132/11kV Olifantshoek Substation and Power Line

Northern Cape Province

May 2017

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

		Environmental Assessment Process
Title	:	Basic Assessment Report for the 132/11kV Olifantshoek Substation and Power line, Northern Cape Province
Authors	:	Savannah Environmental Ashleigh Blackwell Jo-Anne Thomas
Specialists	:	Gerhard Botha Jon Marshall Simon Todd Jenna Lavin (Application for exemption only)
Client	:	Eskom Holdings SOC Limited
Report Status	:	Basic Assessment Report for Public Review
Review Period	:	**30 May 2017 – 30 June 2017**

When used as a reference this report should be cited as: Savannah Environmental (2017). Draft Basic Assessment Report: 132/11kV Olifantshoek Substation and Power line, Northern Cape Province.

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ABBREVIATIONS AND ACRONYMS

BID	Background Information Document
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESA	Ecologically Sensitive Area
GIS	Geographical Information Systems
GG	Government Gazette
GN	Government Notice
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IPP	Independent Power Producer
km^2	Square kilometres
km/hr	Kilometres per hour
kV	Kilovolt
m^2	Square meters
m/s	Meters per second
MVA	Mega Volt Ampere
MW	Mega Watt
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NFEPA Wetland	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NWA	National Water Act (Act No. 36 of 1998)
RE	Remaining Extent
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency Limited
SDF	Spatial Development Framework

SUMMARY AND PROJECT OVERVIEW

1. OVERVIEW OF THE PROPOSED PROJECT

The Northern Cape, and in particular the north east, region as a whole has been earmarked for the development of various mining developments and operations. With an increase of such developments, the region of Olifantshoek has undergone rapid population expansion, and as a result there is greater pressure being placed on existing electrification networks and services to meet the current capacity demands of the region. Eskom Holdings SOC Limited (Eskom) is therefore proposing to establish a new 10MVA 132/11kV substation (Olifantshoek Substation) and 31km 132 kV power line between the existing Emil Substation and the new Olifantshoek Substation.

The proposed project will consist of the following activities and associated infrastructure:

- The new 10MVA Olifantshoek 132/11kV substation (approximately 100m x 100m in extent) and ancillaries (including a metering station, control building, admin building, workshop and associated infrastructure).
- The construction of a new 132kV single circuit overhead power line (31km long within a 32m wide servitude) from the new Olifantshoek Substation to the Emil Switching Station, and ancillaries (including access tracks/roads, laydown areas, operational and maintenance facilities).
- Decommissioning of the existing 22/11kV 2.5MVA Olifantshoek Substation including all site rehabilitation and preservation

1.1. Project Alternatives

Two alternative substation sites and two alternative power line corridors are being considered within this Basic Assessment Report (Appendix A1). The majority of the length of the power line will run parallel to the existing Ferrum/Nieuwehoop 400kV and Ferrum/Lewensaar 275kV lines (refer to Figure 1). A corridor of 300m in width was assessed for the siting of the power line route. Within this corridor, a servitude of 32m will be negotiated with the affected landowners. Access roads (of up to 4m in width) will be constructed along the servitude, where required. Existing roads will be used as far as possible. The power line is proposed to be constructed, owned and operated by Eskom.

1.2. Site Location

The site for the proposed preferred and alternative Olifantshoek substation and ancillary infrastructure is located within the urban edge of the Town Olifantshoek situated approximately 35 km north east of Kathu (refer to **Figure 1**) and falls within the Gamagara Local Municipality. The power line route will be approximately 31km in length and will extend from the new Olifantshoek substation, turning-in at the Emil switching station just west of Kathu. The substation site at Olifantshoek can be accessed via the N14 in the town of Olifantshoek.

Table 1: Location of the study area

Province	**Northern Cape Province**
District Municipality	John Taolo Gaetsewe
Local Municipality	Gamagara Local Municipality

Ward number(s)	Ward 3, Ward 4 and Ward 5	
Nearest town(s)	Olifantshoek New substation is ~ 35km North-east of Kathu	
Farm Name/Portion	**FARM NAME**	**PORTION NUMBER**
	Frits 540	1/540
	Frits 540	2/540
	Frits 540	5/540
	Lanham 539	RE/539
	Wright 538	1/538
	Wright 538	RE/538
	Bredenkamp 567	RE/567
	Brooks 568	RE/568
	Beaumont 569	RE/569
	Beaumont 569	3/569
	Murray II 570	3/570
	Cox 571	2/571
	Cox 571	RE/571
	Vostershoop 706	RE/706
	Diergaart's Heuwel 765	765
	Hartley 573	RE/573
	Neylan 574	1/574
	Neylan 766	2/766
	Cox 571	1/571
	Cox 571	3/571
	Erf 155	
	Neylan 766	4/766
	FARM NAME	**21 DIGIT SG CODE**
	Frits 540	C04100000000054000001
	Frits 540	C04100000000054000002
	Frits 540	C04100000000054000005
	Lanham 539	C04100000000053900000
	Wright 538	C04100000000053800001
	Wright 538	C04100000000053800000
	Bredenkamp 567	C04100000000056700000
	Brooks 568	C04100000000056800000
	Beaumont 569	C04100000000056900000
	Beaumont 569	C04100000000056900003
	Murray II 570	C04100000000057000003
	Cox 571	C04100000000057100002
	Cox 571	C04100000000057100000
	Vostershoop 706	C04100000000070600000
	Diergaart's Heuwel 765	C04100000000076500000
	Hartley 573	C04100000000057300000
	Neylan 574	C04100000000057400001
	Neylan 574	C04100000000076600002
	Cox 571	C04100000000057100001
	Cox 571	C04100000000057100003
	Erf 155	C04100040000015500000
	Neylan 766	C04100000000076600004

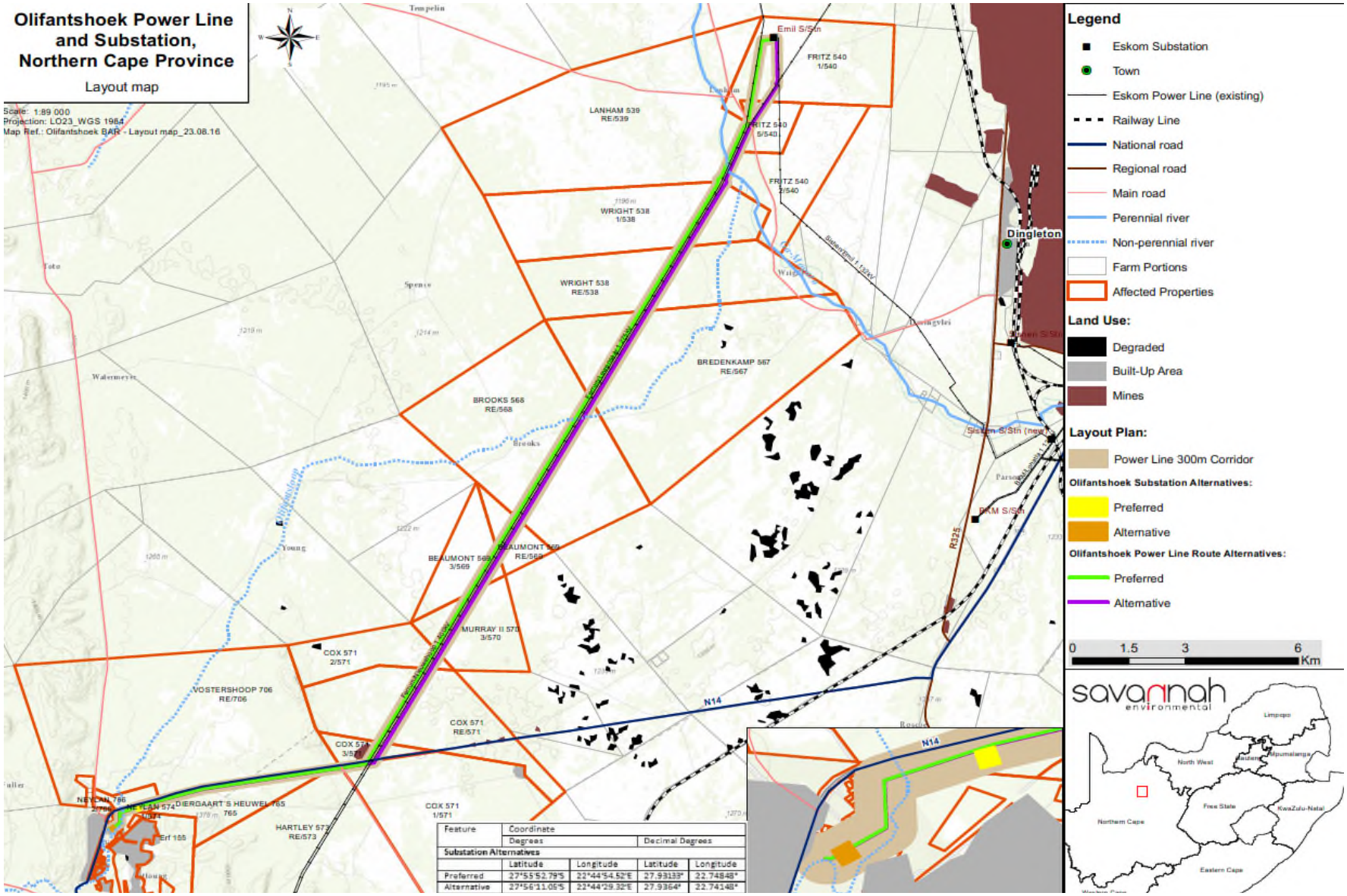

Figure 1: Locality map showing the location of the preferred substation and power line corridor alternatives to Emil switching Station

2. NEED AND DESIRABILITY FOR THE PROPOSED INFRASTRUCTURE

The need of this project will ensure that the current substation in Olifiantshoek, which has reached its economic end, will be replaced with a substation of a greater Mega Volt Amphere, as well as a stronger power line to distribute power to the Olifnatshoek Municipality. Currently Olifantshoek has a very poor electrification output to meet the basic needs for socio-economic development and upliftment in the area. In a broader sense, the proposed project may support various REIPPP projects requiring a strong grid connection.

From an overall environmental sensitivity and planning perspective, the proposed grid connection supports the broader strategic context of the municipality as it is directly linked to the strategic objective of the municipality, which is a stronger and more reliable electrification network. Moreover, a stronger network is considered a driver for economic growth in the region as per the John Taolo Gaetsewe District Municipality's Integrated Development Plan. No exceedance of social, ecological, hydrological, visual or avifaunal limits will result from the construction of the proposed Project and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment Report.

3. REQUIREMENTS FOR A BASIC ASSESSMENT PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Eskom Holdings SOC Ltd requires authorisation for the construction and operation of the substation and power line and the decommissioning of the existing Olifantshoek substation. In terms of sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the new gazetted EIA Regulations of GN R327, 325 and 324 of April 2017, a Basic Assessment process is triggered by the proposed project.

In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these activities must be considered, investigated, assessed and reported on to the competent authority that has been charged by NEMA with the responsibility of granting environmental authorisations. Eskom is a State-Owned Corporation (SOC), and the proposed project triggers a Basic Assessment Process, the National Department of Environmental Affairs (DEA) is identified as the competent authority[1] and the Northern Cape Department of Environmental and Nature Conservation (NC DENC) will act as the commenting authority.

3.1. Listed Activities triggered by the proposed project

Eskom requires Environmental Authorisation for the proposed project in terms of Sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of 2017, GN R. 326, 327 and 324. The following Listed Activities are applicable to the project.

Table 2: Listed Activities triggered by the proposed project

Activity listed in GNR 327, 325 and 324	Relevance to the project
GN327, activity 11 (i)	The proposed 11/132kV substation will be constructed within

[1] In terms of the Energy Response Plan, the DEA is the competent authority for all energy related applications.

The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	the urban edge. The 132kV power line extends 31km from the urban edge of the town of Olifantshoek, to the existing Emil switching station. The majority of the power line to be constructed is situated outside of the urban edge.
GN327, activity 12 The development of - (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -	The power line infrastructure or structures and associated access roads will be located within 32m of a watercourse.
GN327, activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from- (i) a watercourse	This activity will be triggered where new power line service roads are required to cross a watercourse.
GN327, activity 56: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (i) where the existing reserve is wider than 13,5 meters	The construction of the 132 kV power line will require the lengthening of existing roads for access purposes in some instances.
GN324, activity 12: 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. g) Northern Cape (iv) On Land, where, at the time of coming into effect of this Notice, or thereafter such land was zoned as Open Space, Conservation or had an equivalent zoning	More than 300 meters of indigenous vegetation may be cleared for the construction of the power line on land zoned as "agricultural" and substation on land zoned as "Open Space".

The nature and extent of the proposed project, and the potential environmental impacts associated with the construction, operation and decommissioning phases are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; as well as the recommendations proposed by the Environmental Assessment Practitioner.

3.2. Legal Requirements

Table 3: Legal Requirements of the EIA Regulations

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include—	Project Details Summary and Project Overview
(a) details of—	
(i) the EAP who prepared the report; and	
(ii) the expertise of the EAP, including a curriculum vitae;	Summary and Project Overview Appendix H
(b) the location of the activity, including:	Summary and Project Overview
(i) the 21 digit Surveyor General code of each cadastral land parcel;	
(ii) where available, the physical address and farm name;	Summary and Project Overview
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	N/A
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Summary and Project Overview Appendix A
or, if it is—	Appendix J1
(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	
(d) a description of the scope of the proposed activity, including—	Section A, Subsection (1) (a and b)
(i) all listed and specified activities triggered and being applied for; and	
(ii) a description of the activities to be undertaken including associated structures and infrastructure ;	
(e) a description of the policy and legislative context within which the development is proposed including—	Section A, Subsection (3)(11)
(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section A, Subsection (3)(11)
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Summary and Project Overview Section A, Subsection (3) (10)
(g) a motivation for the preferred site, activity and technology alternative;	Summary and Project Overview Section A, Subsection (2) (a -e)
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including:	Section A, Subsection (2). Section C Appendix E
(i) details of all the alternatives considered;	
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	
(iii) a summary of the issues raised by interested and affected parties,	

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section B Section D
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section D Appendix F
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Appendix F
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section D Appendix F
(viii) the possible mitigation measures that could be applied and level of residual risk;	Section D Appendix F
(ix) the outcome of the site selection matrix;	N/A
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section A, Subsection (2)
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section D, Subsection (1) and (2)
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Section D Appendix F Appendix D
(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Section D Appendix F Appendix D
(j) an assessment of each identified potentially significant impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Section D Appendix F Appendix D Appendix E

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Appendix D Section E
(l) an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section D, Subsection (1) and (2) Appendix A Appendix F
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;	Section D Section E Appendix D, G and F
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Summary and Project Overview Appendix D
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section D Section E
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	Appendix D Appendix E Appendix H
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(t) any specific information that may be required by the competent authority; and	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

4. OVERALL CONCLUSIONS ON THE PROPOSED PROJECT

Based on the findings of this Basic Assessment, the following conclusions can be made:

Ecology:

Overall and with the suggested mitigation measures applied, the impact of the proposed Olifantshoek 132 kV power line and substation would be of local extent and low significance. There are no impacts associated with the development of the power line and substation that are considered to be of high significance and which cannot be mitigated to a low level. The project is thus acceptable from an ecological perspective.

Visual:

On visual grounds, the Alternative Alignment for the 132kV power line is favoured due to the fact that it will assist to minimise impacts on rural homesteads. As the Preferred Alignment for the power line is likely to impact on local homesteads it is not favoured. If selected, it is suggested that more detailed alignment planning may be required in order to maximise distances between inhabited buildings and the power line. Additional consultation with landowners and inhabitants should also be undertaken to ensure that they are fully aware of the proposed location of structures relative to the buildings.

When considering the substation locations, the Preferred Location stands out as providing the largest potential to provide positive cumulative impacts for the urban area. The Alternative Location would be acceptable subject to adequate mitigation in the form of screen planting providing a buffer between the infrastructure and residents.

If the preferred power line avoids possible visual impacts on rural homesteads, and the correct consultation process is followed, project will be unlikely to have any negative and highly significant visual impact and thus can be considered acceptable from a visual perspective.

Avifaunal:

Both the power line corridor alternatives traverse the same habitat types and subsequently will likely have the same impacts on the avifaunal character of the area (low impact). Thus the preferred power line alternative can be selected as the preferred alternative. The preferred substation site is also deemed, from an avifaunal perspective as the preferred option as this will exclude any impacts within the *Acacia karroo* thicket as well as shorten the potential power line that may interfere with the movement of the water fowl and waders between the sewage works and the gravel dam.

Therefore, the proposed development is unlikely to have any long-term significant impacts on avifaunal species within the study area.

Hydrological:

Overall the development will have no significant impacts on the habitat types within the region. Furthermore the two power line corridor alternatives will have similar impacts on the environment, including the watercourses that will be crossed and the depression wetlands. As such the "preferred option" can be regarded as the final location of the power line. From the Surface Water & Hydrological

Study no objections or motives for the project not to be allowed could be determined, and thus the development may occur within the proposed development boundaries.

5. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND EXPERTISE TO CONDUCT THE BASIC ASSESSMENT

The Savannah Environmental staff has acquired considerable experience in environmental management from working in this field for more than 19 years, and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries.

Savannah Environmental is currently responsible for environmental assessment and environmental management services on a number of built infrastructure projects throughout South Africa, including several renewable energy projects.

Table 4 provides a summary of the experience and expertise of the Savannah Environmental project team, as well as credentials of the specialists contracted to undertake the necessary studies.

Table 4: Project Team details

Team Member and Role	Position in Team	Experience
Savannah Environmental		
Jo-Anne Thomas	Director, Project Manager, EAP	Registered with the South African Council for Natural Science Professions (SACNSP) as an Environmental Scientist, holds a Masters of Sciences degree in Botany and has over 19 years' experience in the environmental management field. Responsible for the management of environmental compliance monitoring on various projects over the past 10 years. Currently responsible for the management of various EIA processes across the country
Ashleigh Blackwell	Principle EAP	Is the principle EAP. She holds a B.Sc Honours in Conservation Ecology. She has 1 year, 3 months experience in an environmental consulting role. Her core competencies lie in Environmental Impact Assessments, Public Participation, environmental management plans and programmes for various projects. She is currently enrolled for 2017 to complete a part-time LLB Law Degree through the University of South Africa.
Lisa Opperman	GIS consultant	Holds a Bachelor degree with Honours in Environmental Management and has 2 years of experience in the environmental field. Her key focus is on environmental impact assessments, public participation, environmental management plans and programmes, as well as mapping using ArcGIS for a variety of environmental projects.
Gabriele Wood	Public participation consultant	Holds an Honours Degree in Anthropology, with 6 years consulting experience in public participation and social research. Her experience includes the design and implementation of public participation programmes and stakeholder management strategies for numerous integrated development planning and infrastructure projects. Her work focuses on managing the public participation component of Environmental Impact Assessments

		and Basic Assessments undertaken by Savannah Environmental.
Specialist Inputs		
Simon Todd of Simon Todd Consulting	Ecology Impact Study	Simon Todd has extensive experience in biodiversity management and ecological assessment, having provided assessments for more than 100 different developments. This includes a large number of power lines and associated infrastructure distributed widely across South Africa. In addition, Simon Todd was the contributing ecologist on the Strategic Environmental Assessment (SEA) for both the Eskom Grid Infrastructure, as well as the Renewable Energy Development Zones. Simon Todd is a recognised ecological expert and is a past chairman of the Arid-Zone Ecology Forum and has 18 years' experience working throughout the country. Simon Todd is registered with the South African Council for Natural Scientific Professions (No. 400425/11).
Gerhard Botha	Avifaunal and Wetland Delineation Impact Study	Gerhard is a SACNASP Registered Professional with 6 years of experience. His Specific responsibilities are as an Ecological Specialist and Environmental Consultant include, inter alia, professional execution of specialist consulting services (including flora, wetland, avifaunal and fauna studies, where required), impact assessment reporting, walk through surveys/ground-truthing to inform final design, compilation of management plans, compliance monitoring and audit reporting, in-house ecological awareness training to on-site personnel, and the development of project proposals for procuring new work/projects
Jenna Lavin of Cedar Tower Consulting	Heritage Impact Study	Jenna holds a Masters in Archaeology from the University of Cape Town and has 10 years' experience in the Environmental Sector. Jenna is a Registered member of Heritage Western Cape Archaeology, Palaeontology and Meteorites Committee, Association for Southern African Professional Archaeologists (ASAPA), the Association of Professional Heritage Practitioners (APHP), the Palaeontological Society of South Africa (PSSA) and ICOMOS South Africa, for which she is the Vice-President of the Board. Jenna is also a member of the International Committee for Archaeological Heritage Management (ICAHM).
Jon Marshall of Afzelia Environmental Consulting	Visual Impact Study	Jon is a qualified Landscape Architect at Cheltenham (UK), and is a Chartered Member of the Landscape Institute (UK) since 1986. He is also a registered Landscape Architect and Environmental Assessment Practitioner of South Africa. Jon has over 25 years of experience in the field and hold an Environmental Law degree from the University of KZN. Jon Registered member of the Professional Landscape Architect (South Africa) and is a certified Environmental Assessment Practitioner of South Africa. He is also a Member of the International Association of Impact Assessment, South Africa.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation, transmission and distribution projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous energy-related projects and their associated

infrastructure. Curricula vitae for the Savannah Environmental project team consultants and specialist consultants are included in **Appendix H**.

6. ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations are applicable to the studies undertaken within this Basic Assessment Process:

- All information provided by the proponent to the environmental team was correct and valid at the time it was provided.
- It is assumed that the substation development sites and power line corridors identified by the proponent represents technically suitable sites for the establishment of the proposed project (taking into account that optimisation of the layout might be required based on geotechnical investigations).
- Studies assume that any potential impacts on the environment associated with the proposed development will be avoided or mitigated accordingly based on the findings of this Basic Assessment Report and the associated Specialist Studies.

Refer to the specialist studies in Appendices D1 – D4 for specific limitations.

DRAFT BASIC ASSESSMENT FOR PUBLIC COMMENT

The Draft Basic Assessment Report was prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the construction and operation of the Eskom Olifantshoek substation, 132kV power line and the decommissioning of the existing Olifantshoek Substation. This process was undertaken in support of an application for Environmental Authorisation to the National Department of Environmental Affairs (DEA). The 30-day period for review is from 30 May 2017 to 30 June 2017. The report is available for public review at the following locations:

- Olifantshoek Public Library
- www.savannahsa.com

I&APs are advised to submit any comments on this report to Savannah Environmental on or before **30 June 2017.** The relevant contact details are:

Savannah Environmental (Public Participation Practitioner):

Gabriele Stein
Tel: 011 656 3237
Fax: 086 699 5796
Email: gabriele@savannahsa.com
Post: P O Box 148 Sunninghill 2157

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	**YES**	NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The existing 132kV Olifantshoek substation has reached its operational end (threshold), and can no longer service the growing demand for electrification and networks in the region. To rectify this status quo Eskom is proposing to construct a new substation (*new Olifantshoek substation*) with a greater mega volt ampere (MVA) and upgraded 132kV power line connecting to the existing Emil Switching Station. The typical structures which Eskom is proposing to utilise for the power line is monopole structure (Figure 2). These monopoles are more bird-friendly and less visually intrusive in comparison to other structures such as steel lattice towers. The line will however consist of a combination of Monopole structures with other structures (i.e. guyed steel tower types) at bend points and where greater distances need to be spanned.

Figure 2: Typical Steel Monopole Pylon Structure

1.1. Pylon options considered for the proposed project:

Although the project will in all likelihood utilise a mixture of both steel monopoles and steel lattice towers (depending on the local conditions), each pylon structure has various advantages of use compared to the other. The advantages of using a steel monopole structure and a steel lattice tower are discussed below.

Steel Monopole:

The steel monopoles provide the following advantages over the other tower types available:

- They are visually less intrusive than the lattice towers.
- They are typically less expensive than the lattice towers
- Construction is estimated to be faster as monopole structures are simply lifted into position by a crane
- They have a smaller development impact footprint
- They are more bird friendly and the Eskom Perching Bracket (Appendix C2) docket can be used as a guideline on preventing bird mortalities.
- Economic decisions associated with easier installations and little post-installation maintenance result in low life-cycle costs

Steel Lattice Towers:

The steel lattice towers are considered less suitable than the monopole towers for the following reasons:

- They are visually more intrusive
- They take longer to install and are assembled on site
- Steel lattice towers require more extensive foundations for support than in-line suspension structure (self-sustaining guyed lattice tower and monopole)
- They have greater cost implications in the long term with regards to installation and maintenance
- The overall developmental impact is greater with regards to excavations and foundation activities
- These structures require more steel than the steel monopole

1.2. Description of the receiving Environment

The proposed project falls within Ward 3, 4 and 5 of the Gamagara Local Municipality of the greater John Taolo Gaetsewe District Municipality, between the outskirts of the towns of Olifantshoek and Kathu. The Olifantshoek/Kathu area is characterized by an arid summer rainfall climate with an average annual temperature of 18.6°C and an average rainfall of 395mm falling predominantly in late summer (highest in April: 74mm). The driest month is July with only 3mm of precipitation. With an average temperature of 25.3°C, January is the warmest month, whilst July is the coldest month with an average of 10.8°C.

The study area is located within the floor of a broad valley system that generally falls from the south to the north. The landscape surrounding the site is arid, comprising relatively flat drainage plains with rocky outcrops to the south, east and west forming the valley sides. The natural topography of the site has been significantly altered (especially to the east) as a result of historic and on-going mining activities. Currently, the existing mine infrastructure and activities dominate the landscape at Sishen, and the natural, relatively flat topography has been replaced by man-made topographical features.

On the eastern flank of the valley there is a large mining area. The settlements of Kathu and Olifantshoek are also located on the western and eastern sides of the valley respectively. The main land use to the north, west and south of the study area appears to be agricultural and specifically low intensity grazing interspersed with isolated homesteads that are concentrated to the south west and north east.

Groundwater is the only reliable source of water supply in the area. According to Vivier (2016) there are a number of important hydrogeological zones with the affected landscape namely:

- The Gamagara River Alluvial Aquifer that consists of sediments containing gravel, calcrete and clay. The riverbed is underlain by clay in some sections.
- The surficial Kalahari beds that consists of clacrete, sand and clay as well as gravel. The Kalahari beds are underlain by a thick clay layer towards the west where Sishen Mine is located.
- The weathered/fractured and solid/fractured lava underlies the Kalahari Beds and forms weathered basins where groundwater was historically developed.
- The lava formations are underlain by quartzite, shale, banded iron formation and dolomite. The banded iron formation forms the major regional aquifer in the area.
- The lava contains geological structures that are inferred as dolerite dykes and/or fault zones that strike mainly north-east to south-west.

The study area is located within the Lower Vaal River Water Management Area and within the D41J quaternary catchment area. The entire study area is drained by two non-perennial watercourses namely the Olifantsloop River (42.492km) and the Ga-mogara River (88.037km). The most prominent river system within region is the ephemeral (non-perennial) Ga-mogara River which is a tributary of the Kuruman River (also non-perennial). According to the Present Ecological State (DWS PES, 1999) the condition of the Ga-mogara River is classified as Class B, which indicates that the river is still largely in a natural state. The same PES classification (Class B) was attributed to the Olifantsloop River, a non-perennial tributary of the Ga-mogara River. The expansion of mining activities in the area have successfully altered the water table of both these rivers to such a degree that both these rivers are now dry, and are very seldom active flowing. The only natural wetlands in the study area are small, endorheic (closed depressions) pans. These depressions form due to micro-topography variations of the underlying substrates (shallower soils over calcrete), giving rise to low grasslands on pan bottoms (may even be devoid of vegetation).

The bulk of the study area is situated within the Ae6 land type with the northern most section traversing the Ag110 land type. A small portion of the power line will traverse Ic2 land type (south of the N14). Soils associated with these land types are shallow to moderately deep and structureless, often limited by rock. The soils that are freely drained and include those such as Hutton, Oakleaf and Mispha soils. These soils are typically found in areas with low rainfall and are known to have a high base status and high agricultural potential.

The **power line corridors** traverse a number of different farm properties, all involved in various agricultural and pastoral land uses. The corridors have been designed as such to not cross any of the existing or proposed lines in the area. Most of the route will run parallel to a proposed 400kV power line. The footprint of the proposed 132kV power line includes several transformed areas of low sensitivity including overgrazed *Tarchonanthus* veld, mining areas, servitudes and roads. The **preferred substation** location is just beyond the outskirts of the town of Olifantshoek, on a site that supports several large *Acacia erioloba* trees, and an active population of Damaraland mole-rats, but is considered to be of medium sensitivity due to the large extent of this habitat across the landscape.

There are three main roads that provide general access to the substation area and power line corridors, i.e. R385, R325 and the N7. Apart from these, farm entrances and gravel roads, including the existing power line service roads, can be used where permissible. The landscape is flat in sections with a few undulating hills.

1.3. Proposed Project Activities

Eskom is proposing the following 3 aspects of works to be undertaken as part of the project:

- Construction and operation of the new 10MVA Olifantshoek 132/11kV substation (approximately 100m x 100m) and Ancillaries (including a metering station, control building, admin building, workshop and associated infrastructure).
- The construction of a new 132kV single circuit overhead power line (31km long within a 32m wide servitude) from the new Olifantshoek Substation to the existing Emil Switching Station, and Ancillaries (including access tracks/roads, laydown areas).
- Decommissioning of the existing 22/11kV 2.5MVA Olifantshoek Substation including all site rehabilitation and preservation.

1.3.1. Construction of the 132kV Single Circuit Overhead Power Line

Following completion of the Basic Assessment process, a final servitude of 32m will be negotiated with affected landowners within the nominated preferred corridor, taking cognisance of any identified environmental sensitivities. The activities associated with the construction of the power line will include site clearance and construction of access roads to facilitate access to the site (where existing access roads associated with the existing Eskom power line do not already exist). Power lines are constructed in the following simplified sequence:

Step 1: Survey of the route
Step 2: Determination of the conductor type
Step 3: Selection of best-suited conductor, towers, insulators, foundations
Step 4: Final design of line and placement of towers
Step 5: Issuing of tenders, and award of contract to construction companies
Step 6: Vegetation clearance and construction of access roads (where required)
Step 7: Stay pegging
Step 8: Assembly and erection of towers
Step 9: Stringing of conductors
Step 10: Rehabilitation of disturbed area and protection of erosion sensitive areas
Step 11: Testing and commissioning

The duration of the construction period will however depend on the season and climatic conditions on site, e.g. strong winds might affect stringing of conductors which could result in delays. The table below provides an overview of the technical details of the power line components to be constructed:

Table 5: Technical details of the power line components

Project Component	Specification	Additional Information
Pylon Type	Steel monopoles and/or self-supporting towers	Poles are established in a vertically staggered configuration, and are kept upright by stays.
Line Capacity	132 kilovolts	
Pylon Height	23m – 28m on average	
Pylon Separation Distance	200m - 400m	Distance can exceed 500m depending on

		the topography and terrain to be spanned.
Pylon foundation footprint	10mx10m (100m²)	
Conductor attachment height	25-28 m	
Conductor Type	Tern Conductor	
Corridor assessed in this BA Report	300m	
Servitude	32m	
Minimal Distances (a) Vertical Distance of structures not forming part of the power line (b) Vertical distance of conductors to the ground (c) Distance between trees and shrubs and the bare phase conductor (d) Minimal clearance to other overhead line conductors (e) Above roads and in towns, proclaimed roads	 >3.8m >6.3m >3.8m >2m >7.5m	High voltage power lines require a large clearance area for safety precautions. The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) provides for statutory clearances.
Access Roads	4m wide access roads	As far as possible, existing tar and gravel roads will be used to gain access to the site during the construction and operational phase (maintenance purposes) of the project. New roads will be established in areas where there are no existing roads.

1.3.2. Construction of the Olifantshoek Substation

The substation (approximately 100m x 100m in extent) is to be constructed in the following simplified sequence:

Step 1: Conduct geotechnical investigations to determine founding conditions;
Step 2: Conduct site survey;
Step 3: Vegetation clearance and construction of access road;
Step 4: Site grading and levelling;
Step 5: Construction of foundations;
Step 6: Import of switching station components;
Step 7: Construction of substation;
Step 8: Rehabilitation of disturbed area and protection of erosion sensitive areas; and
Step 9: Testing and commissioning

The footprint of the substation may include a metering station, control building, admin building, workshop and associated infrastructure. The construction of ancillary infrastructure will follow a similar sequence as that of the substation described above. The table below provides an overview of the technical details of

the substation components to be constructed.

Table 6: Technical details of the substation components to be

Project Component	Specification
Mega Volt Ampere	10
Size of the substation	71m x 49m within a footprint of 100m x 100m
Distance between equipment	9m
Footprint of the development	100m x 100m
Number of transformers	One 10 MVA transformer

1.3.3. Operation and Maintenance of the Substation and Power line

The power line and substation will be operational for more than 20 years and will require routine maintenance work throughout this period. The power line servitude and substation site will be accessed using the access roads established during the construction phase. Access roads for the 400kV line (currently under construction) and those for the existing 220kV power line will be utilised as far as possible. During the operation and maintenance phase, vegetation within the power line servitude (32m), and around the substation will require management only if it impacts on the safety and operational objectives of the project. Operation and maintenance of the power line and substation will be undertaken by Eskom.

1.3.4. Decommissioning of the Existing Olifantshoek Substation, and future decommissioning of the proposed new substation and power line

The existing Olifantshoek substation (refer to Figure 3) has reached the end of its economic life, and therefore must be decommissioned. Currently, this substation only supplies 2MVA power to the surrounding community, which is no longer sufficient. The substation will be decommissioned only once the new substation and power line have been constructed. The following decommissioning activities are expected to be undertaken:

a) Site Preparation

Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

b) Disassemble Components

The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

c) Rehabilitation

Following decommissioning and removal of all project material from the site, the disturbed areas will be rehabilitated to pre-project land capability. Where possible, rehabilitation will be conducted concurrently with decommissioning. The following rehabilitation activities are relevant:

» The existing profiles of the land affected will be improved and stabilised thereby leaving profiles

compatible with the topography of the area, which is essentially flat.

- Ripping of compacted soils will be done prior to adding topsoil, which will be done by mechanical means. It is expected that there will be a sufficient amount of topsoil and/or subsoil moved and stockpiled during the construction phase to facilitate rehabilitation. If required, areas or land for extracting topsoil or subsoil will be identified. The land capability characteristics of such areas should be similar to the affected soils (same texture, colour, permeability, etc.).
- Vegetation will be re-established. The plant species to be used will match those naturally occurring in the area. This will be conducted in consultation with a biodiversity specialist.

It is expected that the same decommissioning sequences will be undertaken as-and-when the new substation and power line are no longer economically serviceable or required.

Figure 3: Existing Olifantshoek substation to be decommissioned

b) Provide a detailed description of the listed activities associated with the project as applied for

Activities relevant to the current application have been identified and are listed in the table below.

Activity listed in GNR 327, 325 and 324	Relevance to the project
GN327, activity 11 (i) The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	The proposed 11/132kV substation will be constructed within the urban edge. The 132kV power line extends 31km from the urban edge of the town of Olifantshoek, to the existing Emil switching station. The majority of the power line to be constructed is situated outside of the urban edge.
GN327, activity 12 The development of - (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -	The power line infrastructure or structures and associated access roads will be located within 32m of a watercourse.
GN327, activity 19:	This activity will be triggered where new power line service

The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from- (i) a watercourse	roads are required to cross a watercourse.
GN327, activity 56: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (i) where the existing reserve is wider than 13,5 meters	The construction of the 132 kV power line will require the lengthening of existing roads for access purposes in some instances.
GN324, activity 12: 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. g) Northern Cape (iv) On Land, where, at the time of coming into effect of this Notice, or thereafter such land was zoned as Open Space, Conservation or had an equivalent zoning	More than 300 meters of indigenous vegetation may be cleared for the construction of the power line on land zoned as "agricultural" and substation on land zoned as "Open Space".

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2) (h) of GN R.982. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees,

minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1: Preferred Substation Site		
Description	**Lat (DDMMSS)**	**Long (DDMMSS)**
Substation site A located on the outskirts of the town of Olifantshoek, yet within the urban edge. Some sensitive ecology exists, however this is considered medium to low significance due to the large extent of the vegetation type in the area. With some fine-scale adjustment of the final position of the substation, impacts would be reduced to some extent.	**27°56'11.26"S**	**22°44'28.96"E**
Alternative Substation Site		
Description	**Lat (DDMMSS)**	**Long (DDMMSS)**
Substation site B supports trees that are not protected (primarily *Acacia karoo*), but it is part of the sensitive riparian woodland of the Olifantsloop River. The site is closer to the town of Olifantshoek, and is within the urban edge	**27°55'53.30"S**	**22°44'54.41"E**

In the case of linear activities:

Alternative: **Latitude (S):** **Longitude (E):**

Alternative 1A (Preferred Power line Corridor - Green):

• Starting point of the activity	27°56'11.26"S	22°44'28.96"E
• Middle/Additional point of the activity	27°51'8.97"S	22°51'13.83"E
• End point of the activity	27°44'10.81"S	22°55'14.12"E

Alternative 2A (Alternative Power line Corridor - Purple):

• Starting point of the activity	27°56'11.26"S	22°44'28.96"E
• Middle/Additional point of the activity	27°51'15.59"S	22°51'19.73"E
• End point of the activity	27°44'10.81"S	22°55'14.12"E

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

A table has been attached as **Appendix J1** with the power line coordinates for the whole length of the corridor.

b) Layout alternatives

The design and layout of the Eskom substation alternatives must conform to Eskom's technical standards, therefore no alternative substation layouts have been considered.

The design of the power line and is required to conform to Eskom's technical standards as it forms part of the national electricity supply network and must fit in with the existing network systems, technology and infrastructure. The broader corridor being assessed within this Basic Assessment allows for the avoidance of identified environmental sensitivities to some extent through the appropriate placement of the 32m wide servitude within this **300m wide corridor**.

The preferred and alternative power line corridors have been considered within separate 300m corridors. These alternative corridors run parallel to each other for the majority of the route to the existing Emil Switching Station.

c) Technology alternatives

No Technological alternatives exist for the distribution of electricity.

Alternative 1 (preferred technology)
Alternative 2 (alternative technology)
Alternative 3 (alternative technology)

(d) Other alternatives (Tower Design and Substation Insulation)

The design of the substation and power line will be based on widely proven and accepted industry standards and does not significantly affect the environmental impact of the proposed development in any way, as its footprint will not exceed the specifications, or extend beyond the assessed corridors of 300m or substation site of 100m x 100m. In all likelihood, use will be made of steel monopole structures for the proposed power line, which is preferable over the lattice tower structures due to the smaller overall footprint. This will however be dictated by the site-specific conditions and landowner requirements. The power line and substation must be constructed according to the authorised standards for a power line approved by Eskom Holdings SOC Ltd.

Powerline Design Alternatives

Two alternatives were assessed for the power line. Underground cabling was not assessed for the siting of this project as it is not technically or practically feasible over long distances.

Alternative 1 (preferred power line design) – Single Circuit Overhead Power line
The use of single circuit overhead power lines to distribute electricity is considered the most appropriate technology. The technology has been developed in consideration of environmental conditions and terrain as specified by Eskom Specifications and best international practice. Based on all current landscape and ecological parameters a single circuit overhead power line is considered the most environmentally practicable technology available for the distribution of power. This option is considered appropriate for the following reasons: » Lower installation and maintenance costs compared to other types of pylon structures that could

potentially be erected » Limited environmental damage during installation
Alternative 2 (alternative power line technology) – Underground Cabling
Underground cables are typically only used over short distances, are predominately used in medium- and low-voltage networks, as well as for power distribution in densely built-up areas with high electricity demand. Furthermore, underground cables have economic and ecological disadvantages and have thus not been taken into consideration for this project.

Substation Insulation of Air Insulated Substation VS Gas Insulated Substation

Alternative 1 (preferred substation insulation) – Air Insulated Substation (AIS)
AIS are generally used where there is an overhead network. For the nature of this project, AIS is preferred for the following reasons: » The substation is compatible with overhead power lines
Alternative 2 (alternative substation insulation) – Gas Insulated Substation (GIS)
GIS is typically used on underground cable networks. As detailed above (c – technological alternatives), underground cables have not been considered for the siting of this project due to the nature of the terrain, the impracticality and cost expense associated with using underground cables. For this reason, GIS was not considered.

e) No-go alternative

The No-go option implies that the **Project does not proceed**. This means that the status quo of the environment would remain unchanged and no impacts would occur.

However, the implementation of the No go alternative will result in a situation where Eskom will not be able to meet the current capacity demands of the region. Ultimately, the project will improve the performance of the supply to the region, in-turn contributing to a greater availability of electricity to residents and industry in Olifantshoek. By not increasing the supply to the greater area, development will be constrained. This is not seen as desirable as the existing substation is operating at near-capacity and will not be able to accommodate any greater load that may be required any future developments.

This alternative is assessed within this Basic Assessment Report.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative SS1 [2] **(technically preferred activity alternative)**	**10 000m²**
Alternative SS22 **(if any)**	**Same as Above**

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative 1A (**Preferred Corridor**)	±31km
Alternative 2A (Alternative Corridor)	Same as Above

(b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur)

Alternative:	**Size of servitude:**
Alternative 1A **(Preferred Corridor)**	Servitude = 32m, Corridor = 300m
Alternative 1A (Alternative Corridor)	Same as above

4. SITE ACCESS

Does ready access to the site exist? (Substation)		**NO**
Does ready access to the site exist? (Power Line)	**YES** Existing access tracks will be used as far as possible	
If NO, what is the distance over which a new access road will be built	**Substation:** 300m from Industrial Road to the substation **Powerline:** In areas where new access roads are required, these roads will follow the alignment of the power line itself within the 300m corridor. The width of these roads will be 4m in width.	

Describe the type of access road planned:

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

The preferred substation site is located further from the town of Olifantshoek with no direct access. Access to the preferred substation site would therefore need to be constructed.

Proposed access to the preferred substation site will be a left turn onto Industrial Road, directly off the N14 from the direction of Kathu. The area generally consists of business property, industrial property and agricultural property. Access off Industrial Road is preferred over direct access via the N14 National

[2] "Alternative A.." refer to activity, process, technology or other alternatives.

Highway. A small 215m road track (blue line on the left hand picture) would need to be cleared for access from Industrial road. The proposed access road will be gravel in nature for low-bed trucks and maintenance trucks and is expected to have no impact on the surrounding environment since this land is already cleared and disturbed.

Where possible, existing roads will be used for construction and maintenance of the power line. In some areas, new access roads may be required to be established. The access roads will follow the same alignment as the power line itself and will be micro-sited within the assessed 300m corridor to avoid any sensitive areas. The servitude access road will be approximately 4m wide.

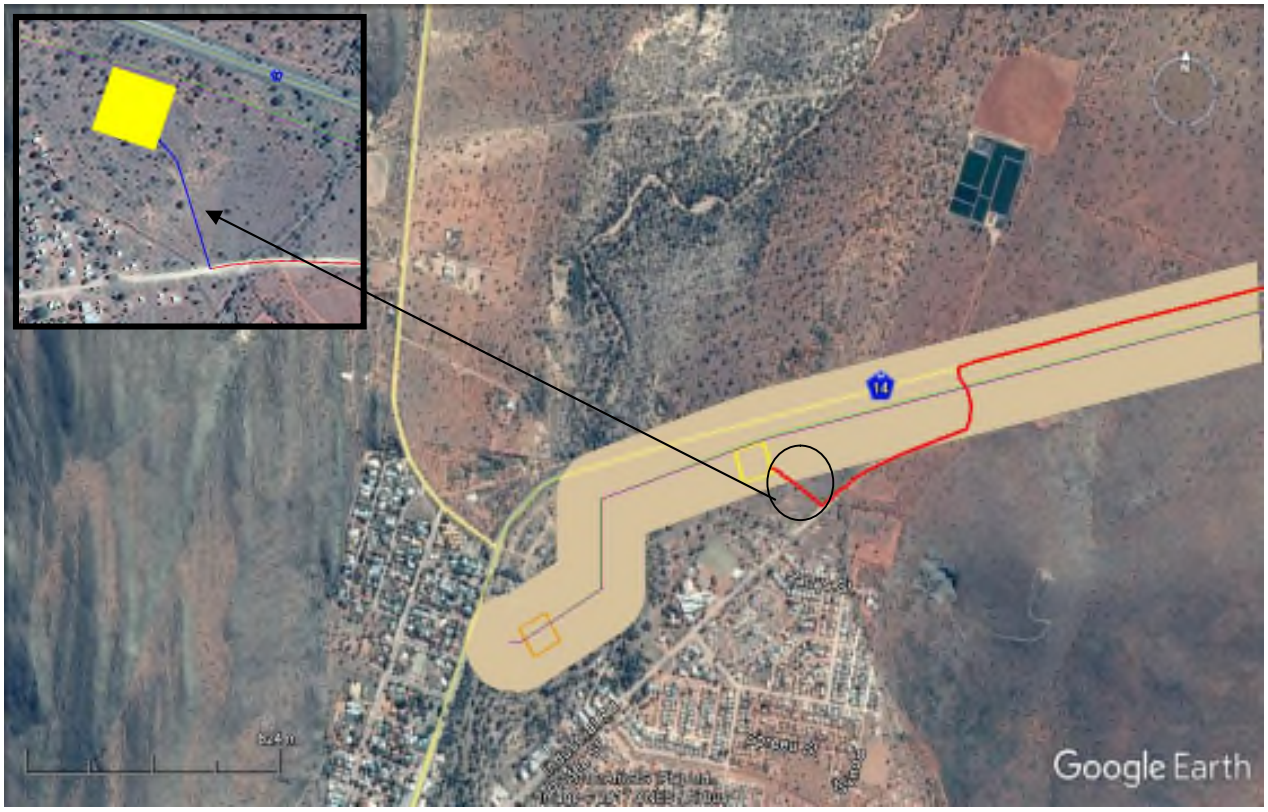

Figure 4: Google Earth image depicting the preferred access corridor to the preferred substation site (yellow). The proposed access road route is depicted as a red line.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 km, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;

- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

An A3 Locality map is included within **Appendix A1**

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

Refer to **Appendix A1**

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

An A3 Sensitivity map is included within **Appendix A2**

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photographs are included within **Appendix B.**

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A facility illustration is included within **Appendix C.**

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?		**NO**	Please explain
The power line corridor passes through land which is zoned as agricultural land. An existing Eskom servitude is located parallel to the proposed line. Environmental authorisation is required to construct the proposed 132 kV overhead power line. The activity is a linear infrastructure that will cross various properties. Eskom will be required to negotiate a right-of-way servitude for the power line within the nominated preferred power line corridor. The preferred substation site is located within the urban edge of Olifantshoek, on land zoned as "Open Space". The alternative substation site is located adjacent to the existing Olifantshoek substation, within the urban edge. The land here is zoned as "Open Space". Construction of the substation at either site would require rezoning of the land to industrial use.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES**		Please explain
The Northern Cape Provincial Spatial Development Framework (NCPSDF) makes reference to 6 spatial planning categories, of which section C refers to Agricultural Areas. C8 of the PSDF which is ensuring the development of efficient SPC F: Surface Infrastructure. This section notes that in order to promote economic growth in the Northern Cape the availability of power lines and substations is needed. The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed project will facilitate the improved supply of electricity to the Olifantshoekarea, which will contribute towards this objective.			
(b) Urban edge / Edge of Built environment for the area		**NO**	Please explain
The power line corridor and substation locations both fall within and outside the urban edge. Majority of the powerline falls outside the urban edge and both the preferred and alternative substations fall within the urban edge. It is anticipated that neither development will expand the urban edge in any way. The proposed development has been welcomed as it will provide greater electrification to the residents of Olifantshoek.			

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**		Please explain
The IDP of the municipality aims to ensure that the quality of life of the ZF Mcgawu District community through purposeful and quality service, and the effective and optimal utilisation of resources. This project will assist in strengthening the local electricity supply and will facilitate development in the area, thereby assisting in job creation which will further help achieve IDP objectives. The project will therefore not compromise IDP objectives but will assist in reaching these.			
(d) Approved Structure Plan of the Municipality	**YES**		Please explain
The municipality is aware of the proposed project. The project does not impact on the structure plan of the municipality.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**YES**		
The approval of this application will not compromise the ZF Mgcawu District Municipality Environmental Management Framework. According to the ZF Mgcawu (previously) Siyanda EMF Report of 2008, most small communities in sparsely populated areas, such as that of Olifantshoek, make effective distribution of electricity very difficult. As such, the desired actions relating to energy supply in the area will include electricity provision that is to be extended to all areas in order to reduce the dependency on candles and wood as the main energy sources (the strong reliance on wood is not sustainable over the long term and can lead to the overexploitation of especially Camel Thorn trees in the area). The proposed project will facilitate improved electrification of the region, thus contributing to the desired state of the environment, as detailed in the 2008 EMF.			
(f) Any other Plans (e.g. Guide Plan)	**YES**		Please explain
Environmental Implementation Plan (EIP) An Environmental Implementation Plan (EIP) was compiled by the Northern Cape Province as NEMA calls for the development of a national and provincial Environmental Implementation Plans (EIPs) and Environmental management plans (EMPs). The EIP was compiled in order to encourage cooperative governance across departments. The EIP aims to ensure that land use decision-making is carried out using adequate available environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the EIP is ensuring that all environmental issues are appropriately addressed. This is achieved for this project through the execution of this Basic Assessment process.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**		Please explain
The main purpose of the power line and substation is to increase electrification and improve electricity			

distribution in the area. This is specifically considered within the approved SDF, IDP and EMF of the ZF Mgcawu District Municipality, as well as within the John Taolo Gaetwane Local Municipality IDP.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES**		Please explain
The main purpose of the power line and substation is to improve electricity distribution in the area. The proposed activity is a necessary societal priority for the local community in this area. The subsequent facilitation of development in the area will benefit the local community through job creation, skills development opportunities and training, which will in turn reduce poverty levels that the area is currently facing.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES**		Please explain
No services are required for the construction or operation of the power line and substation. The construction of the power line infrastructure and substation will therefore not place additional pressure on the local area or Municipality during construction or operation.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)		**NO**	Please explain
The power line and substation will be owned and operated by Eskom. It therefore falls outside of the infrastructure planning of the municipality. The construction of the power line infrastructure will not place additional pressure on the Municipality's infrastructure during construction or operation.			
7. Is this project part of a national programme to address an issue of national concern or importance?		**NO**	Please explain
This project is proposed to address the electrification issues on a local scale.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES**		Please explain
The Olifantshoek Substation is required to replace the existing substation, which will be decommissioned on completion of the new substation. Electricity from this substation will be distributed to the local area. The new substation is therefore required to be located within the Olifantshoek area. The location of the proposed power line adjacent to the existing power lines in the area is expected to minimise impacts on the environment and land use.			
9. Is the development the best practicable environmental option for this land/site?	**YES**		Please explain
The preferred power line corridor is considered to be the most feasible option for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The			

preferred corridor runs parallel to an existing registered Eskom servitude for most of its length. The consolidation of similar infrastructure in the landscape is considered the best practicable option to minimise environmental impacts.

The location of the preferred substation site is deemed as the best practical environmental option as it avoids impacting on sensitive hydrological resources, as detailed in this Basic Assessment. The alternative substation option will impact on the riparian habitat fringing the upper reaches (within the town boundary) of the Olifantsloop River

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**		Please explain

The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the proposed corridors investigated, as well as the preferred substation location, will have environmental impacts of an overall **low significance** with the implementation of appropriate mitigation. The absence of the proposed 132kV power line and the new substation would mean that the power supply in the area would not be improved. This will have negative implications on new customers in the greater Kimberley area as well as for future development in the area. Although the impacts identified, such as visual and biodiversity impacts, would not occur if the project did not go ahead, these impacts are considered to be of acceptable significance. The socio economic benefit of the proposed project is considered to outweigh the negative impacts thereof.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO**	Please explain

Should additional power lines or substations be required in the area in the future, the feasibility of these would need to be considered on a project specific basis.

12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO**	Please explain

The preferred substation location does not infringe on any person's rights according to the Law. Moreover, this land is owned by the Olifantshoek Municipality who are in support of the proposed project. Some private landowners will be affected by the proposed project (power line). These landowners have been consulted by the developer and the environmental team and are aware of the proposed project. The landowners preferred use of the farm land for any purpose may be impacted upon in the future as the electricity servitude area will need to be considered in all aspects of development planning for the farm. For instance, developments are not allowed by Eskom within their servitude and no buildings particularly below the power line.

13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO**	Please explain

The power line corridor and substation locations both fall within and outside the urban edge. Majority of the powerline falls outside the urban edge and both the preferred and alternative substations fall within the urban edge. It is anticipated that neither development will expand the urban edge in any way. The proposed development has been welcomed as it will provide greater electrification to the residents of Olifantshoek.

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?			Please explain

The proposed development would only contribute, minimally, to **SIP 10**, which involves expanding the distribution network to address historical imbalances by providing access to electricity for all. The project is not part of any SIP. The proposed development will benefit the local communities by improving the reliability of the electricity supply in the area. In addition, a stable electricity supply will have a positive impact for the development potential in the area and promote economic growth. In addition, the proposed development could improve the lives of the local community due to the potential for

improved and expanded electrification of the area.

15. What will the benefits be to society in general and to the local communities?	Please explain

The project will improve electricity supply to the local area. The increased supply will facilitate economic growth and may also promote development, which in turn may provide job opportunities in various communities. In addition, the proposed development could improve the lives of the local community due to the potential for improved and expanded electrification of the area.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

The following project motivations are relevant:

- The proposed project will facilitate the strengthening of Eskom's distribution network within the area;
- The proposed project will assist with ensuring adequate electricity supply to meet the growing energy demand associated with the planned mining activities in the area as well as planned developments in the local community.

17. How does the project fit into the National Development Plan for 2030?	Please explain

The National Development Plan for 2013 identified the following nine main challenges to be addressed by 2030:

1. Too few people work;
2. The standard of education for most black learners is of poor quality;
3. Infrastructure is poorly located, under-maintained and insufficient to foster higher growth;
4. Spatial patterns exclude the poor from the fruits of development;
5. The economy is overly and unsustainably resource intensive;
6. A widespread disease burden is compounded by a failing public health system;
7. Public services are uneven and often of poor quality;
8. Corruption is widespread; and
9. South Africa remains a divided society

The proposed project is aligned with the National Development Plan, as it will help promote local economic growth as a result of the strengthening of the local distribution grid. This improved electricity supply will facilitate development in the local area, which in turn could promote local job opportunities.

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management. In addition, appropriate opportunity has been provided for public participation, and all comments received will be included within the final documentation submitted to the DEA for review and decision-making.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development. The hierarchy of mitigation has been considered, with the avoidance of impacts being adopted as far as possible. Where impacts cannot be avoided, appropriate mitigation measures have been recommended. The successful implementation of the nominated preferred alternatives for the development and appropriate

management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation. This process has been undertaken in a transparent manner and all effort has been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Regulating Authority.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Table 7: Applicable Legislation, Policies and/or Guidelines

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	National Legislation		
National Environmental Management Act (Act No. 107 of 1998)	The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. In terms of GNR 983 and 985 of June 2010 a Basic Assessment Process is required to be undertaken for the proposed project.	» National Department of Environmental Affairs (DEA) » Northern Cape Department of Environment and Nature Conservation (NC DENC) – commenting authority	The listed activities triggered by the proposed project have been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment). This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No. 107 of 1998)	In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised.	DEA	The implementation of mitigation measures are included as part of the Draft EMPr and will continue to apply throughout the life cycle of the project.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
National Environmental Management: Biodiversity Act (Act No. 10 of 2004) and Alien Invasive Species Regulations 2014	In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase. The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National	» DEA » NC DENC	A Specialist Ecological and Avifaunal Assessment was undertaken as part of the Basic Assessment process (refer to Appendix D1). As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species, as well as critically endangered (CR), endangered (EN), vulnerable (VU) or protected ecosystems and species and the potential for them to be affected has been considered. A permit is required to remove or relocate listed species affected by the project. This Basic Assessment report will include an Alien Invasive Management Plan as well as a Plant rescue and protection plan and a Rehabilitation and Revegetation Plan. These will be submitted along with the EMPr.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011). Invasive Species are categorised into four categories: » **Category 1a** Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the Act as species which must be combatted or eradicated. » **Category 1b** Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the Act as species which must be controlled. » **Category 2** Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the Act as species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be » **Category 3** Listed Invasive Species are species that are listed by notice in terms of section 70(1)(a) of the Act, as species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of Act, as specified in the Notice. o Any plant species identified as a		

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3. Section 76 of the Act requires that all Protected Area Management Authorities and all other "Organs of State in all spheres of government", including all municipalities, draw up an "Invasive Species Monitoring, Control and Eradication Plan for land under their control." These plans have to cover all Listed Invasive Species in terms of Section 70(1) of this Act.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	The Minister may by notice in the *Gazette* publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or	» DEA » NC DENC	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr (refer to Appendix G).

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the necessary norms and standards. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in any other way rendered unlit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented.		
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. GN R 827 – National Dust Control Regulations	» DEA » Gamagara Local Municipality	Dust Control Regulations describe the measures for control and monitoring of dust, including penalties. These regulations might be applicable during the construction phase of the project. Dust management have also been accounted for in the EMPr (see Appendix G)

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	prescribes general measures for the control of dust in all areas		
National Water Act (Act No. 36 of 1998)	Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation. In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.	Department of Water and Sanitation	A water use license (WUL) or General Authorisation might be required in terms of Section 21 of the Act due to the drainage lines which could be impacted by the proposed project, in particular the associated access road(s). In terms of impacts to water sources, a GA or WUL will be undertaken based on the outcome of the risk assessment matrix.
Environment Conservation Act (Act No. 73 of 1989)	National Noise Control Regulations (GN R154 dated 10 January 1992)	» DEA » NC DENC	Noise impacts are expected to be associated with the construction phase of the Project and are not likely to present a significant intrusion to the local community. There is no requirement for a noise permit in terms of the legislation.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	An Environmental Authorisation and mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act.	» Department of Mineral Resources	As no borrow pits are expected to be required for project, no mining permit or Environmental Authorisation is required to be obtained for borrow pits.
National Heritage Resources Act (Act No. 25 of 1999)	» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity	» South African Heritage Resources Agency » Northern Cape Heritage Resources Authority	A permit may be required should any identified cultural/ heritage sites on site be required to be disturbed or destroyed as a result of the proposed development.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	which will change the character of a site exceeding 5 000 m^2 in extent » The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m^2; or the re-zoning of a site exceeding 10 000 m^2 in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Standalone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.		
National Forests Act (Act No. 84 of 1998)	» In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period	» Department of Agriculture, Forestry and Fisheries » DAFF	*Acacia erioloba* trees, protected in terms of this Act, were found to occur on-site. As such, a biodiversity permit would need to be obtained for the relocation or removal of these trees.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	and conditions as may be stipulated". » The list of protected tree species was published in GN 877 of 22 November 2013.		
National Veld and Forest Fire Act (Act 101 of 1998)	» In terms of S12 the landowner would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land. » In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. » In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.	Department of Agriculture, Forestry and Fisheries	While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction and operational phase of the project.
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	» Prohibition of the spreading of weeds (S5). » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048) » **Category 1** - prohibited and must be controlled; » **Category 2** – must be grown within a demarcated area under permit; and » **Category 3** - ornamental plants that may no longer be planted, but existing plants may remain provided that all reasonable steps are taken to prevent	Department of Agriculture, Forestry and Fisheries	The proposed project site (substation and power line route) contains some alien plant species. Alien plants are also likely to establish when the site is disturbed during construction. Mitigation measures have been recommended to avoid the risk of increased alien invasion during construction, operation and maintenance phases of project. All alien plants present at the site should be controlled using the best practice methods for the species present.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	the spreading thereof, except within the floodlines of watercourses and wetlands		
Hazardous Substances Act (Act No. 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.	Department of Health	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license could be required to be obtained from the Department of Health.
National Road Traffic Act (Act No 93 of 1996)	The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of	» Provincial Department of Transport (provincial roads)	An abnormal load/vehicle permit may be required to transport the various components to site for

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts. » The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.	» South African National Roads Agency Limited (national roads)	construction. These include route clearances and permits could be required for vehicles carrying abnormally heavy or abnormally dimensioned loads. Depending on the trailer configuration and height when loaded, some of the components may not meet specified dimensional limitations (height and width) and would need to apply for the relevant permit/ clearance.
Provincial Policies / Legislation			
Northern Cape Nature Conservation Act (Act No. 9 of 2009)	» Provides inter alia for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province. In terms of this act the following section may be relevant with	NC DENC	A permit is required for any activities which involve species listed under schedule 1 or 2. The NC DENC permit office provides an integrated permit which can be used for all provincial and Threatened or Protected Species (TOPS)-related permit requirements.

Legislation / Policy / Guideline	Applicable Requirements	Relevant Authority	Compliance requirements
	regards to any security fencing the development may require. **Manipulation of boundary fences** 19. No Person may – (a) erect, alter remove or partly remove or cause to be erected, altered removed or partly removed, any fence, whether on a common boundary or on such person's own property, in such a manner that any wild animal which as a result thereof gains access or may gain access to the property or a camp on the property, cannot escape or is likely not to be able to escape therefrom; The Act also lists protected fauna and flora under 3 schedules ranging from Specially protected (Schedule 1), protected (schedule 2) to common (schedule 3). The majority of mammals, reptiles and amphibians are listed under Schedule 2, except for listed species which are under Schedule 1.		Provincially protected plant species were found within the study area. Therefore, a permit could be required for removal of such species. A permit could be required form the NC DENC to relocate protected plants and to clear natural vegetation at the substation site and along the power line where poles would be planted.

Various Guidelines have been consulted throughout this Basic Assessment Report. These include:

Eskom - Proactive Bird Mortality Mitigation in Distribution	Appendix J2 of Additional Information
Eskom - Erosion Control Guidelines	Appendix B of the EMPr
Eskom – Vegetation management guideline	Appendix C of the EMPr

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**
If YES, what estimated quantity will be produced per month?	Unknown at this stage

How will the construction solid waste be disposed of (describe)?

It is anticipated that construction waste will be comprised mainly of soil material from excavation activities as well as metal and cabling offcuts. Non-recyclable waste will be removed from site by a suitable contractor and will be transported to the nearest registered waste disposal facility for appropriate disposal.

Where will the construction solid waste be disposed of (describe)?

In order to comply with legal requirements, should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to the nearest registered waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?	**NO**
If YES, what estimated quantity will be produced per month?	

How will the solid waste be disposed of (describe)?

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	**NO**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	**NO**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	**NO**
If YES, what estimated quantity will be produced per month?	m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	**NO**

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	**NO**

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?	**NO**
If YES, is it controlled by any legislation of any sphere of government?	

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

During the construction phase, it is expected that there will be short term, localised dust generation and emissions from vehicles and machinery. However the dust and emissions will be of short term duration and have limited impact in terms of extent and severity. Appropriate dust suppression measures must be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition in order to minimise possible exhaust emission.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	**NO**

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	**NO**
If YES, is it controlled by any legislation of any sphere of government?	

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project. It is anticipated that the noise will be localised and contained within the construction area and its immediate surroundings. The during operation, maintenance of the substation facility and the power line could potentially generate noise, however this is likely to be minimal. Moreover, the preferred substation site and the majority of the power line route is isolated in the environmental and unlikely to pose any noise impacts on sensitive receptors.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	**The activity will not use water**

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**YES**

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

A water use license (WUL) or General Authorisation would be required in terms of Section 21 of the Act due to the drainage lines which could be impacted by the proposed power line and associated access road. A specialist has assessed the site and has undertaken a Risk Assessment as required by DWS. This report will inform the process going forward. A pre-Application/Site Inspection meeting may need to be undertaken with the DWS. No application has been lodged with the department as yet. This can only be undertaken once the final location of the power line and associated infrastructure is known.

14. ENERGY EFFICIENCY

Describe the design measures, if any,that have been taken to ensure that the activity is energy efficient:

Not applicable. The project relates to electricity distribution and does not utilise energy.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A – The project relates to electricity distribution

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in **Appendix I**. All specialist reports must be contained in **Appendix D**.

Property description/ physical address:

Province	**Northern Cape Province**	
District Municipality	John Taolo Gaetsewe	
Local Municipality	Gamagara Local Municipality	
Ward number(s)	Ward 3, Ward 4 and Ward 5	
Nearest town(s)	Olifantshoek New substation is ~ 35km North-east of Kathu	
Farm Name/Portion	**FARM NAME**	**PORTION NUMBER**
	Frits 540	1/540
	Frits 540	2/540
	Frits 540	5/540
	Lanham 539	RE/539
	Wright 538	1/538
	Wright 538	RE/538
	Bredenkamp 567	RE/567
	Brooks 568	RE/568
	Beaumont 569	RE/569
	Beaumont 569	3/569
	Murray II 570	3/570
	Cox 571	2/571
	Cox 571	RE/571
	Vostershoop 706	RE/706
	Diergaart's Heuwel 765	765
	Hartley 573	RE/573
	Neylan 574	1/574
	Neylan 766	2/766
	Cox 571	1/571
	Cox 571	3/571
	Erf 155	

	Neylan 766	4/766
	FARM NAME	**21 DIGIT SG CODE**
	Frits 540	C04100000000054000001
	Frits 540	C04100000000054000002
	Frits 540	C04100000000054000005
	Lanham 539	C04100000000053900000
	Wright 538	C04100000000053800001
	Wright 538	C04100000000053800000
	Bredenkamp 567	C04100000000056700000
	Brooks 568	C04100000000056800000
	Beaumont 569	C04100000000056900000
	Beaumont 569	C04100000000056900003
	Murray II 570	C04100000000057000003
	Cox 571	C04100000000057100002
	Cox 571	C04100000000057100000
	Vostershoop 706	C04100000000070600000
	Diergaart's Heuwel 765	C04100000000076500000
	Hartley 573	C04100000000057300000
	Neylan 574	C04100000000057400001
	Neylan 574	C04100000000076600002
	Cox 571	C04100000000057100001
	Cox 571	C04100000000057100003
	Erf 155	C04100040000015500000
	Neylan 766	C04100000000076600004

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:	The current land-use zoning of the preferred and alternative substation site is "Open Space". The power line route traverses land currently zoned as "Agriculture".

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?	[redacted]	**NO**

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative 1A: Olifantshoek Substation (Preferred Alternative)

Flat	**1:50 – 1:20**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative 1B: Olifantshoek Substation (Alternative)

Flat	**1:50 – 1:20**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative 1 – Overhead power line corridor: (preferred alternative - green)

Flat	**1:50 – 1:20**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative 2 – Overhead power line corridor: (Alternative - purple)

Flat	**1:50 – 1:20**	**1:20 – 1:15**	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (**All Alternatives**):

2.1 Ridgeline		2.4 Closed valley		**2.7 Undulating plain / low hills**	**X**
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	**X**	2.6 Plain		2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative (preferred) Olifantshoek substation:		**A1 Alternative (preferred – green) Power line 1:**		
Shallow water table (less than 1.5m deep)		**NO**		**NO**	In recent years, the water table has dropped to almost 30m below ground due to the impacts of mining in the surrounding regions.
Dolomite, sinkhole or doline areas		**NO**		**NO**	
Seasonally wet soils (often close to water bodies)	**YES**		**YES**		Soils of the region are generally classified as: (i) Rocks with limited soils, and (ii) Red, Massive and weakly structured soils with a high base status. These soils are well drained
Unstable rocky slopes or steep slopes with		**NO**		**NO**	

	Alternative A1 (preferred) Olifantshoek substation:		**Alternative (preferred – green) Power line 1:**		
loose soil					
Dispersive soils (soils that dissolve in water)		**NO**		**NO**	
Soils with high clay content (clay fraction more than 40%)		**NO**		**NO**	
Any other unstable soil or geological feature		**NO**		**NO**	
An area sensitive to erosion	**YES**		**YES**		Areas where the power line is expected to cross a watercourse, soils here may be unstable, thus a suitable buffer should be provided

	Alternative A2 Olifantshoek substation:		**Alternative Power line 2 (Alternative Purple):**		
Shallow water table (less than 1.5m deep)		**NO**		**NO**	In recent years, the water table has dropped to almost 30m below ground due to the impacts of mining in the surrounding regions.
Dolomite, sinkhole or doline areas		**NO**		**NO**	
Seasonally wet soils (often close to water bodies)	**YES**		**YES**		Soils of the region are generally classified as: (i) Rocks with limited soils, and (ii) Red, Massive and weakly structured soils with a high base status. These soils are well drained
Unstable rocky slopes or steep slopes with loose soil		**NO**		**NO**	
Dispersive soils (soils that dissolve in water)		**NO**		**NO**	
Soils with high clay content (clay fraction more than 40%)		**NO**		**NO**	
Any other unstable soil or geological feature		**NO**		**NO**	
An area sensitive to erosion	**YES**		**YES**		Areas where the power line is expected to cross a watercourse, soils here may be

	Alternative Olifantshoek substation:	**A2**	**Alternative line 2 (Alternative Purple):**	**Power**	
		[redacted]		[redacted]	unstable, thus a suitable buffer should be provided

4. GROUNDCOVER

Indicate the types of groundcover present on the site **(all Substation and power line alternatives)**. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	**Natural veld with some scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	**Cultivated land**	Paved surface	Building or other structure	Bare soil

Specialist Ecology, Avifaunal and Hydrological investigations were undertaken for the proposed project. The findings are presented in an Ecology Impact Assessment included within **Appendix D1, D2, D3, and D4** are summarised below:

Vegetation in terms of Ground Cover

According to the national vegetation map (Mucina & Rutherford 2006), there are several vegetation types in the wider area around the project site but only two within the footprint of the power line corridors and substation site alternatives. The corridor alternatives fall predominantly within the Olifantshoek Plains Thornveld vegetation type, with the northernmost section within the Kathu Bushveld vegetation type. The substation sites fall only within Olifantshoek Plains Thornveld.

Table 8: Composition and status of the Olifantshoek Plains Thornveld and Kathu Bushveld within the broader project site region

	Vegetation Type	
	Olifantshoek Plains Thornveld	Kathu Bushveld
Biome	Savannah Biome	Savannah Biome
Original Extent (ha)	517310,3	4205,9
Remaining %	99.80%	99%
Conservation target	16%	27%
Formally Protected	0.70%	0
Conservation Status	Least threatened	Least threatened
Protection Status	Poorly protected	Poorly protected

According to the SANBI POSA database, 223 indigenous plant species have been recorded from the quarter degree square 2722D. This includes 1 species of conservation concern, *Acacia erioloba*

(Declining). This species is present in the study area in fairly high numbers. It is however likely that *Boophone disticha* (Declining) also occurs in the study area, based on the presence of this species at nearby sites. There are also additional species present which are either protected under the National Forests Act (such as *Boscia albitrunca* and *Acacia erioloba*) or protected under the Northern Cape Nature Conservation Act of 2009, (such as *Boscia foetida*, all *Mesembryanthemaceae*, all species within the *Euphorbiaceae*, *Oxalidaceae*, *Iridaceae*, all species within the genera *Nemesia* and *Jamesbrittenia*). It is not likely that many *Boscia albitrunca* would be affected by the development as this species is mostly restricted to the larger drainage lines in the area. The overall impact on listed and protected species would however be moderate after mitigation and avoidance and no highly significant impacts on such species are anticipated.

Sensitive Habitats in terms of Ground Cover:

A number of different vegetation habitats are traversed by the power line corridor alternatives and substation alternatives (refer to Figure 8, 9, 10 and 11). These include:

- *Acacia erioloba* woodland
- *Tarchonanthus* – grass mosaic woodland
- *Acacia tortilis/mellifera* woodland
- Non-perennial watercourses
- Small depression wetlands
- Acacia karroo Thicket
- Artificial landscapes including:
  - Cleared servitude underneath the 275kV and 400kV power line
  - The 275kV and 400kV power line
  - Olifantshoek sewage works

The Northern Cape Conservation Plan has recently been completed and will be released to the public shortly. The power line and substation footprints do not fall within a CBA as defined in this plan, but the corridor does traverse some areas defined as Ecological Support Areas (ESA). These are associated with the drainage lines. The substation site alternatives also lie within the ESA. Neither the preferred substation site or the preferred power line corridor would compromise the functioning of the ESA in any way. In addition, the study area does not fall within an NPAES focus area. Since the footprint of the substation is minimal, and the footprint of the power line relatively limited, the impact of the developments are not likely to result in significant disruption of any broad-scale ecological processes.

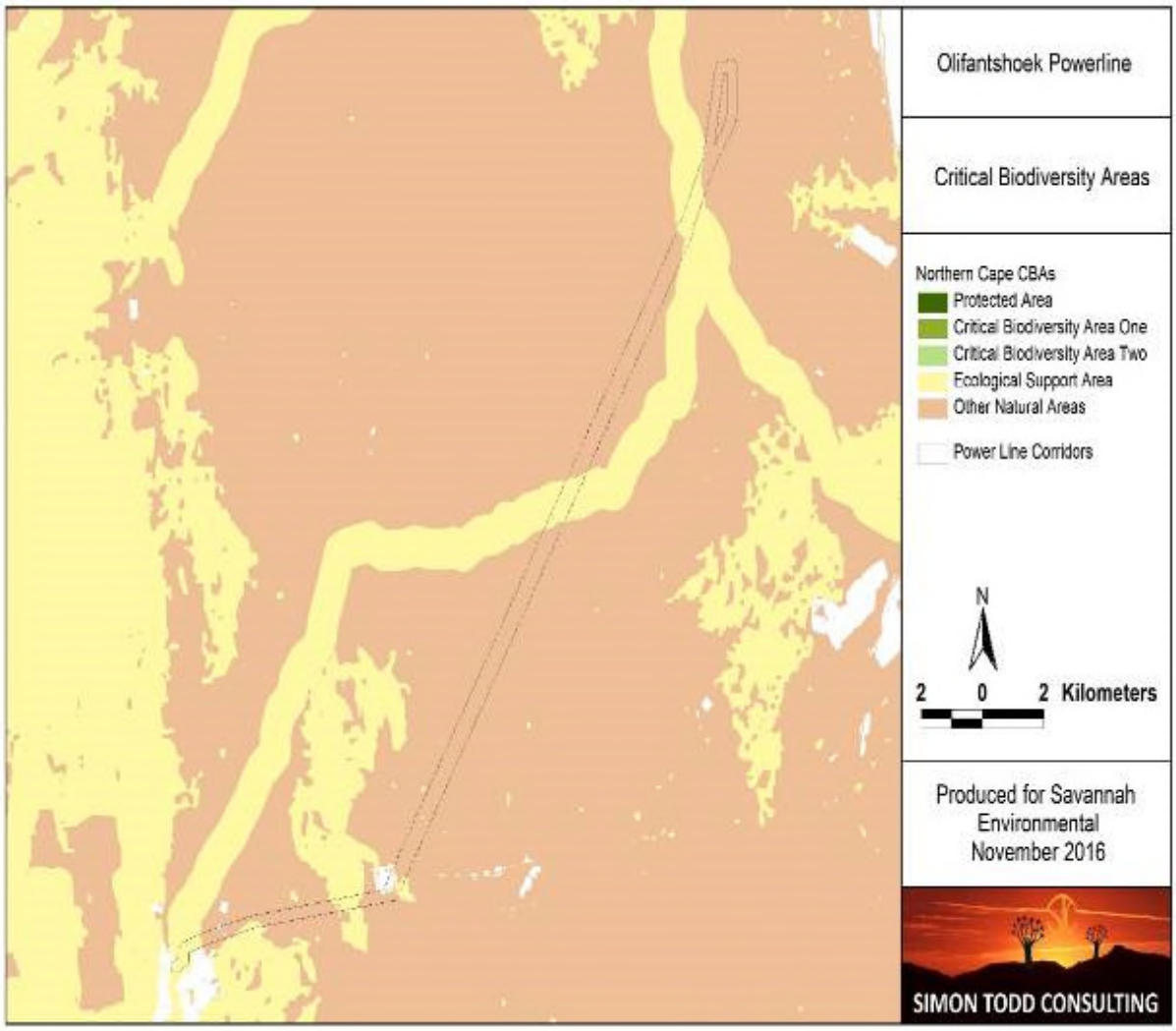

Figure 5: Layout of the proposed project superimposed over CBA areas

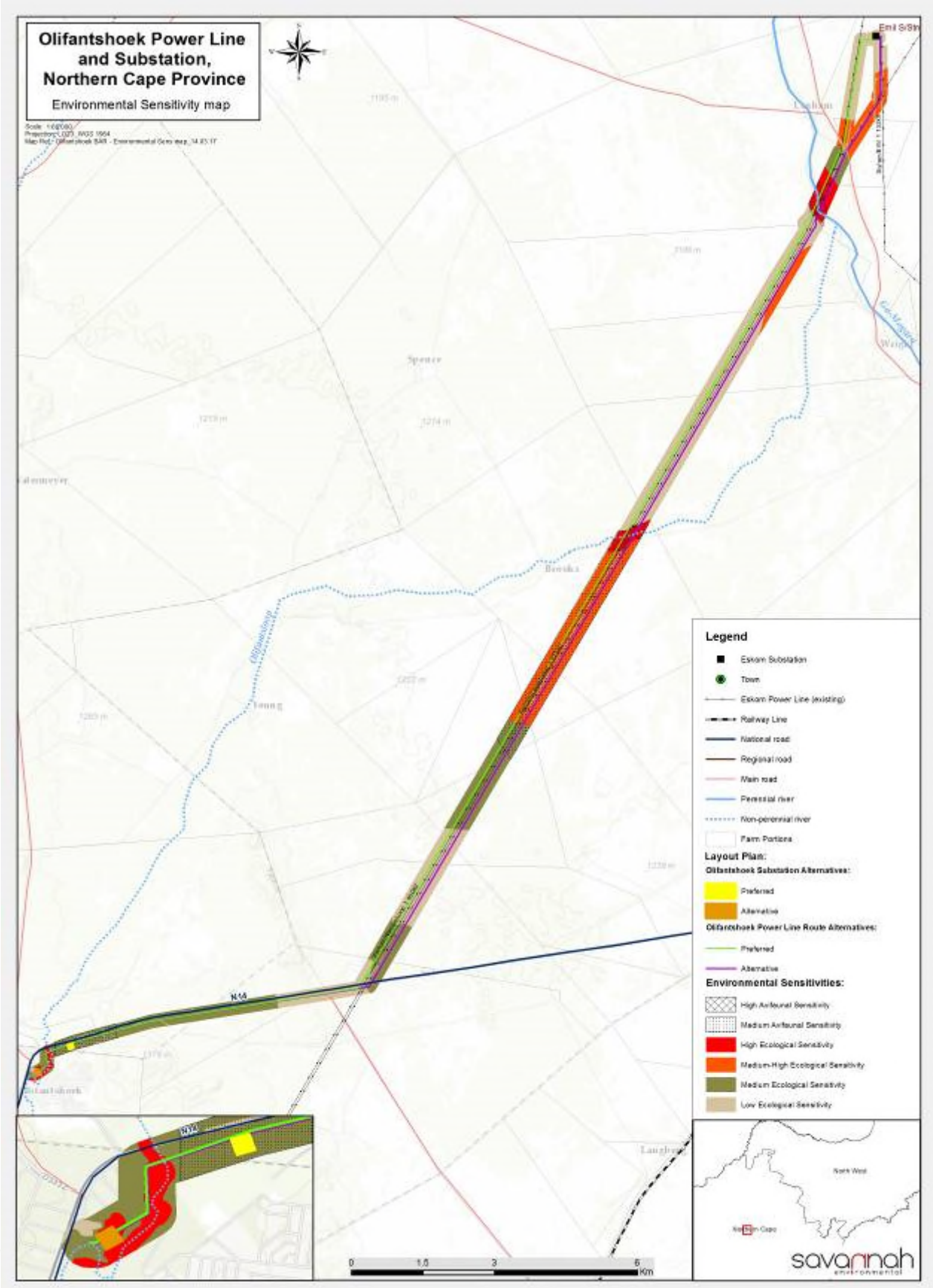

Figure 6: Ecological Sensitivity Map of the preferred and alternative substation sites as well as the 300m corridor of the preferred and alternative power line.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River		**NO**
Non-Perennial River	**YES**	
Permanent Wetland		**NO**
Seasonal Wetland The only natural wetlands in the project area are small, endorheic, closed depression pans	**YES**	
Artificial Wetland		**NO**
Estuarine / Lagoonal wetland		**NO**

Non-Perennial Rivers and Drainage Lines

The riverbed, and particularly the deeper channels within the riverbed of the Gamgara River are considered highly sensitive habitat. Disturbance within the flood level of the Gamagara River should be kept to a minimum. The Olifantsloop originates near Olifantshoek and eventually flows into the Gamagara River. It is mostly an inconspicuous grassy depression where it is intercepted by the proposed power line (Figure 8). While it may not feature a distinctive riverbed such as the Gamagara River, similar care should be taken not to disturb the integrity of its morphology and hydrology.

Figure 7: The dry course of the Olifantsloop appears merely as a grassy depression. The surrounding woodland is characterized by a fair density of Acacia erioloba trees.

There is a small artificial earth dam constructed within the course of the Olifantsloop which could represent a site for amphibians and provide a water source for fauna. The small pan that lies close to

the alternative power line corridor can be considered an area of very high sensitivity. It may serve as an important refuge for amphibians, and possibly for the Near Threatened Giant Bullfrog which favours such habitats. Care should therefore be taken not to disturb this habitat during the construction of the power line.

Four sites were assessed for possible impacts incurred as the power line crosses the water courses. The sites that were assessed included:

1. Olifantsloop Non-Perennial Watercourse & Riparian Fringe

(a) Upstream Portion (Deep channel & Riparian Fringe)

As mentioned the Olifantsloop River is a non-perennial or ephemera system (42.492km long) which originates in the Langeberg Mountains west of the town of Olifantshoek and terminates into the Ga-mogara River (also non-perennial). The portion of the watercourse flowing through the urban area is characterised by a developed channel which may become relative deep in areas (over 3m) (refer to Figure 9). A large degree of disturbance has occurred as the river enters the town of Olifantshoek. Here the flow has been altered through the presence of a gravel dam, and is characterised by a varying riparian fringe which provides little ecosystem functions.

The Present Ecological State scores (PES) for this portion of the watercourse and associated riparian fringe were rated as D (Largely modified).

This portion of the Olifantsloop non-perennial watercourse as well as its associated riparian fringe will only be impacted on if the alternative substation is selected as the final position. The preferred location for the substation is located outside these habitats. Due to the fact that further construction and development within the riparian habitat will lead to further degradation of this habitat type it suggested that the alternative substation option should not be considered as the final location. Furthermore, even though the watercourse and riparian fringe in this section is highly degraded and transformed, these areas do still provide some valuable functions, such as habitat diversity, flow attenuation (although limited), grazing etc. and are subsequently regarded as High sensitive areas.

Figure 8: The deep eroded channels of the upper portion of the Olifantsloop watercourse

(b) Downstream portion of the Olifantsloop non-perennial watercourse (power line crossing point)

This portion of the Olifantsloop non-perennial watercourse can be describe as a narrow inconspicuous channel consisting out of a mixture of dwarf shrubs and grasses with scattered medium sized trees. In comparison to the upstream situation (area described above) this portion, including most of the watercourse, is in a relative natural (semi-natural) condition with most of the disturbances relating to farming activities, such as grazing, small farm dams (very few), bore holes, farm fences etc. Other activities include the crossing of the existing 275kV power line and service road.

The Present Ecological State scores (PES) for this portion of the Olifantsloop watercourse was rated as B (Largely natural) due to the relative limited activities associated with this section. This also correspond to the previous ratings of the catchment system as assessed in 1999 by Kleynhans

2. Ga-mogara Non-Perennial Watercourse & Riparian Fringe (power line crossing point)

The Ga-mogara River is a more prominent feature with a clear open grassy/herbaceous channel bed (refer to figure 10) and a steeper bank fringed by an open woody riparian fringe comprising out of relative large *A. erioloba* trees. Disturbances within the catchment area, especially within the area affected by Sishen, has greatly modified the hydrological as well as geohydrological character of the watercourse, reducing the amount of flow. On-site disturbance is less prominent and include grazing of the grassy channel bed, farm fences and the service road of the existing 275kV power line.

The Present Ecological State scores (PES) for this portion of the watercourse and associated riparian

fringe were rated as C (Moderately Modified) due to activities associated upstream which have sufficiently modified the hydrology and geohydrology of the system downstream described above

Figure 9: Grassy river bed of the Ga-mogara watercourse.

3. Small depression wetlands

The only natural wetlands in the project area (within the 500m radius around development) are small, endorheic, closed depressions) pans. A total of 5 depression wetlands were noted with the surveyed area, all of which were small in size.

These depressions form due to micro-topography variations of the underlying substrates (shallower soils over calcrete), giving rise to low grasslands on pan bottoms (may even be devoid of vegetation). The pan soils consist of white (washed) sand and are exposed for most of the year and carry shallow pools for a short period of time following sufficient rains.

These depressions are characterised by low growing vegetation layer, mainly grasses and dwarf shrubs. These grassy depressions are typically surrounded by a fringe of small to medium sized trees such as *A. mellifera, Ziziphus mucronata, Grewia flava* and *Diospyros lycioides.* Most of these depressions are still largely natural (refer to Figure 11). Some of these depressions contain low gravel obstructions which were constructed in an attempt to contain the surface water for longer periods of time following rainfall events although these structures have not greatly affected the functioning and character of the wetlands.

The Present Ecological State scores (PES) for these depression wetlands were rated as B (Largely Natural) with small modification due to the obstructions and farm roads traversing some of these depressions.

Figure 10: Depression wetland at the site containing surface water after a rainfall event

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site (**substation and power line**) and give description of how this influences the application or may be impacted upon by the application:

Land use within the study area is mostly for farming. Farming practises consist mainly of cattle and game farming and to a lesser extent sheep and goats. Historically some areas have also been ploughed and irrigated, mainly for the cultivation of lucern, ranging in size between 2ha to 16ha on some farms that had high yielding boreholes. Apart from agricultural practices, mining forms the largest industrial activity in the area (e.g. Sishen to the west of the study site). The project is not expected to impact on any existing agricultural or mining activities. Moreover, power line maintenance will be undertaken on a continuous basis, as and when required in order to prevent fallen lines which have the potential to electrocute cattle and other livestock.

Biophysical features such as the **Natural areas**, **Mountain, koppie or ridges and River, stream or wetlands** are expected to be impacted on to some extent by the project for the duration of its lifecycle. However with the implementation of mitigation measures as recommended within this report (refer to Appendix D and G),

these impacts are expected to be Low to Medium-Low. The design of the substation and power line will be aligned in such a way as to avoid (as far as possible) impacting significantly on sensitive areas.

Natural area	**Dam or reservoir**	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	**Agriculture**
Retail commercial & warehousing	Old age home	**River, stream or wetland**
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	**Mountain, koppie or ridge**
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other:

Figure 11.1: Looking down the Main Road of the town of Olifantshoek near the existing substation

Figure 11.2: Looking up the Main Road of the town of Olifantshoek near the existing substation

Figure 11.3.: The existing power line. The proposed new 132kV line will run parallel to this existing line

Figure 11.4.: A small "kiosk" shops and recreational benches near the entrance to the existing Olifantshoek substation

Does the proposed site fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		**NO**
Core area of a protected area?		**NO**
Buffer area of a protected area?		**NO**
Planned expansion area of an existing protected area?		**NO**
Existing offset area associated with a previous Environmental Authorisation?		**NO**
Buffer area of the SKA?		**NO**

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	**NO**
	Please Explain

It was concluded in a Heritage Screener undertaken by Cedar Tower Heritage Consultants, that due to the disturbed nature of the proposed development area as well as the extensive HIA coverage for the area from previous assessments, it is unlikely that the proposed 132kV power line and substation will impact on any significant heritage resources. As such it was recommended that NO FURTHER HERITAGE STUDIES ARE REQUIRED. Should any heritage resources be discovered during the construction phase of the Olifantshoek Substation and Power Line, work must cease and the SAHRA APM unit should be contacted immediately.

Will any building or structure older than 60 years be affected in any way? Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**NO**

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

Gamagara Local Municipality

According to the Gamagara Local Municipality Final IDP (2016/2017), the majority of employed people in the municipal jurisdiction are male, while female are the most unemployed and discouraged work-seekers. Females also constitute a large number of those that are not economically active. StatsSA (2011) indicates that 17.7% of the population of Gamagara were not employed and 65% of those constitute youth. The high unemployment rate for both the District and Local Municipalities can be explained by the high illiteracy of the population and the population's dependency on seasonal employment brought on by the agricultural sector.

John Taolo Gaetsewe District Municipality

The District's 2012 – 2017 IDP recorded that a total of 91 618 people in the area (40.8%) had no recordable income. The majority of the people in John Taolo Gaetsewe District Municipality (formerly Kgalagadi) live in rural areas with basic infrastructure backlogs. The economic nodes and employment opportunities are concentrated in towns such as Kuruman and Kathu. The decline of mining employment has had a strong impact on the socio-economic situation of the region.

Level of education:

Gamagara Local Municipality

For the local municipality, there is a high number of people who have a secondary school education (14000- 14500 people), followed by those who have matric (10 000 people). The number of those with no schooling has increased from the 2007 survey to 2011 and is currently 3500 – 4000 people. The 2011 Stats SA indicated that 10,5% of the population aged 20 and above had No schooling, and that 12,6% of this demographic has a higher education. 26,5% of the population ages 20+ have a matric.

John Taolo Gaetsewe District Municipality

The educational levels among the population of the District are relatively low. 4% of the population has no formal education, while only 71% has some school education. Only 2% of the population has some tertiary education. These statistics have obvious implications for the employment potential of the population, and therefore also for the District's local economic development and job creation initiatives.

Economic profile of local municipality:

Gamagara Local Municipality has become an important contributor to South Africa's mining sector, and international mining value chain. The municipality concentrates on development by providing relevant and up to date infrastructure to accommodate needs. The municipality's infrastructure investment drives and incentivises the town's economic development trajectory which in turn stimulates job creation and employment. The economic pull and push factors for the municipality are education and training, research, entrepreneurship, community image and the arts.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	

What is the expected yearly income that will be generated by or as a result of the activity?		
Will the activity contribute to service infrastructure?	**YES**	
Is the activity a public amenity?		**NO**
How many new employment opportunities will be created in the development and construction phase of the activity/ies?		
What is the expected value of the employment opportunities during the development and construction phase?		
What percentage of this will accrue to previously disadvantaged individuals?		
How many permanent new employment opportunities will be created during the operational phase of the activity?		
What is the expected current value of the employment opportunities during the first 10 years?		
What percentage of this will accrue to previously disadvantaged individuals?		

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

(a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	**Ecological Support Area (ESA)**	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The Substation sites are located within an ESA, and the power line corridors intersect the ESA at 4 points (refer to Figure 6). Ecological Support Areas (ESAs) are less critical areas compared to those of CBAs (Critical Biodiversity Areas), however they provide valuable habitat and support to CBAs. The relevant map is shown in Appendix D of the Ecological Study, as well as in Section B4 above. The presence of the power

				line and substation would not compromise the functioning of the ESA in any way (the power line is expected to run adjacent to the existing line). As the footprint of the power line and substation is relatively limited, the impact of the development is not likely to result in significant disruption of any broad-scale ecological processes.

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc.).**
Natural	0%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	55%	Some natural vegetation, low levels of alien invasive. *Propsopis* was observed to be present at the site in low densities
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	45%	The footprint includes several transformed areas of low sensitivity including overgrazed *Tarchonanthus* veld, mining areas, servitudes and roads. The existing substation which is to be decommissioned is situated on Low Sensitivity transformed areas.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and
(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**		
Ecosystem threat status as per the National	Critical Endangered Vulnerable	Wetland (including rivers, depressions, channelled and un-	Estuary	Coastline

Terrestrial Ecosystems		**Aquatic Ecosystems**		
Environmental Management: Biodiversity Act (Act No. 10 of 2004)	**Least Threatened**	channelled wetlands, flats, seeps pans, and artificial wetlands)		
		YES	**NO**	**NO**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The natural topography of the study area has been significantly altered (especially to the east) as a result of historic and on-going mining activities. Currently, the existing mine infrastructure and activities dominate the landscape at Sishen, and the natural, relatively flat topography has been replaced by man-made topographical features.

Broad-scale vegetation type:

According to the national vegetation map (Mucina & Rutherford 2006), there are several vegetation types in the wider area around the project site but only two within the footprint of the power line corridors and substation sites. The corridor alternatives fall predominantly within the Olifantshoek Plains Thornveld vegetation type, with the northern-most section within the Kathu Bushveld vegetation type. The substation sites fall only within Olifantshoek Plains Thornveld.

	Vegetation Type	
	Olifantshoek Plains Thornveld	Kathu Bushveld
Biome	Savannah Biome	Savannah Biome
Original Extent (ha)	517310,3	4205,9
Remaining %	99.80%	99%
Conservation target	16%	27%
Formally Protected	0.70%	0
Conservation Status	Least threatened	Least threatened
Protection Status	Poorly protected	Poorly protected

Vegetation Associated with the Power line Corridors

1. *Acacia erioloba* woodland

Acacia erioloba woodland occurs near the existing Emil switching station and south towards the gravel road to Dibeng, along the preferred power line corridor alternative. There are a number of Kalahari endemics occurring here, including *Acacia luederitzii* var *luederitzii*, *Anthephora argentea*, *Megaloprotachne albescens*, *Panicum kalaharense* and *Neuradopsis bechuanensis*. Shrubs occurring within this habitat include *Tarchonanthus camphoratus* and *Acacia mellifera*, in sparsely distributed patches. The *Acacia erioloba* woodland in the middle section of the power line corridor towards the Olifantsloop drainage line becomes increasingly dense. Further south of the Olifantsloop, the density of *Acacia erioloba* trees remains relatively high, with an increase in young recruiting trees. The overall sensitivity of this area is considered fairly low on account of the previous transformation

2. *Tarchonanthus* – grass mosaic woodland

South of the Gamagara River the woodland becomes sparse, dominated by patches of *Tarchonanthus camphoratus* and *Rhigozum* sp alternating with open patches of grassland. Large *Acacia erioloba* trees

are still present, but are sparsely distributed. The density of *Acacia erioloba* trees is markedly lower along the route of preferred power line corridor when compared to its alternative. This difference in tree density is likely due to the closer proximity of the Alternative Corridor to the Olifantsloop river.

3. *Acacia tortilis/mellifera* woodland

The woodland habitat occurring along the southern-most sections of the line starts shortly before the N14 road, and is dominated by *Acacia tortilis* trees and thickets of *Acacia mellifera*. Several *Boscia albitrunca* individuals also occur along this portion towards the N14 road.

4. Drainage Lines/Hydrology

The study area is located within the Lower Vaal River Water Management Area and within the D41J quaternary catchment area. The entire study area is drained by two non-perennial watercourses, namely the Olifantsloop River (42.492km) and the Ga-mogara River (88.037km) (Figure 14). The most prominent river system within region is the ephemeral (non-perennial) Ga-mogara River which is a tributary of the Kuruman River (also non-perennial). According to the Present Ecological State (DWS PES, 1999) the condition of the Ga-mogara River is classified as Class B, which indicates that the river is still largely in a natural state. The same PES classification (Class B) was provided for the Olifantsloop River, a non-perennial tributary of the Ga-mogara River. The only natural wetlands in the project area are small, endorheic, closed depressions) pans. This could represent a site for amphibians and provide a water source for fauna, and care should therefore be taken not to disturb this habitat during the construction of the power line.

Vegetation Associated with the Substation Sites

The alternative substation site supports a dense, tall thicket of *Acacia karoo* (reaching over 5m in height), a shrub layer comprising mostly *Ziziphus mucronata*, *Grewia flava* and some *Tarchonanthus camphoratus.* Only a few *Prosopis* sp. individuals are present, and hence the site appears relatively intact. The site is not likely to support any sensitive habitat with respect to reptiles, amphibians or mammals.

The preferred substation site, located on the outskirts of Olifantshoek, also represents intact habitat with *Acacia erioloba* (4 to 5m in height) as the dominant tree species. Other tree species include the protected *Boscia albitrunca* (one individual)*, Ziziphus mucronata* and shrubs such as *Acacia hebeclada* and *Acacia mellifera*. No alien tree species were recorded at the site, although some *Prosopis* sp. trees were present in the vicinity. The grass layer appears heavily grazed by livestock.

The site of the existing old Olifantshoek substation is highly transformed due to the long term presence of electrical infrastructure, and only supports degraded vegetation, predominantly consisting of weedy pioneer species.

Fauna occurring on site

South of the Olifantsloop there is a large nest in the existing power line pylon, most likely constructed by White-backed Vultures (*Gyps africanus*), which are resident in the area. There were numerous burrows of South African Ground Squirrel, and earth heaps made by Damaraland Mole-rats, which are common

throughout the Kalahari region.

Fauna which are of conservation concern and the likelihood of their appearance is presented below in Table 7:

Table 9: Fauna of conservation concern potentially occurring within the project site (substation and power line)

Common Name	Conservation Status	Likelihood of occurrence
South African Hedgehog	Near Threatened	Low
Brown Hyena	Near Threatened	Likely
Honey Badger	Near Threatened	High
Ground Pangolin	Vulnerable	Low
Giant Bull Frog	Near Threatened	Likely

In terms of **Avifauna** recorded at site, the most commonly recorded species within the study sites were passerine and near passerine species including: Bokmakierie, Crimson-breasted Shrike, Lesser Grey Shrike, Fork-tailed Drongo, Monotonous Lark, Black-chested Prinia, Yellow-bellied Eremomela, Southern Pied Babbler, Kalahari Scrub Robin, Ant-eating Chat, Sociable Weaver, Scaly-feathered Weaver, and Chestnut-vented Warbler.

Endemic species recorded during the site survey included South African Shelduck White-backed Mousebird, Ant-eating Chat, Rufous-eared Warbler, Southern Pied Barbet, Karoo Scrub Robin, Sickle-winged Chat, Marico Flycatcher, Bokmakierie and Sociable weaver. Bird sensitivities in the area are represented in Figure 13.

Table 10 below represents Red listed as well as one species that is not listed that has been recorded either within the relevant quarter degree squares, on site during survey or has a possibility of occurring within the area and which will potentially

Table 10: Table 10 below represents Red listed as well as one species that is not listed that has been record-ed either within the relevant quarter degree squares, on site during survey or has a possibility of occurring within the area and which will potentially be affected by the proposed development (NT = Near Threatened; VU = Vulnerable; EN = Endangered; LC = Least Concern) (Species that are in bold were recorded during the site survey; X=impact is relevant to this species)

Name	Conservation Status	Habitat	Likelihood of Occurrence	Habitat Destruction	Disturbance	Collision with Power Line	Electrocution	Endemic
Secretary Birds *Sagittarius serpentarius*	VU	Grassland/Open Woodland	Likely	X	X	X		
Martial Eagle Polemaetus bellicosus	EN	Woodland/Savannah	Present	X	X	X	X	
Kori Bustard *Ardeotis kori*	NT	Grassland/Thornveld	Highly Likely	X	X	X		
White-backed Vulture *Gyps africanus*	EN	Woodland/Savannah	Present	X	X	X	X	Near-Endemic
Red-footed Falcon *Falco vespertinus*	NT	Woodland/Savannah	Present		X		X	Endemic
Lanner Falcon *Falco biarmicus*	VU	Woodland/Savannah	Likely		X		X	
Peregrine Falcon *Falco peregrinus*	NT	Woodland/Savannah	Likely		X		X	

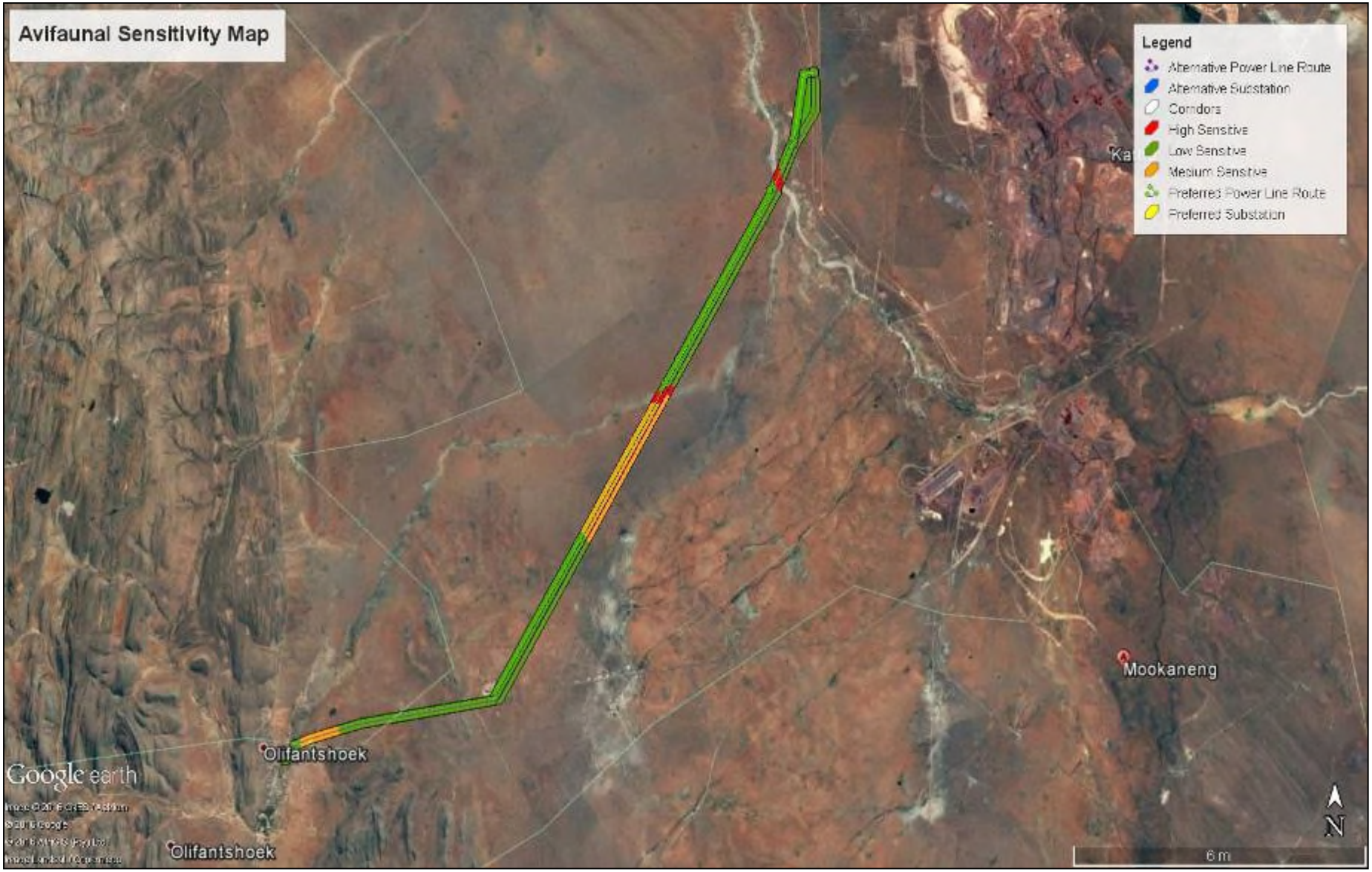

Figure 12: Avifaunal sensitivity map for the Olifantshoek 132kV power line as well as proposed substation options

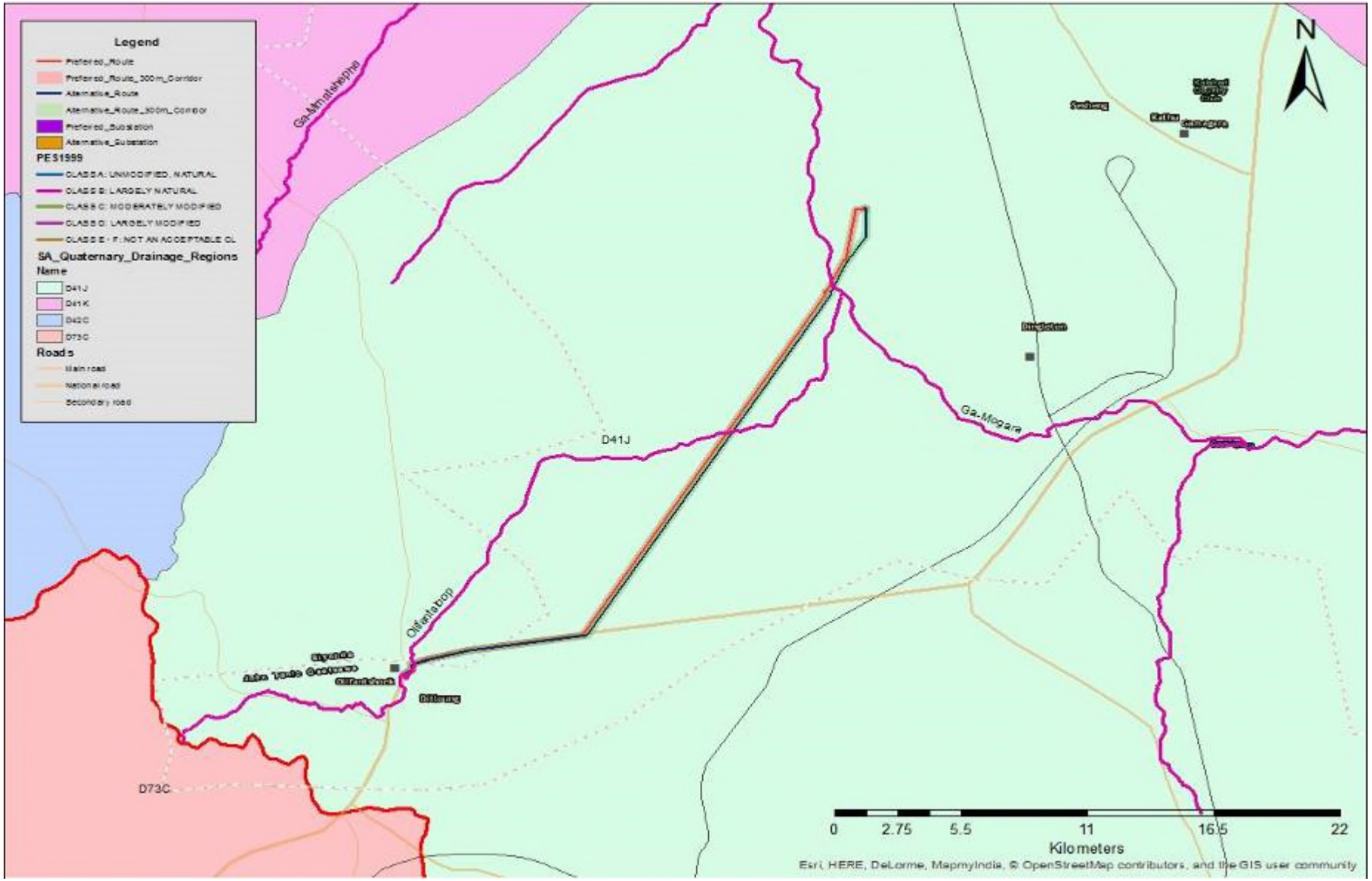

Figure 13: Quaternary Drainage region and Present Ecological State of the affected non-perennial water-courses (Kleynhans, 1999)

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Gemsbok Koerant	
Date published	7th June 2017 Advert was placed on 30th May 2017. Adverts appear every Wednesday in Die Gemsbok Koerant.	
Site notice position at:	**Latitude**	**Longitude**
Emil Switching Station	27°44'10.28"S	22°55'12.20"E
Olifantshoek Substation Fence	27°56'10.05"S	22°44'23.56"E
Road Sign at the entrance to the Olifantshoek Substation	27°56'9.09"S	22°44'21.37"E
Date placed	30th September 2016	

Include proof of the placement of the relevant advertisements and notices in **Appendix E1.**

2. DETERMINATION OF APPROPRIATE MEASURES

In order to ensure effective participation, the public participation process includes the following:

- Distribution of project related information in the form of notification letters at the time of the release of the draft Basic Assessment Report.
- Identification of potential I&APs including:
  - State departments that administer a law relating to matters affecting the environment relevant to an application for an environmental authorisation;
  - all organs of state which have jurisdiction in respect of the activity to which the application for environmental authorisation relates;
  - owners, person in control of and occupiers of the site where the activity is to be undertaken or to any alternative site where the activity is to be undertaken;
  - owners, person in control of, and occupiers of land adjacent to the site where the activity is to be undertaken or to any alternative site where the activity is to be undertaken;
  - the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - the municipality which has jurisdiction in the area.
- Placement of site notices at the affected property/properties and any alternative properties being considered.
- Placement of an advertisement in a local newspaper.
- Compilation of an I&AP database which is updated throughout the Basic Assessment process.
- On-going consultation with all registered I&APs regarding the progress in the Basic Assessment process through stakeholder consultation via notification letters, written correspondence and telephone calls where required.
- Release of the draft Basic Assessment report for a 30-day review period.

In terms of the EIA Regulations, 2017, affected and surrounding landowners have been identified and registered on the project database. Other stakeholders are required to formally register as stakeholders or interested and affected parties (I&APs) for the Basic Assessment process. The first step in the public participation process is to initiate the identification of potential I&APs. I&APs have been identified through a process of networking and referral, liaison with potentially affected parties in the study area and a registration process involving completion of a registration and comment sheet.

As per Regulation 42 of the EIA Regulations, 2017 all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix E** for a listing of recorded parties). The register of I&APs contains the names, contact details and addresses of:

- all persons who requested to be registered on the database in writing
- all organs of state which hold jurisdiction in respect of the activity to which the application relates
- all persons who submitted written comments during the public participation process

The register of I&APs has been updated throughout this process, and acts as a record of the parties involved in the public participation process. Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.942 – *Refer to I&AP database contained in* ***Appendix E1***.

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E2**. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No issues have been raised by I&AP's.

Comments received after the draft Basic Assessment Report submission will be collated into a comments and responses report to include in the submission of the Final Basic Assessment report.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as **Appendix E3**.

All comments received during the review period of the draft Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as **Appendix E** to include in the final Basic Assessment Report.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders - ***Refer to I&AP database contained in Appendix E***.

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address

An extensive list of authorities and organs, as well as other key stakeholders have been identified in the I&AP database (**Appendix E1**)

Include proof that the Authorities and Organs of State received written notification of the proposed activities as **Appendix E3.**

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as **Appendix E4**.
Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2017, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the Planning and Design, Construction Phase, Operation Phase, Decommissioning Phase and the No-Go Option of the proposed new Olifantshoek substation and 31km power line are provided in the tables which follow.

Please note that the entire footprint of the Olifantshoek substation and power line project, which follows the Solar-Ferrum 400kV power line (Case ID 5323) has previously undergone a Heritage Impact Assessment (HIA) as part of both Gaigher (2014, NID 161427) and Beaumont (2007, NID 4600) reports. Gaigher concluded that only ephemeral scatters of Stone Age artefacts of low significance were located in the vicinity of the power line, and he recorded no rock engravings or built heritage sites. The only burial ground recorded were the Olifantshoek Cemetery, which lies 500m to the West of the Southern-most portion of the proposed power line, but which will not be impacted.

It was thus concluded in a Heritage Screener undertaken by Cedar Tower Heritage Consultants, that due to the disturbed nature of the proposed development area, as well as the extensive HIA coverage for the area from previous assessments, it is unlikely that the proposed 132kV power line and substation will impact on any significant heritage resources. As such it is recommended that **NO FURTHER HERITAGE STUDIES ARE REQUIRED**. Should any heritage resources be discovered during the construction phase of the Olifantshoek Substation and Power Line, work must cease and the SAHRA APM unit should be contacted immediately. The tables which follow therefore do not include an assessment of impacts on heritage sites.

As both power line options traverse similar habitats, the potential impacts (ecology, avifauna and hydrological) will be the same or only slightly different for both power line options (negligible difference), and subsequently the impact statements provided below are applicable for both power line options. Both substation locations will pose a similar and equal threat on Ecology and Avifauna in the vicinity. Visual impacts were assessed separately for each project alternative. In terms of the Hydrological impacts, the existing substation is located outside of any watercourse or riparian zone and as such will not impact on the identified watercourses and riparian zones, subsequently no assessment was deemed necessary. Furthermore, the preferred substation option is located well beyond the boundaries of any watercourse and/or riparian zone and thus no impacts have been assessed for this option. Subsequently, potential impacts assessed are only applicable to the alternative substation option which is not preferred.

Table 11: Assessment of impacts associated with the **PLANNING AND DEIGN PHASE**

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
No Impacts are expected to occur as a result of the planning and design phase of the project.			

Table 12: Assessment of impacts associated with the **CONSTRUCTION PHASE**

12.1. Preferred and Alternative Power line corridors

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred (Green)	**Alternative (Purple)**	
Ecological impacts				
Impacts on vegetation & protected plant species of the power line (preferred and alternative) construction	***Direct impacts:*** » Loss of Habitat » Loss of vegetation and species of special concern » Habitat disturbance	**Medium (36)**	**Medium (40)**	» A Preconstruction walk-through of the tower positions is needed in order to locate species of conservation concern that can be translocated or avoided. » Vegetation clearing to commence only after walk through has been conducted and necessary permits obtained. » Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness as to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, remaining within demarcated construction areas etc. » Vegetation clearing activities near sensitive areas should be kept to a minimum and these activities monitored by the Environmental Control Officer. » No unnecessary vegetation to be cleared. Preferably *Acacia erioloba* trees under the line should be trimmed and not cut down. » All construction vehicles should adhere to clearly

Activity	Impact summary	Significance (with mitigation Preferred (Green)	Significance (with mitigation) Alternative (Purple)	Proposed mitigation
				defined and demarcated roads. No off-road driving to be allowed. » Temporary lay-down areas should be located within the development footprint or within areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. » A permit from DENC is required for any vegetation clearing, destruction or translocation of listed or protected plant species. » Existing tracks should be used for access wherever possible. » The morphology and hydrology of the riverbeds should not be altered by unnecessary excavations, dumping of soil or other waste.
	Indirect impacts: » Degradation and minor loss of >1ha of vegetation, mostly by use of heavy off-road vehicles required to erect pylons	**Low**	**Low**	» Same as for direct impacts
	Cumulative impacts: » The potential for cumulative impacts is low given the footprint of the line and the level of existing development in the area. Although many *Acacia erioloba* could be affected, this is the dominant tree in the area and the potential loss of several hundred individuals is not considered highly significant	**Low**	**Low**	» Keep vegetation clearance to a minimum. » Control soil erosion. » Control alien invasive plants.
Faunal Impacts	***Direct impacts:***	**Low (21)**	**Low (21)**	» The collection, hunting or harvesting of any plants or

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred (Green)	Alternative (Purple)	
During Construction of the Power Line.	» Disturbance, transformation and Loss of faunal habitat » Loss of faunal resident species » Loss of species of special concern			animals at the site should be strictly forbidden. » All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises which are often persecuted out of superstition, or pangolin which are traded illegally. » Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified person in line with the required permit. » No construction activity should be allowed at the site between sunset and sunrise. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises. » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » Demarcation of burrows, nests, etc.
	Indirect impacts: » Confusion and disorientation of animals within their natural habitat » Risk that animals will not return to the area following completion of construction » Trampling of burrows and animals during construction	**Low**	**Low**	» Same as for direct impacts
	Cumulative impacts: » cumulative fauna disturbance and disruption in the area	**Low**	**Low**	» Same as for direct impacts

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred (Green)	Alternative (Purple)	
		Visual impacts		
The potential visual impact of the construction and operation of the preferred substation and power line on the general landscape character	***Direct impacts:*** » Degradation of the character of the existing landscape » Introduction of industrial components to the existing natural and urban areas (Lowland and Upland LCAs)	**Both Power Line Alternatives Low (16)**		» Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint/servitude. » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as possible through careful logistical planning and productive implementation of resources. » The alignment of the proposed 132kV overhead power line should be as far from the N14 as possible. » Plan and implement screening for the substation. » **Both Alignments** - Align power line as far from homesteads as possible within the identified corridor. » **Alternative Alignment** - Undertake deviations around the closest homesteads within the development corridor. » Rehabilitate disturbed areas. » **Both power line Alternatives** - Align power line as far from the N14 as possible within the identified corridor. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities
	Indirect impacts: » Degradation of the character of the existing landscape	**Low for both power line alternatives**		» Same as above
	Cumulative impacts: » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative visual	**Low for both power line alternatives**		» Same as above

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred (Green)	Alternative (Purple)	
	impact within the region (existing infrastructure including a larger 400kV overhead power line) » The proposed 132kV overhead power line will add marginally to the local intensity of existing impacts within the Lowland LCA. They will also extend the impact into the Upland LCA as the alignments run along the N14 towards Olifantshoek.			

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
Avifauna impacts **As both power line options traverse, similar habitat the potential impacts will be the same for both power line options and subsequently the impact statements provided below are applicable for bot power line options**				
Habitat destruction and alteration as a result of construction of the proposed power line.	***Direct impacts:*** » Habitat loss – destruction, disturbance » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern	**Low (15)**		» Mark sections of line in high sensitivity areas with anti-collision marking devices (diurnal and nocturnal diverters) to increase the visibility of the power line and reduce likelihood of collisions. Marking devices should be spaced 10 m apart, and must be installed as soon as the conductors are strung » The temporal and spatial footprint of the development should be kept to a minimum. » The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area. » Provide adequate briefing for site personnel on the possible important (Red Data) species occurring and/or nesting in the area and the procedures to be followed (for example notification of ECO and avoidance of area until appropriate recommendations have been provided by a specialist). » The above measures must be covered in a site specific EMPr and monitored by an ECO. » Install Eskom-approved bird diverters on all lines that occur within 500 m of any wetland, roost site or flyway to make them more visible to birds. » A "Bird Friendly" structure, with a bird perch (as per standard Eskom guidelines) must be used for the tower structures. » All relevant perching surfaces should be fitted with bird guards and perch guards as deterrents.

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
				» Installation of artificial bird space perches and nesting platforms, at a safe distance from energised components.
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		» As above
	Cumulative impacts: » Further loss and displacement of avifaunal species in the area » Risk of "no-return" of species to the area resulting in permanent loss of species	**Low**		» As above
Impact of disturbance On ground-nesting species as well as other species resident within the development footprint of the power line	***Direct impacts:*** » Habitat loss – destruction, disturbance » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (21)**		» Strict control must be maintained over all activities during construction. » During construction, if any Red Data species are observed to be roosting and/or breeding in the vicinity of the site, the ECO must be notified and, where deemed necessary, an appropriate buffer should be placed around the nests and/or roosting areas. If uncertain on the size of such buffer the ECO may contact an avifaunal specialist for advice. » The construction equipment camps must be as close to the site as possible. » Contractors and working staff should remain within the development footprint and movement outside these areas, especially into avian micro-habitats, must be restricted. » Haulage and construction vehicles must adhere to a speed limit of 30km/hr on-site and on existing internal tracks. Vehicles should not deviate from the designated path.

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		» None possible
	Cumulative impacts: » The existing servitude of the 275kV & 400kV lines and subsequently the cumulative impact of the development will be low. » Minimal additional disturbance of avifaunal species will occur and will have very little impact on sensitive ground-nesting species, cumulative, as well as on the community structure of avifauna of the region	**Low**		» As above
Hydrological Impacts **As both power line options traverse, similar habitats, the potential impacts will be the same for both power line options and subsequently the impacts are applicable for both power line options**				
Impact on riparian systems and alluvial water courses assessed for both powerline options.	***Direct impacts:*** » Habitat loss – destruction, disturbance of any alluvial watercourses by pylon construction and road crossings, being replaced by hard engineered surfaces during construction » Physical alteration of the landscape and narrow strips of riparian zones » Localised transformation of the catchment	**Low (15)**		» Use the existing service roads as far as possible through the riparian zones as well as non-perennial watercourses. » Where watercourse crossings are required, the engineering team must provide an effective means to minimise the potential upstream and downstream effects of sedimentation and erosion (erosion protection) as well minimise the loss of riparian vegetation (small footprint). » No vehicles to refuel within watercourses/ riparian vegetation.
	Indirect impacts: » Change in the hydrological conditions of the broader region	**Low**		» Regular monitoring to ensure that alien plants are not increasing as a result of the disturbance that has taken place.

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
	» Increase in alien species			» All alien plants present at the site should be controlled annually using the best practice methods for the species present.
	Cumulative impacts: » Increase in surface run-off velocities, reduction in the potential for groundwater infiltration and the spread of erosion into downstream wetlands	**Low**		» As above
Impact on the localised water surface quality	***Direct impacts:*** » Pollution due to the release of hydrocarbons into the ephemeral systems associated with site-clearing machinery and construction activities » Decrease of water quality index	**Low (10)**		» Implement appropriate measures to ensure strict use and management of all hazardous materials used on site. » Implement appropriate measures to ensure strict management of potential sources of pollutants (e.g. litter hydrocarbons from vehicles and machinery, cement during construction etc.). » Implement appropriate measures to ensure containment of all contaminated water by means of careful run-off management on the development site. » Implement appropriate measures to ensure strict control over the behavior of construction workers. » Working protocols incorporating pollution control measures (including approved method statements by the contractor) should be clearly set out in the Construction Environmental Management Plan (CEMP) for the project and strictly enforced.
	Indirect impacts: » Alteration the river characteristics » Increase in algal biota » Mortality of river species	**Low**		» As above
	Cumulative impacts: » None	**Low**		» As above

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
Increase in sedimentation and erosion within the development footprint.	***Direct impacts:*** » Potential alteration of the local watercourse morphology and influence water quality downstream	**Low (4)**		» Use existing service roads (of the 275kV power line) as far as possible when crossing any watercourses. » Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » Where practical, phased development and vegetation clearing should be applied so that cleared areas are not left un-vegetated and vulnerable to erosion for extended periods of time. » Construction of gabions and other stabilisation features to prevent erosion, if deemed necessary. » There should be reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased.
	Indirect impacts: » Increase in algal biota » Mortality of river species	**Low**		» As above
	Cumulative impacts: » Downstream erosion and sedimentation of the downstream	**Low**		» Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
	systems. During flood events, any unstable banks (eroded areas) and sediment bars (sedimentation downstream) may be vulnerable to erosion. However due to low mean annual runoff within the region this is not anticipated due to the nature of the development together with the proposed layout.			not re-occur.

12.2. Preferred and Alternative Substation options

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	**Alternative**	
		Ecological impacts		
Impacts on vegetation & protected plant species of the substation alternatives during construction	***Direct impacts:*** » Disturbance and loss of vegetation » Loss of vegetation species of special concern	**Medium (32)**	**Medium (36)**	» Conduct a Preconstruction walk-through of the substation site in order to locate species of conservation concern that can be translocated or avoided. » Vegetation clearing to commence only after walk through has been conducted and necessary permits obtained. » The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area. » Preconstruction environmental induction for all

Activity	Impact summary	Significance (with mitigation Preferred	Significance (with mitigation) Alternative	Proposed mitigation
				construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness as to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, remaining within demarcated construction areas etc. » Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. » All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed. » Temporary lay-down areas should be located within the development footprint or within areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. » A permit from DENC is required for any vegetation clearing, destruction or translocation of listed or protected plant species.
	Indirect impacts: » N/A	N/A	N/A	N/A
	Cumulative impacts: » Further habitat loss and degradation of the ecosystem around the substation	**Low**	**Low**	» Keep vegetation clearance to a minimum. » Control soil erosion. » Control alien invasive plants.
Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	***Direct impacts:*** » Loss of faunal habitat » Loss of species of special concern	**Low (21)**	**Low (24)**	» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises which are often persecuted out of superstition, or pangolin which are traded illegally. » Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified person in line with the required permit.

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	**Alternative**	
				» No construction activity should be allowed at the site between sunset and sunrise. » All construction vehicles should adhere to a low speed limit (30km/hr) to avoid collisions with susceptible species such as snakes and tortoises. » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » Demarcation of burrows, nests etc.
	Indirect impacts: » Confusion and disorientation of animals within their natural habitat » Risk that animals will not return to the area following completion of construction » Trampling of burrows and animals during construction	**Low**	**Low**	» Same as for direct impacts
	Cumulative impacts: » cumulative fauna disturbance and disruption in the area	**Low**	**Low**	» Same as for direct impacts
		Visual impacts		
The potential visual impact of the construction and operation of the preferred substation and power line on the general landscape character	***Direct impacts:*** » Degradation of the character of the existing landscape » Introduction of industrial components to the existing natural and urban areas (Lowland and Upland LCAs)	**Low (16)**	**Low / Medium (30)**	» Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint/servitude. » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as possible through careful logistical planning and productive implementation of resources. » Plan and implement screening for the substation. » Rehabilitate disturbed areas.

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	Alternative	
				» Plan to use motion sensor triggered lighting at the substation. » Ensure that lighting is focused on the development with no light spillage outside the site. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities
	Indirect impacts: » Degradation of the character of the existing landscape	**Low**	**Low**	» Same as above
	Cumulative impacts: » The Alternative Substation Location will increase the extent of electrical infrastructure that is obvious within the urban area. The Preferred Alternative will largely impact the urban fringe / Upland LCA.	**Low**	**Low**	» Same as above
Avifauna impacts **Both substation locations will pose a similar and equal threat to avifauna in the vicinity.**				
Habitat destruction from the construction of the substation, assessed for both alternatives.	***Direct impacts:*** » Habitat loss – destruction, disturbance » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern	**Low (15)**		» The temporal and spatial footprint of the development should be kept to a minimum. » The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area. » Provide adequate briefing for site personnel on the possible important (Red Data) species occurring and/or nesting in the area and the procedures to be followed (for example notification of ECO and avoidance of area until appropriate recommendations have been provided by a specialist).

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	Alternative	
				» The above measures must be covered in a site specific EMPr and monitored by an ECO.
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		» As above
	Cumulative impacts: » Further loss and displacement of avifaunal species in the area » Risk of "no-return" of species to the area resulting in permanent loss of species	**Low**		» As above
Impact of disturbance On ground-nesting species as well as other species resident within the development footprint of the substation	***Direct impacts:*** » Habitat loss – destruction, disturbance » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (21)**		» Strict control must be maintained over all activities during construction, in line with an approved construction EMPr. » During construction, if any of the Red Data species identified in this report are observed to be roosting and/or breeding in the vicinity, the ECO must be notified and were deemed necessary an appropriate buffer should be placed around the nests and/or roosting areas. If uncertain on the size of such buffer the Environmental Officer (EO) may contact an avifaunal specialist for advice. » The construction equipment camps must be as close to the site as possible. » Contractors and working staff should remain within the development footprint and movement outside these areas especially into avian micro-habitats must be restricted. » Driving must take place on existing roads and a speed limit of 30km/h must be implemented on all roads associated with the project during the construction phase.
	Indirect impacts:	**Low**		» As above

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	**Alternative**	
	» Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area			
	Cumulative impacts: » Minimal additional disturbance to avifaunal species will occur and will have very little impact on sensitive ground-nesting species, cumulative, as well as on the community structure of avifauna of the region	**Low**		» As above
	Hydrological Impacts **Take note that the existing substation is located outside of any watercourse or riparian zone and as such will not impact on the identified watercourses and riparian zones, subsequently no assessment was deemed necessary. Furthermore, the preferred substation option is located well beyond the boundaries of any watercourse and/or riparian zone and thus no impacts have been assessed for this option. Therefore potential impacts assessed are only applicable to the alternative substation option**			
Impact on riparian systems and alluvial water courses	***Direct impacts:*** » The physical removal of riparian zones within the footprint area » Disturbance of any alluvial watercourses as a result of hard engineered surfaces during construction	**Medium (36)**		» This potential impact can be avoided by selecting the preferred option as this option is located well outside of any watercourse and riparian boundary. » No vehicles to refuel within watercourses/ riparian vegetation. » Ensure the vegetation removal is minimised to an absolute minimum, restricted only to the footprint area. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential
	Indirect impacts: » Change in the hydrological conditions of the broader region » Increase in alien species	**Low**		» Regular monitoring to ensure that alien plants are not increasing as a result of the disturbance that has taken place. » All alien plants present at the site should be controlled annually using the best practice methods for the species present.
	Cumulative impacts:	**Low**		» As above

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	Alternative	
	» Increase in surface run-off velocities, reduction in the potential for groundwater infiltration and the spread of erosion into downstream wetlands			
Impact on the localised water surface quality	***Direct impacts:*** » Pollution due and the release of hydrocarbons associated with site-clearing machinery and construction activities into the ephemeral systems » Decrease of water quality index	**Low (21)**		» This potential impact can be avoided by selecting the preferred option as this option is located well outside of any watercourse and riparian boundary. » Implement appropriate measures to ensure strict use and management of all hazardous materials used on site » Implement appropriate measures to ensure Strict management of potential sources of pollutants (e.g. litter hydrocarbons from vehicles and machinery, cement during construction etc.) » Implement appropriate measures to ensure containment of all contaminated water by means of careful run-off management on the development site. » Implement appropriate measures to ensure strict control over the behaviour of construction workers. » Working protocols incorporating pollution control measures (including approved method statements by the contractor) should be clearly set out in the Construction Environmental Management Plan (CEMP) for the project and strictly enforced.
	Indirect impacts: » Alteration the river characteristics » Increase in algal biota » Mortality of river species	**Low**		» As above
	Cumulative impacts: » None	**N/A**		N/A
Increase in sedimentation and	***Direct impacts:*** » Potential alteration of the local	**Low (4)**		» This potential impact can be avoided by selecting the preferred option as this option is located well outside of

Activity	Impact summary	Significance (with mitigation	Significance (with mitigation)	Proposed mitigation
		Preferred	Alternative	
erosion within the development footprint.	watercourse morphology and influence water quality downstream			any watercourse and riparian boundary. » Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » There should be reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur.
	Indirect impacts: » Increase in algal biota » Mortality of river species	**Low**		» As above
	Cumulative impacts: » Downstream erosion and sedimentation of the downstream systems. During flood events, any unstable banks (eroded areas) and sediment bars (sedimentation downstream) may be vulnerable to erosion. However due to low mean annual runoff within the region this is not anticipated due to the nature of the development together with the proposed layout.	**Low**		» As above

Table 13: Assessment of impacts associated with the **OPERATIONAL PHASE**

13.1. Preferred and Alternative Power line corridors

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	**Alternative (Purple)**	
Ecological impacts				
Degradation of Ecosystems during Operation of the Power Line	***Direct impacts:*** » Servitude bush-cutting may results in loss of species of conservation concern. » Removal of woody alien invasive vegetation from within the servitudes (positive impact). » Potential for erosion in disturbed areas	**Low (21)**	**Low (21)**	» Erosion control measures should be implemented in areas where soil has been disturbed due to construction activities. » Due to the disturbance at the site as well as the increased runoff generated at the site, alien plant species are likely to be a long-term problem at the site. A long-term control plan will need to be implemented and regular monitoring for alien plants within the development footprint should be undertaken. » Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible and should only be used for woody species which re-sprout following continual manual control.
	Indirect impacts: » Potential for alien plant invasion	**Low**	**Low**	» N/A
	Cumulative impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then the cumulative impact from alien species would not be significant.	**Low**	**Low**	» Alien invasive vegetation must be removed from the servitude immediately upon detection, and follow-ups must be on-going.
Visual impacts				

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	**Alternative (Purple)**	
Maintenance and operation of the power line and associated infrastructure - impacts on the visibility of the facility to and visual impact on rural homesteads.	***Direct impacts:*** » Views for four existing **homesteads** have been identified close to or within the 300m development corridor on the eastern side of the proposed development corridor. It is only the power line that will impact on rural homesteads	**Low (18)**	**Medium (36)**	» Retain and maintain natural vegetation in all areas outside of the development footprint/servitude. » Ensure that vegetation is not unnecessarily removed during the operation or maintenance period. » Restrict the activities and movement of workers and vehicles during maintenance and operation of the site and existing access roads. » Ensure that rubble, litter, and maintenance materials are removed once maintenance is complete and discarded at appropriately licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required. » Restrict maintenance activities to daylight hours whenever possible in order to reduce lighting impacts along the servitude. » Rehabilitate all disturbed areas immediately after the completion of maintenance works. » Maintain the general appearance of the power line servitude as a whole » Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may establish » Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced throughout operation
	Indirect impacts: » None		-	» N/A
	Cumulative impacts: » The additional power line will increase the potential cumulative		**Low**	» Maintain the general appearance of the power line servitude as a whole.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	Alternative (Purple)	
	visual impact of industrial type infrastructure within the region.			
The visual impact and visibility of the substation and the proposed power line from the N14	***Direct impacts:*** » Modification of the rural landscape adjacent to the affected section of the N14	**Both Power Line Alternatives** **Low (27)**		» Retain and maintain natural vegetation in all areas outside of the development footprint/servitude. » Ensure that vegetation is not unnecessarily removed during the operation or maintenance period. » Restrict the activities and movement of workers and vehicles during maintenance and operation of the site and existing access roads. » Ensure that rubble, litter, and maintenance materials are removed once maintenance is complete and discarded at appropriately licensed waste facilities. » Restrict maintenance activities to daylight hours whenever possible in order to reduce lighting impacts along the servitude. » Rehabilitate any disturbed areas immediately after the completion of maintenance works. » Maintain the general appearance of the power line servitude as a whole » Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may establish » Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction and throughout operation.
	Indirect impacts: » N/A	N/A		» N/A
	Cumulative impacts:	**Low**		» Maintain the general appearance of the power line

Activity	Impact Summary	Significance (with mitigation) Preferred (Green)	Significance (with mitigation) Alternative (Purple)	Proposed Mitigation
	» The additional power line will increase the potential cumulative visual impact for travellers along the N14			servitude and substation as a whole.
<u>*Avifauna impacts*</u> **As both power line options traverse, similar habitat the potential impacts will be the same for both power line options and subsequently the impact statements provided below are applicable for bot power line options**				
Bird collisions, particularly priority species, with the proposed power line.	***Direct impacts:*** » Bird mortality due to collision with the proposed power line.	**Low (27)**		» Ensure that anti-collision marking devices (diurnal and nocturnal diverters) are in appropriate working conditions » Line inspections should be ongoing for the operational life of the line. » Ensure that installed Eskom-approved bird diverters are well maintained and in appropriate working condition » After mitigation, direct mortality through collision or area avoidance by species may still occur. Further research and mitigation for any problematic sections of line will be needed. » Ensure that the bird guards, bird perches and "bird friendly structures are well maintained. All deaths must be reported and investigated for cause. This cause must be rectified immediately.
	Indirect impacts: » Decrease in avifauna species in the study area due to collision.	**Low**		» As above.
	Cumulative impacts: » An extensive power line network features prominently within the study area. This includes the existing 275kV Ferrum line as well as	**Low**		» Construction of the power line in close proximity to the existing line will reduce the cumulative impacts and collision risk.

Activity	Impact Summary	Significance (with mitigation) Preferred (Green)	Significance (with mitigation) Alternative (Purple)	Proposed Mitigation
	a 400Kv line. Any additional power lines will increase the collision risk to power line sensitive species (i.e. Kori Bustard and Secretary bird) that is present the broader area. Additional collisions, in combination with the existing collision impact, will have a high cumulative impact. The technical aspects of power line design and siting also play a big part in collision risk. The consolidation of power lines in an area is thought to reduce the colission risk (Bevanger 1994).			
Bird electrocutions, particularly priority species, with the proposed power line	***Direct impacts:*** » Bird mortality due to electrocution resulting from perching or attempts to perch on the electrical structure	**Low (20)**		» Line inspections should be ongoing for the operational life of the line. » After mitigation, direct mortality through electrocution or area avoidance by species may still occur. Further research and mitigation for any problematic sections of line will be needed.
	Indirect impacts: » Decrease in avifauna species in the study area due to electrocution.	**Low**		» As above
	Cumulative impacts: » An existing 275kV power line as well as a new 400kV line runs parallel to proposed 132kV line. Thus the construction of the associated power line will increase the length of power line and subsequent risk	**Medium - Low**		» As above.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	Alternative (Purple)	
Disturbance of Avifauna during the operation of the power line	***Direct impacts:*** » Habitat loss – destruction, disturbance » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (11)**		» Strict control must be maintained over all activities during operation, in line with an approved operation EMPr. » Vehicle movements must be restricted to existing roads and a speed limit of 30km/h must be implemented on all roads associated with the power line during the operation phase. » Contractors and working staff should remain within the development footprint and movement outside these areas, especially into avian micro-habitats, must be restricted.
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		» As above
	Cumulative impacts: » The existing servitude of the 275kV & 400kV lines and subsequently the cumulative impact of the development will be low. » Minimal additional disturbance of avifaunal species will occur and will have very little impact on sensitive ground-nesting species, cumulative, as well as on the	**Low**		» As above

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	Alternative (Purple)	
	community structure of avifauna of the region			
		Hydrological Impacts		
Increase in sedimentation and erosion within the development footprint	***Direct impacts:*** » Potential alteration of the water course morphology » Potential decrease of water quality downstream	**Low (14)**		» Use the existing service roads for maintenance purposes. » Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation. » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. » Gabions and stabilization structures need to be continuously checked for structural integrity, and maintained as far as possible. » There should be reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur.
	Indirect impacts: » Increased alien plant invasion in watercourses that are disturbed » Increase in the algal biota of the disturbed water course	**Low**		» Ensure that alien plant invasions are continuously monitored. » Remove alien plan species immediately upon detection
	Cumulative impacts: » Downstream erosion and	**Low**		» As Above

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	Alternative (Purple)	
	sedimentation of the downstream systems. During flood events, any unstable banks (eroded areas) and sediment bars (sedimentation downstream) may be vulnerable to erosion. However due to low mean annual runoff within the region this is not anticipated due to the nature of the development together with the proposed layout			

13.2. Preferred and Alternative substation options

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	Alternative	
		Ecological impacts		
Degradation of Ecosystems during Operation of the Substation	***Direct impacts:*** » Disturbance and loss of vegetation » Loss of vegetation species of special concern	**Low (18)**	**Low (18)**	» Maintain all erosion control structures and stabilization measures » Due to the disturbance at the site as well as the increased runoff generated at the site, alien plant species are likely to be a long-term problem at the site. A long-term control plan will need to be implemented and regular monitoring for alien plants within the development footprint should be undertaken. » Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible and should only be used for woody species which re-sprout following continual manual control.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
	Indirect impacts: » Invasion of alien plant species	**Low**	**Low**	» N/A
	Cumulative impacts: » Alien invasion would contribute to some cumulative habitat degradation in the area, but if alien species are controlled then the cumulative impact from alien species would not be significant.	**Low**	**Low**	» Alien invasive vegetation must be removed from the servitude immediately following detection and follow-ups must be continuous throughout the project life cycle
Visual impacts				
The visual impact and visibility of the substation from the N14	***Direct impacts:*** » Modification of the rural landscape adjacent to the affected section of the N14	**Low (16)**	**Low (12)**	» Ensure that vegetation is not unnecessarily removed during the operation or maintenance period. » Restrict the activities and movement of workers and vehicles during maintenance and operation of the site and existing access roads. » Ensure that rubble, litter, and maintenance materials are removed once maintenance is complete and discarded at appropriately licensed waste facilities. » Restrict maintenance activities to daylight hours whenever possible in order to reduce lighting impacts along the servitude. » Rehabilitate any disturbed areas immediately after the completion of maintenance works. » Maintain the general appearance of the substation site as a whole » Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may establish » Screen planting that was specifically established to minimise the intrusiveness of the substation must be maintained and dead or sick plants replaced for a determinate period after construction and throughout operation.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
	Indirect impacts: » N/A	N/A		» N/A
	Cumulative impacts: » The additional power line will increase the potential cumulative visual impact for travellers along the N14	**Low**		» Maintain the general appearance of the substation as a whole.
Impacts of Maintenance and operation of the substation on urban residential areas.	***Direct impacts:*** » Loss of visual appeal of the area	**Low (16)**	**Low (27)**	» Ensure that vegetation is not unnecessarily removed during the operation or maintenance period. » Restrict the activities and movement of workers and vehicles during maintenance and operation of the site and existing access roads. » Ensure that rubble, litter, and maintenance materials are removed once maintenance is complete and discarded at appropriately licensed waste facilities. » Restrict maintenance activities to daylight hours whenever possible in order to reduce lighting impacts along the servitude. » Rehabilitate any disturbed areas immediately after the completion of maintenance works. » Maintain the general appearance of the substation site as a whole » Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may establish. » Screen planting that was specifically established to minimise the intrusiveness of the substation must be maintained and dead or sick plants replaced for a determinate period after construction and throughout operation
	Indirect impacts: » N/A	N/A		» N/A

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
	Cumulative impacts: » The Alternative Substation Location – Low to medium negative impact without mitigation, low impact with mitigation. » The Preferred Substation Location - Low to medium positive impact without mitigation, medium positive impact with mitigation.	**Medium (positive)**	**Low**	» Maintain the general appearance of the substation as a whole.
Impact of lighting and lighting effects of the substation within residential areas (Olifantshoek)	***Direct impacts:*** » Possible lighting nuisance to immediate neighbours residing near the substation alternatives	**Low (8)**	**Medium (16)**	» Maintain lighting structures at the facility » Replace any broken globes/lights » Ensure that any complaints from citizens effected by the lighting nuisance
	Indirect impacts: » None	N/A	N/A	» N/A
	Cumulative impacts: » The additional lighting will add to the effect of light pollution currently experienced within the urban setting. » The Alternative Substation Location could result in a low to medium negative impact but with appropriate mitigation will result in a low positive cumulative impact. » The Preferred Substation Location could result in a low positive impact without mitigation and a medium positive impact with mitigation.	**Medium (positive)**	**Low (positive)**	» As above
Avifauna impacts **Impacts are expected to be the same for both substation alternatives.**				

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
Electrocution of birds on substation infrastructure	***Direct impacts:*** » Electrocution of species in the substation yard due to live hardware	**Low (14)**		» Ensure that all bird guards and perch guards are maintained and in appropriate working condition » After mitigation, direct mortality through electrocution or area avoidance by species may still occur. Further research and mitigation for any problematic sections of line will be needed.
	Indirect impacts: » Decrease in avifauna species in the study area due to collision and electrocution.	**Low**		»
	Cumulative impacts: » No additional potential deaths of avifaunal species (including Red Data) species will occur as this substation will not increase the threat, but will replace the existing power station and subsequently will only replace the threat	**N/A**		» N/A
Disturbance of Avifauna during the operation of the substation	***Direct impacts:*** » Potential impact on the foraging, breeding and roosting ecology of avian species » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (11)**		» Strict control must be maintained over all activities during operation, in line with an approved operation EMPr. » Vehicle movements must be restricted to existing roads and a speed limit of 30km/h must be implemented on all roads associated with the substation during the operation phase. » Contractors and working staff should remain within the development footprint and movement outside these areas, especially into avian micro-habitats, must be restricted.
	Indirect impacts: » Displacement of birds from the area	**Low**		» As above

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
	Cumulative impacts: » Minimal additional disturbance of avifaunal species will occur.	**Low**		» As above
	Hydrological Impacts **Take note that the existing substation is located outside of any watercourse or riparian zone and as such will not impact on the identified watercourses and riparian zones, subsequently no assessment was deemed necessary. Furthermore, the preferred substation option is located well beyond the boundaries of any watercourse and/or riparian zone and thus no impacts have been assessed for this option. Therefore potential impacts assessed are only applicable to the alternative substation option**			
Impact on riparian systems during operation as a result of hard engineered surfaces and the removal of vegetation during construction	***Direct impacts:*** » Potential increase the surface water runoff on riparian form and function	**Low (27)**		» Avoid the alternative substation option as this option will impact on the riparian habitat fringing the upper reaches (within the town boundary) of the Olifantsloop River. » If the alternative site is selected, any stormwater within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities. » Ensure the vegetation removal is minimised to an absolute minimum, restricted only to the footprint area.
	Indirect impacts: » Potential establishment of alien invasive species	**Low**		» Remove alien plant species immediately upon detection » Continuously monitor for alien plant invasion
	Cumulative impacts: » Downstream erosion and sedimentation of the downstream systems. During flood events, any unstable banks (eroded areas) and sediment bars (sedimentation downstream) may be vulnerable to erosion. However due to low mean annual runoff within the region this is not anticipated due to the nature of the development together with the proposed layout.	**N/A**		» N/A

Table 14: Assessment of impacts associated with the **DECOMMISSIONING PHASE**

14.1 Preferred and Alternative Power line Corridors

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	**Alternative (Purple)**	
		Ecological Impacts		
Disturbance or persecution of fauna of the power line during the decommissioning phase	***Direct impacts:*** » Impacts associated with erosion and alien vegetation invasion (ecosystem degradation) » Increased levels of noise, pollution, disturbance and human presence during decommissioning	**Low (15)**	**Low (15)**	» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » Any accidental chemical, fuel, and oil spills that occur at the site during decommissioning should be cleaned up in the appropriate manner as related to the nature of the spill. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous plants.
	Indirect impacts: » Sensitive and shy fauna would move away from the area during the decommissioning phase as a result of the noise and human activities present » Loss of native plant species due to the establishment of alien invasive » Lack of visual aesthetic	**Low**	**Low**	» Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
	Cumulative Impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.	**Low**	**Low**	Establish an on-going monitoring programme to detect and manage any aliens that may become established.
Degradation of Ecosystems	***Direct impacts:*** » Establishment of alien plant species	**Low (21)**	**Low (21)**	» Due to the disturbance at the site during decommissioning, alien plant species are likely to invade

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	**Alternative (Purple)**	
following decommissioning of the power line	» Loss of indigenous plant species » Potential for soil erosion			the site and a long-term control plan will need to be implemented for several years after decommissioning » Regular monitoring (bi-annual) for alien plants within the development footprint for 2-3 years after decommissioning. » Regular alien clearing should be conducted every year for 2 years using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. » Cleared and disturbed areas should be revegetated with a cover of indigenous grass or shrubs.
	Indirect impacts: » Establishment of vegetation which have the potential to alter ecosystem functioning	**Low**	**Low**	» Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
	Cumulative Impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.	**Low**	**Low**	Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
Visual Impacts				
Impacts are expected to be the same as that expected for construction. Mitigation measures include: » Remove infrastructure not required for the post-decommissioning use of the site. » Rehabilitate disturbed areas.				
Avifaunal Impacts **As both power line options traverse, similar habitat the potential impacts will be the same for both power line options and subsequently the impact statements provided below are applicable for bot power line options**				

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	**Alternative (Purple)**	
Disturbance of Avifauna during the decommissioning of the power line	***Direct impacts:*** » Potential Temporary displacement of species of special concern » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (21)**		» Strict control must be maintained over all activities during decommissioning, in line with an approved construction EMPr. » During decommissioning, if any of the Red Data species identified in this report are observed to be roosting and/or breeding in the vicinity, the ECO must be notified and were deemed necessary an appropriate buffer should be placed around the nests and/or roosting areas. If uncertain on the size of such buffer the Environmental Officer (EO) may contact an avifaunal specialist for advice. » The decommissioning equipment camps must be as close to the site as possible. » Contractors and working staff should remain within the development footprint and movement outside these areas especially into avian micro-habitats must be restricted. » Driving must take place on existing roads and a speed limit of 30km/h must be implemented on all roads associated with the project during the construction phase.
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		As above
	Cumulative impacts: » The existing servitude of the 275kV & 400kV lines and subsequently the cumulative impact of the development will be low. » Minimal additional disturbance of avifaunal species will occur and will have very little impact on sensitive	**Low**		As above

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred (Green)	Alternative (Purple)	
	ground-nesting species, cumulative, as well as on the community structure of avifauna of the region			
Hydrological Impacts				
These are expected to be the same as that for construction of the preferred and alternative powerline options and are thus not mentioned again				

14.2. Proposed Preferred and Alternative substation options as well as the Existing Olifantshoek Substation

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	Alternative	
Ecological Impacts				
Disturbance or persecution of fauna of the substation during the decommissioning phase	***Direct impacts:*** » Impacts associated with erosion and alien vegetation invasion (ecosystem degradation) » Increased levels of noise, pollution, disturbance and human presence during decommissioning	**Low (15)**	**Low (15)**	» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » Any accidental chemical, fuel, and oil spills that occur at the site during decommissioning should be cleaned up in the appropriate manner as related to the nature of the spill. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous plants.
	Indirect impacts:	**Low**	**Low**	» Establish an on-going monitoring programme to detect and

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	**Alternative**	
	» Sensitive and shy fauna would move away from the area during the decommissioning phase as a result of the noise and human activities present » Loss of native plant species due to the establishment of alien invasive » Lack of visual aesthetic			quantify any aliens that may become established.
	Cumulative Impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.	**Low**	**Low**	Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
Degradation of Ecosystems following decommissioning of the Substation	***Direct impacts:*** » Impacts associated with erosion and alien vegetation invasion (ecosystem degradation)	**Low (15)**	**Low (15)**	» Due to the disturbance at the site during decommissioning, alien plant species are likely to invade the site and a long-term control plan will need to be implemented for several years after decommissioning » Regular monitoring (bi-annual) for alien plants within the development footprint for 2-3 years after decommissioning. » Regular alien clearing should be conducted every year for 2 years using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. » Cleared and disturbed areas should be revegetated with a cover of indigenous grass or shrubs.
	Indirect impacts: » Sensitive and shy fauna would move away from the area during the decommissioning phase as a	**Low**	**Low**	» Establish an on-going monitoring programme to detect and quantify any aliens that may become established.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	**Alternative**	
	result of the noise and human activities present » Loss of native plant species due to the establishment of alien invasive » Lack of visual aesthetic			
	Cumulative Impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.	**Low**	**Low**	Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
Faunal Impacts During Decommissioning of the <u>EXISTING</u> <u>Olifantshoek</u> <u>Substation</u>	***Direct impacts:*** » Impacts associated with erosion and alien vegetation invasion (ecosystem degradation) » Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to fauna resident or utilising the site. » Some mammals and reptiles would be vulnerable to illegal collection or poaching.	**Low (15)**		» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » Any accidental chemical, fuel, and oil spills that occur at the site during decommissioning should be cleaned up in the appropriate manner as related to the nature of the spill. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous plants
	Indirect impacts: » Sensitive and shy fauna would move away from the area during the decommissioning phase as a result of the noise and human activities present » Loss of native plant species due to	**Low**		» Establish an on-going monitoring programme to detect and quantify any aliens that may become established.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	**Alternative**	
	the establishment of alien invasive			
	Cumulative Impacts: » Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.	**Low**		Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
Degradation of Ecosystems following decommissioning of the EXISTING Olifantshoek Substation	***Direct impacts:*** » Impacts associated with erosion and alien vegetation invasion (ecosystem degradation)	**Low (21)**		» Due to the disturbance at the site during decommissioning, alien plant species are likely to invade the site and a long-term control plan will need to be implemented for several years after decommissioning » Regular monitoring (bi-annual) for alien plants within the development footprint for 2-3 years after decommissioning. » Regular alien clearing should be conducted every year for 2 years using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. » Cleared and disturbed areas should be revegetated with a cover of indigenous grass or shrubs.
	Indirect impacts: » Sensitive and shy fauna would move away from the area during the decommissioning phase as a result of the noise and human activities present » Loss of native plant species due to the establishment of alien invasive » Lack of visual aesthetic	**Low**		» Establish an on-going monitoring programme to detect and quantify any aliens that may become established.
	Cumulative Impacts:	**Low**		Establish an on-going monitoring programme to detect and

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	**Alternative**	
	» Alien invasion would contribute to cumulative habitat degradation in the area, but if alien species are controlled then, then cumulative impacts from alien species would not be significant.			quantify any aliens that may become established.
Visual Impacts				
Impacts here are expected to be the same as that expected for construction. Mitigation measures include: » Remove infrastructure not required for the post-decommissioning use of the site. » Rehabilitate disturbed areas.				
Avifaunal impacts **Impacts are expected to be the same for both substation options**				
Disturbance of Avifauna during the decommissioning of the existing substation as well as the proposed new substation	***Direct impacts:*** » Direct impact on the foraging, breeding and roosting ecology of avian species » Temporary displacement of species of special concern » Influence the community structure of avifauna within close proximity to the development » impact on the breeding activities of various species, particularly if this occurs during a sensitive period in the breeding cycle	**Low (21)**		» Strict control must be maintained over all activities during decommissioning, in line with an approved construction EMPr. » During decommissioning, if any of the Red Data species identified in this report are observed to be roosting and/or breeding in the vicinity, the ECO must be notified and were deemed necessary an appropriate buffer should be placed around the nests and/or roosting areas. If uncertain on the size of such buffer the Environmental Officer (EO) may contact an avifaunal specialist for advice. » The decommissioning equipment camps must be as close to the site as possible. » Contractors and working staff should remain within the development footprint and movement outside these areas especially into avian micro-habitats must be restricted. » Driving must take place on existing roads and a speed limit of 30km/h must be implemented on all roads associated with the project during the construction phase.

Activity	Impact Summary	Significance (with mitigation)	Significance (with mitigation)	Proposed Mitigation
		Preferred	**Alternative**	
	Indirect impacts: » Displacement of birds from the area » Impact on the breeding patterns of smaller non-red Data species in the area	**Low**		» As above
	Cumulative impacts: » Minimal additional disturbance of avifaunal species will occur and will have very little impact on sensitive ground-nesting species, cumulative, as well as on the community structure of avifauna of the region	**Low**		As above
		Hydrological impacts		
These are expected to be the same as that for construction of the preferred and alternative substation options and are thus not mentioned again				

Table 15: Assessment of impacts associated with the **NO-GO OPTION**

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
No-Go Option Impacts			
The potential impacts should the project not be implemented The No-go option implies that the **Project does not proceed**.	***Direct Impacts*** » Negative implications for the sustainability of the electrification infrastructure and network within the area » Eskom will not be able to meet the current capacity demands of the region. » The status quo of the environmental will remain unchanged.	High	Implement the project. The project will improve the electricity supply to the area and facilitate future development.
	Indirect Impacts » Should Eskom rely on the existing network to supply future demand it is highly likely that present supply will be compromised due to the increased load on the network.	High	
	Cumulative Impacts » None	High	

Table 16: Conclusion regarding the **COMPARISON OF ALTERNATIVES**

16.1. Comparison of the power line alternatives

Specialist Study	Preferred Powerline (Green)	Alternative Powerline (Purple)	Conclusion
Ecology	Preferred	Acceptable	The ecological features are largely similar for both the proposed power line options, however the preferred (green) power line route will have a lower potential impact on vegetation within the more sensitive environments
Visual	Not Acceptable	Preferred	Alternative Alignment for the 132kV power line is favoured due to the fact that it will help to minimise impacts on rural homesteads. As the Preferred Alignment for the power line is likely to impact on local homesteads it is not favoured. If selected, it is suggested that more detailed alignment planning may be required in order to maximise distances between inhabited buildings and the power line. Additional consultation with owners and inhabitants should also be undertaken to ensure that they are fully aware of the proposed location of structures relative to the buildings.

Avifauna	Preferred	Acceptable	Both the power line corridor options traverse the same habitat types and subsequently will likely have the same impacts on the avifaunal character of the area (low impact). Thus, the power line option preferred from a technical perspective can by selected as the final preferred alternative
Hydrology	Preferred	Acceptable	The two power line corridor options will have similar impacts on the environment, including the watercourses that will be cross and the depression wetlands. As such the "preferred option" can be regarded as the final location of the power line

16.2. Comparison of the Substation alternatives

Specialist Study	Preferred Substation	Alternative Substation	Conclusion
Ecology	Preferred	Acceptable	While both substation sites support features that may be considered fairly high value, the preferred substation is considered the least sensitive, while the alternative substation site is considered the most sensitive owing to its contribution towards the riparian zone and associated ecological services of the Olifantsloop.
Visual	Acceptable	Preferred	The preferred substation site stands out as providing the largest potential to provide positive cumulative impacts for the urban area. The Alternative substation site would be acceptable subject to adequate mitigation in the form of screen planting providing a buffer between the infrastructure and residents
Avifauna	Preferred	Acceptable	The preferred substation site is preferred as it will exclude any impacts within the *Acacia karroo* thicket as well as shorten the proposed power line, reducing the risk to movements of water fowl and waders between the Sewage works and the gravel dam
Hydrology	Preferred	Not Acceptable	The preferred substation site is located in a relatively flat terrestrial habitat, well beyond the boundaries of this watercourse and its associated riparian fringe. Conversely, the alternative option is situated within a portion of the riparian thicket fringing the upper portion of the Olifantsloop watercourse and pose thus a potential threat to the watercourse and the riparian habitat itself.

A complete impact assessment in terms of the 2017 EIA regulations is included as **Appendix F**.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

1. Ecological Impact Statement

The ecological features appear to be largely similar for both the proposed power line alternatives, however the Preferred Alternative will have a lower overall impact on the receiving environment due to its lower potential impact on vegetation within the more sensitive areas. The preferred substation option has a lower potential impact on vegetation within the more sensitive areas. There are no significant irreversible impacts associated with the preferred power line and substation options, provided that the clearing of trees in the servitude is reconsidered or reduced to the minimum required to adhere to Eskom safety requirements. The proposed power line and substation footprints will have minimal impact on high sensitivity areas such as riverbeds and pans, provided the morphology and hydrology of these areas are not disturbed during the construction phase of the development. The decommissioning of the existing Olifantshoek substation is likely to have a low impact due to the existing transformed nature of the site, provided that erosion and alien invasive plant control is continued after decommissioning activities.

Overall and with the suggested mitigation measures applied, the impact of the proposed Olifantshoek 132 kV power line and substation would be of local extent and low significance. There are no impacts associated with the development of the power line and substation that are considered to be of high significance and which cannot be mitigated to a low level. **The project is thus acceptable from an ecological perspective.**

2. Visual Impact Statement

On visual grounds, the Alternative Alignment for the 132kV power line is favoured due to the fact that it will minimise impacts on rural homesteads. As the Preferred Alignment for the power line is likely to impact on local homesteads it is not favoured. If selected, it is suggested that more detailed alignment planning may be required in order to maximise distances between inhabited buildings and the power line. Additional consultation with owners and inhabitants should also be undertaken to ensure that impacted parties are fully aware of the proposed location of structures relative to the buildings.

When considering the substation locations, the Preferred Alternative will have the lowest impact, visually, on the surrounding areas and residents. The Alternative Site would be acceptable subject to adequate mitigation in the form of screen planting providing a buffer between the infrastructure and residents. If the preferred power line avoids possible visual impacts on rural homesteads, and the correct consultation process is followed, the project will be unlikely to have any negative and highly significant visual impact and thus can be considered **acceptable from a visual perspective**.

3. Avifaunal Impact Statement

Both the power line alternative and the substation alternatives will have a low impact on avifauna in the surrounding vicinity. Reasons for this is due to the extensive spatial requirements of the development, the

uniformity of the broad and local vegetation composition as well as the avifaunal composition with small variation occurring between the different micro-habitats.

Both of the power line alternatives traverse the same habitat types and subsequently will likely have the same impacts on the avifaunal character of the area (low impact). Thus the power line alternative preferred from a technical perspective (the Preferred Alternative assessed in this report) can be selected as the final alterative for implementation. The preferred substation site is also deemed, from an avifaunal perspective as the preferred alternative as this will exclude any impacts within the *Acacia karroo* thicket as well as shorten the potential power line that may interfere with the movement of the water fowl and waders between the Sewage works and the gravel dam.

Therefore, the **proposed development is unlikely to have any long-term significant impacts on avifaunal species within the study area.**

4. Hydrological Impact Statement

Overall, the development will have no significant impacts on the habitat types within the region. Furthermore the two power line alternatives will have similar impacts on the environment, including the watercourses that will be crossed and the depression wetlands located close to the development area. As such the "preferred alternative" for the power line assessed within this report can be regarded as the preferred alternative for implementation.

For the substation options however, there is a clear difference between the alternative and the preferred option. The alternative site is situated within a portion of the riparian thicket fringing the upper portion of the Olifantsloop watercourse and thus poses a potential threat to the watercourse and the riparian habitat itself (e.g. create disturbed areas which may be prone to erosion, invasion with invasive species and subsequently result these impacts spreading into the watercourse). The preferred site on the other hand is located in a relatively flat terrestrial habitat, well beyond the boundaries of this watercourse and its associated riparian fringe. Thus, it is clear from these results that the preferred location for the new substation should be selected as the final location.

Even though some depression wetlands are located within the 500m radius survey area, these habitats will unlikely be impacted on by the development. It is however recommended that if some of these wetlands fall within the 32m servitude, that the shrubby vegetation surrounding these depressions are left intact as these areas contribute to the functions provided by these depressions.

Summarised results from the Risk Assessment Matrix for a Water Use GA concluded the following:

Activity	Phase	Environmental Aspect:	Risk Rating	Borderline LOW MODERATE rating classes
Creating new access roads (Depression Wetlands) Maintenance of existing service road	Construction & Operation	Creating new access roads (Watercourses)	**L**	N/A
		Maintenance of existing service road (Watercourses)	**L**	N/A
		Redistribution and concentration of runoff from	**L**	N/A

(Depression Wetlands)		hard/impenetrable surfaces		
		Redistribution and concentration of runoff from hard/impenetrable surfaces	**L**	N/A
Construction of new 132kV Power Line - Clearing of vegetation	During the construction and operation phase.	Removal and/or disturbance to vegetation within the watercourses	**L**	N/A
		Removal and/or disturbance to vegetation within the depression wetland	**L**	N/A
		Vegetation maintenance within watercourses/riparian zones and depression wetlands	**L**	N/A
		Application of herbicides	**L**	N/A
Construction of new 132kV Power Line - Generation of waste during construction and maintenance	During the construction and operation phase.	Hazardous wastes (Hydrocarbons and other chemicals)	**L**	N/A
		Suspended solids (building rubble, concrete, stockpiled material)	**L**	N/A
		Stockpiled topsoil	**L**	N/A
Construction and maintenance of substation (Alternative option) - Alteration and transformation of riparian fringe and catchment area	During the construction and operation phase.	Removal of riparian vegetation	**L**	N/A
		Creation of hard surfaces & compacted soils	**L**	N/A
Construction and maintenance of substation (Preferred option)	During the construction and operation phase.	Removal of vegetation	**L**	N/A
		Creation of hard surfaces & compacted soils	**L**	N/A

From the Surface Water & Hydrological Study no objections or motives for the project not to be allowed,

could be determined, and thus the project may occur within the proposed development boundaries.

Assessment of the NO-GO Option

The No-go option implies that the **Project does not proceed**. This means that the status quo of the environment would remain unchanged and no impacts would occur.

The implementation of the No go alternative will result in a situation where Eskom will not be able to meet the current capacity demands of the region. The project will improve the performance of the supply. By not increasing the supply to the greater area, development will be constrained. This is not seen as desirable as the existing substation is operating at near-capacity and will not be able to accommodate any greater load that may be required any future developments. As there are no impacts of high significance associated with the proposed new power line and substation, the implementation of the project is considered acceptable. The benefits of implementing the project (i.e. from a socio-economic perspective) are expected to outweigh the negative impacts. The no-go alternative is therefore not considered to be preferred.

SECTION E: RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES**

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The following recommendations are made with regards to mitigating the potential impacts of the proposed project.

Construction Phase:

- The preferred power line and substation alternatives should be implemented.
- All relevant practical and reasonable mitigation measures detailed within this report and within the EMPr must be implemented.
- The implementation of this EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report.
- An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period.
- An ecological walkthrough survey should be undertaken prior construction by a qualified ecologist in order to ensure that the proposed tower positions are appropriate and does not impact on species of special concern. Moreover, the walk-through will make recommendations regarding any specific mitigation which is required to minimise impacts.
- Creation of new access tracks should be minimised as far as possible.
- All declared alien plants must be identified and managed in accordance with the relevant legislation. The implementation of An on-going monitoring programme in this regard is recommended.
- Install Eskom-approved bird flappers on the power line within bird sensitive areas and install bird friendly power line towers along the length of the route.
- Care must be taken with the topsoil during and after construction on the site. If required, measures to reduce erosion to be employed, such as keeping the soil covered by straw, mulch, erosion control mats, etc., until a healthy plant cover is again established.
- Measures should be implemented to control and contain storm water run-off.
- Rehabilitate construction sites by establishing with indigenous grasses.
- Erosion control measures must be utilised during construction, operations, decommissioning and rehabilitation of power line.
- Re-vegetation of the site as it is before construction must be undertaken after decommissioning of the power line.
- Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they **may** encounter and the procedures to follow when they find sites.
- The developer should obtain all necessary permits prior to the commencement of construction.

Operation Phase:

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

- The servitude should not be bush-cut more than once every five years during the operational phase.
- All woody alien invasive vegetation must be removed from the servitude immediately upon detection and follow-up should be continuous throughout the project lifecycle.
- On-going maintenance of the power line infrastructure to minimise the potential for visual impacts.
- On-going monitoring of the development sites to detect and restrict the spread of alien plant species.
- Undertake regular monitoring of the power line to detect any areas where high impacts are experienced and recommend any additional mitigation which may be required to be implemented.

Decommissioning Phase:

- All disturbed areas should be rehabilitated with a cover of indigenous plants
- Regular monitoring (bi-annual) for alien plants within the development footprint for 2-3 years after decommissioning.
- During decommissioning, if any of the Red Data species identified in this report are observed to be roosting and/or breeding in the vicinity, the ECO must be notified and were deemed necessary an appropriate buffer should be placed around the nests and/or roosting areas. If uncertain on the size of such buffer the Environmental Officer (EO) may contact an avifaunal specialist for advice.
- Strict control must be maintained over all activities during decommissioning, in line with an approved construction EMPr

YES	

Is an EMPr attached?
The EMPr must be attached as **Appendix G.**

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as **Appendix H.**

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in **Appendix I.**

Any other information relevant to this application and not previously included must be attached in **Appendix J.**

JO-ANNE THOMAS

_____

NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDICES

The following appendices must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information