# PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWER LINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN IN THE NORTHERN CAPE PROVINCE.

## Environmental Management Programme

October 2023

**Prepared for:**

Eskom Holdings SOC Ltd


**Prepared by:**

Elbi Bredenkamp

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | | |
|---|---|---|
| **BA** | - | Basic Assessment |
| **BAR** | - | Basic Assessment Report |
| **CBA** | - | Critical Biodiversity Area |
| **DFFE** | - | Department of Forestry, Fisheries and Environment |
| **DoA** | - | Department of Agriculture |
| **DWS** | - | Department of Water and Sanitation |
| **DEO** | - | Designated Environmental Officer |
| **DWS** | - | Department of Water and Sanitation |
| **ECO** | - | Environmental Control Officer |
| **EIA** | - | Environmental Impact Assessment |
| **EAP** | - | Environmental Assessment Practitioner |
| **EMF** | - | Environmental Management Framework |
| **EMPr** | - | Environmental Management Programme |
| **ESA** | - | Ecological Support Area |
| **GN** | - | Government Notice |
| **IDP** | - | Integrated Development Plan |
| **I&APs** | - | Interested and Affected Parties |
| **NEMA** | - | National Environmental Management Act |
| **NFEPA** | - | National Freshwater Ecosystem Protection Assessment |
| **NNR** | - | No Natural Area Remaining |
| **NCHRA** | - | Northern Cape Heritage Resources Authority |
| **NSBA** | - | National Spatial Biodiversity Assessment |
| **ONA** | - | Other Natural Area |
| **PPP** | - | Public Participation Process |

| | | |
|---|---|---|
| **PSDF** | - | Provincial Spatial Development Framework |
| **SAHRA** | - | South African Heritage Resources Agency |
| **SDF** | - | Spatial Development Framework |
| **SIP** | - | Strategic Integrated Projects |

## GLOSSARY OF TERMS

**Alien species**: A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

**Applicant**: Any person who applies for an authorisation to undertake an activity or undertake an Environmental Process in terms of the Environmental Impact Assessment Regulations – National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as contemplated in the scheduled activities listed in Government Notice (GN) No R. 327, 325 and 324.

**Biodiversity:** The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

**Cumulative Impact:** In relation to an activity, cumulative impact means the impact of an activity that in it-self may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

**Ecology**: The study of the interrelationships between organisms and their environments.

**Environment**: All physical, chemical and biological factors and conditions that influence an object.

**Environmental Impact Assessment:** In relation to an application, to which Scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

**Environmental Impact Report:** In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.

**Environmental Management Programme:** A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

**Heritage resources:** This means any place or object of cultural and archaeological significance.

**Precipitation:** Any form of water, such as rain, snow, sleet, or hail that falls to the earth's surface.

**Red Data species**: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

**Riparian**: The area of land adjacent to a stream or river that is influenced by stream induced or related processes.

**Soil compaction:** Soil becoming dense by blows, vehicle passage or other type of loading. Wet soils compact easier than moist or dry soils.

# 1 INTRODUCTION

This Environmental Management Programme (EMPr), amongst others, describes the mitigation measures and identifies the specific role players that will be responsible for implementation of the mitigation measures, in order to ensure that impacts on the environment are minimised during the construction, operational and decommissioning phases of the proposed deviation of the existing Rietfontein 33kV powerline at two locations (Koopan and Hakskeenpan), Dawid Kruiper Local municipality, Northern Cape Province.

This EMPr must form part of the contractual agreement between the relevant Contractor(s) and the Developer/Applicant.

## 1.1 NEMA REGULATIONS REPORT COMPLIANCE

Appendix 4 of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) provides the content requirements for Environmental Management Programmes. The table below lists the relevant requirements, indicates whether the relevant information is included in this report or not, and provides cross-references as to where the relevant information can be found in this report.

**Table 1: Environmental Management Programme requirements as per Appendix 4 of the NEMA EIA Regulations, 2014 (as amended).**

| Reg. | EMPr Content | Included (Yes, No or N/A) | Report Section Reference |
|---|---|---|---|
| (a) | A draft environmental management programme must comply with section 24N of the Act and include - | | |
| | details of:<br>(i) the person who prepared the environmental management programme; and | **Yes** | **Chapter 3** |
| | (ii) the expertise of that person to prepare an environmental management programme; | **Yes** | **Chapter 3** |
| (b) | A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description; | **Yes** | **Chapter 4** |
| (c) | A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers; | **Yes** | **Chapter 2** |

| Reg. | EMPr Content | Included (Yes, No or N/A) | Report Section Reference |
|---|---|---|---|
| (d) | A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –<br>(i) planning and design;<br>(ii) pre-construction activities;<br>(iii) construction activities;<br>(iv) rehabilitation of the environment after construction and where applicable post closure; and,<br>(v) where relevant, operation activities; | **Yes** | **Chapter 9** |
| (f) | A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to—<br>(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;<br>(ii) comply with any prescribed environmental management standards or practices;<br>(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and,<br>(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable; | **Yes** | **Chapter 7 and 9** |
| (g) | The method of monitoring the implementation of the impact management actions contemplated in paragraph (f); | **YES** | **Chapter 9** |
| (h) | The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f); | **YES** | **Chapter 7** |
| (i) | An indication of the persons who will be responsible for the implementation of the impact management actions; | **YES** | **Chapter 9** |
| (j) | The time periods within which the impact management actions contemplated in paragraph (f) must be implemented; | - | - |
| (k) | The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f); | **YES** | **Chapter 9** |
| (l) | A program for reporting on compliance, taking into account the requirements as prescribed by Regulations; | **YES** | **Chapter 7** |
| (m) | An environmental awareness plan describing the manner in which –<br>(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and,<br>(ii) risk must be dealt with in order to avoid pollution or the degradation of the environment; and, | **YES** | **Chapter 8** |
| (n) | Any specific information that may be required by the Competent Authority. | - | - |

## 1.2 REPORT LAYOUT

The table below summarises the content layout of this report.

**Table 2: Summary of report content layout.**

| Chapter | Chapter Heading | Content Summary |
|---|---|---|
| 1 | Introduction | Provides a brief background to the proposed project and explains the compliance of this report with regards to Chapter 3of the NEMA. |
| 2 | Map of the Proposed Activity | Provides a Sensitivity Map of the area surrounding the proposed project as well as a map showing the locality of the proposed project. |
| 3 | Environmental Assessment Practitioner | Provides details of the EAP who prepared this EMPr and provides information on the expertise of the EAP. |
| 4 | Project Description and Listed Activities Covered by this EMPr | Provides a brief project description and describes the relevant project phases and the NEMA Listed Activities triggered. |
| 5 | Existing Environmental and Impact Assessment Summary | Summarises the biophysical, social, economic and cultural aspects of the existing environment, and provides a summary of the impact assessment outcome. |
| 7 | Persons Responsible for Implementing this EMPr | Provides information on the persons who will be responsible for implementing this EMPr, and explains requirements with regards to on-site communication, site instruction entries, method statements, and record keeping. |
| 6 | Recommendations of the EAP | Provides recommendations of the EAP with regards to the Planning and Construction, Operation and Decommissioning phases. |
| 8 | Environmental Awareness Plan | Provides information on environmental awareness and risk training, and basic rules of conduct. Also provides an environmental risk plan. |
| 9 | Impacts and Mitigation Measures | Provides EMPr for the relevant project phases. |
| 10 | Emergency Response Plan | Provides information on the emergency response plan. |
| 11 | Incident Register | Stipulates the content requirements for incident registers. |
| 12 | Rehabilitation Measures and Closure Plan | Provides rehabilitation measures and closure plan objectives. |

## 2 MAP OF THE PROPOSED ACTIVITY

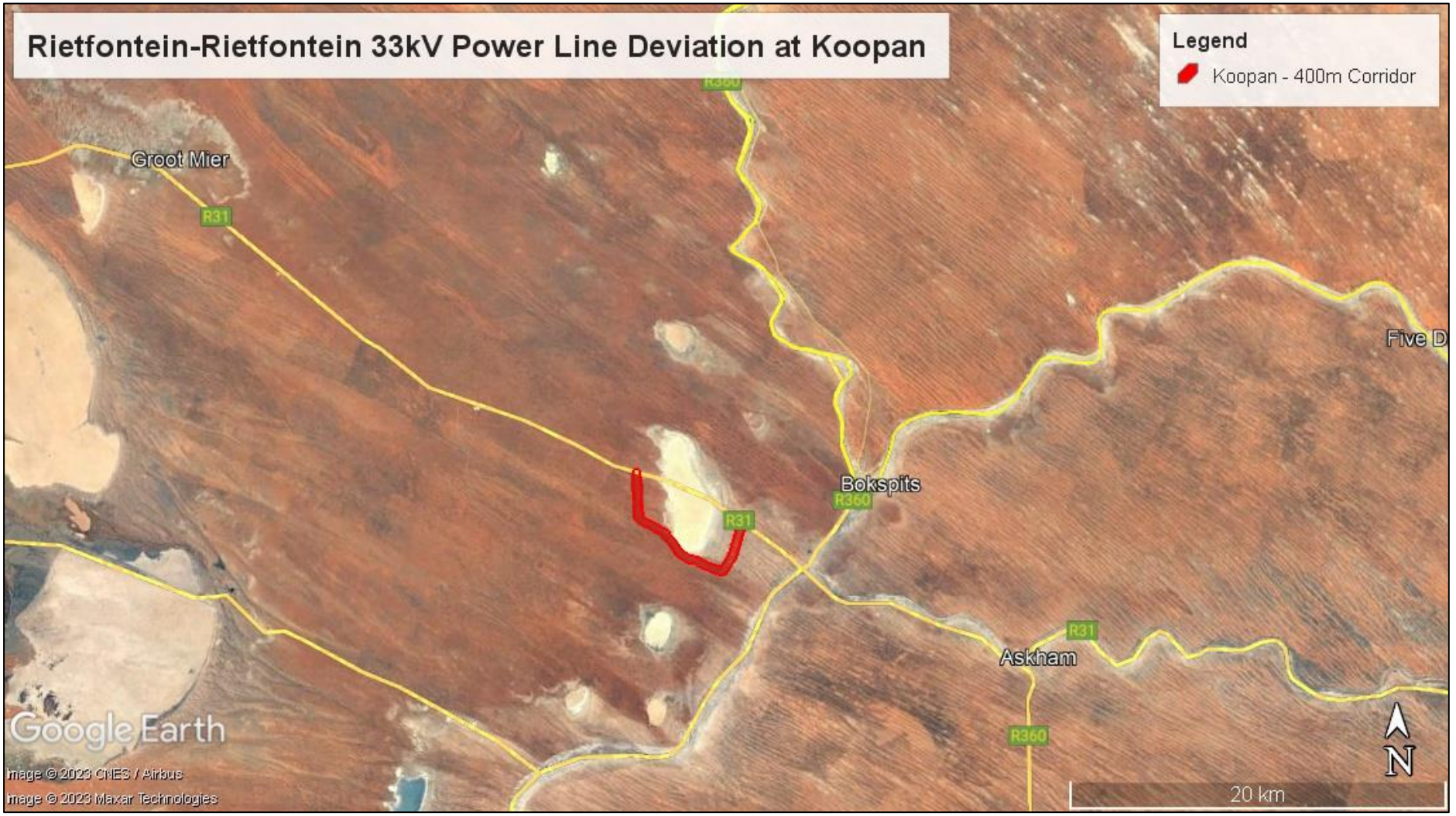


**Figure 1: Aerial Locality Map of the proposed Koopan deviation site.**

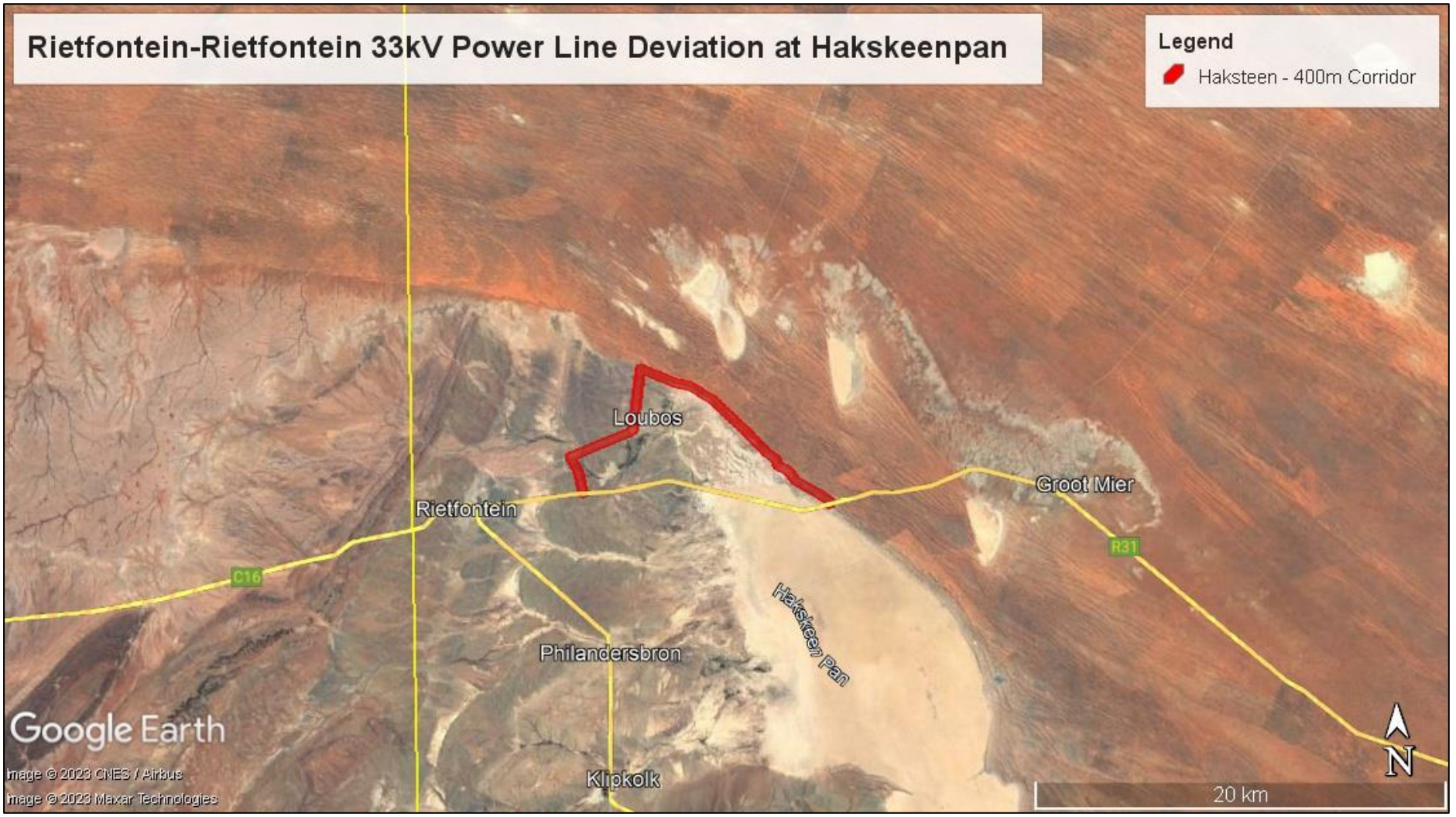


**Figure 2: Aerial Locality Map of the proposed Hakskeenpan deviation site.**

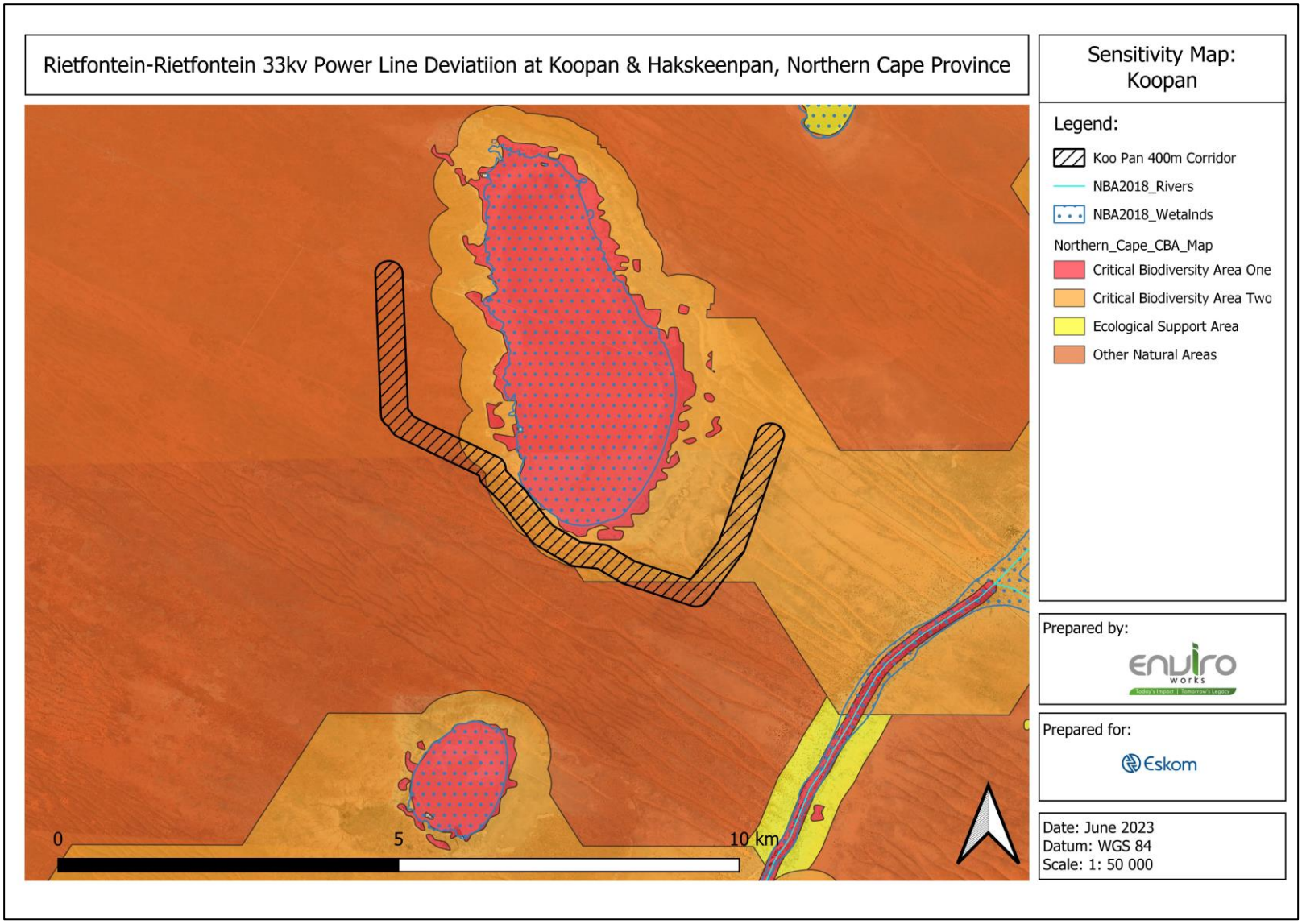


**Figure 3: Koopan deviation Sensitivity Map**

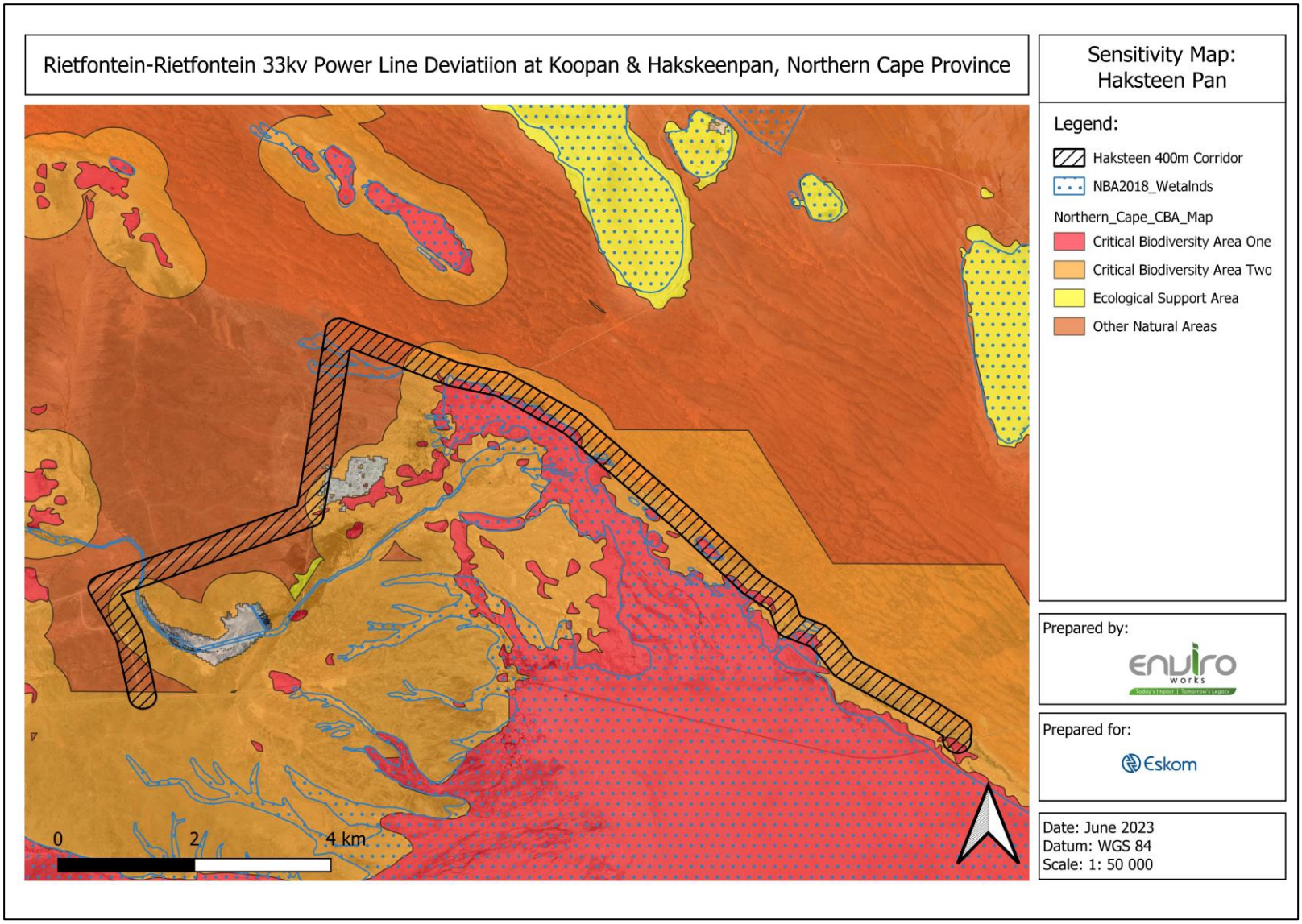


**Figure 4: Hakskeenpan deviation Sensitivity Map**

# 3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

This Environmental Management Programme Report was prepared by Elbi Bredenkamp from Enviroworks, the Environmental Assessment Practitioner (EAP) who is undertaking this EIA process. The sections below provide the details of the EAP and explain the EAP's expertise to prepare this EMPr.

## 3.1 DETAILS OF THE EAP

| | |
|---|---|
| **Business name of Specialist:** | Enviroworks |
| **Specialist Name:** | Gerbrecht Elizabeth (Elbi) Bredenkamp |
| **EAPASA/IAIAsa Registration** | EAPASA Reg: 2019/2008; IAIAsa: 6392 |
| **Physical address:** | Unit 81, Millennium Business Park, 19 Edison Way, Century City |
| **Postal address:** | Suite 1064, Private Bag X2, Century City |
| **Postal code:** | 7446 |
| **Telephone:** | 082 562 4134 |
| **E-mail:** | elbi@enviroworks.co.za |
| **Fax:** | 086 601 7507 |

## 3.2 CURRICULUM VITAE OF THE EAP

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**Gerbrecht Elizabeth (Elbi) Bredenkamp**

| | |
|---|---|
| **Name & Surname** | Gerbrecht Elizabeth (Elbi) Bredenkamp |
| **I.D Number** | 6402130036082 |
| **Nationality** | South African |
| **Home Language** | Afrikaans |
| **Proficiency in Other Languages** | **English**<br>- Spoken = Excellent<br>- Written = Excellent<br>- Reading = Excellent<br>**South Sotho**<br>- Spoken = Fair |
| **Parent Firm** | King's Landing Trading 507 (PTY) LTD t/a Enviroworks |
| **Position** | Director |
| **Years' Experience** | 23 years |
| **Educational Qualifications** | **2022-** Negotiation Strategies and Dispute Resolution- Mediation Succeed- Adv AC Oosthuizen SC<br>**2021-** Decision Makers in Public Participation- January 2021 – International Association of Public Participation (IAP2)<br>Fundamentals of Engagement- July 2021- International Association of Public Participation (IAP2)<br>**2012**- Greenhouse Gas Verification Training of the JCM (Joint Credit Mechanism LRQA Japan Proposed by the Japanese Government) ISO 14054, ISO 14064, JCM (BOCM) Manuals, LRQA GHG Verification Procedures.<br>**2012 –** Systems & Greenhouse Gases ((GHG) Technical Assessor Course, |

| | |
|---|---|
| | SANAS South African National Accreditation System- ISO 14065-distinction<br><br>**2010 –** International Training: Cork and London: ISO 14064-1/2/3/4 - Carbon Action (UK)<br><br>• Measuring your Organisation's Carbon Footprint: ISO 14064-1: Essentials – GHG Inventories (50018728/50052908)<br>• Reducing your Organizational Environmental Impact: ISO 14064-2: Essentials – GHG Projects (50018741-50052911)<br>• Carbon Emission Reduction Expert Course: ISO 14064-2 Expert – GHG Projects (50018731/50052909)<br>• Greenhouse Gas Verification: Using ISO 14064 (50029594-50052913) Courses successfully completed in England & Ireland on Carbon Footprint measuring and verification.<br><br>**2000- 2002-**<br><br>• Principles of EIA Review Course US EPA, in Pretoria, RSA<br>• Conflict Management Durban, RSA<br>• Environmental Law (with distinction) Aldo Leipoldt Institute, Pretoria, RSA<br><br>**1997-1999 –**<br><br>• Mineral Laws Administration and Environmental Management University of Pretoria, RSA<br>• Principles of the Rehabilitation of Disturbed Areas University of the North-West, RSA<br>• Environmental Impact Assessment University of the North-West<br>• Environmental Management Systems (SABS/ISO 14001) University of the North-West, RSA<br>• Environmental Policy and Management in Mining and Minerals University of Johannesburg, RSA<br>• The Measurement of Biodiversity University of the Free State, RSA<br>• Environmental Management Systems (SABS/ISO 14001) University of the North-West, RSA - 1997 – 1999<br><br>**1994** - M.Sc Botany (Cum Laude) - University of the Free State<br><br>**1987** - B.Sc Honours Botany - University of the Free State<br><br>**1986** - B.Sc - University of the Free State |

**Professional Qualifications**

**Professional Associations**

- Registered Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Pr.Sci.Nat. 400328/11)
- International Association of Impact Assessment South Africa (IAIAsa) (Member No 3893)
- International certified Carbon Verifier (auditor)
- SANAS accredited System & Green House Gas Technical Assessor
- Member and Certified Carbon Verifier with the Carbon Protocol of South Africa
- Accredited Consultancy Partner with the Carbon Disclosure Project- 2012
- International Association for Impact Assessment South Africa (IAIAsa) – Branch Chair from 2011 -2013
- IAP2 Southern Africa (IAP2 SA) affiliate to the International Association for Public Participation (IAP2)
- Accredited Chartered Public Relations Practitioner (Member no:73740) with the Public Relations Institute of South Africa (CPRP PRISA)

**Special Awards**

- Prof. E M van Zinderen Bakker - Prize (Best M.Sc. - Dissertation) & Honours in academics
- Dean's Medal (Best Magister Student)
- S2A3 - GENCOR - Bronze Medal (Best M.Sc. Thesis in Dept. Botany and Genetics)
- Africa Growth Awards Overall Winner Services Sector- 2012
- SEDA Business Competition Overall Provincial Winner- 2012

**Training and Webinars**

- Effective And Practical Adaptation Strategies for Climate Change – SACNASP

**Publications**

- Die Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie: Jaargang 15, Maart 1996*: "Evidence that thermoinhibition and the alleviation thereof by oxygen plus kinetin in Great Lakes lettuce seed is related to mitochondrial function."* ISSN 0254-3486

**Relevant Experience**

| GHG AND CLIMATE CHANGE EXPERIENCE | DETAILS | DATE |
|---|---|---|
| Course proposal "Integrating Climate Change into Environmental Impact Assessments" has been accepted.<br><br>The purpose of the course is to determine why, how, and when it is necessary to bring Climate Change into EIA's. Participants will also learn how to think and what information is available to work with. Analysis is important and how to move from theory to practice. | Presented in conjunction with International Association of Impact Assessors symposium Celsius 1.5: Impact Assessment and Climate Change 2022<br><br>https://conferences.iaia.org/climatechange22/index.php<br><br>• Understanding the context of climate change in environmental impact assessments.<br>• Understanding the relationship between climate change and sustainable development.<br>• Understanding climate change Impact and its uniqueness, as the local contributions and the global effects are not directly linked.<br>• What will trigger the necessity of a climate change specialist study, and can this be incorporated in the existing EIA screening assessment?<br>• Learning from local case studies how to bring the climate change aspect into an EIA.<br>• Group discussion on the development of a standard -- but non-tick box -- approach to provide consistency in climate change impact assessments going forward.<br>• Discussion on alternatives/mitigation measures: know what data and modelling is available to support practical alternatives with a long-term perspective.<br>• Learning from international case studies with South Africa in mind.<br>• Conclusion: South Africa needs to move towards a low carbon economy with a climate resilient society, and EIAs are part of this journey. | Sept 2022 |
| City of Cape Town: GAS FLARING PLANT: CDM Project in conjunction with Promethuim (Carbon Company in South Africa) | Enviroworks forms part of the management of 2 landfill gas flaring projects in Cape Town and is responsible for calibration of instruments and reporting on faults + monthly readings and feedback to City of Cape Town | From 2019-2022 (current) |
| Africa Pre-COP 26 Event Speaker: Africa Inspire Connect | Keynote Speaker on Climate Change in Africa at the Africa Connect 2021 Inaugural Event Cape Town, Western Cape Province | 2021 |

| | | |
|---|---|---|
| SANRAL GHG for various projects | • Greenhouse Gas Inventory for the Rehabilitation of Structures on National Route 14 Section 5 to 7 between Upington to Kuruman, Northern Cape Province<br>• Greenhouse Gas Inventory for the widening of structures on National Route 10 Section 11 between Groblershoop and Upington, Northern Cape Province<br>• Greenhouse Gas Inventory for the widening of structures over the Orange River on National Route 12 Section 9 near Hopetown, Northern Cape Province | 2017-2019 |
| Thebe Health Risk Management – Carbon Footprint | Annual Carbon Footprint Analysis for Thebe Health Risk Management for the year 2016, 2017 and 2018. | 2016, 2017,2018 |
| Presented various Climate Change Talks to Construction (eg: South African National Roads Agency SANRAL) and Engineering Firms (Iliso) | SANRAL- Measuring Carbon Footprint and Reporting- Why, How and What lies ahead?<br><br>Iliso Engineering Green *talk-Brief Overview*<br><br>*1. Key challenges of business in the 21st century*<br><br>*2. What is sustainable development?*<br><br>*3. South Africa:*<br><br>• Green Building<br>• Carbon Foot-printing<br>• Carbon Tax | October 2016 |
| Lecture for the past 5 years at the University of the Free State Business School on Environmental Megatrends with specific focus on Climate Change | • Environmental Megaforces<br>• Planetary Boundaries \| Doughnut Economics \| SDGs<br>• Triple- Bottom- Line vs Multi-Capitalism<br>• Going Green \| Context Based Sustainability<br>• Tools for implementation & AI to predict and prevent Environmental Megaforces | Yearly |

| | | |
|---|---|---|
| I did the International Association of Impact Assessors (South Africa) IAIAsa: National Conference 2013 Event Carbon Footprint whilst I was Branch Chair of this organisation. | • 300 delegates attended.<br>• Present on Climate Change and Awareness thereof.<br><br>(People had to car-pool as far as possible and they had to provide proof thereof.<br><br>Our food was sourced locally as far as possible.<br><br>Water Interventions was implemented.<br><br>Electricity was switched off between certain hours) | 2013 |
| We did our own company's Organizational Carbon Footprint Assessment | • Enviroworks as a corporate responsible company disclosed our carbon footprint in accordance with the Carbon Disclosure Project (CDP).<br>• We introduced water savings measures, proper waste management, recycling and awareness training. | 2010-2013 |
| Arranged and managed Carbon Action to present the ISO 14064 courses in South Africa | • Many people benefited from that, due to word of mouth afterwards.<br>• I was invited on several platforms to explain the benefit of GHG Management and what it entails | 2013 |
| International Audit / Carbon Verification for the Japan, Ministry of Environment on Carletonville Mine Energy Efficiency project – South Africa | • JCM Pilot Verification Audit for LRQA (Lloyd's Register Quality Assurance Limited, Yokohama, Japan, Carletonville, South Africa<br>• Carbon Verification | 2012- 2013 |

| PROJECT MANAGEMENT AND REVIEWER: ENVIRONMENTAL AND SOCIAL | Location | Date | Industry | Duties & Responsibilities | Duration | Scheduling and Costing | Client and |
|---|---|---|---|---|---|---|---|
| EASIGAS - Compilation of an Environmental Management Plan and Risk Assessment for the Pressure Testing of a One Million Litre LPG Cylinder within the Port of Port Elizabeth. | Port Elizabeth, Eastern Cape Province | 2016 | Petrochemical | Project Manager and Review EAP | 2 months | | ✓ |
| EASIGAS - Compilation of an Environmental Impact Assessment and EMP for the Proposed Development of 135 000 litre LPG Cylinder in East London | East London, Eastern Cape Province | 2015 | Petrochemical | Project Manager and EAP | 8 months | | ✓ |
| EASIGAS - Rooikraal Filling Station and Truck Stop: Compilation of an Environmental Impact Assessment and EMP for the Proposed Development of 90 000 litre LPG Cylinder in Bloemfontein. | Bloemfontein, Free State Province | 2015 | Petrochemical | Project Manager and EAP | 8 Months | | ✓ |
| De Jager Eiendomme - Compilation of an Environmental Impact Assessment and EMP for the Proposed Development of the Palmiet Filling Station and Truck Stop near Vrede. | Vrede, Free State Province | 2015 | Petrochemical | Project Manager and Review EAP | 9 Months | | ✓ |
| Eskom - Ecological source characterisation and identification, risk identification and assessment for the Source-Pathway Receptor Risk Assessment and options analysis for the expansion of the ash disposal facility at Matimba Power Station, Limpopo Province | Limpopo Province | 2018 | Electricity Generation | Project Manager and EAP | Months | | ✓ |
| Eskom - Environmental Impact Assessment and EMP for the construction of the Cecilia Powerline and sub-station. | Centlec, Mangaung Province | 2015 | Electricity Generation | Project Manager and EAP | 9 Months | | ✓ |
| Eskom - Environmental Impact Assessment and EMP for the replacement of a 66/11kv substation and 15km overhead powerline near Swellendam | Western Cape Province | 2012 | Electricity Generation | Project Manager and EAP | 13 Months | | ✓ |
| Makespace Architects - Basic Assessment for the proposed development of a housing development. | Hartswater, Northern Cape Province | 2018 | Construction | EIA reviewer & Project Manger | 11 months | | ✓ |

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| Bloemwater - Basic Assessment for the development of the Dewetsdorp Reservoir Augmentation. | Free State Province | 2015 – 2016 | Construction | EIA reviewer & Project Manger | 1 year | | ✓ |
| Sidala Energy Solutions -<br><br>Full scoping and EIA for the development of a Hydroelectric Power Scheme (Lower Kruisvallei) on the Farm Kruisvallei 190 and Portion of the Farm Middelvallei 130. | Dihlabeng Local Municipality, Free State Province | 2015 – 2016 | Electricity Generation | Project Manager and Review EAP | 2 years | | ✓ |
| Mangaung Metropolitan Municipality - Environmental Impact Assessment for the proposed development of the 150 ha Cecilia Residential Development. | Bloemfontein, Free State Province | 2014 – 2016 | Construction | EIA reviewer & Project Manger | 1.5 years | | ✓ |
| Sidala Energy Solutions -<br><br>Full scoping and EIA for the development of a Hydroelectric Power Scheme (Rooikat) on Portion 3 of the Farm Eskdale 204 and Portion 3 of the Farm Deelfontein 237. | Hope Town, Northern Cape | 2014 - 2016 | Electricity Generation | Project Manager and Review EAP | 2 years | | ✓ |
| SANParks - Environmental Authorisation for the upgrading of the sewerage purification plant in Golden Gate Highlands National Park. | Golden Gate Highlands National Park, Free State Province | 2012 | Waste Management | Project Manager and EAP | - | ✓ | ✓ |
| V&V Consulting - Waste Management License Application, undertaking of a Waste Management License Application for the expansion of an existing sewage treatment facility. | Rosendal, Free State Province | 2013 | Waste Management | Project Manager and EAP | 10 months | ✓ | ✓ |
| Living Waters Properties -<br><br>Waste Management License Application, Waste Management License for the Boschpoort Residential Estate Wastewater Treatment Works. | Boschpoort, Northwest Province. | 2012 | Waste Management | Project Manager and EAP | 1 year | ✓ | ✓ |
| Department of Water and Sanitation - Environmental Authorisation for the construction of the Klipplaatdrift Gauging weir- 16 km | Bothaville, Free State Province | 2008 | Construction | Project Manager and EAP | 8 months | ✓ | ✓ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SANParks - Basic Assessment for the development of the Golden Gate National Park Cultural Village. | Golden Gate Highlands National Park, Free State Province | 2008 | Construction | Project Manager and EAP | 1 year | ✓ | ✓ |
| Department of Water and Sanitation - Environmental Authorisation for the construction of the Sendelingsdrift gauging weir between South Africa and Namibia | Free State Province | 2006 – 2008 | Construction | Project Manager and EAP | 2 years | ✓ | ✓ |
| | | | | | | | |

ENVIRONMENTAL AND SOCIAL EXPERIENCE

- PROJECT MANAGEMENT AND REVIEWER
- ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)
- SOCIAL FACILITATOR AND SOCIAL IMPACT ASSESSMENTS
- ENVIRONMENTAL AUDITING
- TRAINING

ENVIRONMENTAL

PROJECT MANAGEMENT AND REVIEWER

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

| PROJECT | INDUSTRY/ SECTOR | DUTIES | CLIENT AND REGULATORY LIAISON |
|---|---|---|---|
| BVi Engineering - Basic Assessment for the Design, Rehabilitation / Improvement, Routine Maintenance works of N220: Chissano to Chibuto and N/C Crz. N220 to N1, Mozambique. (2017) | Road Works | EAP | ✓ |
| SANRAL - Basic Assessment for the Routine Maintenance of National Route 2 Section 4 between Riviersonderend (Km 0.0) and Swellendam (Km 56.9), Western Cape Province. (2017) | Road Works | EIA reviewer & Project Manger | ✓ |
| SANParks - Basic Assessment for the Upgrade of Day Visitors Facilities, Kraalbaai, West Coast National Park, West Coast National Park, Western Cape Province. (2016 – 2017) | Construction | EIA reviewer & Project Manger | ✓ |
| Theewaterskloof Local Municipality - River Maintenance Management Plan for the Bath River, Caledon, Western Cape Province. (2016 – 2017) | Construction | EIA reviewer & Project Manger | ✓ |
| SANParks - Proposed development of the Phalaborwa Wildlife Activity Hub, Kruger National Park, Limpopo Province. (2017 – 2019) | Construction | EIA reviewer & Project Manger | ✓ |
| SANParks - Basic Assessment for the proposed development of the Agulhas Icon, Agulhas National Park, Agulhas, Western Cape Province. (2015 – 2016) | Construction | EAP | ✓ |
| Bloemwater - Basic Assessment for the development of the Dewetsdorp Reservoir Augmentation, Free State Province. (2015 – 2016) | Construction | EIA reviewer & Project Manger | ✓ |

| | | | |
|---|---|---|---|
| SANParks - Basic Assessment for the proposed development of the Golden Gate Dinosaur Interpretation Centre, Golden Gate Highlands National Park, Free State Province. (2013 – 2015) | Construction | EAP | ✓ |
| Project Manager and EAP: NLD - National Long Haul Optic Fibre Infrastructure Network from Johannesburg to Cape Town, Cape Town/Johannesburg. (2010 – 2012) | Construction | Project Manager & EAP | ✓ |
| Department of Water and Sanitation - Environmental Authorisation for the construction of the Oranjedraai gauging weir- Orange River, Free State. (2008) | Construction | Project Manager & EAP | ✓ |
| SANParks - Basic Assessment for the proposed development of the Agulhas Lighthouse Precinct within the Agulhas National Park, Agulhas, Western Cape Province. 2006 | Construction | Project Manager & EAP | ✓ |
| Theewaterskloof Local Municipality - Proposed development of the Grabouw Cemetery on Erf 4833, Grabouw, Western Cape Province. Ecological (2016 – 2017) | Construction | EIA reviewer & Project Manger | ✓ |
| V&V Consulting - Waste Management License Application, undertaking of a Waste Management License Application for the expansion of an existing sewage treatment facility, Fouriesburg, Free State Province. (2013) | Construction | Project Manager & EAP | ✓ |
| Department of Water and Sanitation - Environmental Authorisation for the construction of the Sendelingsdrift gauging weir between South Africa and Namibia | Construction | Project Manager & EAP | |
| SOCIAL FACILITATOR AND SOCIAL IMPACT ASSESSMENTS | | | |
| PROJECT | INDUSTRY/ SECTOR | DUTIES | CLIENT AND REGULATORY LIAISON |
| Eskom - Social Impact Assessment for the Proposed Development of the Gromis-Nama-Aggeneis 400 kV IPP Integration, Springbok, Northern Cape Province.<br><br>2019-2020. Khululwa Gaongalelwe: StuurmKV@eskom.co.za | Energy | Public Participation<br><br>Stakeholder Engagement | ✓ |

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| Greenmined Environmental - Socio-Economic Impact Assessment as Part of the Application for the Amendment of the Existing Mine Right Held by Tja Naledi for the Mining of Sand, to Include Aggregate on Portion 4 of the Farm Woodlands 407, Ngwathe Local Municipality, Free State Province.<br><br>2018, Yolandi Coetzee, 011 966 4390, yolandie.c@greenmined.co.za | Mining | Public Participation<br><br>Stakeholder Engagement | ✓ |
| Social Impact Assessment for the Proposed Development of a Mixed Residential Estate on Portion 9 of the Farm Ronwe No. 851, Paarl, Western Cape<br><br>2016- 2017– TTP Consult Ruan Fourie, Ruan@ttp-consult.co.za | Residential | Public Participation<br><br>Stakeholder Engagement | ✓ |
| The Enviromental and Social Impact Assessment for the Design, Rehabilitation/Improvement, Routine Maintenance Works of N220: Chissano to Chibuto And N/C CRZ.N220 to N1, Mozambique. (Administração Nacional De Estradas (National Road Administration))<br><br>2016-2017- BVi Engineering, Mr Andrew Geel, 021 527 7000 | Roads<br><br>Construction | - Conduct Environmental and social screening.<br>- Review and approval of Environmental and Social screening forms monitoring during construction.<br>- Contribute to Environmental and Social screening.<br>- Review and approval of Environmental and Social screening forms monitoring during construction.<br>- To inform the communities of their status within the Output and Performance based Road Contracts (OPRC) road network.<br>- Community empowerment on their roles and rights regarding Environmental Assessments public meetings.<br>- Structured Workshops<br>- Public meetings at respective villages under the OPRC road network | ✓ |
| CEO, Environmental Consulting and Public Participation<br><br>2002 to present<br><br>Enviroworks | Conducting Public Participation Processes | Conducting of Environmental Impact Assessments, Risk Analysis, Auditing, Monitoring and Compiling of Environmental Management Plans. | ✓ |

| | | | |
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| | | ALL THE ABOVE ENTAILS PUBLIC PARTICIPATION PROCESSES | |
| ENVIRONMENTAL AUDITING | | | |
| Project | Industry/Sector | Duties | Client and Regulatory Liaison |
| International Audit / Carbon Verification for the Japan, Ministry of Environment on Carletonville Mine Energy Efficiency project – South Africa: JCM Pilot Verification Audit for LRQA (Lloyd's Register Quality Assurance Limited, Yokohama, Japan, November 2012- February 2013, Carletonville, South Africa | Mining | Carbon Auditor | ✓ |
| International Environmental Audit for General Motors South Africa (GMSA) in conjunction with SHE Management Company, South Africa | Manufacturing | Environmental Auditor | ✓ |
| TRAINING | | | |
| Project | Industry/Sector | Duties | Student Training |
| Executive Development Programme at the Business School of the University of the Free State: Give lectures on Environmental Megatrends: Yearly | Post Graduate Training | Lecturer | ✓ |
| Apart from teaching, curriculum development, development of short courses for teaching staff, identification of shortcomings at schools and development of strategies to address it (Public–Private partnerships for funds, develop strategies to access to international funds).1987-1996 | Department of Education - Free State | Teacher, Subject Advisor | ✓ |
| Presenting of various technical expert talks: 2015-2019<br>- Impact of Environmental Legislation on Development<br>- SANRAL – Measuring Carbon Footprint and Reporting<br>- Alien Invasive Species Seminar<br>- Introduction to the Alien Invasive Species Regulations | Roads<br>SANRAL-South African National Roads Agency & various others. | Presenter of expert talks | ✓ |

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| Training on the identification of Alien Invasive Species. | Cement<br><br>Lafarge (Pty) Ltd, Western Cape | Training and Presenter | ✓ |

# 4 PROJECT DESCRIPTION AND LISTED ACTIVITIES COVERED BY THIS EMPR

## 4.1 BRIEF PROJECT DESCRIPTION

Eskom proposes the rerouting of the Rietfontein 33kV powerline near the Rietfontein settlement in the Northern Cape Province. The purpose of rerouting the powerline is to re-route sections that currently cross two (2) freshwater pans (Hakskeenpan and Koopan). When there is water in the pans the powerline poles are prone to fall over due to the wet clay soil. Once wet the clay soil makes it difficult for maintenance vehicles to reach the fallen structures in order to repair them. The result of this is Eskom customers in the area are left without electricity for extended periods of time. The current powerline configuration consists of bird friendly wooden pole structure (D-DT-1870).

The same configuration will be used on the two sections where the line will be deviated. The height of the wooden pole structures will range from nine metres (9 m) to thirteen metres (13 m). The poles are planted in holes drilled by a truck mounted drill. The holes will be three hundred millimetres (300 mm) in diameter and two metres (2 m) deep. The average distance between structures will be one hundred metres (100 m).

The Koopan deviation is situated approximately three point eight kilometres (3.8 km) to the west of the R31 and R360 interchange. Prominent landmarks within the area include the Andriesvale Town Hall and the Vinkie's Kalahari Experience located west of the R360. The site is adjacent to the Koopan wetland.

The Hakskeenpan deviation is located between the R31 and the South African/Namibian border, near the settlement of Rietfontein.

The following properties will be affected:

- Remaining Extent of the Farm Mier No. 585;
- Portion 100 of the Farm Mier No. 585;
- Portion 103 of the Farm Mier No. 585;
- Portion 105 of the Farm Mier No. 585;
- Portion 106 of the Farm Mier No. 585; and,
- Portion 2 of the Farm Uitkoms No. 136

The locations of the proposed powerline deviation routes are indicated on the Maps provided in Appendix C of the Basic Assessment Report. The placement of all infrastructure within the indicated area (i.e. site boundary) will be finalised during the Construction Phase, where the micro siting of the poles will be done.

## 4.2 PROJECT PHASES

**Three phases:**

- Construction Phase (includes planning, design, pre-construction and construction activities);
- Operational Phase; and,
- Decommissioning Phase.

## 4.3 NEMA LISTED ACTIVITIES TRIGGERED

The NEMA EIA Listed Activities (as per the NEMA EIA Regulations Listing Notices 3 of 2014 (as amended)) that will be triggered by the proposed project are listed in the table below.

**Table 3: Listed Activities applicable to this application.**

| No. | Listed activity | Description of project activity |
|---|---|---|
| **Listing Notice 3 (GN R384 as amended)** | | |
| 12 g. (i) (ii) | 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.<br><br>**g. Northern Cape**<br>i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; and<br>ii. Within critical biodiversity areas identified in bioregional plans. | The proposed rerouting of the powerline will require vegetation clearance of more than 300 square metres within an area zoned as open space. |
| 14 g. (ii.) (ff) (hh) | The development of—<br>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;<br><br>where such development occurs—<br><br>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;<br><br>**g. Northern Cape**<br>ii. Outside urban areas:<br>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; | The proposed infrastructure is located outside an urban area and within a Critical Biodiversity Area (CBA). |

# 5 EXISTING ENVIRONMENTAL AND IMPACT ASSESSMENT SUMMARY

The sections below summarise the existing environment, and the outcome of the impact assessment that was undertaken for the proposed project.

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## 5.1 THE RECEIVING ENVIRONMENT

The proposed Rietfontein powerline deviation routes are situated near the Rietfontein settlement, Dawid Kruiper Local Municipality, Northern Cape Province. Hakskeenpan is located approximately five kilometers (5 km) to the East of Rietfontein and Koopan is located sixteen kilometers (16 km) to the West of Askham. Prominent landmarks include the Andriesvale Town Hall and the Vinkie's Kalahari Experience located west of the R360. The first (1st) deviation traverses around the southern side of Koopan wetland. The second (2nd) deviation is situated between the R31 and the South African/Namibia border, near the town of Rietfontein, and traverses around the northern end of the Hakskeenpan wetland.

Based on the Terrestrial Compliance Statement conducted, both the Hakskeenpan and the Koopan deviation routes are mostly surrounded by natural shrubland, and where the specific pans are delineated, the land cover is classified as barren land due to the limited plant species that grows within the pans.

The powerline routes are mostly situated within the Kalahari Karroid Shrubland and Gordonia Plains Shrubland; however, the Koopan deviation route includes Auob Duneveld and Gordonia Duneveld bioregions.

No threatened species were recorded on the footprint during the site inspection which is expected given that no species were identified by the Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool. The vegetation types noted on the footprints do not have a high abundance of threatened species and as such, it is not likely that any threatened plant species will inhabit the footprints. However, two (2) protected trees were recorded within the Koopan deviation route including *Vachellia erioloba* and *Vachellia haematoxylon.* Both species have a threatened status of Least Concern but do require a tree removal permit should they be uprooted.

Most of the footprints are situated within an area classified as Other Natural Areas which have been confirmed given the natural and mostly undisturbed state of the vegetation. Moreover, some areas (mostly those included in the Gordonia Duneveld bioregion) are included in a Critical Biodiverse Area 2 (CBA 2). These have been confirmed given that the dunes are sensitive especially to changes that lead to restricted sand movement. It is recommended that development be restricted to the dune slacks to avoid any compression of the dunes and removal of the vegetation on the dunes. Given that the footprint of the structures is small (300 mm), it is unlikely that the development will have any impact on the functioning of the CBA 2 or the Other Natural Area.

According to the Aquatic Species Compliance Statement, the Hakskeenpan deviation corridor is within five hundred metres (500 m) of two (2) main types of wetlands namely a Depression Wetland (pan) and a Channelled Valley Bottom Wetland. The Koopan deviation corridor is within five hundred metres (500 m) of a Depressional Wetland (Pan).

## 5.2 PUBLIC PARTICIPATION

To support public interest and inform the EIA process, a public consultation process proceeded throughout the lifetime assessment. A diverse mix of Authorities, Stakeholders and Interested and Affected Parties were consulted during this time, representing the environment, social, economic, and political realms of local and regional and national bodies.

Comments will be responded to during various stages of the public participation process in the Basic Assessment Report and were addressed in project reports as relevant. It is considered that through the public participation conducted by the EAP, parties will have an adequate opportunity to partake in this process and all concerns will be addressed to ensure that all parties agree with the proposed development.

## 5.3 SPECIALIST INVESTIGATIONS

### *5.3.1 AGRICULTURAL COMPLIANCE STATEMENT*

The Agricultural Compliance Statement was compiled by Dr Darren Bouwer of Digital Soils Africa. The main conclusions and/or recommendations detailed in the Agricultural Compliance Statement are as follows:

The desktop study confirmed that the proposed powerline route deviation is classified by medium Agricultural sensitivity as found by the findings of the DFFE Screening tool.

Hakskeenpan

The site, as determined by the screening tool, holds a moderate agricultural sensitivity rating due to its moderate to low land capability. However, no existing agricultural practices were identified through land cover data or satellite imagery. Grazing capacity in the area is low, but the linear nature of the proposed development is unlikely to hinder post-construction grazing significantly. Micro-siting concerns are minimal, given the ongoing development in the surrounding region.

Recommendations:

- Limit Development Footprint: During construction, restrict the development to the smallest possible footprint and avoid disturbing areas beyond this designated zone;
- Clear Conductor Lines: Ensure that access conductor lines remain clear throughout construction and operational phases, preventing interference with agricultural activities; and,
- Erosion Risk Mitigation: Recognize the low rainfall in the area but be mindful of sodic soils near pans, which are highly dispersive. Implement thorough rehabilitation post-pole removal to prevent potential gully erosion, including the addition of compost to the topsoil during rehabilitation.

Koopan

- The site has a moderate agricultural sensitivity classification due to its moderate to low land capability;
- No agricultural practices were identified through national landcover data or satellite imagery;
- Grazing capacity is low, but post-construction grazing should not be significantly impacted, given the linear nature of the development; and,
- Micro-siting concerns are minimal, as the development's linear nature is not expected to hinder agricultural activities.

Recommendations:

- Restrict the development to the smallest possible footprint and avoid altering areas beyond the development site; and,
- Keep access conductor lines clear and ensure construction and operational activities do not disrupt agricultural activities.

### *5.3.2 PLANT SPECIES, ANIMAL SPECIES AND TERRESTRIAL BIODIVERSITY THEME COMPLIANCE STATEMENT*

The Plant Species, Animal Species and Terrestrial Biodiversity Compliance Statement was compiled by Megan Smith from Enviroworks. The main conclusions and recommendations detailed in the Plant Species, Animal Species and Terrestrial Biodiversity l Compliance Statement are as follows:

The footprints of the proposed deviation routes encompass three (3) main vegetation types: Kalahari Karroid Shrubland, Gordonia Duneveld, and Gordonia Plains Shrubland. These areas primarily consist of natural habitats, with minimal human disturbance observed, mainly from small farmhouses and sheep grazing.

Notably, the Koopan deviation route corridor has recorded two protected tree species, namely *Vachellia haematoxylon* and *Vachellia erioloba*.

Most of the footprints fall within "Other Natural Areas," confirming their natural and relatively undisturbed status. Some areas, particularly those within the Gordonia Duneveld, are included in a Critical Biodiverse Area Two (CBA 2), which is sensitive to changes affecting sand movement. In these areas, it is recommended that development be limited to dune slacks to prevent dune compression and vegetation removal.

It's essential to emphasize that, despite their inclusion in biodiversity plans, both CBA 2 areas and Other Natural Areas are of relatively low conservation importance and are considered to have "low" sensitivity for each of the biodiversity themes. This assessment is further supported by the small footprint of the deviation routes, which is unlikely to significantly impact the sensitive areas.

In summary, the sensitivity assessment for each theme, within the context of the deviation route footprints, results in a "low" sensitivity classification for Terrestrial Biodiversity, Plant Species, and Animal Species.

Recommendations:

To effectively manage ecological impacts on both fauna and flora associated with the project footprint, several integrated mitigation measures are recommended. These measures include fire prevention, provision of fire management equipment, avoidance of dunes where possible, erosion control, adherence to aquatic biodiversity assessments, designated smoking areas, prohibition of waste dumping into the ecosystem, protection of protected trees, and confining all activities within the designated footprint.

Additional measures involve restricting expansions and access roads to already disturbed areas, managing Alien Invasive Species (AIS), rehabilitating disturbed areas, limiting vehicle use to designated roads, ensuring staff awareness of potential fauna presence, enforcing speed limits, consulting specialists for species translocations, conducting environmental inductions for personnel, and prohibiting any harm to fauna, removal of threatened or protected plant species, and feeding of fauna.

### *5.3.3 HERITAGE IMPACT ASSESSMENT*

The Heritage Impact Assessment was compiled by Jenna Lavin of CTS Heritage. The main conclusions and/or recommendations detailed in the Agricultural Compliance Statement are as follows:

It revealed significant archaeological findings along the dune field's apex, signifying its high sensitivity. Additionally, several burials were discovered within the proposed grid corridor, necessitating mitigation measures detailed within the Heritage Report. As for palaeontological sensitivity, the Kalahari Sands of the Gordonia Formation were found to have a low sensitivity to impacts on significant palaeontology. Fossils in this formation are primarily associated with ancient pans, lakes, and river systems, including various elements like Palynomorphs, root casts, rare vertebrate remains, among others. To address potential fossil discoveries, it is recommended to implement the Chance Fossil Finds Procedure during excavation activities.

Recommendations:

- The proposed grid alignment development is not expected to have a negative impact on significant archaeological heritage, as long as certain precautions are taken:
    - Implement the specified mitigation measures from Table 1 and depicted in Figures 7.1, 7.2, and 7.3.
    - Conduct a pylon placement walkdown by an archaeologist before construction to ensure that significant archaeological resources are not affected.
    - Follow the attached Chance Fossil Finds Procedure during construction.
    - The possibility of hidden or subsurface sites being missed remains. If any evidence of archaeological sites, remains, fossils, burials, or heritage resources is discovered during development, cease work in the area immediately and promptly notify SAHRA (South African Heritage Resources Agency) for further guidance.

### *5.3.4 ARCHAEOLOGICAL SPECIALIST STUDY*

The Archaeological Specialist Study was compiled by Jenna Lavin and Nicholas Wiltshire of CTS Heritage. The main conclusions and/or recommendations detailed in the Agricultural Compliance Statement are as follows:

The survey, conducted with a few constraints, thoroughly assessed heritage resources within the project area. It revealed significant archaeological resources along the dune field's apex, making this area highly sensitive. Additionally, several burials were found within the proposed grid corridor, and appropriate mitigation measures are detailed in Table 1 of the Heritage Report. Overall, there are no archaeological objections to the proposed development, provided that the outlined mitigation measures are put in place.

Recommendations:

The proposed development of the grid alignment is not expected to have a negative impact on significant archaeological heritage, provided that specific measures are followed:

- Implementation of mitigation measures outlined in Table 1 and illustrated in Figures 8.1, 8.2, and 8.3;
- A pre-construction walkdown by an archaeologist to microsite the final pylon placements and avoid significant archaeological resources; and,
- The possibility of missing hidden or subsurface sites remains. If any evidence of archaeological sites or remains, fossils, burials, or other heritage resources is discovered during development, work must halt in the vicinity of the find, and SAHRA (South African Heritage Resources Agency) should be notified immediately to determine the appropriate course of action.

### *5.3.5 AQUATIC BIODIVERSITY THEME COMPLIANCE STATEMENT AND SECTION 21(C) AND (I) RISK MATRIX*

The Aquatic Biodiversity Compliance Statement and Section 21 (c) and (i) Risk Matrix was compiled by Megan Smith of Enviroworks. The main conclusions and/or recommendations detailed in the Aquatic Biodiversity Compliance Statement and Section 21 (c) and (i) Risk Matrix are as follows: Enviroworks was appointed to conduct the Aquatic Biodiversity Compliance statement inclusive of the Section 21 (c) and (i) risk matrix.

The proposed activities are situated within the Lower Orange Water Management Area (WMA) in the Orange/Vaal River Basin. A site visit conducted in June 2023 highlighted that both the Koopan and Hakskeenpan deviation corridors intersect with sensitive areas designated by the Northern Cape biodiversity spatial plan. These areas encompass Critical Biodiverse Area Two, other natural areas, and Critical Biodiverse Area One in the case of the Hakskeenpan deviation corridor. Additionally, both corridors are located within 500 meters of significant wetlands, with the Hakskeenpan deviation corridor also adjacent to a channelled valley bottom wetland.

The sensitivity assessment has identified that the Hakskeenpan deviation corridor is highly sensitive to the Aquatic Biodiversity Theme, while the Koopan deviation corridor exhibits lower sensitivity. The Koopan, due to its ephemeral nature and the prevailing water scarcity in the area, holds particular ecological significance as it contributes significantly to the broader ecological system.

Recommendations:

- Implement recommended buffer zones of 35 meters around the pans and 15 meters around the channelled valley bottom wetland, including its associated drainage lines. It is crucial that the proposed activities remain outside of these buffer zones to minimize potential impacts.
- Given the Principal Ecosystem Status (PES) categories, both the Hakskeen and Koopan are classified as having minimal modification (PES category B). However, the channelled valley bottom

wetland falls into the moderately modified category (PES category C) due to alterations in catchment hydrology, water quality, and flow characteristics.

- Considering the overall low risk posed by the proposed activities to the wetlands, streams, and drainage lines, it is advisable to proceed with the project while diligently adhering to the recommended mitigation measures.
- We recommend seeking General Authorization for the proposed activities, as outlined in detail in Appendix D4 of the Aquatic Compliance Statement. This authorization will ensure that the project proceeds in compliance with environmental regulations and best practices.

### *5.3.6 AVIFAUNAL IMPACT ASSESSMENT*

The Avifaunal Specialist Report was compiled by Dr Megan Loftie-Eaton. The main conclusions and/or recommendations detailed in the Avifaunal Specialist Report are as follows:

A total of one hundred and eighty-nine (189) bird species were identified in the broader area, including forty-nine (49) powerline-sensitive and eleven (11) Red List species, signifying species of conservation concern. Among the powerline-sensitive species, twenty-two (22) are likely residents, and twenty-seven (27) could occasionally inhabit the subject site.

The entire study area is highly sensitive to bird collisions with powerlines. The site's intersection with the Nama Karoo and Savanna Biomes offers diverse habitats for avifauna. Surface water resources, like pans and wetlands, are vital for attracting various bird species, especially after rainfall.

Within the subject site, drainage lines serve as crucial foraging, nesting, and roosting habitats for powerline-sensitive birds and other species. Nearby, a rocky ridge near the Koopan may attract birds for nesting and roosting, though it lies outside the subject site.

The subject site's high sensitivity to avifauna, as indicated by the DFFE Screening Tool, is linked to species such as the Lanner Falcon and Burchell's Courser. Additionally, the Hakskeen and Koopans house habitats for Species of Conservation Concern (SCC), especially those on the IUCN Red List of Threatened Species. While the site's classification as highly sensitive is accurate regarding potential impacts from the powerline and related infrastructure, appropriate mitigation measures can effectively reduce these impacts to a low level.

<u>Recommendations:</u>

- Implement all mitigation measures detailed in the Environmental Management Plan (Appendix 4) for Avifaunal Impact Assessment.
- Continuously monitor and report avifauna in the project area to assess mitigation effectiveness.
- Collaborate with local experts and authorities to create a site-specific avifauna conservation plan.
- Ensure strict compliance with environmental regulations and permits regarding avifauna protection.
- Provide comprehensive avifauna awareness and training for project personnel.
- Consider establishing supplementary bird habitats or sanctuaries in the vicinity.

- Conduct public awareness campaigns and community education to promote avifauna conservation.

## 5.4 ENVIRONMENTAL IMPACT RATINGS

### *5.4.1 PLANNING, DESIGN AND CONSTRUCTION PHASE – HAKSKEENPAN*

| Construction Phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Negative impact of haphazard placement of infrastructure on the environment. | **Activity:** The establishment of a main site office and storage site during the construction period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by construction activities. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Topsoil Removal and Soil Erosion | **Activity:** The clearing of topsoil and excavation for the establishment of building foundations may result in the destruction of fertile topsoil. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | |
| **Cumulative impact:** | L | L | | | |
| **Nature of impact:** Handling of general waste materials on the development site, threat to fauna and visual impact. | **Activity:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Increased risk of veld fires. | **Activity:** Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

| Planning, design and construction phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Excessive dust will cause a visual impact and nuisance impact. | **Activity:** Construction activities such as excavating, mixing concrete and driving on site will cause dust. This may be exasperated during windy conditions. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

| POTENTIAL IMPACTS ON BIOLOGICAL ASPECTS: | | | | |
|---|---|---|---|---|
| **Nature of impact:** Fauna and flora will be directly impacted as a result of construction activities and human presence at the site. | **Activity:** Clearing of natural vegetation will result in a range of issues including increasing the risk of erosion, reducing sensitive vegetation types, reducing habitats for animals, and increasing the risk of alien vegetation spreading. | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **Nature of impact:** Spillage from construction vehicles and waste dumping does not lead to contamination of watercourses and soils of the surrounding environment as wind and surface runoff can carry contaminated/polluted water downstream. | **Activity:** Handling waste, general- and hazardous material on the site during construction | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **Nature of impact:** Disturbance of soil that creates opportunity for invasion which may lead to significant alien invasive species establishment and spread. | **Activity:** Construction activities and the spread of Alien Invasive Species. | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **Nature of impact:** Development of the deviation routes may result in erosion on site and within 500m of wetlands. Stormwater may be diverted due to the installation of the structures | **Activity:** Construction, erosion control and storm water management | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **Nature of impact:** Clearance of vegetation and soil, general | **Activity:** | | | No construction phase impacts are associated with |

| | | | | |
|---|---|---|---|---|
| construction, and development of infrastructure within 500m of a wetland may result in changes to drainage patterns and siltation in downstream wetlands | Construction activities including clearance of vegetation and changes to hydrology due to development within the regulated area of a watercourse. | | | the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **Nature of impact:** Mortality of powerline sensitive avifauna species due to collisions with the 33 kV powerline | **Activity:** Mortality of powerline sensitive avifauna species due to collisions with the 33 kV powerline. | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | H | L | N/A | - |
| **Cumulative impact:** | H | M | | - |
| **Nature of impact:** Mortality of powerline sensitive avifauna due to electrocutions on the 33 kV powerlines | **Activity:** Mortality of powerline sensitive avifauna due to electrocutions on the 33 kV powerlines | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | H | L | N/A | - |
| **Cumulative impact:** | H | M | | - |
| **Nature of impact:** Displacement of powerline sensitive avifauna due to disturbance associated with decommissioning of the 33kV overhead powerline associated infrastructure | **Activity:** Displacement of powerline sensitive avifauna due to disturbance associated with decommissioning of the 33kV overhead powerline associated infrastructure | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **POTENTIAL IMPACTS ON AGRICULTURAL ASPECTS:** | | | | |
| **Nature of impact:** Risk posed to agricultural activities | **Activity:** Risk posed to agricultural activities | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |

| | | | | |
|---|---|---|---|---|
| **Significance rating:** | L | L | N/A | - |
| **Cumulative impact:** | M | L | | - |
| **POTENTIAL IMPACTS ON CULTURAL-HISTORICAL ASPECTS:** | | | | |
| **Nature of impact:** Damage and destruction of artefacts and/or heritage structures during construction activities. | **Activity:** The presence of construction workers and construction activities can result in the discovery of cultural and historical artefacts and/or damage to heritage structures. | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | - |
| **Cumulative impact:** | L | L | | - |

| **Planning, design and construction phase** | **Hakskeenpan** | | **Alternative** | | **No-Go Alternative** |
|---|---|---|---|---|---|
| | **Before Mitigation** | **After Mitigation** | **Before Mitigation** | **After Mitigation** | |
| **POTENTIAL VISUAL IMPACTS:** | | | | | |
| **Nature of impact:** Impact on the area's sense of place. | **Activity:** The movement of construction vehicles, machinery and personnel on site shall result in a visual impact for surrounding land users and residents. Furthermore, the storage of construction materials shall result in disturbance and an unsightly character. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON NOISE ASPECTS:** | | | | | |
| **Nature of impact:** Noise nuisance generated by construction works, vehicles and personnel. | **Activity:** The operating of vehicles and machinery on site results in the generation of noise which could disturb surrounding land users and residents. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

### *5.4.2 POTENTIAL OPERATIONAL PHASE IMPACTS*

| Operational Phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** The general operation of the powerline may result in improper stormwater management and alien invasive species establishment. | **Activity:** General operation of the powerline including maintenance on the line, placement of components and vegetation clearing below the lines. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |
| **Nature of impact:** Increased risk of veld fires. | **Activity:** Short circuits, overcharging and/or thermal runaway could result in a fire or explosion. Maintenance activities including hot works (such as welding and grinding) could result in veld fires if not managed properly. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | M | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON SOCIO-ECONOMIC ASPECTS:** | | | | | |
| **Nature of impact:** Financial and social benefits for Rietfontein and surrounds. | **Activity:** The proposed powerline deviations will stabilise the electricity supply to Rietfontein and surrounds, reducing the need for loadshedding and ensuring sufficient electricity supply for the expected growth in Rietfontein. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | MH (+) | - | N/A | | MH |
| **Cumulative impact:** | MH (+) | - | | | MH |
| **POTENTIAL IMPACTS ON NOISE:** | | | | | |
| **Nature of impact:** Noise nuisance generated by maintenance activities. | **Activity:** Maintenance works will create noise due to maintenance activities and the presence of personnel on site. This may disturb surrounding land users and residents. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |

| Operational Phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON VISUAL:** | | | | | |
| **Nature of impact:** Impact on the sense of place for surrounding users. | **Activity:** The placement of the powerline infrastructure may create a visual impact for the surrounding land users and residents. | | | | If not constructed, no visual impacts will occur. |
| **Significance rating:** | L | L | N/A | | P (+) |
| **Cumulative impact:** | M | L | | | P (+) |

### *5.4.3 POTENTIAL DECOMMISSIONING PHASE IMPACTS*

| Decommissioning Phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Negative impact of haphazard placement of infrastructure on the environment. | **Activity:** The establishment of a main site office and storage site during the decommissioning period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by decommissioning activities. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Handling of general waste materials on the development site, threat to fauna and visual impact. | **Activity:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Excessive dust will cause a visual impact and nuisance impact. | **Activity:** Decommissioning activities such as excavating, demolishing structures concrete and driving on site will cause dust. This may be exasperated during windy conditions. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON CULTURAL-HISTORICAL ASPECTS:** | | | | | |
| **Nature of impact:** Damage and destruction of artefacts and/or heritage structures during construction activities. | **Activity:** The presence of construction workers and construction activities can result in the discovery of cultural and historical artefacts and/or damage to heritage structures. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | L | L | - |
| **Cumulative impact:** | L | L | L | L | - |

| Decommissioning Phase | Hakskeenpan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL VISUAL IMPACTS:** | | | | | |
| **Nature of impact:** Impact on the area's sense of place. | **Activity:** The movement of construction vehicles, machinery and personnel on site shall result in a visual impact for surrounding land users and residents. Furthermore, the storage of construction materials shall result in disturbance and an unsightly character. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON NOISE ASPECTS:** | | | | | |
| **Nature of impact:** Noise nuisance generated by construction works, vehicles and personnel. | **Activity:** The operating of vehicles and machinery on site and the decommissioning of infrastructure will result in the generation of noise which could disturb surrounding land users. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

### *5.4.4 PLANNING, DESIGN AND CONSTRUCTION PHASE – KOOPAN*

| Construction Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Negative impact of haphazard placement of infrastructure on the environment. | **Activity:** The establishment of a main site office and storage site during the construction period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by construction activities. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Topsoil Removal and Soil Erosion | **Activity:** The clearing of topsoil and excavation for the establishment of building foundations may result in the destruction of fertile topsoil. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | |
| **Cumulative impact:** | L | L | | | |
| **Nature of impact:** Handling of general waste materials on the development site, threat to fauna and visual impact. | **Activity:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Increased risk of veld fires. | **Activity:** Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

| Planning, design and construction phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Excessive dust will cause a visual impact and nuisance impact. | **Activity:** Construction activities such as excavating, mixing concrete and driving on site will cause dust. This may be exasperated during windy conditions. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON BIOLOGICAL ASPECTS:** | | | | | |
| **Nature of impact:** Fauna and flora will be directly impacted as a result of construction activities and human presence at the site. | **Activity:** Clearing of natural vegetation will result in a range of issues including increasing the risk of erosion, reducing sensitive vegetation types, reducing habitats for animals, and increasing the risk of alien vegetation spreading. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Spillage from construction vehicles and waste dumping does not lead to contamination of watercourses and soils of the surrounding environment as wind and surface runoff can carry contaminated/polluted water downstream. | **Activity:** Handling waste, general- and hazardous material on the site during construction | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Disturbance of soil that creates opportunity for invasion which may lead to significant alien invasive species establishment and spread. | **Activity:** Construction activities and the spread of Alien Invasive Species. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |
| **Nature of impact:** | **Activity:** Construction, erosion control and storm water management | | | | No construction phase impacts are |

| Planning, design and construction phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| Development of the deviation routes may result in erosion on site and within 500m of wetlands. Stormwater may be diverted due to the installation of the structures | | | | | associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Clearance of vegetation and soil, general construction, and development of infrastructure within 500m of a wetland may result in changes to drainage patterns and siltation in downstream wetlands | **Activity:** Construction activities including clearance of vegetation and changes to hydrology due to development within the regulated area of a watercourse. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Mortality of powerline sensitive avifauna species due to collisions with the 33 kV powerline | **Activity:** Mortality of powerline sensitive avifauna species due to collisions with the 33 kV powerline. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | H | L | N/A | | - |
| **Cumulative impact:** | H | M | | | - |
| **Nature of impact:** Mortality of powerline sensitive avifauna due to electrocutions on the 33 kV powerlines | **Activity:** Mortality of powerline sensitive avifauna due to electrocutions on the 33 kV powerlines | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | H | L | N/A | | - |
| **Cumulative impact:** | H | L | | | - |
| **Nature of impact:** Displacement of powerline sensitive avifauna due to disturbance associated with decommissioning | **Activity:** Displacement of powerline sensitive avifauna due to disturbance associated with decommissioning of the 33kV overhead powerline associated infrastructure | | | | No construction phase impacts are associated with the no-go alternative thus no |

| Planning, design and construction phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| of the 33kV overhead powerline associated infrastructure | | | | | assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON AGRICULTURAL ASPECTS:** | | | | | |
| **Nature of impact:** Risk posed to agricultural activities | **Activity:** Risk posed to agricultural activities | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON CULTURAL-HISTORICAL ASPECTS:** | | | | | |
| **Nature of impact:** Damage and destruction of artefacts and/or heritage structures during construction activities. | **Activity:** The presence of construction workers and construction activities can result in the discovery of cultural and historical artefacts and/or damage to heritage structures. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |

| Planning, design and construction phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL VISUAL IMPACTS:** | | | | | |
| **Nature of impact:** Impact on the area's sense of place. | **Activity:** The movement of construction vehicles, machinery and personnel on site shall result in a visual impact for surrounding land users and residents. Furthermore, the storage of construction materials shall result in disturbance and an unsightly character. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON NOISE ASPECTS:** | | | | | |
| **Nature of impact:** Noise nuisance generated by construction works, vehicles and personnel. | **Activity:** The operating of vehicles and machinery on site results in the generation of noise which could disturb surrounding land users and residents. | | | | No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

### *5.4.5 POTENTIAL OPERATIONAL PHASE IMPACTS*

| Operational Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** The general operation of the powerline may result in improper stormwater management and alien invasive species establishment. | **Activity:** General operation of the powerline including maintenance on the line, placement of components and vegetation clearing below the lines. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |
| **Nature of impact:** Increased risk of veld fires. | **Activity:** Short circuits, overcharging and/or thermal runaway could result in a fire or explosion. Maintenance activities including hot works (such as welding and grinding) could result in veld fires if not managed properly. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | M | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON SOCIO-ECONOMIC ASPECTS:** | | | | | |
| **Nature of impact:** Financial and social benefits for Rietfontein and surrounds. | **Activity:** The proposed powerline deviations will stabilise the electricity supply to Rietfontein and surrounds, reducing the need for loadshedding and ensuring sufficient electricity supply for the expected growth in Rietfontein. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | MH (+) | | N/A | | MH |
| **Cumulative impact:** | MH (+) | | | | MH |
| **POTENTIAL IMPACTS ON NOISE:** | | | | | |
| **Nature of impact:** Noise nuisance generated by maintenance activities. | **Activity:** Maintenance works will create noise due to maintenance activities and the presence of personnel on site. This may disturb surrounding land users and residents. | | | | No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | L | L | | | - |

| Operational Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON VISUAL:** | | | | | |
| **Nature of impact:** Impact on the sense of place for surrounding users. | **Activity:** The placement of the powerline infrastructure may create a visual impact for the surrounding land users and residents. | | | | If not constructed, no visual impacts will occur. |
| **Significance rating:** | L | L | N/A | | P (+) |
| **Cumulative impact:** | L | L | | | P (+) |

### *5.4.6 POTENTIAL DECOMMISSIONING PHASE IMPACTS*

| Decommissioning Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Nature of impact:** Negative impact of haphazard placement of infrastructure on the environment. | **Activity:** The establishment of a main site office and storage site during the decommissioning period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by decommissioning activities. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Handling of general waste materials on the development site, threat to fauna and visual impact. | **Activity:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **Nature of impact:** Excessive dust will cause a visual impact and nuisance impact. | **Activity:** Decommissioning activities such as excavating, demolishing structures concrete and driving on site will cause dust. This may be exasperated during windy conditions. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON CULTURAL-HISTORICAL ASPECTS:** | | | | | |
| **Nature of impact:** Damage and destruction of artefacts and/or heritage structures during decommissioning activities. | **Activity:** The presence of construction workers and decommissioning activities can result in the discovery of cultural and historical artefacts and/or damage to heritage structures. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | L | L | - |

| Decommissioning Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:** | | | | | |
| **Cumulative impact:** | L | L | L | L | - |

| Decommissioning Phase | Koopan | | Alternative | | No-Go Alternative |
|---|---|---|---|---|---|
| | Before Mitigation | After Mitigation | Before Mitigation | After Mitigation | |
| **POTENTIAL VISUAL IMPACTS:** | | | | | |
| **Nature of impact:** Impact on the area's sense of place. | **Activity:** The movement of construction vehicles, machinery and personnel on site shall result in a visual impact for surrounding land users and residents. Furthermore, the storage of construction materials shall result in disturbance and an unsightly character. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | L | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |
| **POTENTIAL IMPACTS ON NOISE ASPECTS:** | | | | | |
| **Nature of impact:** Noise nuisance generated by construction works, vehicles and personnel. | **Activity:** The operating of vehicles and machinery on site and the decommissioning of infrastructure will result in the generation of noise which could disturb surrounding land users. | | | | No decommissioning phase impacts are associated with the no-go alternative thus no assessment has been undertaken. |
| **Significance rating:** | M | L | N/A | | - |
| **Cumulative impact:** | M | L | | | - |

# 6 RECOMMENDATIONS OF THE EAP

All mitigation measures must be adhered to as stipulated within this Environmental Management Programme, including the following recommendation have been made by the EAP:

**Construction Phase**

- Once finalised, the final route layout will be submitted to Department of Forestry, Fisheries and the Environment (DFFE).
- A pre-construction walkdown by an archaeologist to microsite the final pylon placements and avoid significant archaeological resources.
- All hazardous substance must be bunded in secondary containment able to hold 110% of the substance being bunded;
- The specialist mitigation measures, and the mitigation measures described in the EMPr must be implemented;
- Vegetation clearance should be restricted, and it should be endeavoured to retain existing vegetation where possible;
- Protected trees should be avoided as far as possible.
- All watercourses are to be avoided.
- Adequate security must be placed at the construction site throughout the Construction Phase; and,
- The relevant Eskom Standards must be implemented during the Construction Phase.

**Operational Phase**

- The Applicant must compile an Inspection and Maintenance Programme, to ensure that that maintenance practices do not result in any additional impacts on the fauna, flora and the watercourses. This plan must adhere to the relevant industry standards, and ensure that the powerline is well maintained;
- The stormwater management system, i.e. drainage channels, must be maintained;
- Existing roads must be adhered to as far as practically possible;
- Continuously monitor and report avifauna in the project area to assess mitigation effectiveness;
- All mitigation measures provided for in the specialist reports, BAR and the EMPr for the operational phase must be implemented.

**Decommissioning Phase**

- The mitigation measures described in the EMPr must be implemented;
- Disturbance outside of the footprint is strictly prohibited;
- Areas disturbed by the development must be rehabilitated via a Rehabilitation Plan (compiled by a suitably qualified Botanical Specialist);
- All hazardous waste to be temporarily stored on site must be stored on a bunded, impermeable area. All hazardous waste must be disposed at a facility licensed to dispose the respective hazardous waste types.

# 7 PERSONS RESPONSIBLE FOR IMPLEMENTING THIS EMPR

In terms of the "duty of care' principle described in Section 28 of the National Environmental Management Act 107 of 1998 (NEMA), all persons involved in the construction, operation and decommissioning of the proposed powerlines must prevent significant environmental degradation and pollution. Through the implementation of the mitigation measures described herein, the EMPr aims to prevent such incidents.

The "Responsibility" columns in the impact and mitigation tables provided below indicate which team member(s) are responsible for implementation of the identified mitigation measures; these team members include the following:

- Construction Contractor(s);
- Construction Manager;
- Applicant / Developer; and the
- Environmental Control Officer

The sections below list further supplementary measures, which must also be implemented by the relevant team members.

During the **construction phase**, the **Construction Contractor** will:

- Be responsible to have the EMPr available on site at all times;
- Provide the Applicant with a "Method Statement" which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMPr;
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonably possible;
- Ensure that safe, environmentally acceptable working methods and practices are implemented, and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; and,
- Ensure that contractors staff (or sub-contractors) repair, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the ECO.

During the **construction phase**, the **Contract Project Managers** will:

- Be fully conversant with the conditions of the EA;
- Ensure that all stipulations within the EMPr are communicated and adhered to by the developer and its Contractor(s);
- Have the authority to stop work and issue fines;
- Receive reports from the ECO and report to the client;
- Enforce contractor obligations to the EMPr; and,

- Support the ECO in his/her roles and responsibilities.

During the **construction phase**, the **Environmental Control Officer** will:

- Meet with the contractor and project manager to hand over the site and go through the content of the EMPr, including the "do's and don'ts" of the project, to ensure that the parties understand their responsibilities to the EMPr;
- Be accountable for monitoring and auditing activities to ensure compliance with the EMPr and the Environmental Authorisation;
- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;
- Work correctively with other role-players, but not be influenced in opinion and must report to the Applicant only;
- May, in the event of there being a serious threat to or impact on the environment, correspond with the contract project manager to stop work;
- Complete an ECO checklist after each site inspection and distribute this to the project team within 5 days;
- Compile monthly Environmental Monitoring Reports and submit hard/electronic copies (as required) of the reports to the Applicant/Developer and the Competent Authority;
- In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure the matter is addressed; and,
- Compile a final monthly Environmental Monitoring Report for the project on completion of construction and rehabilitation, for submission to the Competent Authority to review.

During the **operational phase** the **Applicant/Developer**, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Set aside a budget for maintenance;
- Maintain all facilities and infrastructure in good working order to effectively fulfil its intended purpose and to prevent negative environmental impacts;
- Not construct any additional buildings, infrastructure, etc. contrary to the Environmental Authorisation, without performing an environmental impact assessment where listed activities of the 2014 NEMA EIA Regulations (as amended) are triggered; and,
- To immediately remedy any aspects that contribute to negative environmental impacts.

## 7.1 ON-SITE COMMUNICATION

The following sections describe the site communication measures that will need to be implemented.

### *7.1.1 SITE INSTRUCTION ENTRIES*

The Site Instruction book must be used for the recording of general site instructions as they relate to the works on site. It must also be used for the issuing of **stop work orders** for the purposes of immediately halting any particular activities of the contractor in lieu of the environmental risk that they may pose.

### *7.1.2 METHOD STATEMENTS*

Method statements from the Contractor will be required for specific sensitive actions on request by the authorities or the ECO.

A method statement forms the baseline information on which work in sensitive environments takes place and is a "live document" allowing for modifications to be negotiated between the Contractor and ECO / Engineer, as circumstances unfolds.

A method statement describes the scope of the intended work, step-by-step, in order for the ECO and Engineer to understand the Contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimise environmental impacts during these tasks. For each instance wherein it is requested that the Contractor submit a method statement to the satisfaction of the ECO, the format must clearly indicate the following:

- **What** – a brief description of the work to be undertaken;
- **How –** a detailed description of the process of work, methods and materials;
- **Where –** a description/sketch map of the locality of work (if applicable); and
- **When –** the sequencing of actions with due commencement dates and completion date estimates.

All method statements will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr main document.

The Contractor must submit the method statement to the ECO before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ECO.

### *7.1.3 RECORD KEEPING*

All records related to the implementation of this EMPr (e.g., site instruction book, method statements) must be kept together in an office where they are safe and can be retrieved easily. These records must be kept for two years and must be available at any time for scrutiny by any relevant authorities.

## 7.2 MONITORING

Several monitoring actions are proposed which would be undertaken by various project role players. For detail on these actions, "Responsible Person/Party", and "Monitoring Frequency" associated with the identified mitigation measures, refers to the "Monitoring" column in the impact assessment below (Chapter 9).

## 7.3 PERFORMANCE ASSESSMENT AND REPORTING ON EMPR COMPLIANCE

### *7.3.1 ENVIRONMENTAL CONTROL OFFICER*

A suitably qualified Environmental Control Officer (ECO) must be appointed by the Applicant/Developer to oversee the implementation of the construction phase mitigation measures described in this EMPr, as well as the conditions of authorisation as described in the Environmental Authorisation.

The ECO may not be someone appointed by the contractor, engineer or other party involved with this project, other than the Applicant / Developer.

The following applies, amongst others, to the ECO's role:

- The ECO must undertake two site visits every month and compile a Monthly Monitoring Report during the **construction phase**;
- The ECO must **report to** the Applicant/Developer and the Competent Authority;
- The ECO must present an **environmental site induction/awareness training session** to all personnel before work on site commences, as are also described below; and
- After completion of the construction activities, a final Environmental Monitoring Report must be compiled by the ECO, before commencement of the operational phase, in order to determine compliance with the EMPr and the Environmental Authorisation. The report must be submitted to the Competent Authority.

The ECO can recommend the stopping of works if in his/her opinion there is a serious threat to, or impact on the environment, caused directly from the construction operations. This authority is to be limited to emergency situations where consultation with the Engineer or Applicant is not immediately available. In all such work stoppage situations the ECO is to inform the Engineer and Applicant of the reasons for the stoppage as soon as possible.

Upon failure by the Contractor or his employee(s) to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the Engineer to have the Contractor's representative, or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

#### *7.3.1.1 ECO SITE INSPECTION REPORTS*

The ECO Environmental Monitoring Reports (also called "ECO checklists") will report on the compliance of the construction phase mitigation measures contained in the EMPr, as well as the conditions of approval described in the Environmental Authorisation. The report must be submitted to the Applicant and Competent Authority, within five (5) days of the ECO site inspection and must be made available to the Construction Contractor. Copies of the inspection reports must be kept on site.

The Contractor's meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes form part of the official environmental record.

#### *7.3.1.2 PHOTOGRAPHS*

It is recommended that photographs are taken of the site prior to, during and immediately after construction as a visual reference. These photographs must be stored with other records related to this EMPr. If captured in digital format, hard copies, in colour, must be kept with all other records relevant to the implementation of this EMPr.

### *7.3.2 EXTERNAL ENVIRONMENTAL AUDITOR*

An Auditor must be appointed for compiling Environmental Audit Reports. The Auditor must be someone independent (i.e., not the EAP or ECO) with the relevant environmental auditing expertise. The Applicant/Developer must, for the period during which the environmental authorisation and EMPr, and where applicable the closure plan, remain valid, ensure that the compliance with the conditions of the Environmental Authorisation and the EMPr, and where applicable the closure plan, is audited. Audit reports must be submitted to the Competent Authority. The contents of the environmental audit report must comply with Appendix 7 of the EIA Regulations 2014 (as amended). Audit reports must be submitted to the Competent Authority within three (3) months of the date of completion of the construction activities.

# 8 ENVIRONMENTAL AWARENESS PLAN

## 8.1 ENVIRONMENTAL AWARENESS AND RISK TRAINING

All contractor team members involved in work on site are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMPr, prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education/awareness programme must be aimed at all levels of management within the contractor team. See “basic rules of conduct” below.

### *8.1.1 BASIC RULES OF CONDUCT*

The following list represents the basic *Do’s* and *Don’ts* towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

**NOTE: ALL new site personnel must** attend an environmental awareness/induction presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

**DO:**

- Clear your work areas of litter and building rubble at the end of each day – use the waste bins provided and prevent litter from being blown away by wind.
- Report all fuel or oil spills immediately and stop the spill from continuing.
- Dispose of cigarettes and matches carefully, so to prevent veld fires (arson and littering is an offence).
- Confine work and storage of equipment to within the immediate work area.
- Use all safety equipment and comply with all safety procedures.

- Ensure a working fire extinguisher is immediately at hand if any “HOT WORK” is undertaken e.g., welding, grinding, gas cutting etc.
- Prevent excessive dust and noise.

**DO NOT:**

- Damage any vegetation outside of the development footprint.
- Do not litter - report dirty or full facilities, i.e., full dustbins and dirty or blocked toilets.
- Do not make any fires.
- Do not enter any fenced off or demarcated areas.
- Do not allow waste, litter, oils or foreign materials into any storm water channels or drains or watercourses.
- Do not litter or leave food lying around.

# 9 IMPACTS AND MITIGATION MEASURES

A number of potential environmental impacts that may arise during the project have been identified. These are outlined in the following table below, and guidelines and mitigation measures are provided. The Contractor must familiarise himself with the requirements of the EMPr, keeping in mind that other site-specific requirements as outlined in the Environmental Authorisation must also be complied with.

## 9.1 CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| **1. ACTIVITY: PERMITS AND AUTHORISATIONS** | | | | |
| 1.1 | **Aspects:** Legislative compliance.<br>**Impact:** Non-compliance with South African environmental legislation.<br>**Objective:** Ensure compliance with all triggered environmental legislation.<br>**Target:** Commence site establishment with all permission and approvals received and on hand.<br><br>**Mitigation/Management Measures:**<br>The Developer is to have the following permits on commencement:<br>a. Environmental Authorisation;<br>b. Environmental Management Programme;<br>c. Any plant removal or translocation permits;<br>d. Method statements;<br>e. Prior to the commencement of construction activities, the following documentation is to be filled out and forms part of the EMPr and project contract and includes, but is not limited to the following:<br>- Declaration of understanding by the Project Manager<br>- Declaration of understanding by the Contractor<br>- Method statements<br>- EO/ECO/Project Manager approval for method statements | Developer | **Monitoring Action:** Obtain copies of all permits; Record Keeping<br>**Responsible Person/Party:**<br>The Applicant / ECO<br>**Monitoring Frequency:**<br>Once off | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | During construction activities, the following documentation is to be filled out and maintained. These form part of the EMPr and project contract. They include, but are not limited to, the following:<br>a. Amended Method Statements<br>b. EO/ECO/Project Manager approval for amended method statements.<br>c. Environmental incidents | | | |
| **2. ACTIVITY: ENVIRONMENTAL AWARENESS TRAINING** | | | | |
| | **Aspects:** Environmental Induction.<br>**Impact:** Non-compliance with the conditions of the EA and EMPr.<br>**Objective:** Ensure all staff receive environmental awareness training prior to commencement of the activities.<br>**Target:** Commence construction with all staff and personnel having undergone environmental induction training. | Contractor | **Monitoring Action:** Maintain a register of all staff that have undergone inductions.<br>**Responsible Person/Party:**<br>Construction Contractor / ECO<br>**Monitoring Frequency:**<br>Once off | |
| | **Mitigation/Management Measures:**<br>a. All staff must receive environmental awareness training prior to commencement of the activity;<br>b. The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;<br>c. Refresher environmental awareness training is available as and when required; | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | d. All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;<br>e. The contractor must erect and maintain information posters at key locations on site;<br>f. Environmental awareness training should include as a minimum the following:<br>– Description of significant environmental impacts, actual or potential, related to their work activities;<br>– Mitigation measures to be implemented when carrying out specific activities;<br>– Emergency preparedness and response procedures<br>– Emergency procedures;<br>– Procedures to be followed when working near or within sensitive areas;<br>– Waste management procedures;<br>– Water usage and conservation;<br>– Solid waste management procedures;<br>– Sanitation procedures; and,<br>– Disease prevention.<br>g. Record of all environmental awareness training course undertaken as part of the EMPr must be available;<br>h. Educate workers on the dangers of open and/or unattended fires; | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | i. A staff attendance register of all staff to have received environmental awareness training must be available; and,<br>j. Course material must be available and presented in appropriate languages. | | | |
| **3. ACTIVITY: SITE LAYOUT PLANNING** | | | | |
| 3.1 | **Aspects:** Site Layout Plan.<br>**Impact:** Negative impact on the environment of unmanaged and unplanned placement of infrastructure.<br>**Objective:** To ensure acceptable impact and management of environmental issues at the main site and storage site during construction by proper planning of layout of infrastructure placement.<br>**Target:** All areas not demarcated for construction must remain vegetated and the impact must be minimised. | Contractor | **Monitoring Action:** Records of the Site Layout must be present on site.<br>**Responsible Person/Party:**<br>Contract Project Manager / ECO<br>**Monitoring Frequency:**<br>Once off | |
| | **Mitigation/Management Measures:**<br>a. Draw up and submit for approval a Site Layout Master Plan. This plan must show the final positions and extent of all permanent and temporary site structures and infrastructure (inclusive of the distance from any sensitive environmental areas);<br>b. The planning for layout must be done in consultation, on-site, with the Environmental Control Officer (ECO); | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | c. The contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes;<br>d. The contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times;<br>e. No servicing of vehicles may be permitted on site, unless for emergency purposes;<br>f. Stockpiles may not be situated in such a manner that they obstruct pathways;<br>g. Location of storage area must consider prevailing winds, distance to water bodies and general on-site topography;<br>h. Place infrastructure as far as possible on sites that have already been transformed;<br>i. The site camp may not be used for staff accommodation;<br>j. The Contractors camp layout must consider availability of access for deliveries and services and any future works;<br>k. The Contractors camp must be of sufficient size to accommodate the needs of all sub-contractors that may work on the project; and,<br>l. The Contractor must implement the following as required:<br>➢ Suitable sanitation facilities, adequate for the number of staff on site (1 for every 15 personnel and 1 for each gender); and,<br>➢ Facilities for solid waste collection. | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| **4. ACTIVITY: CONSTRUCTION PROGRAMME / SCHEDULE** | | | | |
| 4.1 | **Aspects:** Project Management.<br>**Impact:** Order and timing of construction activities and associated impacts.<br>**Objective:** To Provide a clear indication of the order by which key construction activities will transpire.<br>**Target:** Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections. | All Construction Parties | **Monitoring Action:** Meetings; Risk Register; ECO Audit Checklist; Photographs<br>**Responsible Person/Party:** Contract Project Manager / Contractor / ECO<br>**Monitoring Frequency:** Once off | |
| | **Mitigation/Management Measures:**<br>a. Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed;<br>b. Communicate any deviation from this schedule to all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made;<br>c. Establish a risk register to identify and monitor potential factors which may result in setbacks/ delays on tasks within the project schedule;<br>d. Hold management meetings with representatives of the project manager, contractor, engineer and other contributing parties to monitor and anticipate changes; and,<br>e. Should circumstances/ incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the monthly ECO Checklist. | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| **5. ACTIVITY: COMMUNICATION WITH LAND-OWNERS** | | | | |
| 5.1 | **Aspects:** Landowner Consent.<br>**Impact:** Disturbance of existing land use.<br>**Objective:** Maintain a conflict-free relationship with landowners/users.<br>**Target:** No complaints received from landowners/users of affected property.<br>**Mitigation/Management Measures:**<br>a. Landowners are to be aware and in agreement of site access arrangements;<br>b. Landowner has to provide consent to the site supervisor of the construction contractor prior to entering the construction footprint area for safety purposes;<br>c. All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and,<br>d. Any complaint or liaison with regard to environmental aspects, compensation or disorder to economic activities, must not be addressed by the contractor. A public complaint register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action. | Contract Project Manager / Contractor & Applicant | **Monitoring Action:** Meetings; Risk Register.<br>**Responsible Person/Party:** Contract Project Manager / Contractor / ECO<br>**Monitoring Frequency:** Monthly | |
| **6. ACTIVITY: SITE ESTABLISHMENT** | | | | |
| 6.1 | **Aspects:** Demarcation of the site and vegetation removal.<br>**Impact:** Direct impact on vegetation during construction and loss of species.<br>**Objective:** Minimise habitat destruction around the development footprint. | Construction contractor | **Monitoring Action:** ECO to take photographs of site before | |

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|---|---|---|---|---|
| | **Target:** All areas not demarcated for construction must remain vegetated.<br><br>**Mitigation/Management Measures:**<br>a. A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services;<br>b. No natural surfaces are to be marked other than using droppers, beacons, or other artificial object;<br>c. Ensure the upkeep of demarcation boundaries throughout the period of construction until rehabilitation has been completed;<br>d. Construction areas must be fenced;<br>e. Keep areas affected to a minimum, strictly prohibit any disturbance outside the demarcated foundation footprint area. Areas to be cleared must be agreed and demarcated before the start of the clearing operations;<br>f. Erect, demarcate and maintain a temporary fence around the perimeter of any No-Go area;<br>g. Clear as little indigenous vegetation as possible, aim to maintain vegetation where it will not interfere with the construction or operation of the development, rehabilitate an acceptable vegetation layer according to rehabilitation recommendations;<br>h. There must be a pre-construction environmental induction for all construction staff on site to ensure that basic environmental biodiversity principles are adhered to; | | clearance; ECO Audit Checklist.<br><br>**Responsible Person/Party:** ECO<br><br>**Monitoring Frequency:** Monthly | |

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|---|---|---|---|---|
| | i. Restoration measures will be required to reinstate functionality in the disturbed soil and vegetation;<br>j. Impacts to sensitive sites (drainage lines) must be avoided; and,<br>k. No vegetation may be gathered for the purpose of creating fire. | | | |
| 6.2 | **Aspects:** Topsoil stripping and conservation.<br>**Impact:** Destruction of topsoil.<br>**Objective:** Conserve and protect topsoil from erosion and destruction.<br>**Target:** Topsoil condition maintained.<br>**Mitigation/Management Measures:**<br>a. In the absence of a distinguishable topsoil layer, strip the uppermost 300 mm of soil;<br>b. Restrict clearing areas for roads and foundation excavations to the smallest area possible;<br>c. Remove topsoil approximately 300mm deep from establishment area and stockpile areas;<br>d. Topsoil stockpiles to be kept free from weeds;<br>e. Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rain/storm water;<br>f. Topsoil needs to be stored on designated areas only. This needs to be planned and indicated in the site-layout plan;<br>g. Ensure that topsoil is not mixed with subsoil and/or any other excavated material;<br>h. Provide containment and settlement facilities for effluents from concrete mixing and washing facilities; | Construction contractor | **Monitoring Action:** ECO Audit Checklist; Photographs;<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |

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|---|---|---|---|---|
| | i. Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer needs to be managed according to a detailed topsoil management plan;<br>j. Provide spill containment facilities for hazardous materials like fuel and oil; and,<br>k. Topsoil must be used in all rehabilitation activities and may not be compacted to ensure that its plant support capacity remain of high quality. | | | |
| **7. ACTIVITY: SITE INFRASTRUCTURE PLACEMENT AND OPERATION** | | | | |
| 7.1 | **Aspects:** Structures and lay-down areas.<br>**Impact:** Deterioration of site features and surrounding areas.<br>**Objective:** Prevent the deterioration of site features like soil, rainwater runoff and erosion.<br>**Target:** The preservation of site conditions evident on establishment of structures and lay-down areas. | Construction contractor | **Monitoring Action:** Photographs; ECO Audit Checklist<br>**Responsible Person/Party:** DEO / ECO<br>**Monitoring Frequency:** Monthly | |
| | **Mitigation/Management Measures:**<br>a. Locate all structures and storage areas, including offices, workshops and stores in approved locations are per the Site Layout Plan;<br>b. The camp with storage and laydown areas are to be kept secure and neat with access control measures adopted during construction;<br>c. Clearly define which activities are to occur within which areas of the site by erecting signage; and, | | | |

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|---|---|---|---|---|
| | d. All hazardous substances, such as fuel, oil, diesel, paint, etc., must be stored in a secondary containment system (trays or bund) which is capable of storing at least 110% of the liquid capacity. If bund areas are used, it must be sealed to avoid seepages. | | | |
| **8. ACTIVITY: CONSTRUCTION SITE OPERATIONS** | | | | |
| 8.1 | **Aspects:** Security and fencing.<br>**Impact:** Prevent danger of trespassing persons.<br>**Objective:** Keep the site secure from trespassing or theft and keep animals out.<br>**Target:** Site remains secure during construction with no incidences of trespassing, theft and injury or death to animals. | Construction contractor | **Monitoring Action:** Photographs; ECO Audit Checklist<br>**Responsible Person/Party:** ECO & DEO<br>**Monitoring Frequency:** Monthly | |
| | **Mitigation/Management Measures:**<br>a. Be responsive to open or closed status of gates;<br>b. Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated no-go areas, where applicable;<br>c. Use existing gates provided to gain access to all parts of the defined working area, where possible;<br>d. New or the upkeep of fences must align to ensure safety of animals and maintain a reliable boundary area;<br>e. Should construction activities require the removal of fences or gates to execute tasks, this must be replaced as soon as possible following completion; | | | |

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|---|---|---|---|---|
| | f. In all cases, the landowners on whose property any use of fences or gates, must be consulted, to ensure that parties are informed of construction activity, schedules and vehicle movement;<br>g. All gates must be fitted with locks and be kept locked at all times during the construction phase, unless otherwise agreed with the landowner. | | | |
| 8.2 | **Aspects:** Existing Services and Infrastructure.<br>**Impact:** Damage to existing services and infrastructure.<br>**Objective:** No damages to existing services and infrastructure.<br>**Target:** No damages to existing services and infrastructure. | Construction contractor | **Monitoring Action:** Photographs; ECO Audit Checklist<br>**Responsible Person/Party:** Contractor & DEO<br>**Monitoring Frequency:** Bi-Monthly | |
| | **Mitigation/Management Measures:**<br>a. Take cognisance of the position of existing services and infrastructure (e.g., roads, pipelines, power lines and telephone services) that may get damaged due to construction activities;<br>b. Ensure that existing services are not damaged or disrupted unless required by the contract and with the permission of the project manager; and<br>c. In the event that infrastructure is damaged, or services interrupted during construction, it will be done at the expense of the Contractor and shall receive top priority over all other activities. | | | |
| 8.3 | **Aspects:** Traffic.<br>**Impact:** Impact on traffic and farming activities. | Construction Contractor | **Monitoring Action:** Incident | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Objective:** Minimise the disruption of road users.<br>**Target:** Minimal disruption of road users.<br>**Mitigation/Management Measures:**<br>a. All vehicles must be road-worthy and drivers must be qualified, made aware of the potential road safety issues, and need for strict speed limits;<br>b. Abnormal loads must be timed to avoid times of year when traffic volumes are likely to be higher, as would be expected over national holidays, weekends and school holiday periods;<br>c. Vehicles used for transport of materials and sand must be fitted with tarpaulins to prevent the release of such material or items onto road surfaces;<br>d. Any damage to public roads is to be reported to the management authority and repaired to its original condition;<br>e. Transport of materials must be limited to the least amounts of trips possible;<br>f. Abnormal loads may not be transported after dark; and, | | Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |
| 8.4 | **Aspects:** Access roads<br>**Impact:** Vehicle impacts associated with the movement of construction vehicles on site.<br>**Objective:** To minimise the destruction of biodiversity through the planned and restricted movement of vehicles on site<br>**Target:** Minimal destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site. | Construction Contractor | **Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Mitigation/Management Measures:**<br>a. During construction create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas;<br>b. Monitor the establishment of (alien) invasive species where areas have been disturbed as a result of construction activities and remove as soon as detected, before regenerative material can be formed;<br>c. Abnormal loads and machinery should avoid movement over gravel roads during and immediately after rainfall events, so as to limit destruction of road surfaces and sedimentation of downhill rivers/streams;<br>d. All vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to the licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so;<br>e. Construction vehicles may not leave the designated roads and tracks, whilst U-Turns are prohibited on all roads;<br>f. Signage is to be placed on vehicles at all times;<br>g. All construction vehicles must adhere to construction sites and avoid driving off road to minimise impact on vegetation and soil;<br>h. After construction, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program; and, | | **Responsible Person/Party:**<br>Contractor, DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | i. Construction-related vehicles and machinery may not operate on site without reflective safety signage and reflective personnel gear. | | | |
| 8.5 | **Aspects:** Erosion Control.<br>**Impact:** Loss of topsoil, formation of bare soil and deterioration of habitat quality.<br>**Objective:** Prevent soil erosion.<br>**Target:** No signs of soil erosion are evident on site.<br>**Mitigation/Management Measures:**<br>a. Disturb as little ground area as possible, stabilise disturbed area as quickly as possible, control drainage through the area, and trap sediment on site;<br>b. Topsoil must be excavated first and stored separately for rehabilitation. Topsoil is the upper most layer of soil. Where soil layers are not distinguishable, remove the upper 30cm as topsoil;<br>c. Conserve topsoil with its leaf litter and organic matter, and re-apply this material to local disturbed areas to promote the growth of local native vegetation;<br>d. Apply erosion control measures before the rainy season begins and after each season of construction, preferably immediately following construction; and,<br>e. Maintain and reapply erosion control measures until vegetation is successfully established. | Construction contractor | **Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:** DEO / ECO<br>**Monitoring Frequency:** Monthly | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| 8.6 | **Aspects:** Construction activities, such as clearing vegetation and excavation will result in the loss of more than 300m$^2$ of indigenous vegetation and some smaller fauna (insects, reptiles and rodents) may be killed.<br>**Impact:** Loss of vegetation and death of fauna. Listed or Protected Plant Species may be removed.<br>**Objective:** Minimise loss significant indigenous vegetation and habitat and impacts to fauna.<br>**Target:** Vegetation clearing is restricted to the authorised development footprint with no significant loss of sensitive and important plant species, habitat, and fauna. | Construction Contractor | **Monitoring Action:** ECO Audit Checklist; & Photographs<br>**Responsible Person/Party:** ECO & DEO<br>**Monitoring Frequency:** At commencement and thereafter Monthly | |
| | **Mitigation/Management Measures:**<br>a. Restrict vegetation clearance to the smallest area possible;<br>b. Indigenous vegetation which does not interfere with the development must be left undisturbed;<br>c. Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;<br>d. No hunting, snaring, shooting or egg collection by the construction staff may be allowed. This must be strictly enforced by the site manager and DEO. Any construction staff failing to adhere to this must be removed from site;<br>e. No feeding of any animals is allowed;<br>f. No terrestrial vegetation, outside of the development footprint, may be damaged during construction;<br>g. No flowers or plants are to be picked by construction staff; and, | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | h. No construction staff may remain at the site overnight;<br>i. Fires are prohibited;<br>j. All pans and other watercourses are to be avoided;<br>k. Sufficient fire management equipment must be on the site;<br>l. Dunes should be avoided as a far as practically possible and dune slack should be developed on;<br>m. Erosion measures must be in place should any erosion be noted during construction or operations;<br>n. All mitigation measures in the Aquatic Biodiversity Assessment must be adhered to;<br>o. No dumping of untreated sewage or hazardous waste into the adjacent ecosystem;<br>p. Effort should be made to avoid all protected trees. Should the aforementioned not be feasible, a Protected Tree Permit should be applied for should any protected trees be earmarked for removal;<br>q. All activities must remain within the designated footprint;<br>r. Alien Invasive Species (AIS) proliferation, which may affect adjacent natural habitat within surrounding areas, needs to be strictly managed via an alien invasive species management method statement (to be compiled by the designated Environmental Officer and then signed off by a suitably qualified Botanical Specialist);<br>s. All areas disturbed outside of the footprint must be adequately rehabilitated according to Eskom's Monitoring, Control and Eradication Plan for Invasive Species on Eskom Land and | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | rehabilitation method statement (to be approved by the designated Environmental Officer and then signed off by a suitably qualified Botanical Specialist);<br>t. Vehicles use must be restricted to designated roads;<br>u. A speed limit of 20km per hour should apply to the roads on site to reduce the chance of road fatalities;<br>v. Should any faunal species need to be translocated, a faunal or avifaunal (in the case of birds) specialist will need to be consulted; and,<br>w. All personnel working on site must undergo environmental inductions to ensure they are aware of the environmental sensitivities of the site. | | | |
| 8.7 | **Aspects:** Handling of general – and hazardous waste materials on the construction site.<br>**Impact:** The presence of personnel and construction operations will increase the likelihood of littering and dumping of solid waste.<br>**Objective:** Management and disposal of general – and hazardous waste in an appropriate manner.<br>**Target:** Wastes are appropriately stored, handled, and safely disposed of at a recognised waste facility. | Construction Contractor | **Monitoring Action:** ECO Audit Checklist; Safe Disposal Documentation & Photographs<br>**Responsible Person/Party:** ECO & DEO<br>**Monitoring Frequency:** Monthly | |
| | **Mitigation/Management Measures:**<br>a. All measures regarding waste management must be undertaken using an integrated waste management approach; | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | b. All rubble and litter should be cleared from the site and stored in designated waste bins and/or stockpile areas respectively;<br>c. Strict waste management should be implemented during construction;<br>d. Sufficient, covered waste receptacles (scavenger and weatherproof) should be placed around the facility to encourage people to use them;<br>e. The principle of reduce, re-use and recycle should be followed;<br>f. Construction site should be kept clean and tidy;<br>g. Any waste should be disposed in a registered landfill and not be allowed to be dumped in the surrounding landscape;<br>h. No dumping of waste or any other materials is allowed within any stormwater channels, drainage lines or the watercourses;<br>i. A suitably positioned and clearly demarcated waste collection site must be identified and provided;<br>j. Waste must be segregated into separate bins and clearly marked for each waste type;<br>k. Storage of material, waste, spoil and construction equipment on or in stormwater drainage or inside of demarcated protected areas – is strictly prohibited;<br>l. All surfaces used for waste storage should have an impermeable surface;<br>m. Drip trays to be placed beneath stationary vehicles and generators;<br>n. Machinery should be maintained and inspected for leaks. All hazardous chemicals should be handled and stored on impermeable surfaces; | | | |

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|---|---|---|---|---|
| | o. Hazardous chemicals should be kept on an impermeable bund area;<br>p. Stormwater and run-off should be managed and diverted to not be in contact with waste;<br>q. Regularly inspect all construction vehicles for leaks. Re-fuelling of vehicles must take place on a sealed surface area surrounded by berms to prevent ingress of hydrocarbons into topsoil;<br>r. If any spills occur, they should immediately be cleaned up;<br>s. An emergency response plan should be available for any chemical spill or ecological damage;<br>t. Spill kits and material safety data sheets must be stored on site: In case of accidental spills of oil, petroleum products etc., good oil absorbent materials must be on hand to allow for the quick remediation of the spill. The kits should also be well marked, and all personnel should be educated to deal with the spill. Vehicles must be kept in good working order and leaks must be fixed immediately on an oil absorbent mat. The use of a product such as Sunsorb is advised;<br>u. Proper toilet facilities must be available during construction.. Chemical toilets must be provided which should always be well serviced and spaced as per occupational health and safety laws and placed outside the 1:100-year flood lines; and,<br>v. No dirty water runoff from the site must be permitted to reach the watercourses around the proposed site. | | | |
| 8.8 | **Aspects:** Sewage waste.<br>**Impact:** Pollution and site contamination due to sewage.<br>**Objective:** Provide facilities for appropriate collection and disposal of sewage. | Construction Contractor | **Monitoring Action:** ECO Audit Checklist; Safe Disposal Slips & | |

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|---|---|---|---|---|
| | **Target:** No record of pollution or site contamination by sewage.<br>**Mitigation/Management Measures:**<br>a. Provide portable chemical ablution facilities, situated at convenient locations in proximity to work areas. This must be in relation to the quantity of users on site, with 1 ablution facility per 15 users and 1 for each gender;<br>b. Locations for the placement of ablution facilities include the workshop and areas for resting and eating must be done in consultation with the ECO;<br>c. Ablution facilities are to be maintained and cleaned regularly to ensure functionality and an adequate level of hygiene;<br>d. Drinking water facilities, comprising of a water tank with a manual tap can be combined with hand washing facilities near site ablution; and,<br>e. Only toilet paper is to be flushed down the chemical ablution facilities. Personnel are to be informed on sanitary implementation as part of the environmental awareness. | | Photographic Evidence<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| 8.9 | **Aspects:** Dust emissions.<br>**Impact:** Dust nuisance from site operations on surrounding landowners.<br>**Objective:** To avoid dust from excavated materials and construction activity caused by site operations.<br>**Target:** Minimise the incidence of dust generation.<br>**Mitigation/Management Measures:**<br>a. Possible sources of dust include: | Construction Contractor | **Monitoring Action:** DEO to take photographs of the site and monitor dust levels on a daily basis; ECO Audit | |

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|---|---|---|---|---|
| | ➢ Access roads,<br>➢ Proposed development site;<br>➢ Soil stockpiles; and,<br>➢ Construction camp;<br>b. Avoid conducting activities, which may produce dust, during windy conditions. If unavoidable, activities must be screened as far as possible with shade netting;<br>c. Leave areas of natural vegetation intact for as long as possible;<br>d. Open cement bags must be covered or appropriately closed to prevent cement powder blowing out;<br>e. Transport cement powder the shortest distance to where it will be mixed;<br>f. Soil stockpiles must not be higher than 2m;<br>g. Cover building sand and soil stockpiles with a tarpaulin or netting during windy conditions; and,<br>h. Dust suppression, i.e., watering, must be implemented on roads and stockpiles as required. | | Checklist; Public Complaints Register<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| 8.10 | **Aspects:** Visual Impact.<br>**Impact:** Visual impact of site operations on surrounding landowners.<br>**Objective:** To avoid unnecessary visual impact caused by site operations.<br>**Target:** Minimise the incidence of visual impact.<br>a. Access roads are to be kept clean; | Construction Contractor | **Monitoring Action:** ECO Audit Checklist; Public Complaints Register | |

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|---|---|---|---|---|
| | b. Access roads should be followed at all times;<br>c. Site offices and structures should be limited to one location and carefully situated to reduce visual intrusions.<br>d. Lights within the construction camp should face directly down (angle of 90˚);<br>e. Litter should be strictly controlled, as the spread thereof through wind could have a very negative visual impact;<br>f. Mitigation of visual impacts associated with the construction phase would entail proper planning, management, and rehabilitation of the construction site. Mitigation measures include the following:<br>➢ Reduce the time of construction through careful planning of logistics and ensure the productive implementation of resources;<br>➢ Limit disturbance of the environment to the development footprint;<br>➢ Limit construction activities to business hours (07:00 – 17:00); and,<br>g. Avoid shiny materials in structures. Where possible shiny metal structures should be darkened or screened to prevent glare. | | **Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| 8.11 | **Aspects:** Noise Generation.<br>**Impact:** Noise nuisance from site operations.<br>**Objective:** To avoid excessive noise generation from site operations.<br>**Target:** Minimise the incidence of noise generation. | Construction Contractor | **Monitoring Action:** | |

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|---|---|---|---|---|
| | **Mitigation/Management Measures:**<br>a. Operating hours as determined by the environmental authorisation are adhered to during the construction phase. Where not defined, construction must be limited to daylight hours;<br>b. Limit working hours (07:00 – 17:00);<br>c. No hooting by construction staff;<br>d. Staff are to conduct themselves in an orderly manner and to refrain from shouting. A Code of Conduct should be drawn up in this regard;<br>e. Any complaints received by the Contractor regarding noise will be recorded and communicated to the Environmental Control Officer;<br>f. All stationary noisy equipment such as compressors and pumps should be contained behind acoustic covers or screens where possible;<br>g. The regular inspection and maintenance of equipment must be undertaken to ensure that all components are functioning optimally;<br>h. Where recurrent use of machinery is frequent, machines should be shut down during intermediate periods;<br>i. Fit silencers to equipment where feasibly; and,<br>j. No loud music is permitted on the site or laydown area. | | ECO to take photographs of site; Public Complaints Register; ECO Audit Checklist<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| 8.12 | **Aspects:** Fire Prevention.<br>**Impact:** Uncontrollable fire.<br>**Objective:** Prevent the outbreak of fires emanating from construction activity. | Construction Contractor | **Monitoring Action:** | |

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|---|---|---|---|---|
| | **Target:** No incidences of fires are recorded for the site. | | ECO Audit Checklist.<br><br>**Responsible Person/Party:**<br><br>DEO & ECO<br><br>**Monitoring Frequency:**<br><br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. Hazardous components and materials must be transported, stored and used in accordance with the mitigation measures;<br>b. The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of the activities on site;<br>c. Ensure the work site and the contractor's camp is equipped with adequate firefighting equipment. This includes at least one fire extinguisher of the appropriate type irrespective of the site;<br>d. Workers must be adequately trained in the handling of firefighting equipment, and can include but not limited to:<br>➢ Regular fire prevention talks and drills; and,<br>➢ Posting of regular reminders to staff;<br>e. No open fires are permitted anywhere on site;<br>f. Do not store any fuel or chemicals under trees;<br>g. Do not store gas and liquid fuel in the same storage area (hazardous substances to be stored in accordance with SANS);<br>h. Any fires that occur on site shall be reported to the ECO immediately and then to the relevant authorities; | | | |

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|---|---|---|---|---|
| | i. In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring it under control;<br>j. Do not permit any smoking within 3m of any fuel or chemical storage area, or refuelling area. A designated smoking area must be established on site;<br>k. All construction vehicles must be fitted with at least one fire extinguisher.<br>l. The Contractor must ensure that construction related activities that pose a potential fire risk, such as welding etc., are properly managed and confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care must be taken during the high risk dry, windy summer months; and,<br>m. The Contractor must provide fire-fighting training to selected construction staff and take cognisance of the Veld and Forest Fire Act, Act No. 101, 1998. | | | |
| 8.13 | **Aspects:** Water Conservation.<br>**Impact:** Wasting water as a result of negligence.<br>**Objective:** Promote and implement water use efficiency mechanisms.<br>**Target:** No Water Wastage.<br>**Mitigation/Management Measures:**<br>a. Include water conservation in induction training and toolbox talks;<br>b. Re-use water where possible; | Construction Contractor | **Monitoring**<br>**Action:** ECO Audit Checklist<br>**Responsible Person/Party:**<br>ECO & DEO | |

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|---|---|---|---|---|
| | c. Prevent leakages at taps and hoses by means of maintenance;<br>d. Use buckets of water to clean tools instead of running water; and,<br>e. Make sure that sediment, concrete, sand, and rubbish does not end up going down stormwater drains. Cover or filter stormwater inlets and drains. | | **Monitoring Frequency:**<br>Monthly | |
| 8.14 | **Aspects:** Heritage Resources.<br>**Impact:** Damage and destruction of fossils or other valuable heritage artifacts during excavation activities.<br>**Objective:** To prevent any destruction of valuable artefacts.<br>**Target:** No destruction of any fossils and artefacts. | Construction Contractor | **Monitoring Action:**<br>Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. The mitigation measures (proposed buffers) detailed in Table 1 and mapped in Figures 8.1, 8.2 and 8.3 of the Heritage Impact Assessment and Table 1 and mapped in Figure 7.1, 7.2 and 7.3 of the Archaeological Specialist Study are implemented;<br>b. The final pylon placements are subjected to a walkdown by an archaeologist prior to construction to microsite the footings so that significant archaeological resources are not negatively impacted; and,<br>c. Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g., | | | |

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| | remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal, and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward. | | | |
| 8.15 | **Aspects:** Agricultural.<br>**Impact:** Potential threat to agricultural land.<br>**Objective:** To prevent direct impacts to agricultural land.<br>**Target:** No impacts to the agricultural land due to construction of the powerlines. | Site Manager | **Monitoring Action:**<br>Photos; ECO Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. Restrict the proposed development to the smallest footprint possible and do not disturb/alter areas outside the development.<br>b. Ensure that access conductor lines are kept clear, and that construction and operational activities do not interfere with agricultural activities.<br>c. Erosion risks are low due to the low rainfall, but pans are associated with Sodic soils, which are highly dispersive. During the removal of poles, there is a risk of erosion. Therefore, rehabilitation will be crucial to avoid gully erosion. It is further recommended that compost be added to the topsoil during rehabilitation (specific for Hakskeenpan). | | | |
| | **Aspects:** Construction activities and the spread of Alien Invasive Species. | Site Manager | | |

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|---|---|---|---|---|
| 8.16 | **Impact:** Disturbance of soil that creates opportunity for invasion which may lead to significant alien invasive species establishment and spread.<br>**Objective:** To counteract direct impacts on aquatic biodiversity through Alien Invasive Species.<br>**Target:** No direct impacts on aquatic biodiversity through Alien Invasive Species.<br>**Mitigation/Management Measures:**<br>a. Construction activities should be limited to the smallest possible area.<br>b. Construction vehicles should use existing authorised service roads.<br>c. Implement suitable alien invasive species establishment prevention measures during the construction phase such as proper storage, transport and disposal of plant material and minimising disturbance to the areas surrounding the development footprint.<br>d. Alien invasive vegetation material cleared during construction activities must be adequately contained and disposed of at a suitable, certified 'green waste' disposal site to prevent further spreading.<br>**e.** Areas around the proposed project footprint must be adequately rehabilitated to prevent significant alien invasive species establishment. Herbicides are to be avoided. | | **Monitoring Action:** Photos; ECO checklist<br>**Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** Monthly | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| 8.17 | **Aspects:** Construction, erosion control & storm water management<br>**Impact:** Development of the deviation routes may result in erosion on site and within 500m of wetlands. Stormwater may be diverted due to the installation of the structures.<br>**Objective:** To counteract direct impacts on aquatic biodiversity through management of construction, erosion and storm water management<br>**Target:** No direct impacts on aquatic biodiversity through construction and associated activities | Site Manager | **Monitoring Action:** Photos; ECO Checklist<br>**Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** Monthly | |
| | **Mitigation/Management Measures:**<br>a. Implement suitable erosion prevention measures during the construction phase.<br>b. Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities;<br>c. Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g., rain season and time of high wind speeds);<br>d. Stormwater management along any roadways and paths to reduce gulley erosion formation;<br>e. Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment;<br>f. Runoff from the cement/concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; | | | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | g. Appropriate pollution control facilities necessary to prevent discharge of water containing polluting matter or visible suspended materials into watercourses or water bodies must be designed and implemented;<br>h. Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be constructed. This is done to prevent damming of water and increasing flooding danger;<br>i. Disturbed areas, that will not form part of the operational footprint, but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gulley erosion;<br>j. Sheet runoff from cleared areas, paved surfaces and access roads needs to be curtailed;<br>k. No materials of any kind are allowed to be stored in the stormwater channels;<br>l. Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion; and,<br>m. Soil disturbance must be kept to a minimum within and around the development footprint. | | | |
| 8.18 | **Aspects:** Construction activities including clearance of vegetation and changes to hydrology due to development within the regulated area of a watercourse.<br>**Impact:** Clearance of vegetation and soil, general construction, and development of infrastructure within 500m of a wetland may result in changes to drainage patterns and siltation in downstream wetlands<br>**Objective:** To counteract direct impacts on aquatic biodiversity through Alien Invasive Species. | Site Manager | **Monitoring**<br>**Action:** Photos; ECO checklist<br>**Responsible Person/Party:** | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|
| **Target:** No direct impacts of the watercourse environment and biodiversity.<br><br>**Mitigation/Management Measures:**<br>a. The development footprint must remain as small as practically possible;<br>b. All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or inorganic material resulting from Contractor's activities;<br>c. All buffers as stated in Section 5.3.5 must be adhered to;<br>d. All bare areas must be rehabilitated via a Revegetation Method Statement;<br>e. Vehicles must use already developed roads as far as possible;<br>f. Dust control mechanisms must be implemented during the construction phase;<br>g. All stockpiles must be stored outside of wetland buffers;<br>h. Stockpiles must be covered in periods of high wind and rain;<br>i. When working in or near any watercourse or wetland, the following environmental controls and consideration must be taken:<br>a. River levels during the period of construction;<br>b. During the execution of the work, appropriate measures to prevent pollution and contamination of the riverine environment must be implemented e.g., including ensuring that construction equipment is well maintained;<br>c. Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials; | | DEO & ECO<br><br>**Monitoring Frequency:**<br>Monthly. | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | d. Appropriate rehabilitation and revegetation measures for the riverbanks must be implemented timeously. | | | |
| 8.19 | **Aspects:** Mortality of powerline sensitive avifauna due to collisions and electrocutions on the 33 kV powerlines<br>**Impact:** Mortality of powerline sensitive avifauna due to electrocutions and collisions on the 33 kV powerlines<br>**Objective:** To prevent direct impacts to avifaunal species.<br>**Target:** No impacts to avifaunal species. | Site Manager | **Monitoring Action:** ECO Checklist; Photos<br>**Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** Monthly | |
| | **Mitigation/Management Measures:**<br>a. Only approved bird/raptor friendly wooden pole design for the entire 33kV line should be used; and,<br>b. The bird flight diverters should be installed on both new sections of the powerline, according to the applicable Eskom standard. These devices must be installed as soon as the conductors are strung. | | | |
| 8.20 | **Aspects:** Displacement of powerline sensitive avifauna due to disturbance associated with construction of the 33kV overhead powerline associated infrastructure<br>**Impact:** Displacement of powerline sensitive avifauna due to disturbance associated with construction of the 33kV overhead powerline associated infrastructure | | **Monitoring Action:** ECO Checklist | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Objective:** To prevent direct impacts to avifaunal species.<br>**Target:** No impacts to avifaunal species.<br>**Mitigation/Management Measures:**<br>a. Activity should be restricted to the immediate footprint of the infrastructure;<br>b. Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of powerline sensitive avifauna;<br>c. Measures to control noise and dust should be applied according to current best practice in the industry; and,<br>d. Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. | | **Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** Monthly | |
| 8.21 | **Aspects:** Finalising tower positions<br>**Impact:** Clearing of vegetation around the development footprint<br>**Objective:** To prevent direct impacts on the environment<br>**Target:** No environmental degradation occurs as a result of the survey and pegging operations.<br>**Mitigation/Management Measures:**<br>a. No vegetation clearing must occur during survey and pegging operations;<br>b. No new access roads must be developed to facilitate access for survey and pegging purposes; and,<br>c. A heritage specialist will do a final walk down to confirm the final tower position., | Site manager | **Monitoring Action:** Photos; ECO Checklist<br>**Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | | | Once off | |
| 8.22 | **Aspects:** Assembly and erecting towers<br>**Impact:** Risk posed to vegetation and faunal species<br>**Objective:** To prevent direct impacts on vegetation and faunal species<br>**Target:** No environmental degradation occurs as a result of assembly and erecting of towers<br>**Mitigation/Management Measures:**<br>a. Prior to erection, assembled towers and tower sections must be stored on elevated surface (wooden blocks) to minimise damage to the underlying vegetation;<br>b. In sensitive areas, tower assembly must take place off-site or away from sensitive positions;<br>c. The crane used for tower assembly must be operated in a manner which minimises impact to the environment; and,<br>d. The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect revegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season. | Site manager, Construction Contractor | **Monitoring Action:** Photos; ECO Checklist<br>**Responsible Person/Party:** DEO & ECO<br>**Monitoring Frequency:** Monthly | |

| CONSTRUCTION PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| 8.23 | **Aspects:** Stringing<br>**Impact:** Risk posed to vegetation and faunal species<br>**Objective:** To prevent direct impacts on vegetation and faunal species<br>**Target:** No environmental degradation occurs as a result of stringing<br><br>**Mitigation/Management Measures:**<br>a. Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid No-Go areas and other sensitive areas;<br>b. The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks;<br>c. Alternative methods of stringing which limit impact to the environment must always be considered e.g., by hand or by using a helicopter;<br>d. No services must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing;<br>e. Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice, in writing, must be provided to the landowner; and,<br>f. Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas. | Site manager, Construction Contractor | **Monitoring Action:** Photos; ECO Checklist<br><br>**Responsible Person/Party:** DEO & ECO<br><br>**Monitoring Frequency:** Monthly | |

## 9.2 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

The intention of providing an EMPr for the operational phase is to provide guidelines for management of facilities and infrastructure to safeguard the environment against negative environmental impacts.

| **OPERATIONAL PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE** | | **RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)** | **MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY** | **COMPLIANT? (for use by ECO)** |
|---|---|---|---|---|
| **1. ACTIVITY: OPERATIONAL PHASE IMPACTS** | | | | |
| 1.1 | **Aspects:** The general operation of the powerline may result in improper stormwater management and alien invasive species establishment<br>**Impact:** Contamination of watercourses and proliferation of invasive alien species<br>**Objective:** Ensure no contaminates are allowed to enter any watercourses, proper management of invasive alien species.<br>**Target:** Sufficient and suitable systems are in place to ensure the receiving environment is not negatively impacted. | Applicant | **Monitoring Action:**<br>ECO Checklist<br>**Responsible Person/Party:**<br>Applicant | |
| | **Mitigation/Management Measures:**<br>a. Regular inspections (when maintenance takes place) will be undertaken of any access roads and stormwater management drains for signs of erosion and sedimentation;<br>b. Operational site should be kept clean and tidy;<br>c. Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities; | | **Monitoring Frequency:**<br>As necessary for maintenance | |

| OPERATIONAL PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | d. No dumping of waste or any other materials is allowed within the watercourses or their regulated areas;<br>e. Vegetation clearing shall only be done via an approved maintenance management plan.<br>f. If any spills occur, they should be immediately cleaned up. | | | |
| 1.1 | **Aspects:** Short circuits, overcharging and/or thermal runaway could result in a fire or explosion. Maintenance activities including hot works (such as welding and grinding) could result in veld fires if not managed properly.<br>**Impact:** Fire and / or explosion resulting in veld fires, damage to property to and / or injury / loss of life.<br>**Objective:** Ensure no fires or explosions occur and no damage to property of injury / loss of life.<br>**Target:** Sufficient and suitable systems and infrastructure are in place to ensure no fires or explosions occur. No damage to property and injury / loss of life. | Applicant | **Monitoring Action:**<br>ECO Checklist<br>**Responsible Person/Party:**<br>Applicant<br>**Monitoring Frequency:**<br>As necessary for maintenance | |
| | **Mitigation/Management Measures:**<br>a. Eskom must draw up and implement a Maintenance Management Schedule which adheres to the relevant industry standards, and ensure that the equipment is well maintained;<br>b. Maintenance personnel must be adequately trained in the handling of firefighting equipment, and can include but not limited to:<br>➢ Regular fire prevention talks and drills;<br>➢ Posting of regular reminders to staff;<br>c. Do not store any flammable materials anywhere near where the hot works are to be undertaken; | | | |

| OPERATIONAL PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | d. In the event of a fire, the maintenance personnel shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring the fire under control;<br>e. Before conducting hot works, work areas must be inspected for potential combustible materials such as dry vegetation;<br>f. Personnel must take cognisance of the direction sparks are going and ensure that they are not directed towards combustible materials. Screens should be used where required; and,<br>g. Ensure sufficient firefighting equipment is available on site. Maintenance staff must have an extinguisher at hand when conducting hot works. | | | |
| 1.2 | **Aspects:** Noise generation as a result of maintenance works.<br>**Impact:** Noise nuisance disturbs surrounding land users and residents.<br>**Objective:** To avoid excessive noise generation from maintenance work, disturbing surrounding residents and land users.<br>**Target:** Minimise the incidence of noise generation and no complaints from the surrounding land users and public. | Applicant | **Monitoring Action:**<br>Complaints Register<br>**Responsible Person/Party:**<br>Applicant<br>**Monitoring Frequency:** | |
| | **Mitigation/Management Measures:**<br>a. Maintenance activities, must be restricted to typical working hours, 07:00 – 19:00, except for emergency situations;<br>b. Ensure that employees conduct themselves in an acceptable manner while on site;<br>c. Noisy activities should be screened where possible; | | | |

| OPERATIONAL PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | d. No hooting on site; and,<br>e. No loud music is permitted on site. | | As necessary for maintenance | |
| 1.3 | **Aspects:** Electrical infrastructure resulting in visual impact.<br>**Impact:** Visual impact for the surrounding land users and residents.<br>**Objective:** Reduce the visual impact created as a result of permanent infrastructure.<br>**Target:** The powerline infrastructure does not visually intrude on the surrounding land users and residents.<br>**Mitigation/Management Measures:**<br>a. Avoid shiny materials in structures. Where possible shiny metal structures should be darkened or screened to prevent glare. | Applicant | **Monitoring Action:**<br>Visual inspection<br>**Responsible Person/Party:**<br>Applicant / External Auditor<br>**Monitoring Frequency:**<br>As necessary for maintenance | |
| 1.4 | **Aspects:** Aquatic Species.<br>**Impact:** The general maintenance of the powerline may result in impacts on aquatic ecosystems<br>**Objective:** To prevent any adverse impacts on aquatic ecosystems.<br>**Target:** No adverse impacts on aquatic species. | Decommissioning Contractor | **Monitoring Action:** | |

| OPERATIONAL PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Mitigation/Management Measures:**<br>a. The site where maintenance work is being conducted should be kept clean and tidy.<br>b. Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities.<br>c. No dumping of waste or any other materials is allowed within the watercourses or their regulated areas; and,<br>d. If any spills occur, they should be immediately cleaned up. | | Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>As necessary for maintenance | |

## 9.3 IMPACTS DURING THE DECOMMISSIONING PHASE

| **DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE** | | **RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)** | **MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY** | **COMPLIANT? (for use by ECO)** |
|---|---|---|---|---|
| **1. ACTIVITY: SITE LAYOUT PLANNING** | | | | |
| 1.1 | **Aspects:** Site Layout Plan.<br>**Impact:** Negative impact on the environment of unmanaged and unplanned placement of infrastructure.<br>**Objective:** To ensure acceptable impact and management of environmental issues at the main site and storage site during decommissioning by proper planning of layout of infrastructure placement.<br>**Target:** All areas not demarcated for decommissioning must remain vegetated and the impact must be minimised. | Contractor | **Monitoring Action:**<br>Records of the Site Layout must be present on site.<br>**Responsible Person/Party:**<br>Contract Project Manager / ECO<br>**Monitoring Frequency:**<br>Once off | |
| | **Mitigation/Management Measures:**<br>a. Draw up and submit for approval a Site Layout Master Plan. This plan must show all permanent and temporary site structures and all infrastructure to be removed and /or areas to be cleared;<br>b. The planning for layout must be done in consultation, on-site, with the Environmental Control Officer (ECO);<br>c. The contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes;<br>d. The contractor must ensure that all construction personnel, labourers, and equipment remain within the demarcated decommissioning sites at all times;<br>e. No servicing of vehicles may be permitted on site, unless for emergency purposes; | | | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | f. Stockpiles may not be situated in such a manner that they obstruct pathways;<br>g. Location of storage area must consider prevailing winds, distance to water bodies and general on-site topography;<br>h. Place infrastructure as far as possible on sites that have already been transformed;<br>i. The site camp may not be used as staff accommodation;<br>j. The Contractors camp layout must consider availability of access for deliveries and services and any future works;<br>k. The Contractors camp must be of sufficient size to accommodate the needs of all sub-contractors that may work on the project; and,<br>l. The Contractor must implement the following as required:<br>➢ Suitable sanitation facilities, adequate for the number of staff on site (1 for every 15 personnel and 1 for each gender); and,<br>➢ Facilities for solid waste collection. | | | |
| **2. ACTIVITY: DECONSTRUCTION PROGRAMME / SCHEDULE** | | | | |
| 2.1 | **Aspects:** Project Management.<br>**Impact:** Order and timing of decommissioning activities and associated impacts.<br>**Objective:** To Provide a clear indication of the order by which key decommissioning activities will transpire.<br>**Target:** Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections. | All Decommissioning Parties | **Monitoring Action:**<br>Meetings; Risk Register; ECO Audit Checklist; Photographs | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Mitigation/Management Measures:**<br>a. Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed;<br>b. Communicate any deviation from this schedule to all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made;<br>c. Establish a risk register to identify and monitor potential factors which may result in setbacks/ delays on tasks within the project schedule;<br>d. Hold management meetings with representatives of the project manager, contractor, engineer, and other contributing parties to monitor and anticipate changes; and,<br>e. Should circumstances/incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the ECO Audit Checklist. | | **Responsible Person/Party:**<br>Contract Project Manager / Contractor / ECO<br>**Monitoring Frequency:**<br>Once off | |
| **3. ACTIVITY: COMMUNICATION WITH LAND-OWNERS** | | | | |
| 3.1 | **Aspects:** Landowner Consent.<br>**Impact:** Disturbance of existing land use.<br>**Objective:** Maintain a conflict-free relationship with landowners / users.<br>**Target:** No complaints received from landowners / users of affected property. | Contract Project Manager / Contractor & Applicant | **Monitoring Action:**<br>Meetings; Risk Register | |

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|---|---|---|---|---|
| | **Mitigation/Management Measures:**<br>a. Landowners are to be aware and in agreement of site access arrangements;<br>b. Landowner has to provide consent to the site supervisor of the decommissioning contractor prior to entering the decommissioning footprint area for safety purposes;<br>c. All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and,<br>d. Any complaint or liaison with regard to environmental aspects, compensation, or disorder to economic activities, must not be addressed by the contractor. A public Complaints Register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action. | | **Responsible Person/Party:**<br>Contract Project Manager/Contractor /ECO<br>**Monitoring Frequency:**<br>Monthly | |
| **4. ACTIVITY: SITE ESTABLISHMENT** | | | | |
| 4.1 | **Aspects:** Demarcation of the site and vegetation removal.<br>**Impact:** Direct impact on vegetation during construction and loss of species.<br>**Objective:** Prevent unnecessary habitat destruction.<br>**Target:** All areas not demarcated for decommissioning must remain vegetated. | Decommissioning Contractor | **Monitoring Action:**<br>ECO to take photographs of site before clearance; ECO Audit Checklist.<br>**Responsible Person/Party:** DEO / ECO | |
| | **Mitigation/Management Measures:**<br>a. No natural surfaces are to be marked other than using droppers, beacons, or other artificial object;<br>b. Ensure the upkeep of demarcation boundaries throughout the period of construction until rehabilitation has been completed; | | | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | c. Keep areas affected to a minimum, strictly prohibit any disturbance outside the demarcated foundation footprint area;<br>d. Clear as little indigenous vegetation as possible, aim to maintain vegetation where it will not interfere with the decommissioning of infrastructure, rehabilitate an acceptable vegetation layer according to rehabilitation recommendations of the relevant EMPr, if possible;<br>e. There must be a pre-decommissioning environmental induction for all construction staff on site to ensure that basic environmental biodiversity principles are adhered to;<br>f. Restoration measures will be required to reinstate functionality in the disturbed soil and vegetation;<br>g. No vegetation may be gathered for the purpose of creating fire; and,<br>h. Areas to be cleared must be agreed and demarcated before the start of the clearing operations. | | **Monitoring Frequency:** Monthly | |
| 4.2 | **Aspects:** Topsoil stripping and excavation of foundations.<br>**Impact:** Destruction of topsoil.<br>**Objective:** Conserve and protect topsoil from erosion and destruction.<br>**Target:** Topsoil condition maintained.<br>**Mitigation/Management Measures:**<br>a. In the absence of a distinguishable topsoil layer, strip the uppermost 300mm of soil;<br>b. Stockpile topsoil separately from subsoil, in heaps no higher than 2m;<br>c. Topsoil stockpiles are to be kept free of weeds;<br>d. Limit unnecessarily prolonged exposure of stripped areas and stockpiles; | Decommissioning Contractor | **Monitoring Action:**<br>ECO Audit Checklist; Photographs;<br>**Responsible Person/Party:**<br>ECO & DEO | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | e. Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water;<br>f. Topsoil needs to be stored in designated areas only. This needs to be planned and indicated on the site-layout plan;<br>g. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of decommissioning / earthworks in that area;<br>h. Strip and stockpile herbaceous vegetation, overlying grass and other fine organic matter along with the topsoil;<br>i. Ensure that topsoil is not mixed with subsoil and/or any other excavated material;<br>j. Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer needs to be managed according to a detailed topsoil management plan;<br>k. Topsoil must be used in all rehabilitation activities, and may not be compacted to ensure that its plant support capacity remain of high quality;<br>l. Do not strip topsoil when it is wet;<br>m. Do not mix topsoil obtained from different sites, unless the ECO gives permission; and,<br>n. If areas covered with chip stone will no longer be used, the chip stone must be removed, and the area ripped to facilitate vegetation regrowth. | | **Monitoring Frequency:**<br>Monthly | |
| **5. ACTIVITY: SITE INFRASTRUCTURE PLACEMENT AND OPERATION** | | | | |
| 5.1 | **Aspects:** Structures and lay-down areas.<br>**Impact:** Deterioration of site features and surrounding areas. | Decommissioning Contractor | **Monitoring Action:** | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Objective:** Prevent the deterioration of site features like soil, rainwater runoff and erosion.<br>**Target:** The preservation of site conditions evident on establishment of structures and lay-down areas.<br><br>**Mitigation/Management Measures:**<br>a. Locate all structures and storage areas, including offices, workshops and stores in approved locations are per the Site Layout Plan;<br>b. The camp with storage and laydown areas are to be kept secure and neat with access control measures adopted during construction;<br>c. Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;<br>d. Leaking equipment mist be repaired immediately or be removed from site to facilitate repair;<br>e. Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;<br>f. Clearly define which activities are to occur within which areas of the site by erecting signage; and,<br>g. All hazardous substances, such as fuel, oil, diesel, paint, etc., must be stored in a secondary containment system (trays or bund) which is capable of storing at least 110% of the liquid capacity. If bund areas are used, it must be sealed to avoid seepages. | | Photographs; ECO Audit Checklist<br><br>**Responsible Person/Party:**<br>DEO / ECO<br><br>**Monitoring Frequency:**<br>Monthly | |
| **6. ACTIVITY: DECOMMISSIONING SITE OPERATIONS** | | | | |
| 6.1 | **Aspects:** Security and fencing.<br>**Impact:** Prevent danger to trespassing of persons.<br>**Objective:** Keep the site secure from trespassing or theft and keep animals out. | Decommissioning Contractor | **Monitoring Action:** | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | **Target:** Site remains secure during decommissioning with no incidences of trespassing, theft and injury or death to animals.<br><br>**Mitigation/Management Measures:**<br>a. Be responsive to open or closed status of gates;<br>b. New or the upkeep of fences must be aligned to ensure safety of animals and maintain a reliable boundary area;<br>c. Should construction activities require the removal of fences or gates to execute tasks, this must be replaced as soon as possible following completion and,<br>d. In all cases, the landowners on whose property any use of fences or gates, must be consulted, to ensure that parties are informed of construction activity, schedules, and vehicle movement. | | Photographs; ECO Audit Checklist<br><br>**Responsible Person/Party:**<br>ECO & DEO<br><br>**Monitoring Frequency:**<br>Monthly | |
| 6.2 | **Aspects:** Existing services and infrastructure.<br>**Impact:** Damage to existing services and infrastructure.<br>**Objective:** No damages to existing services and infrastructure.<br>**Target:** No damages to existing services and infrastructure.<br><br>**Mitigation/Management Measures:**<br>a. Take cognisance of the position of existing services and infrastructure (e.g., roads, pipelines, power lines and telephone services) that may get damaged due to construction activities;<br>b. Ensure that existing services are not damaged or disrupted unless required by the contract and with the permission of the project manager; and | Decommissioning Contractor | **Monitoring Action:**<br>Photographs; ECO Audit Checklist<br><br>**Responsible Person/Party:**<br>Contractor / ECO<br><br>**Monitoring Frequency:** | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | c. In the event that infrastructure is damaged, or services interrupted during construction, it will be done at the expense of the Contractor and shall receive top priority over all other activities. | | Monthly | |
| 6.3 | **Aspects:** Traffic.<br>**Impact:** Impact on traffic.<br>**Objective:** Minimise the disruption of road users.<br>**Target:** Minimal disruption of road users.<br><br>**Mitigation/Management Measures:**<br>a. All vehicles must be road-worthy, and drivers must be qualified, made aware of the potential road safety issues, and need for strict speed limits;<br>b. Vehicles used for transport of materials and sand must be fitted with tarpaulins to prevent the release of such material or items onto road surfaces;<br>c. Construction vehicles may not leave the designated roads and tracks and turnaround points must be limited to specific sites;<br>d. Abnormal loads must not be transported after dark;<br>e. Abnormal loads must be timed to avoid times of year when traffic volumes are likely to be higher, as would be expected over national holidays, weekends and school holiday periods;<br>f. Loads should be timed to avoid times of the day when traffic volumes are likely to be higher (06:00 – 09:00 and 16:00 – 18:00);<br>g. Transport of materials must be limited to the least number of trips possible; and, | Decommissioning Contractor | **Monitoring Action:**<br>Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | h. Traffic deviations around the decommissioning area must be planned in conjunction with the local authority to ensure safe and free flow of traffic. Safety signs must be utilised. | | | |
| 6.4 | **Aspects:** Erosion Control.<br>**Impact:** Loss of topsoil, formation of bare soil and deterioration of habitat quality.<br>**Objective:** Prevent soil erosion.<br>**Target:** No signs of soil erosion are evident on site. | Decommissioning Contractor | **Monitoring Action:**<br>Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO / ECO<br>**Monitoring Frequency:**<br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. Disturb as little ground area as possible, stabilise disturbed area as quickly as possible, control drainage through the area, and trap sediment on site;<br>b. Conserve topsoil with its leaf litter and organic matter, and re-apply this material to local disturbed areas to promote the growth of local native vegetation;<br>c. Apply erosion control measures before the rainy season begins and after each season of construction, preferably immediately following construction;<br>d. Maintain and reapply erosion control measures until vegetation is successfully established; and,<br>e. All disturbed areas that are no longer required must be ripped to facilitate vegetation re-establishment. | | | |
| 6.5 | **Aspects:** Handling of general – and hazardous waste materials on the site.<br>**Impact:** The presence of personnel and construction operations will increase the likelihood of littering and dumping of solid waste. | Decommissioning Contractor | **Monitoring Action:** | |

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|---|---|---|---|
| **Objective:** Management and disposal of general – and hazardous waste in an appropriate manner.<br>**Target:** Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility. | | ECO Audit Checklist; Safe Disposal Documentation & Photographs<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| **Mitigation/Management Measures:**<br>a. The Contractor must submit a Waste Management Plan/Method Statement. Frequent and appropriate disposal of both general and hazardous waste must take place to prevent pollution of soil and groundwater;<br>b. If the amount of hazardous waste and/or general waste will exceed 80m$^3$ and 100m$^3$ respectively, at any one time and for longer than 90 days, registration and adherence will be required in terms of the National Norms and Standards for the Storage of Waste published in GN No. 926 of 29 November 2013 and promulgated in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008);<br>c. An adequate number of scavenger proof litter bins are to be placed throughout the site. Two waste bins at least must be present, one (1) for hazardous waste and one (1) for non-hazardous waste at each working site. Dumping of waste on site is prohibited;<br>d. All bins must have a lid to prevent windblown litter;<br>e. General waste and hazardous waste must not be mixed and must be disposed of separately. If general waste is contaminated with hazardous waste all the waste must be treated as hazardous waste and disposed as such;<br>f. The importance of appropriately disposing waste must be highlighted in induction training for construction personnel; | | | |

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|---|---|---|---|---|
| | g. Waste sorting and separation must form part of the environmental induction and awareness programme, to encourage personnel to collect wastepaper, glass and metal waste separately;<br>h. Keep all work sites including storage areas, offices and workshops neat and tidy;<br>i. Dedicate a demarcated and signposted storage area on site for the collection of construction waste;<br>j. Care must be taken to ensure that no waste falls off disposal vehicles on-route to the drop-off area. If needed, a tarpaulin can be utilised;<br>k. The burning or burying of solid waste on site is prohibited. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste;<br>l. Littering by construction workers shall not be permitted;<br>m. Material removed from the development footprint must be appropriately disposed at an appropriately licensed waste disposal facility;<br>n. Portable ablution facilities must be utilised, and these must be serviced by a registered service provider, cleaned at least once a week, and safe disposal slips must be on file at the site office;<br>o. The DEO must inspect the development site and storage area at the end of each day for any litter. Litter should be cleaned up on a daily basis, even if not litter from construction personnel;<br>p. Hazardous waste must be disposed of at a hazardous treatment facility, records and proof of safe disposal must be kept; and, | | | |

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|---|---|---|---|---|
| | q. A register must be kept of the quantities of waste disposed and proof of safe disposal (by the contractor), at an authorised waste disposal facility, must be retained by the Applicant and be available at the site office. | | | |
| 6.6 | **Aspects:** Visual Impact.<br>**Impact:** Visual impact of site operations on surrounding landowners.<br>**Objective:** To avoid unnecessary visual impact caused by site operations.<br>**Target:** Minimise the incidence of visual impact.<br>a. Access roads are to be kept clean;<br>b. Access roads should be followed at all times;<br>c. Site offices and structures should be limited to one location and carefully situated to reduce visual intrusions.<br>d. Lights within the construction camp should face directly down (angle of 90˚);<br>e. Litter should be strictly controlled, as the spread thereof through wind could have a very negative visual impact;<br>f. Mitigation of visual impacts associated with the decommissioning phase would entail proper planning, management and rehabilitation of the decommissioned site. Mitigation measures include the following:<br>➢ Reduce the time of decommissioning through careful planning of logistics and ensure the productive implementation of resources;<br>➢ Limit disturbance of the environment to the development footprint; | Decommissioning Contractor | **Monitoring Action:**<br>ECO to take photographs of the site; ECO Audit Checklist; Public Complaints Register<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | ➢ Limit construction activities to business hours (07:00 – 17:00); and,<br>g. Avoid shiny materials in structures. Where possible shiny metal structures should be darkened or screened to prevent glare. | | | |
| 6.7 | **Aspects:** Noise Generation.<br>**Impact:** Noise nuisance from site operations.<br>**Objective:** To avoid excessive noise generation from site operations.<br>**Target:** Minimise the incidence of noise generation.<br>**Mitigation/Management Measures:**<br>a. Limit working hours (07:00 – 17:00);<br>b. No hooting by construction staff;<br>c. Staff are to conduct themselves in an orderly manner and to refrain from shouting. A Code of Conduct should be drawn up in this regard;<br>d. Any complaints received by the Contractor regarding noise will be recorded and communicated to the ECO;<br>e. All stationary noisy equipment such as compressors and pumps should be contained behind acoustic covers or screens where possible;<br>f. The regular inspection and maintenance of equipment must be undertaken to ensure that all components are functioning optimally;<br>g. Where recurrent use of machinery is frequent, machines should be shut down during intermediate periods; | Decommissioning Contractor | **Monitoring Action:**<br>ECO to take photographs of site; Public Complaints Register; ECO Audit Checklist<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |

| DECOMMISSIONING PHASE: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWERLINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE | | RESPONSIBLE PARTY/PERSON (implementation of mitigation measures) | MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY | COMPLIANT? (for use by ECO) |
|---|---|---|---|---|
| | h. Fit silencers to equipment where feasibly; and,<br>i. No loud music is permitted on the site or laydown area. | | | |
| 6.8 | **Aspects:** Fire Prevention.<br>**Impact:** Uncontrollable fire.<br>**Objective:** Prevent the outbreak of fires emanating from decommissioning activities.<br>**Target:** No incidences of fires are recorded for the site. | | | |
| | **Mitigation/Management Measures:**<br>a. The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of the activities on site;<br>b. Ensure the decommissioning site and the contractor's camp is equipped with adequate firefighting equipment. This includes at least one fire extinguisher of the appropriate type irrespective of the site;<br>c. Workers must be adequately trained in the handling of firefighting equipment, and can include but not limited to:<br>➢ Regular fire prevention talks and drills; and,<br>➢ Posting of regular reminders to staff;<br>d. No open fires are permitted anywhere on site;<br>e. Do not store any fuel or chemicals under trees;<br>f. Do not store gas and liquid fuel in the same storage area (hazardous substances to be stored in accordance with SANS); | Decommissioning Contractor | **Monitoring Action:**<br>ECO Audit Checklist.<br>**Responsible Person/Party:**<br>DEO / ECO<br>**Monitoring Frequency:**<br>Monthly | |

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|---|---|---|---|---|
| | g. Any fires that occur on site shall be reported to the ECO immediately and then to the relevant authorities;<br>h. In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring it under control;<br>i. Do not permit any smoking within 3m of any fuel or chemical storage area, or refuelling area. A designated smoking area must be established on site; and,<br>j. All construction vehicles must be fitted with at least one fire extinguisher. | | | |
| 6.9 | **Aspects:** Water Conservation.<br>**Impact:** Wasting water as a result of negligence.<br>**Objective:** Promote and implement water use efficiency mechanisms.<br>**Target:** No Water Wastage. | Decommissioning Contractor | **Monitoring Action:**<br>Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>ECO & DEO<br>**Monitoring Frequency:**<br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. Re-use water where possible;<br>b. Prevent leakages at taps and hoses by means of maintenance;<br>c. Use buckets of water to clean tools instead of running water;<br>d. Make sure that sediment, concrete, sand and rubbish does not end up going down the stormwater drain. Cover or filter stormwater inlets and drains; and, | | | |

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|---|---|---|---|---|
| | e. Require workers to use a broom rather than a hose to clean paths and gutters. If water use is necessary, use high pressure hoses which are both water efficient and more effective cleaners. | | | |
| 6.10 | **Aspects:** Avifauna Species<br>**Impact:** Displacement of powerline sensitive avifauna due to disturbance associated with decommissioning of the 33kV overhead powerline associated infrastructure<br>**Objective:** To prevent any adverse impacts on avifauna.<br>**Target:** No adverse impacts on avifauna. | Decommissioning Contractor | **Monitoring Action:**<br>Incident Register; Photographs; ECO Audit Checklist<br>**Responsible Person/Party:**<br>DEO & ECO<br>**Monitoring Frequency:**<br>Monthly | |
| | **Mitigation/Management Measures:**<br>a. Decommissioning activity should be restricted to the immediate footprint of the infrastructure.<br>b. Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of powerline sensitive avifauna.<br>c. Measures to control noise and dust should be applied according to current best practice in the industry.<br>d. Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. | | | |

# 10 EMERGENCY RESPONSE PLAN

The following table is provided to assist the ECO and construction Contractor with remedial work options and problem solving:

| Observation or Event | Action by Inspector or Observer | Action by Construction Contractor |
|---|---|---|
| **Spillage of diesel or hydrocarbons on soil** | Report to construction Contractor and continue observations.<br><br>Also check:<br>➢ That the source causing the spillage has ceased, and that the affected area is isolated to prevent spreading of the hazardous substance, where after it must be rehabilitated. | Action will be required as soon as possible (ASAP) by following the next steps:<br>➢ Dig down into the soil to see how far down the pollution penetrated,<br>➢ If less than 300mm penetrated:<br>a. Turn the soil over to expose it to the air.<br>b. Apply Mono Ammonium Phosphate (MAP) at a rate of 58gr/m² to the overturned soil.<br>c. Water enough to keep the soil moist.<br>➢ If penetration is greater than 300mm:<br>a. Remove the affected soil and spread in a layer not more than 300mm thick.<br>b. Apply MAP at a rate of 50gr/m².<br>c. Water enough to keep the soil moist.<br>➢ Repeat the above steps every 6 weeks or until the soil is clean. |
| **Erosion** | Report to construction contractor and continue observations.<br><br>Also check:<br>➢ That all vehicular movement is restricted to existing access routes to | Action will be required ASAP:<br>➢ Implement erosion protection works at identified problem areas.<br>➢ Implement remedial works at affected areas in order to restore the area to its previous or better status. |

| Observation or Event | Action by Inspector or Observer | Action by Construction Contractor |
|---|---|---|
| | prevent crisscrossing of tracks through undisturbed areas. | |

# 11 INCIDENT REGISTER

| INCIDENT REGISTER: PROPOSED DEVIATION OF THE EXISTING RIETFONTEIN 33KV POWER LINE AT TWO LOCATIONS (KOOPAN AND HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN IN THE NORTHERN CAPE PROVINCE | | | | | |
|---|---|---|---|---|---|
| **NAME OF PERSON REPORTING THE INCIDENT** | **INCIDENT** | **DATE OF INCIDENT IDENTIFIED** | **HOW WAS INCIDENT ADDRESSED?** | **DATE OF RECTIFICATION** | **SIGNATURE** |
| | | | | | |
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# 12 REHABILITATION MEASURES AND CLOSURE PLAN

The rehabilitation phase follows completion of construction works and entails site clean-up and site rehabilitation following the removal of the Contractor from site. The underlying aim of rehabilitation is the process of returning land within the site boundary to some degree of its former natural state.

Key aspects within this process include the:

- Removal of structures and infrastructure;
- Handling of inert waste and rubble;
- Handling of hazardous waste and pollution control;
- Final shaping of the terrain;
- Topsoil replacement and soil amelioration;
- Ripping and scarifying of surfaces;
- Planting of indigenous occurring vegetation (if deemed necessary); and
- Maintenance.

## 12.1 Rehabilitation Measures

| **Removal of structures and infrastructure** |
|---|
| • On completion of a section of works, the area must be rehabilitated by suitable landscaping, levelling, topsoil dressing, land preparation, alien plant eradication and where ascribed for by the ECO, vegetation establishment;<br>• Clear and completely remove from site all construction structures and temporary infrastructure;<br>• All permanent infrastructure must be returned to a useable state. |
| **Inert waste and rubble** |
| • Remove all inert waste and rubble, such as excess rock, any structural foundations and remaining aggregates. Only once this material has been removed, the site shall be re-instated and rehabilitated;<br>• Domestic waste must be completely removed from the site and disposed of at a landfill site. |
| **Topsoil replacement and soil amelioration** |
| • The reinstatement of disturbed areas must follow immediately after the removal of structures and temporary infrastructure;<br>• Topsoil backfilling must be undertaken when the soil is dry, and not following any recent rainfall events;<br>• The replacement of topsoil must be sought in situ with construction where possible, or as soon as construction in an area has been completed;<br>• All stockpiled topsoil together with herbaceous vegetation must be replaced and redistributed over a disturbed area such as temporary access roads;<br>• Topsoil must be returned to the same site from where it was stripped;<br>• When insufficient topsoil remains, soil of a similar quality can be obtained from a nearby area within the construction area which was disturbed; |

| |
|---|
| • Once topsoil has been returned to the ground, stripped vegetation must be randomly spread by hand over the area. |
| **Maintenance** |
| • All re-growth of invasive alien vegetative material will be monitored by the Developer for one year;<br>• All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cornered off, to prevent vehicular, pedestrian and livestock access;<br>• Any re-vegetation must be done using plant species in occurrence on site;<br>• Control invasive plant species and weeds using approved methods of manual or chemical intervention;<br>• The re-establishment of vegetation must be allowed several rainy seasons, given the arid nature of the climate and region. |