* are noted as being a valuable fodder source for mammals and have a wide variety of traditional uses for local communities. The thornveld is also considered an important movement corridor, particularly along the Kuruman river and the nearby mountain range.

7.4.5.4.3 WETLAND HABITAT

The wetland areas include those portions of land which have been confirmed as permanently or seasonally/temporarily wet, such as unchanneled and channelled valley bottom wetlands and wetland



depressions. These areas, and particularly the channelled valley bottom wetland, serve as an important foraging and possible nesting resource for local fauna (including occasional SCC). The channelled valley bottom wetland runs through the bottom of the township development and is thus considered to be heavily impacted by related edge effects, such as dumping, human and domestic animal ingress, IAP invasion, and bare land. The wetlands provide critical ecological services in the form of water filtration and flood control, and they represent commonly used and important wildlife movement corridors.

7.4.5.5 **CULTURAL AND HERITAGE**

No cultural or heritage features were found during the field assessment.

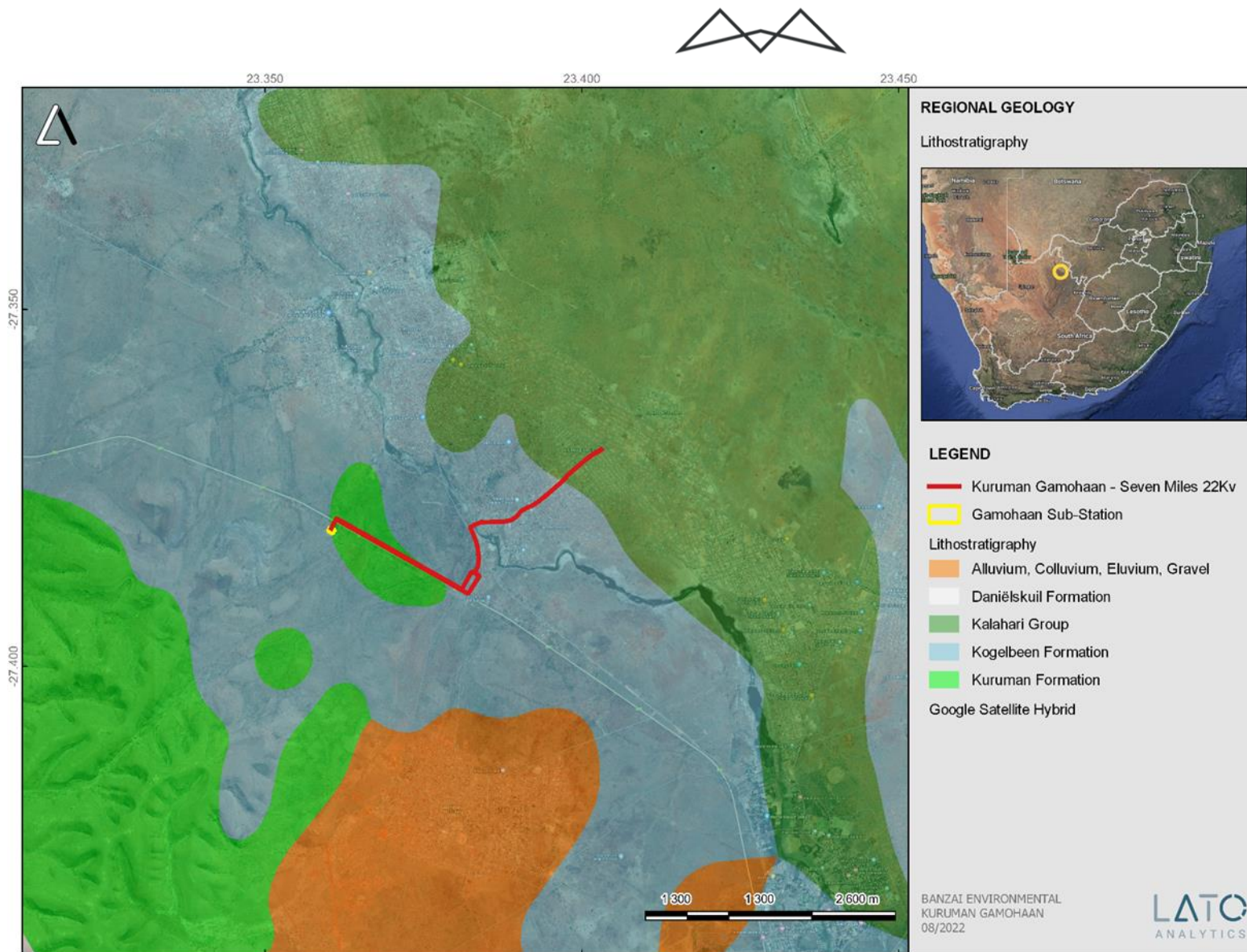


Figure 4: Geological Map (Council of Geosciences, Pretoria) indicates that the proposed development is underlain by the Kalahari Group, Kogelbeen Formation and the Kuruman Formation.

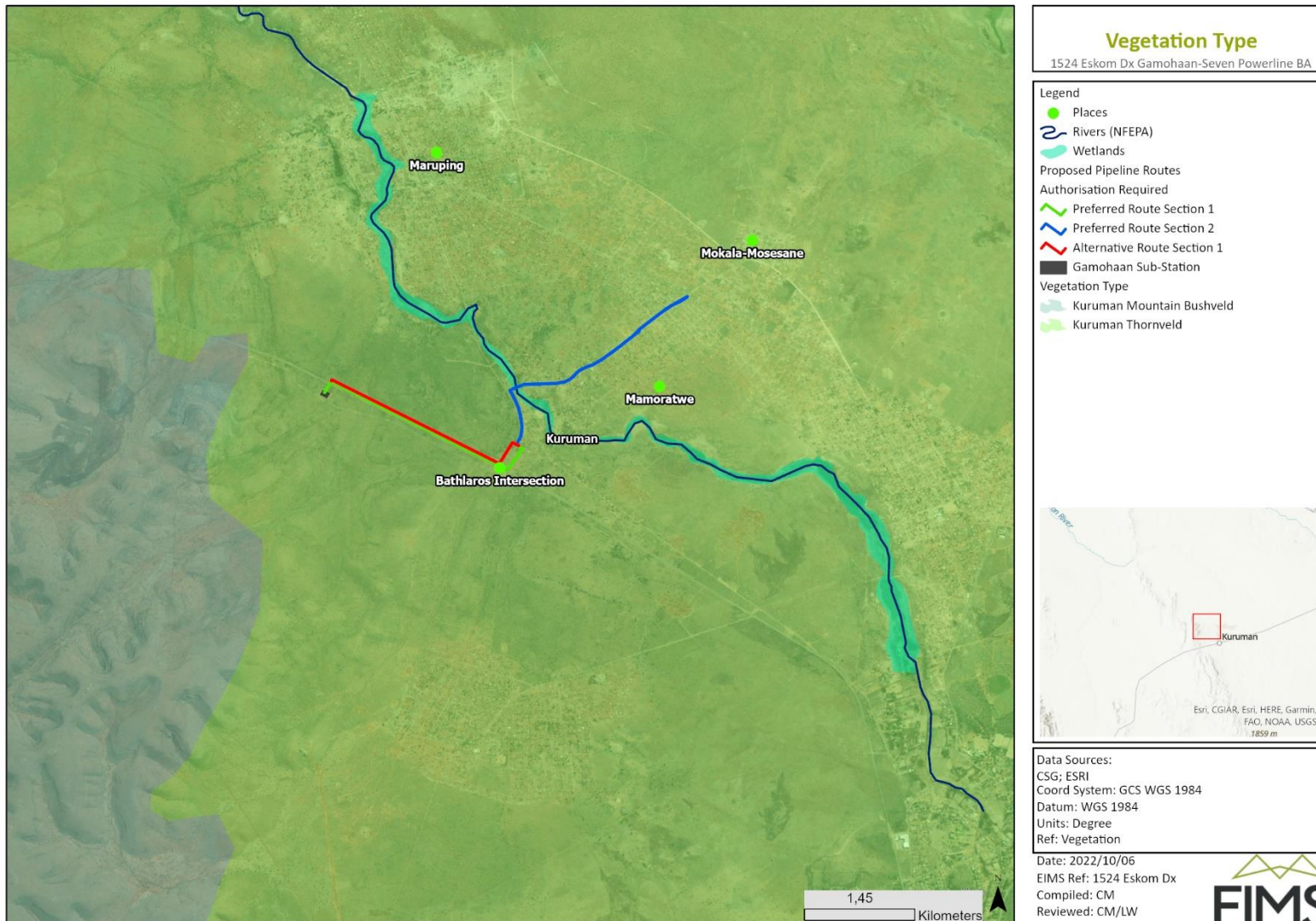


Figure 5: Map Illustrating the Vegetation Types associated with the region

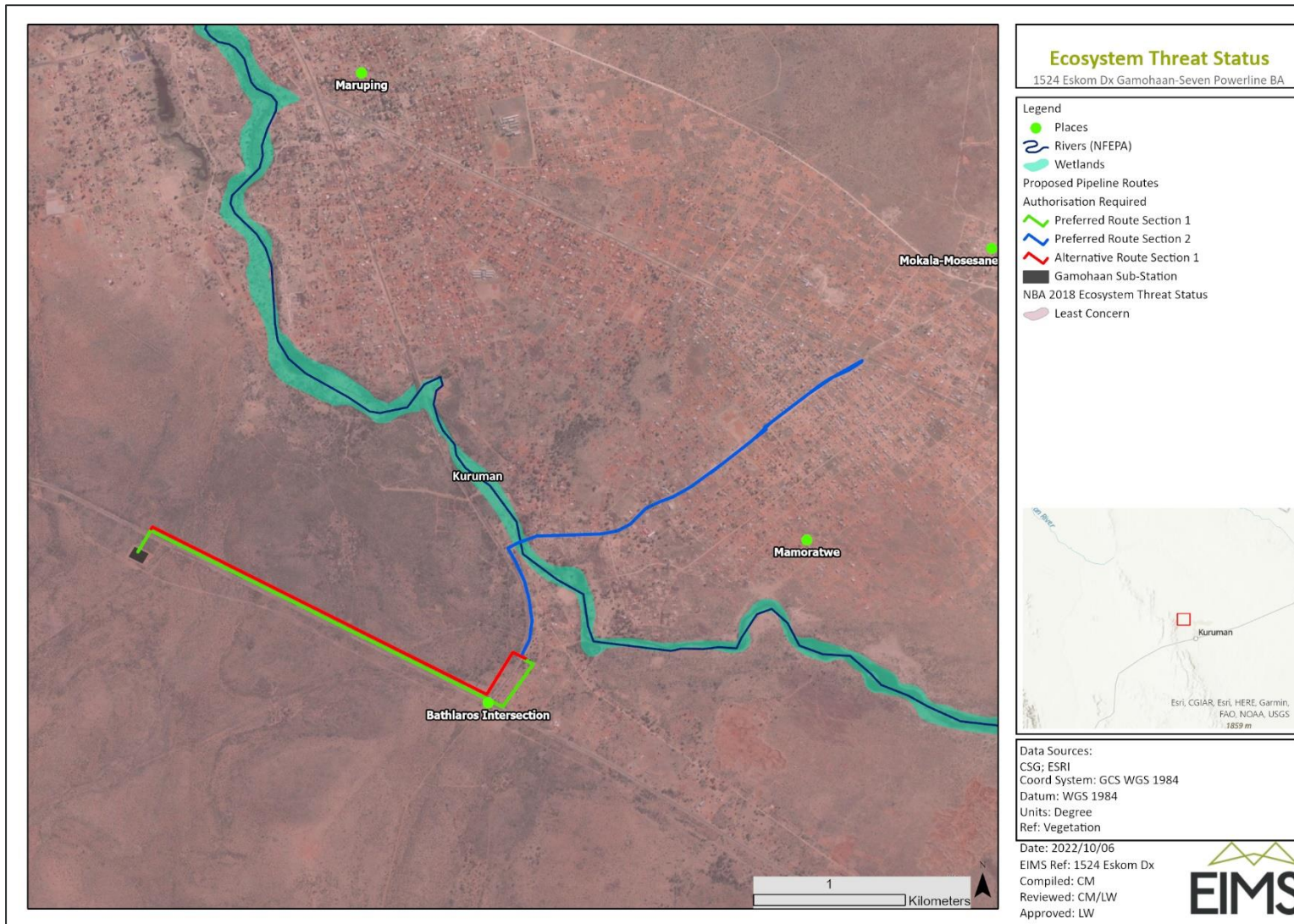


Figure 6: Map illustrating the Ecosystem Threat Status associated with the proposed project area

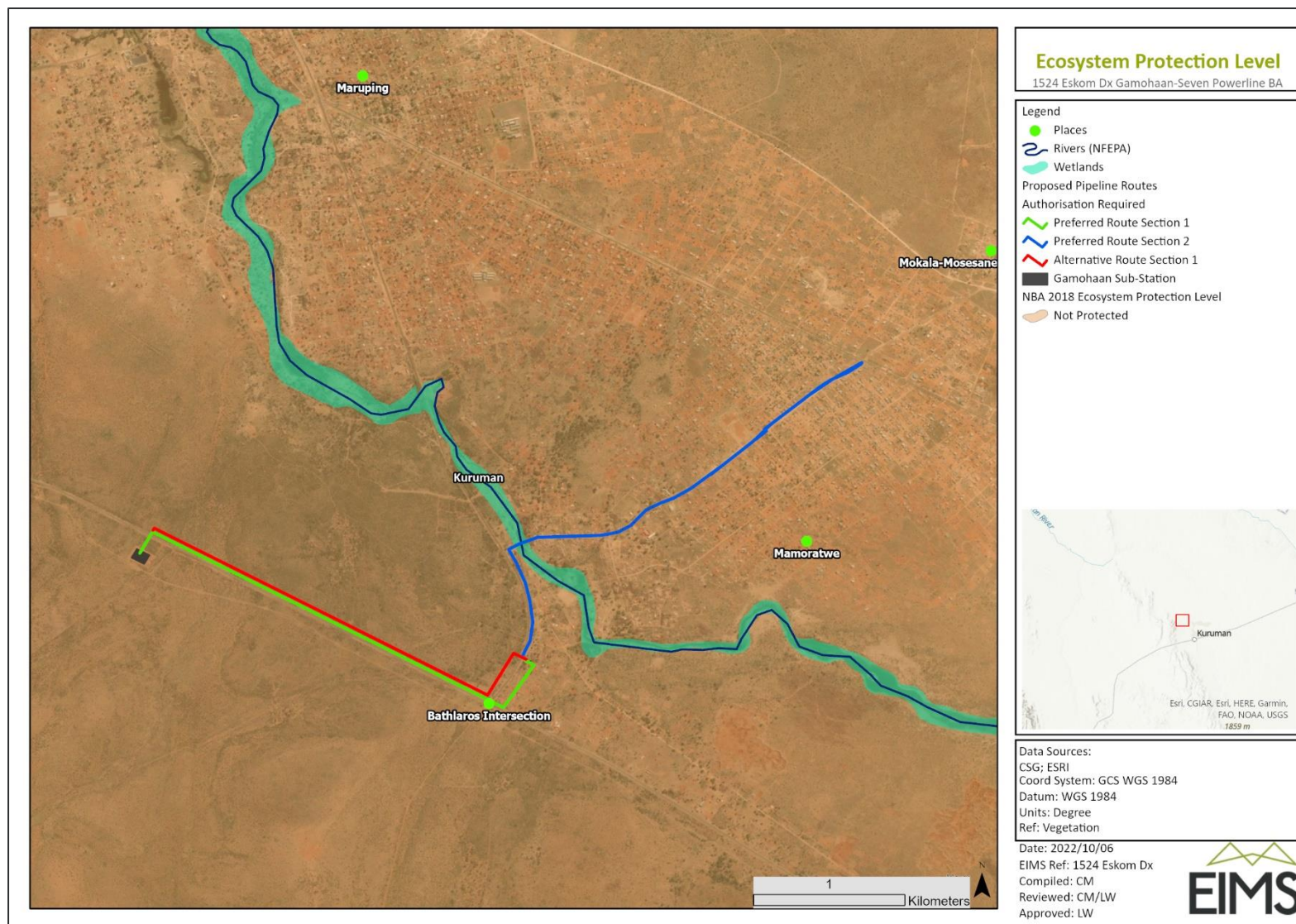


Figure 7: Map illustrating the Ecosystem Protection Level

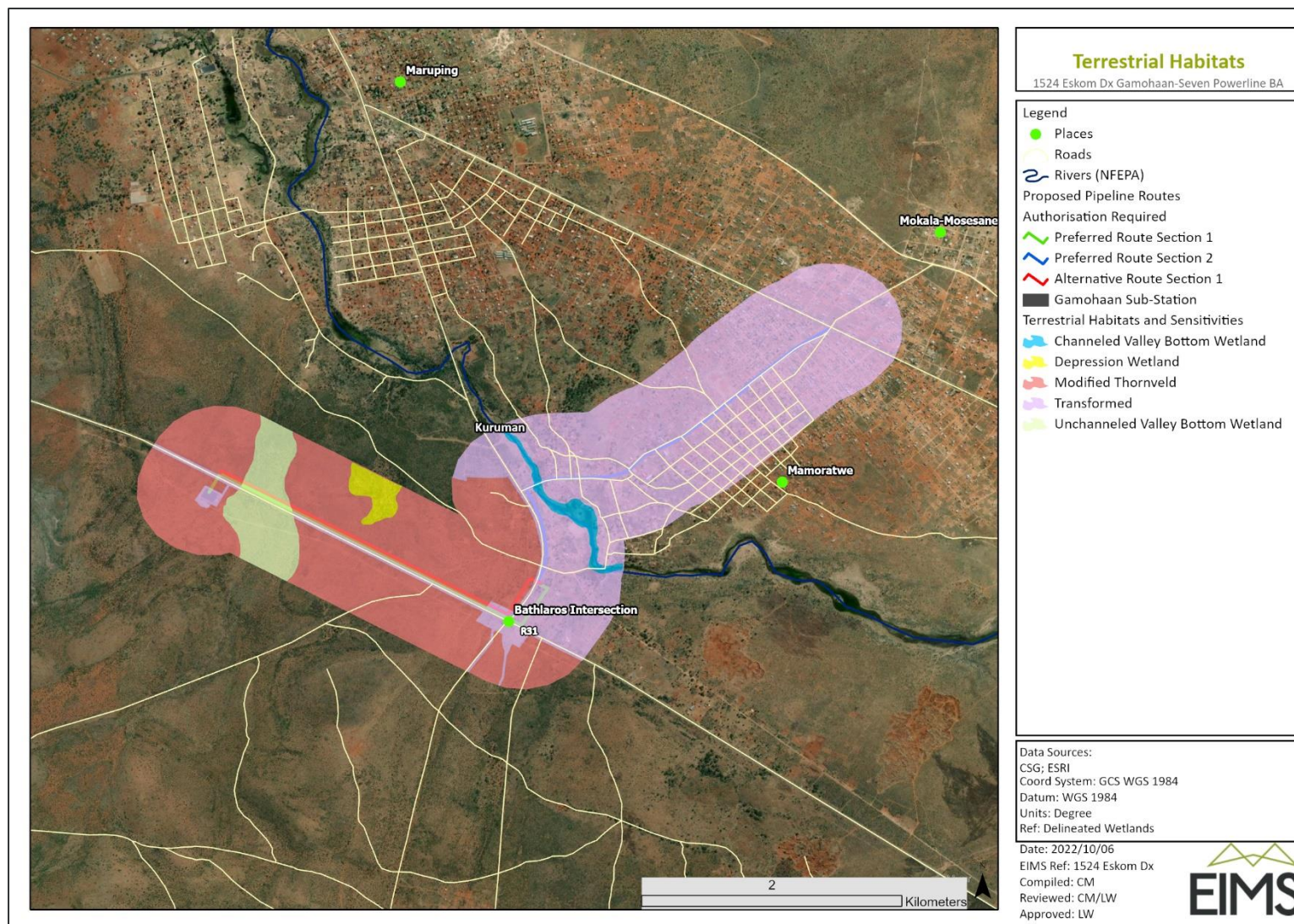


Figure 8: Map illustrating the habitats identified in the Project area



7.4.6 DESCRIPTION OF CURRENT LAND USES

Section 1 of the proposed powerline route runs parallel to the R31. This section of the powerline falls within an area of indigenous vegetation. Section 2 of the proposed powerline has been heavily modified. The route for section 2 runs through the community of Mamoratwe. The current land use of the area is residential activities.

The most notable infrastructure located within close proximity to the project area is the presence of residential houses, schools and local shops. The proposed powerline will span across the Kuruman watercourse.

7.5 IMPACTS AND RISKS IDENTIFIED

In order to calculate the significance of an impact the probability, duration, extent, and magnitude will be assessed. The pre- and post-mitigation scores will provide an indication of the extent to which an impact can be successfully mitigated.

Potential impacts that may occur as a result of the proposed construction of the powerline are:

- Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora)
- Introduction of IAP species and invasive fauna
- Displacement of the indigenous faunal community (including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, dust, light, vibration, and poaching)
- Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats
- Continued fragmentation and degradation of functional habitats and ecosystems (including that caused by spill events)
- Continuing spread of IAP and weed species
- Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc)
- Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)
- Bird collisions and electrocutions with newly established powerlines
- Impact on heritage resources
- Impact on palaeontology
- Limited Job creation
- Noise
- Air Quality (dust)
- Community Safety
- Interference with existing land uses
- Generation of waste
- Increased capacity and flexibility to the network
- Decreased strain on existing network



7.6 IMPACT ASSESSMENT METHODOLOGY

The impact significance rating methodology, as presented herein and utilised for all EIMS Impact Assessment Projects, is guided by the requirements of the NEMA EIA Regulations 2014 (as amended). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/ likelihood (P) of the impact occurring. The ER is determined for the pre- and post-mitigation scenario. In addition, other factors, including cumulative impacts and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S). The impact assessment will be applied to all identified alternatives. Where possible, mitigation measures will be recommended for impacts identified.

7.6.1 DETERMINATION OF ENVIRONMENTAL RISK

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence I of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (I), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$C = \frac{(E + D + M + R) * N}{4}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 10 below.

Table 10: Criteria for Determining Impact Consequence

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),



	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/ scored as per Table 11.

Table 11: Probability Score

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

$$ER = C \times P$$

Table 12: Determination of Environmental Risk



Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	Probability					

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 13.

Table 13: Significance Classes

Risk Score	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk).
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),
≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/mitigated.

7.6.2 Impact Prioritisation

Further to the assessment criteria presented in the section above, it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

To ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/mitigation impacts are implemented.

Table 14: Criteria for Determining Prioritisation

Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.



	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/ definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable Loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 14. The impact priority is therefore determined as follows:

$$\text{Priority} = \text{CI} + \text{LR}$$

The result is a priority score which ranges from 2 to 6 and a consequent PF ranging from 1 to 1.5 (Refer to Table 15).

Table 15: Determination of Prioritisation Factor

Priority	Ranking	Prioritisation Factor
2	Low	1
3	Medium	1.125
4	Medium	1.25
5	Medium	1.375
6	High	1.5

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is an attempt to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

Table 16: Environmental Significance Rating

Value	Description
< -10	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ -10 < -20	Medium negative (i.e. where the impact could influence the decision to develop in the area).
≥ -20	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).



0	No impact
< 10	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ 10 < 20	Medium positive (i.e. where the impact could influence the decision to develop in the area).
≥ 20	High positive (i.e. where the impact must have an influence on the decision process to develop in the area).

The significance ratings and additional considerations applied to each impact will be used to provide a quantitative comparative assessment of the alternatives being considered. In addition, professional expertise and opinion of the specialists and the environmental consultants will be applied to provide a qualitative comparison of the alternatives under consideration. This process will identify the best alternative for the proposed project.

7.7 ANTICIPATED IMPACTS OF THE PROPOSED ACTIVITY

This Section presents the impacts that have been assessed for the BA. Potential environmental impacts were identified by the EAP, the appointed specialists, as well as the preliminary input from the public. The impacts are included in Table 35 below. It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final BA Report submitted to the DFFE for adjudication. The Impacts were assessed in terms of nature, significance, consequence, extent, duration and probability in line with the methodology described in Section 7.6 above. The impact assessment matrix (including pre- and post-mitigation assessment) is included in Appendix D. A summary of the positive and negative impacts of the proposed activity are provided in Section 9.

The following impacts have been identified:

- Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora)
- Introduction of IAP species and invasive fauna and disturbance (road collisions, noise, dust, light, vibration, and poaching)
- Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats
- Continued fragmentation and degradation of functional habitats and ecosystems (including that caused by spill events)
- Continuing spread of IAP and weed species
- Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc)
- Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)
- Bird collisions and electrocutions with newly established powerlines
- Impact on heritage resources
- Impact on palaeontology
- Limited Job creation
- Noise



- Air Quality (dust)
- Community Safety
- Interference with existing land uses
- Generation of waste
- Increased capacity and flexibility to the network
- Decreased strain on existing network

Table 17: Positive and Negative Impacts of the Proposed Project

Impact	Positive or Negative	Phase
Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora)	Negative	Construction
Introduction of IAP species and invasive fauna	Negative	Construction
Displacement of the indigenous faunal community (including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, dust, light, vibration, and poaching)	Negative	Construction
Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats	Negative	Construction
Continued fragmentation and degradation of functional habitats and ecosystems (including that caused by spill events)	Negative	Operational
Continuing spread of IAP and weed species	Negative	Operational
Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc)	Negative	Operational
Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)	Negative	Operational
Bird collisions and electrocutions with newly established powerlines	Negative	Operational
Impact on heritage resources	Negative	Planning / Construction
Impact on palaeontology	Negative	Planning / Construction
Limited Job creation	Positive	Construction
Noise	Negative	Construction
Air Quality (dust)	Negative	Construction
Community Safety	Negative	Construction



Impact	Positive or Negative	Phase
Interference with existing land uses	Negative	Construction
Generation of waste	Negative	Construction
Increased capacity and flexibility to the network	Positive	Operation
Decreased strain on existing network	Positive	Operation

7.8 THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

The following sections provide a description and assessment of the mitigation measures for each potential impact identified in the impact assessment process. The impact scores below are reflective of the impacts before the implementation of mitigation measures. A second score indicating the final significance of each potential impact is also reflected below. This score indicates the degree of potential loss of irreplaceable resources and the cumulative nature of the impact. It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DFFE for adjudication. Furthermore, it should be noted that the impact scores themselves will include the results of the aforementioned public response and comment. Please refer to Appendix E for the full impact scoring calculations.

The mitigation hierarchy proposed by Macfarlane et al., (2016) was considered for this study (Figure 9)

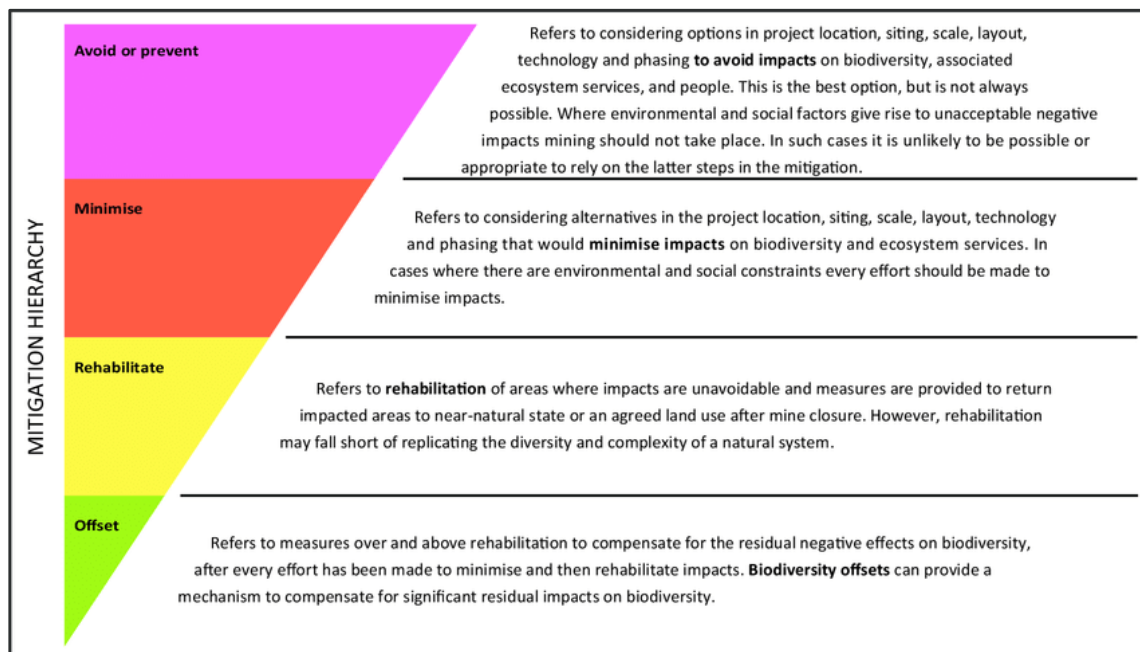


Figure 9: Mitigation hierarchy (Research Gate, 2019)

Please refer to Section 8 for the detailed mitigation measures associated with each aspect and impact. The Pre-mitigation significance and final significance for each impact are identified in Table 18.

Table 18: Pre-mitigation significance and Final significance



Impact	Positive or Negative	Pre-mitigation ER	Final Significance
Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora)	Negative	-17	-6,75
Introduction of IAP species and invasive fauna	Negative	-14	-8,44
Displacement of the indigenous faunal community (including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, dust, light, vibration, and poaching)	Negative	-12,75	-7,31
Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats	Negative	-18	-6,19
Continued fragmentation and degradation of functional habitats and ecosystems (including that caused by spill events)	Negative	-19	-7,5
Continuing spread of IAP and weed species	Negative	-10,5	-6
Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc)	Negative	-12	-6,75
Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)	Negative	-13	-5
Bird collisions and electrocutions with newly established powerlines	Negative	-20	-13,40
Impact on heritage resources	Negative	-2,5	-1,5
Impact on heritage resources	Negative	-2,5	-1,5
Impact on palaeontology	Negative	-3,5	-2
Impact on palaeontology	Negative	-3,5	-2
Limited Job creation	Positive	9	9
Noise	Negative	-6,75	-6,75
Air Quality (Dust)	Negative	-4,5	-2,5



Impact	Positive or Negative	Pre-mitigation ER	Final Significance
Community Safety	Negative	-4,5	-4,5
Interference with existing land uses	Negative	-7	-5
Generation of waste	Negative	-6	-4,5
Increased capacity and flexibility to the network	Positive	14	14
Decreased strain on existing network	Positive	14	14

8 ASSESSMENT METHODOLOGY OF IMPACTS

The impact assessment process is broken down as follows:

1. Identification of proposed activities including their nature and duration: Impacts were identified through various methods including a desktop analysis; specialist studies (Heritage, Palaeontological and Ecology and Wetlands) and the public participation process;
2. Screening of activities likely to result in impacts or risks;
3. Utilisation of the above mentioned EIMS methodology to assess and score preliminary impacts and risks identified. Refer to section 8 for the full methodology used;
4. Inclusion of I&AP comments received through the public participation process regarding impact identification and assessment; and
5. Finalisation of impact identification and scoring.



9 IMPACT ASSESSMENT OF EACH OF THE POTENTIALLY SIGNIFICANT IMPACTS AND RISKS

Several potential impacts were identified during the impact assessment process. Table 19 provides a breakdown of the identified potential impacts associated with the activity and provides the associated proposed mitigation measures to minimise the potential impact. Refer to Appendix E for the impact assessment.

Table 19: Potential impacts Identified and associated mitigation measures.

Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
Removal of Vegetation and construction of powerline	Interference with existing land uses.	Site Access.	Construction.	-7.00	<ul style="list-style-type: none"> Site access control; and Consultation with landowners with regards to the ensuring that the necessary protective measures for people and livestock is implemented such as barricades and any infrastructure in the area. 	-5.00
	Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora).	Clearance and removal of vegetation.	Construction.	-17.00	<ul style="list-style-type: none"> Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property; and The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm. 	-6.75
	Introduction of alien species and invasive fauna.	Clearance and removal of vegetation.	Construction.	-14	<ul style="list-style-type: none"> Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property. 	-8.44
	Displacement of indigenous faunal	Clearance and removal of	Construction.	-14	<ul style="list-style-type: none"> Reduce the amount of unnecessary people and 	-5.0625



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
	community (Including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, dust, vibration, and possible poaching).	vegetation.			restrict vehicle access as much as possible on the property; <ul style="list-style-type: none"> Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals; and No trapping, killing, or poisoning of any wildlife is to be allowed. 	
	Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats	Clearance of vegetation and construction of powerline.	Construction	-18	<ul style="list-style-type: none"> No storage of vehicles or equipment will be allowed outside of the designated laydown areas; and A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. 	-6.19
	Continued fragmentation and degradation of functional habitats	Clearance of vegetation and construction of powerline.	Operation.	-19	<ul style="list-style-type: none"> Reduce the amount of unnecessary people and restrict vehicle access as 	-7.5



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
	and ecosystems (including that caused by spill events)				much as possible on the property; and <ul style="list-style-type: none"> • Alien invasive species should be managed in accordance to the Eskom Monitoring, Control and Eradication Plan for Invasive Species on Eskom Land (ENV16-R175). 	
	Continuing spread of IAP and weed species	Construction of the Powerline.	Operation.	-10.5	<ul style="list-style-type: none"> • Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property. 	-6.00
	Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)	Construction of the Powerline	Operation	-13.00	<ul style="list-style-type: none"> • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation according to a habitat rehabilitation plan, to prevent erosion during flood and wind events and to promote the regeneration of functional habitat. 	-5.00
	Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road	Construction of the Powerline.	Operation.	-12.00	<ul style="list-style-type: none"> • Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property. • 	-6.75



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
	collisions, noise, light, dust, vibration, poaching, etc)					
	Bird collisions and electrocutions with newly established powerlines	Construction of the Powerline.	Construction and Operation	-20	<ul style="list-style-type: none"> Schedule activities and operations during least sensitive periods, to avoid migration, nesting, and breeding seasons. 	-13.41
	Impact on Air quality from dust.	Clearance of vegetation.	Construction.	-4.50	<ul style="list-style-type: none"> The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm; Removed material, such as wood from the trees and/or shrubs must be provided to the community for their use; and Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces, adhering to speed limits and not conducting activities on windy days which will increase the likelihood of dust being generated. 	-2.50
	Noise.	Clearance of Vegetation	Construction.	-6.75	<ul style="list-style-type: none"> Noise must be kept to an absolute minimum during 	-6.75



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
					the evenings and at night to minimize all possible disturbances to fauna species.	
	Generation and disposal of waste.	Construction of Powerline.	Operational.	-6.00	<ul style="list-style-type: none"> • Waste management must be a priority and all waste must be collected and stored effectively; • Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation); • No dumping of construction material on site may take place; • All waste generated on site during construction must be adequately managed. Separation and recycling of different waste materials should be supported; • A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not 	-4.50



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
					<p>degrade over time and spill into the surrounding area;</p> <ul style="list-style-type: none">• The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility;• Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regards to waste management;• Under no circumstances may domestic waste be burned on site;• Refuse bins will be emptied and secured. Temporary storage of domestic waste shall be in covered waste skips;• Maximum domestic waste storage period will be 14 days;• No heavy machinery must be allowed within the delineated wetland. All excavations must be carried out via manual	



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
					labour instead of heavy machinery/vehicles; <ul style="list-style-type: none"> Lighter vehicles (small trucks and other vehicles) required for the proposed activities should only be allowed to use existing roads (including dirt roads). 	
	Noise.	Construction of powerline	Construction.	-4.50	<ul style="list-style-type: none"> Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals. 	-3.00
	Community Safety	Construction of powerline	Construction	-4.5	<ul style="list-style-type: none"> Construction areas are to be clearly demarcated. Access to the site is to be limited to only the contractor. 	-4.5
	Impact on heritage resources	Clearance of vegetation	Construction	-2.5	<ul style="list-style-type: none"> A chance find protocol must be implemented should any heritage features be identified during construction. 	-1.5
	Impact on palaeontology	Clearance of vegetation	Construction	-3.5	<ul style="list-style-type: none"> A chance find protocol must be implemented should any palaeontological features be identified during construction. 	-2



Name of activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type	Significance if mitigated
	Interference with existing land uses.	Construction of powerline.	Construction.	-7.00	<ul style="list-style-type: none">• Consultation with Landowners; and• Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property.	-5.00



10 SUMMARY OF SPECIALIST REPORT

Various specialists that were appointed to undertake the specialist assessments for the application area. Table 20 presents a summary of the findings and recommendations as identified in the specialist studies undertaken to inform the BAR.

The following specialist studies were undertaken:

- Ecology Assessment and Wetland Assessment- The Biodiversity Company; and
- Heritage and Palaeontological Impact Assessment- PGS Heritage

Table 20: Summary of Specialist Findings

Specialist study undertaken	Recommendations of Specialist Report	Specialist Recommendations that have been included in the BA Report (Mark with X where applicable)	Reference to the applicable section of the Report where Specialist recommendations have been included.
Heritage Impact Assessment	<p>The HIA concluded that no heritage features and resources (archaeological sites or burial grounds and graves) were identified. A field survey of the study area was undertaken by a combination of vehicle and pedestrian means, by two archaeologists (Michelle Sachse and Henk Steyn) on 4 August 2022.</p> <p>No evidence for any archaeological or heritage sites could be identified. As a result, no impact is expected from the proposed development on heritage. With no impact expected on heritage, no further mitigation is required.</p>	X	Section 9
Palaeontological Impact Assessment	<p>The proposed development is underlain by Caenozoic deposits of the Kalahari Group, the Kuruman Formation (Asbestos Hills Subgroup) as well as the Kogelbeen Formation (Campbell Rand Subgroup) of the Ghaap Group (Transvaal Supergroup). According to the PalaeoMap on the South African Heritage Resources Information System (SAHRIS) database, the Palaeontological Sensitivity of the Caenozoic Kalahari deposits is moderate, that of the Kuruman Formation is low while that of the Kogelbeen Formation is Very High.</p> <p>However, due to the nature of the proposed project, it is understood that the proposed project will have a low significance impact on palaeontology. If fossil remains are discovered during any phase of construction, a Chance find protocol must be implemented.</p>	X	Section 9
Ecology and Wetland Assessment	<p>The main impacts that may be expected to occur, as a result of the proposed activities, include the following:</p> <ul style="list-style-type: none"> • Direct habitat loss and fragmentation (including the loss of CBA areas and a 	X	Sections 9



	<p>'Critically Endangered' wetland ecosystem) and the degradation of surrounding habitat;</p> <ul style="list-style-type: none"> • Spills into important aquatic habitat and increased erosion; • Disturbance and displacement of SCC fauna (including direct mortality of fauna and bird collisions due to the construction of new powerlines); and • Introduction and further spreading of IAP and weed species. <p>All mitigation measures as described in this report must be implemented so as to reduce the significance of all anticipated impacts to an acceptable level (from 'High' - 'Medium' to 'Medium' - 'Low'). The cumulative impact of the project, taking into account the transformation of surrounding land, is rated as 'Low' due to the fact that the powerline footprint is relatively small when compared to the remaining extent of open local habitat and flyways. No fatal flaws were identified.</p> <p>It is the opinion of the specialists that the project may be favourably considered, on condition that all prescribed mitigation measures are implemented.</p>		
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11 SUMMARY OF KEY FINDINGS

A summary of the key findings of the environmental impact assessment as undertaken in this BAR is outlined below:

- Majority of the impacts had a medium rating prior to mitigations, which were then decreased to low-negative once mitigations are implemented.
- The HIA identified no heritage resources within the area study area.
- The PDA concluded that the project will not lead to detrimental impacts on the palaeontological resources of the area.
- The Terrestrial Biodiversity and Wetlands Assessment determined that the "Preferred Route" for section 1 is the most preferred route for the powerline from an ecological perspective. The option avoids portions of more sensitive habitat and ultimately results in lower post mitigation impacts.
- A plant search and rescue plan is recommended for the proposed project due to the high number of protected species confirmed to occur throughout the project area.
- The channelled valley bottom wetland portion in the central section of the project area has a 'High' sensitivity rating and as such development in this area must be limited where possible and special precautions must be taken to avoid causing significant damage to the wetland environment.
- An IAP management plan was recommended for by the Terrestrial Biodiversity and Wetland Assessment however, it is noted that Eskom has an existing Monitoring, Control and Eradication Plan for Invasive Species on Eskom Land to control IAP. This plan will be utilized for the project.



- The proposed project will provide increased capacity to the network without which the current network will remain constrained. Furthermore, the proposed powerline creates further opportunities for expanding the network and for future development in the area.



The sensitivity map showing the location of the sensitive areas is shown in Figure 10 below. It is noted that no heritage or palaeontological impacts are expected as a result of the project. However, the Biodiversity sensitivities are considered to be medium to high as is reflected in the composite map below.

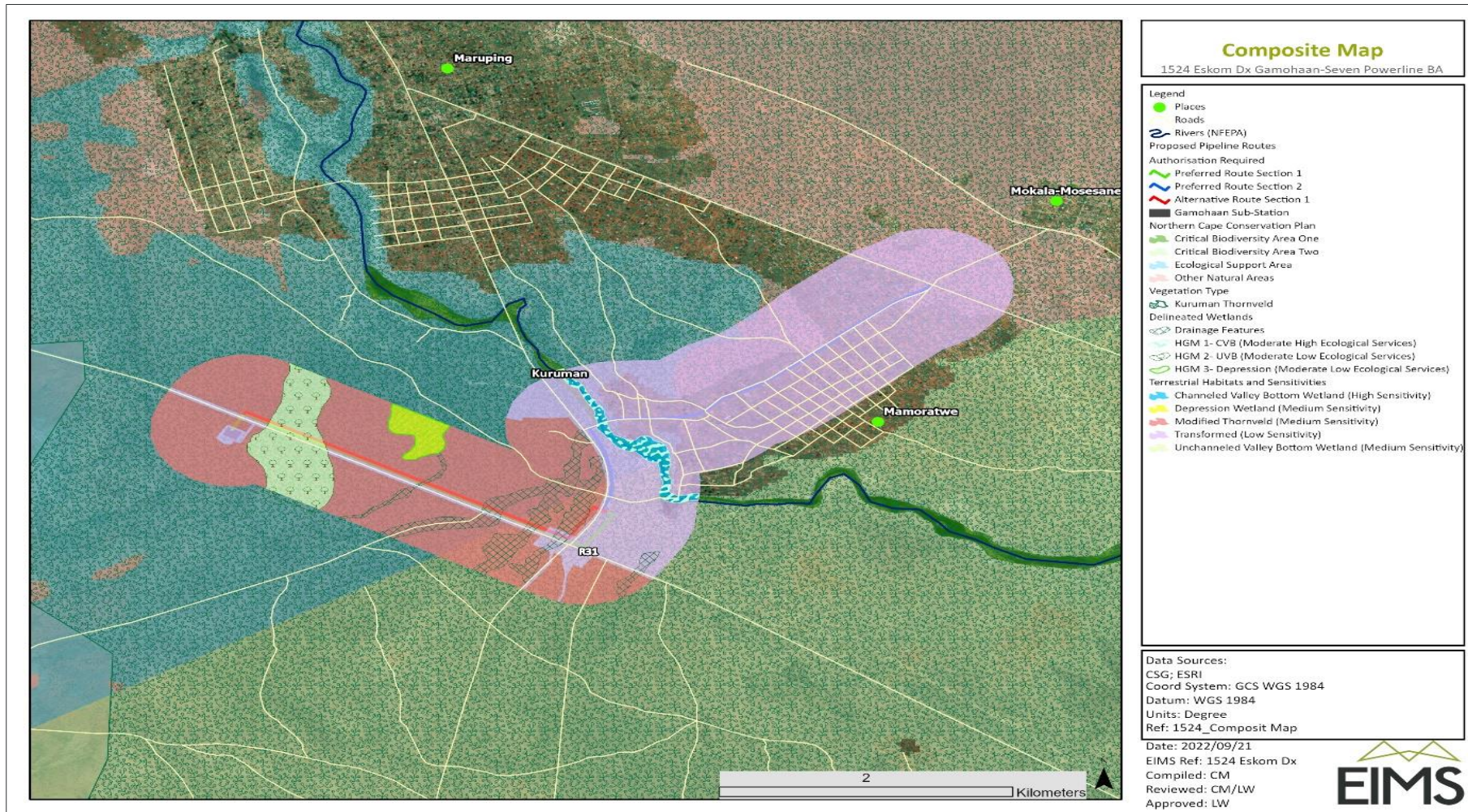


Figure 10: Final Composite Map for the proposed project



12 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The management objective is to minimise the socio-economic, cultural, heritage, biodiversity, and palaeontological impacts of the proposed activity in terms of the perceptions and expectations of I&AP's. The outcome to be achieved is to lessen the impact through the following measures:

- Adhere to an open and transparent communication procedure with stakeholders at all times;
- Ensure that accurate information regarding the construction of the proposed powerline to be undertaken and the resultant lack of requirements for site access and labour is communicated to I&APs;
- Ensure that information is communicated in a manner which is understandable and accessible to I&APs;
- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community (including portions of a CBA and ESA and a section classed as high biodiversity importance);
- Prevent the loss of the faunal community (including potentially occurring species of conservation concern) associated with these vegetation communities;
- Limiting the activity to the defined servitude area and only impacting those areas where it is unavoidable to do so otherwise;
- Enhance project benefits and minimise negative impacts through consultation with stakeholders;
- To limit interference with existing land uses as far as possible during the construction of the powerline;
- To avoid damage to existing road infrastructure;
- To mitigate the impact on the watercourse; and
- To maintain safety to communities.

13 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

Certain assumptions, limitations, and uncertainties are associated with the BAR. This report is based on information that is currently available and, as a result, the following limitations and assumptions are applicable:

- The project scope and descriptions are based on project information provided by the client;
- The information presented in this report is based on the information available at the time of compilation of the report;
- It is assumed that all data and information supplied by the Specialist, Applicant or any of their staff or consultants is complete, valid, and true; and
- The description of the baseline environment has been obtained from specialist studies.

Furthermore, certain assumptions, limitations, and uncertainties are associated with the BAR specialist studies and these are detailed for each aspect below.

- Biodiversity:
 - It is assumed that all information received from the client is accurate and up-to-date;



- The specialist was not provided with an architectural plan or any engineering drawings with regards to the planned development activities and as such the potential impacts arising from these activities may only be assumed;
 - All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes;
 - The assessment area (PAOI) was based on the footprint areas as provided by the client, and any alterations to the area and/or missing GIS information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
 - Only a single season survey was conducted and thus this assessment does not consider temporal trends (note that the data collected is however considered sufficient to derive a meaningful baseline);
 - The latest site visit was conducted during the dry season, and this means that certain flora and fauna would not have been present or observable due to seasonal constraints;
 - A large number of protected flora species are confirmed to occur throughout the PAOI (>200 nationally protected trees and provincially protected plants). It was not within the scope of this survey to log the GPS location and numbers of all observed species, and as such only an approximate number of nationally protected trees is provided and the GPS locations of only the trees that occur along the proposed routes are provided. A follow up search and rescue survey, would be required in order to obtain an accurate estimate of the numbers of all protected flora species that may be affected by the development, including their GPS locations;
 - Whilst every effort was made to cover as much of the PAOI as possible, representative sampling is completed and by its nature it is possible that some plant and animal species that are present within the PAOI were not recorded during the field investigations; and
 - The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.
- Palaeontological
 - It is necessary to realise that the heritage resources located during the desktop research and fieldwork do not necessarily represent all the possible heritage resources present within the area. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well.
 - When conducting a PIA several factors can affect the accuracy of the assessment. The focal point of geological maps is the geology of the area, and the sheet explanations were not meant to focus on palaeontological heritage. Many inaccessible regions of South Africa have not been reviewed by palaeontologists and data is generally based on aerial photographs. Locality and geological information of museums and universities databases have not been kept up to date or data collected in the past have not always been accurately documented.
 - Comparable Assemblage Zones in other areas is used to provide information on the existence of fossils in an area which was not yet been documented. When similar Assemblage Zones and geological formations for Desktop studies is used it is generally assumed that exposed fossil heritage is present within the footprint
 - Heritage
 - Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including



the subterranean nature of some archaeological sites and existing vegetation cover. It should be noted most of the study area was inaccessible for the pedestrian fieldwork survey. Fieldwork was difficult due to the very dense vegetation growth. Torn trees and bushes covered most of the area running alongside the R31 national road, which made surveying very difficult as well as minimised visibility of the area. Areas were surveyed as close as possible to the proposed powerline.

- The section running through the informal settlement was surveyed using a vehicle survey. The community is very active in the area, and the proposed powerline layout was located very close to the road, which was driven very slowly while looking for possible heritage features. Therefore, should any heritage features and/or objects be located or observed outside the identified heritage-sensitive areas during the construction activities, a heritage specialist must be contacted immediately. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to assess as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. If any graves or burial places are located during the development, the procedures and requirements about graves and burials are set out in the Heritage Impact Assessment report

14 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

14.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

The impacts on the environment can be mitigated through open communication with the community, landowners, and implementation of the proposed EMPr mitigation measures. It is therefore the opinion of the EAP that the proposed activity should be authorised.

14.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

The following conditions should be included in the environmental authorisation:

- Stakeholder Engagement will continue throughout the construction and construction of the powerline to ensure the community and landowners are kept informed and allowed to raise issues. These issues will then be addressed through a grievance mechanism.
- A rehabilitation plan must be compiled for portions of the powerline that requires the clearance of vegetation.
- The applicant should adhere to the conditions of the EA, EMPr and the Specialist reports for this project.
- An independent Environmental Control Officer should be appointed for the proposed powerline project to ensure compliance with the EMPr.

15 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation is required for a minimum of five (5) years.

16 UNDERTAKING

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the BAR and the EMPr. Refer to Appendix A for the signed undertakings.



17 FINANCIAL PROVISION

No financial provisions were required for this project as the activity is not related to a Mining Application. The application for environmental authorisation is for the proposed construction of a powerline and as such no financial provisions are required.

No specific information has been requested by the Competent Authority at this stage. This section may be updated at a later stage should additional information be required from the competent authority.



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