



ECC-103-320-REP-01-D

**ENVIRONMENTAL SCOPING REPORT PLUS IMPACT
ASSESSMENT (AMENDMENT)
CONSTRUCTION OF THE B2GOLD NAMIBIA (PTY) LTD 66 KV
POWERLINE AND ASSOCIATED INFRASTRUCTURE,
OTJOZONDJUPA REGION**

PREPARED FOR:



NOVEMBER 2020

TITLE AND APPROVAL PAGE

Project Name:	Amendment to the construction of the B2Gold Namibia (Pty) Ltd 66 kV power line, Otjozondjupa Region
Client Name:	B2Gold
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EXECUTIVE SUMMARY

B2Gold Namibia (Pty) Ltd, (herein referred to as the proponent) is a world-class gold producer, 90% owned subsidiary of B2Gold Corp. In Namibia, the proponent owns the Otjikoto Gold Mine (OGM) which is located approximately 70 km north of Otjiwarongo in the Otjozondjupa Region of Namibia. The proponent is an internationally recognized Canadian-based gold exploration, development and mining company listed on the Toronto, Namibian and New York Stock Exchanges.

The proponent has identified the need to upgrade its power supply in order to meet the energy demands resulting from the expanding mining infrastructure. As such, the proponent, on behalf of Namibia Power Cooperation (NamPower) (Pty) Ltd, intend to build a 66-kV overhead transmission power line for approximately 20 – 25 km long in Otjozondjupa Region. The application for environmental approval for the powerline construction were submitted to the competent authorities (on the 14th of February 2020), the Ministry of Environment, Forestry and Tourism (MEFT) and the Ministry of Mines and Energy (MME) as part of the decision-making process. The project was granted approval and an environmental clearance certificate was issued on the 05th of June 2020 which is valid for a 3-year period until the 05th of June 2023. The proof of submission and the certificate issued are included in Appendix B.

This amendment is required for the development of the proposed Eldorado substation which will be located on a portion of Farm Maxwell No.82 north – east of the OGM (FIGURE 2). The amendment shall be submitted to the competent authority as part of the application to amend the environmental clearance certificate.

The environmental assessment conducted for the powerline is valid for the proposed substation amendment will this report only address areas where impacts differs.

Due to the nature and scale of the project no significant impacts were identified in relation to this amendment.

The study has assessed potential, likely and identified impacts. It was determined that the likely effects were not deemed significant, based on the magnitude of change from the baseline environment, the duration of potential impacts and the reversibility of effects.

On this premise, it is the opinion of ECC that the environmental clearance certificate could be amended to include the substation, on condition that the management and mitigation measures specified in the EMP are implemented and adhered to.

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DEFINITIONS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
DEA	Directorate of Environmental Affairs
IFC	International Finance Corporation
I&APs	Interested and affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
NamPower	Namibia Power Corporation
OGM	Otjikoto Gold Mine

1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

The purpose of this report is to incorporate the findings of the new activities related to the Eldorado Substation into the existing and approved powerline EIA and EMP. This report has been prepared in terms of the requirements of the Environmental Management Act, No. 7 of 2007 and its regulations, promulgated in 2012 (referred to herein as the EIA Regulations).

This document and appendices will be submitted to the Directorate of Environmental Affairs (DEA) at the Ministry of Environment, Forestry and Tourism (MEFT) for review as part of the application for amendment of the environmental clearance certificate.

This document provides information for the decision-making process for the proposed Eldorado substation project. The objectives are to:

- Provide a description of the proposed activity and the site on which the activity is to be undertaken;
- Provide a high level of additional environmental and social impact assessment on feasible alternatives that were considered;
- Report the assessment findings; and
- Identify additional mitigation measures to ensure that the potential environmental and social impacts arising from the project are prevented and/or minimised as far as reasonably practical.

Environmental Compliance Consultancy (ECC) was appointed by the proponent to undertake the assessment for the amendment to include the substation. Figure 1 to 4 shows the locality of the proposed project.

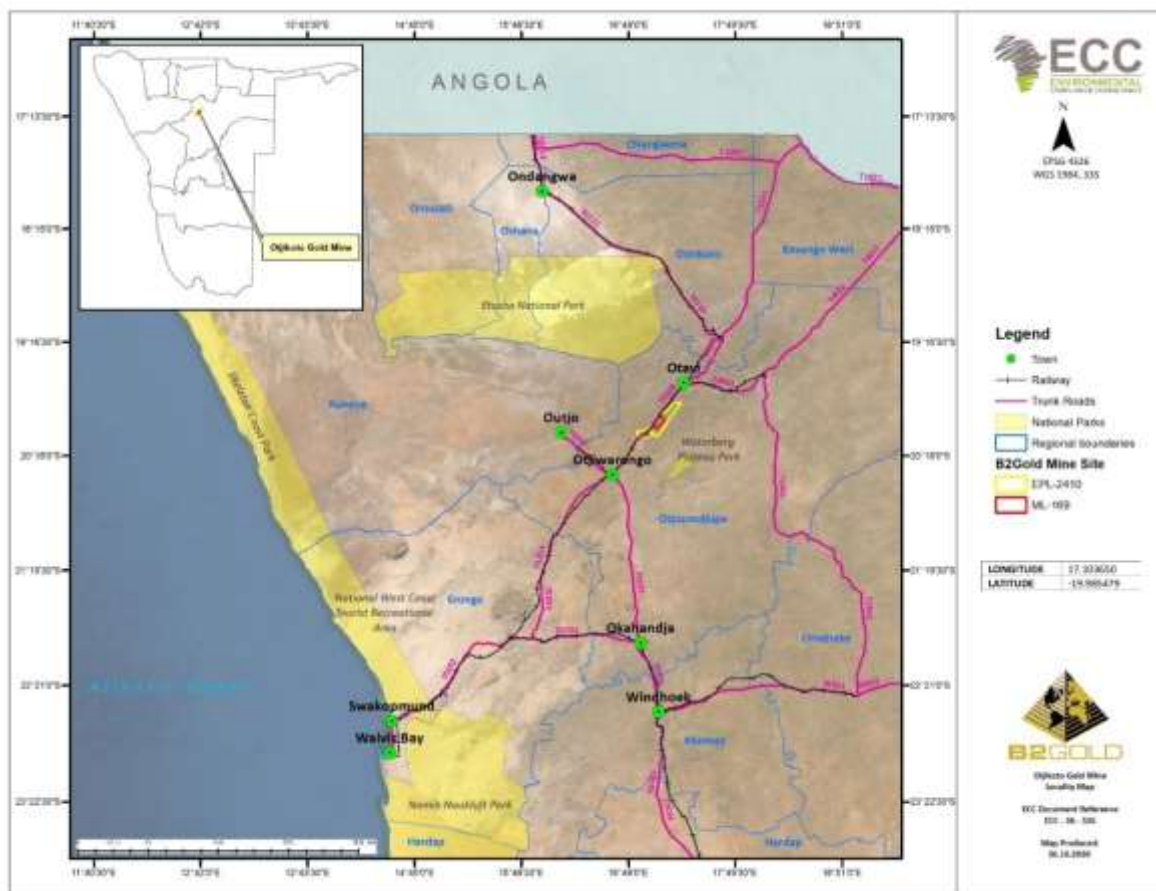


FIGURE 1 – B2GOLD MINE LOCALITY MAP

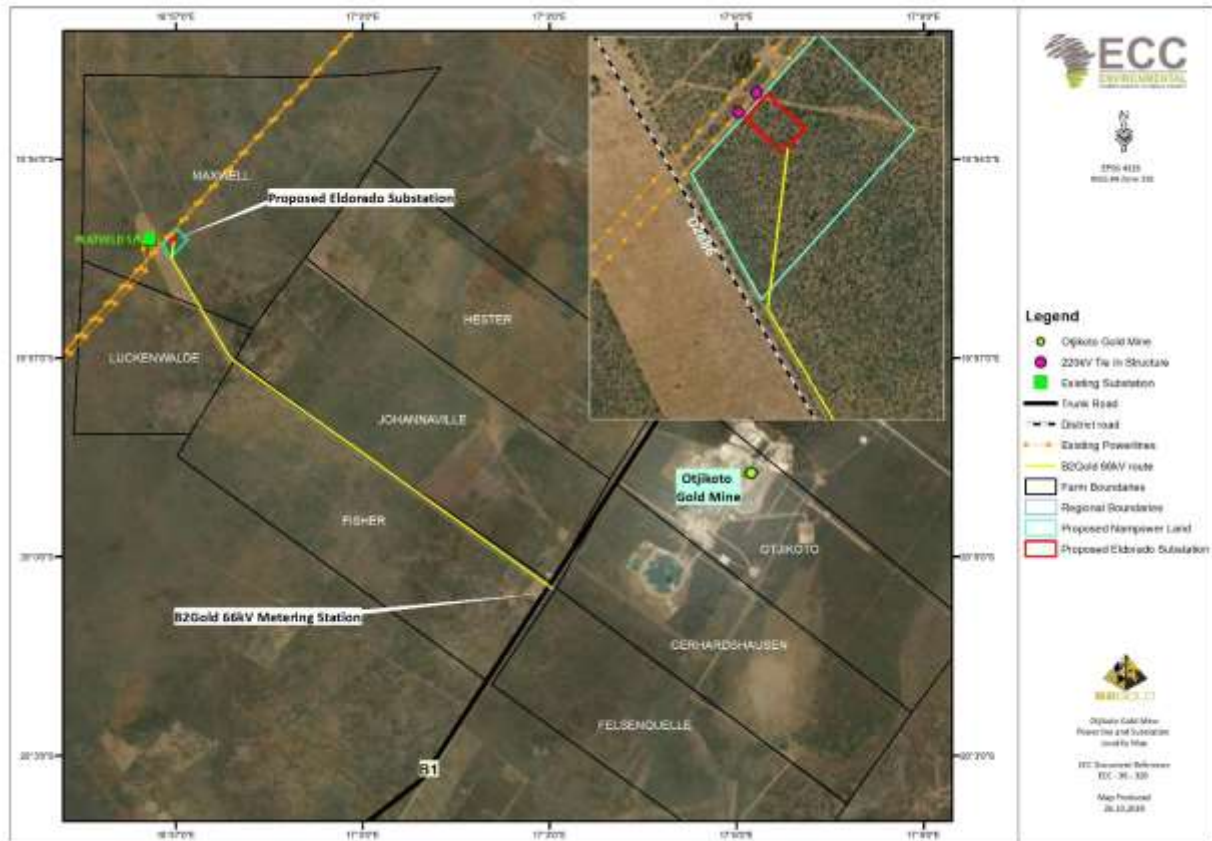


FIGURE 2 - A MAP INDICATING THE PROPOSED SITE AS WELL AS FARM BOUNDARIES AND NEIGHBORS POTENTIALLY AFFECTED BY THE PROPOSED DEVELOPMENTS

2 SUMMARY OF THE PROPOSED AMENDMENTS

This section provides a description of the proposed Eldorado substation which will be an outdoor air insulated substation where electrical insulation is achieved by using air as the insulating medium and maintaining all live conductors using vertical height above ground level.

A power transformer rated at 40MVA will be used and the 220kV voltage of the existing transmission line is stepped down to the 66kV voltage that is the intended NamPower supply voltage required by the B2Gold Otjikoto Mine.

- The transformer will be installed onto a concrete pad sized for the transformer footprint and weight of 100 tons, and will be air cooled but insulated within its tank with transformer mineral oil with a total volume of 38 000 litres;
- The transformer foundation will be bund walled in order to maintain 110% of the total oil volume; and
- An oil drain and piping system will be installed to remove the banded oil to an oil containment sump on a site that will be identified. The oil from the sump will be removed using suitable oil handling iso tanks and disposed of according to NamPower approved disposal methods and approved oil processing / dumping sites.

Furthermore, the tie into the new substation will be via installing two new 220kV transmission line towers matching those already in use on the existing 220kV line (FIGURE 3). All substation support structures will be lattice steel type to maintain the maximum height of conductors at 14 meters above ground level for 220kV and 7 meters above ground level for 66kV.

The substation footprint will be totally enclosed by means of NamPower standard type substation perimeter fencing and electric fence installed on the inside of this perimeter fence. Fencing will also be installed within the substation between the high voltage yards in order to ensure restricted access to the required NamPower operators. Appendix C provides detailed drawings of the planned development.



FIGURE 3 -A TYPICAL IMAGE OF A NAMPOWER (NamPower, 2020)



FIGURE 4 - AN IMAGE OF A TRANSFORMER BUDWALL (B2Gold, 2020)



FIGURE 5 - TYPICAL AIR INSULATED OUTDOOR TYPE SUBSTATION (B2Gold, 2020)

2.1 CONSTRUCTION PHASE

During construction the substation area (140m x 110m (approximately 2 hectares) will be completely de-bushed as part of the preparation of the site, after which a platform using G6 and G5 type soil material will be created and compacted to create a level ground surface (500mm above natural ground level). Delivery of the construction material and equipment will be transported with heavy vehicles, but no abnormal load or loads of dangerous goods are foreseen. Construction vehicles will make use of the existing roads as far as reasonably practical. A level gravel road will be constructed from the D2886 district road to the substation approximately 400 meters long, for the purpose of access and offloading of material during construction stage, followed by access for NamPower personnel during the lifetime of the substation.

During construction temporary power supply point will be installed by the contractor for the construction power requirements, this will be a supply point from the existing 33kV lines near the substation area from CENORED. Water will either be brought to site using tankers from the nearest town or from the B2Gold mine, alternatively if there is an existing water supply farm borehole, this will be negotiated between the farm owner and the contractor. No onsite construction camp is required as the construction staff will be transported to and from the site daily. A septic tank / soak away system will be used because there is no formal sewage system on site. A control building will be constructed onsite to house all the control and protection equipment for safe and efficient operation of the power station. Construction is envisioned to be completed within a period of 18 months.

Typical works associated with substation development include:

- Heavy machinery such as concrete machines, rollers, dump trucks, load beds etc;
- Concrete works either via a batching plant onsite or ready mix sourced from suppliers in the nearest town;
- Brick works, steel works, cutting and grinding / welding;
- Excavation works, form works and templating for foundations;
- Erection of heavy equipment using cranes; and
- Working at heights using buckets and cranes.
- Installation of specialised substation electrical equipment fit for its purpose

2.2 OPERATIONAL PHASE

During normal operation, substation infrastructure requires little intervention. Periodic inspections of the substation will be required, for which existing roads and the servitude will be used. Some vegetation management within the servitude will be required over time. NamPower will be responsible for the maintenance and operation of the substation. Once the substation is commissioned it will typically be unmanned, with the exception of a site security guard stationed at the gate. The substation will make use of area floodlighting for the purpose of operators being able to walk around in the yard at night if required.

2.3 DECOMMISSIONING PHASE

The substation will be in use as long as the demand for electricity exists, therefore decommissioning is not expected during the operational phase, but it could be considered at the time when mining activities at OGM cease. Alternatively, and with the agreement of stakeholders, substation could remain for beneficial future use.

3 SUMMARY OF ENVIRONMENTAL BASELINE

This section provides a brief overview of the existing baseline conditions of the biophysical environment for the substation. Desktop studies, followed by a site visit, were undertaken as part of the initial scoping process to develop the baseline of the broader area. For the purposes of this amendment application, only the site-specific baseline conditions are presented.

Rainfall events are limited to the summer months, mainly between December and March to approximately 350 – 450 mm of rain per year with a variation coefficient of approximately 30%. Evaporation is approximately 2,000 mm per year. The average maximum temperatures range from 32 – 34°C, while minimum temperatures are around 4 – 6°C. The dominant wind direction is from the east and south-west, with average speeds of around 15 km per hour (Mendelsohn et al., 2002).

There is a variety of mammalian, reptiles and amphibian's species that could potentially occur in the area, these are provided in the EIA in Appendix A. Further, the powerline EIA also contains the avifauna assessment that is relevant for the substation project are.

A review of the National Heritage Council database and the National Information Service of Namibia was conducted, and no known heritage sites were identified within the proposed project area. In cases where heritage sites are discovered the chance find procedure will be used. If any historical importance sites or around the project area are encountered during project activities beyond the initial target area, the same will be reported to the Monument's Council in Windhoek, and the site will be left untouched.

A site visit was conducted on the 27th of October 2020 on the proposed area earmarked for the construction of the substation the following was found:

- The site is encroached by bush, dominated by *Acacia mellifera* subsp. *detinens*;
- Other woody species observed in the footprint were: *Grewia flava*, *A. erioloba*, *A. tortilis*, *Dichrostachys cinerea*, *Lonchocarpus nelsii*;
- The site has been subjected to grazing in a well-managed manner and the basal cover was good for the area at 4%;
- The dominant grass specie was *Stipagrostis uniplumis* with a number of *Antheophora pubescens* (Figure 4) found, indicating fairly good condition of the veld;
- The vegetation composition and structure does not differ from that in the powerline route and all relevant specialist studies done for the route will be applicable for the substation site;
- No aloes were found in the site area; and
- See Figure 5 for a view from the 220kV powerline toward the south in the middle of the suggested site for the substation construction.



FIGURE 6 - A MATURE *A. PUBESCENS* TUFT AT THE PROPOSED SUBSTATION SITE



FIGURE 7 – A VIEW OF THE PROPOSED CONSTRUCTION SITE FOR THE SUBSTATION. NOTE THE ENCROACHMENT BY *A. MELLIFERA*.

4 STAKEHOLDER ENGAGEMENT

Stakeholder engagement is an important component of the environmental clearance application process. Over and above being compliant with statutory requirements for public consultation, early onset participatory communication with all stakeholders is essential and should commence before, or at the same time as the proposed activities are initiated.

As this is an amendment application subsequent to the approved powerline EIA, communication with the relevant interested and affected parties was undertaken via email and a meeting held on site with the affected farm owner, evidence of consultation is presented in Figures 9 and 10.

This was done to maintain an open and transparent information sharing relationship with existing I&APS and in order to ensure clear understanding and collaboration between ECC, the proponent, landowners, neighbours, the government and all other stakeholders.

11/2/2020

ECC Environmental Mail - Update on the B2Gold powerline environmental clearance certificate application and amendment



Lovisa Nangula <lovisa@eccenvironmental.com>

Update on the B2Gold powerline environmental clearance certificate application and amendment

Lovisa Nangula <lovisa@eccenvironmental.com>

Thu, Oct 29, 2020 at 3:50 PM

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Cc: Stephan Bezuidenhout <stephan@eccenvironmental.com>, Jessica Mooney <jessica@eccenvironmental.com>, jroos@b2gold.com, Francois De Wet <francois@gafa.com.na>

Dear Stakeholder,

Environmental Compliance Consultancy (ECC) was engaged by B2Gold Namibia to apply for an environmental clearance certificate of a 66 kV powerline (map indicating the route attached).

The application was submitted to the competent authorities i.e. Ministry of Mines and Energy (MME) and the Ministry of Environment, Forestry and, Tourism (MEFT) on the 14th of February 2020 for their record of decision.

This email also serves to inform you that, the project was granted approval on 05 June 2020 by the Department of Environmental Affairs (DEA) and issued with an environmental clearance certificate which is valid for a period of three (3) years. The Environmental Clearance Certificate is being amended to include the construction of a substation. Once this process is completed we shall inform you.

We thank you for your time.

-

Kind regards,

Lovisa Amwele

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FIGURE 8 - EMAIL NOTIFYING THE LAND OCCUPIERS ABOUT THE PROPOSED AMMENDMENT



B2GOLD NAMIBIA (PTY) LTD – PROPOSED SUBSTATION FOR THE 66KV POWERLINE

Notes from the meeting with the farm owner of Maxwell No 82 – 27 October 2020 at Maxwell No 82

Attendance:

Piet Smit – ECC
Alex Oelofse – Farm Maxwell
Francois de Wet – GSFA
John Roos – B2Gold
Naemi Mweya - NamPower

The following issues and concerns were raised:

1. The existing 66kV substation is not adequate for the tie in to the 220kV line planned for this site. a new substation is needed.
2. The de-bushed area to the west and south-west of the site was investigated and also suggested by the farmer for use, but the midspan point required for the tie-in is located too close to the road for the site to be suitable.
3. Further to the west, the next midspan point will interfere with existing 11kV powerlines; therefore, the selected area is the best suited.
4. NamPower requires the sub-division and purchase of 25 ha for such development
5. The farm owner is willing to allow the development and GSFA will send the relevant documents for purchase and subdivision arrangements to the farm owner for further negotiation. A price and final contract will be agreed based on this negotiation and permission given for development on the land.
6. ECC's role is to assist in getting the necessary environmental clearance certificate for the development and will have a look at the environmental aspects of the project.
7. It was explained that the planned substation will be adequate to also allow for independent power producers to be established in the area with similar tie-in to the grid.
8. GSFA will coordinate the project and supply information needed by ECC.
9. NamPower will get all needed information from GSFA.
10. B2Gold and GSFA will negotiate directly with the farm owner.

FIGURE 9 - MEETING HELD WITH OWNER OF FARM MAXWELL NO. 82

5 METHODOLOGY AND APPROACH

The key stage of the EIA process is the impact prediction and evaluation stage. This stage is the process of bringing together project characteristics with the baseline environmental characteristics and ensuring all potentially significant environmental and social impacts are identified and assessed. Impact prediction and evaluation involve envisaging the possible changes to the environment as a result of the proposed activities. The recognized methodology was applied to determine the magnitude of impact and whether or not the impact was considered significant and thus warrant further investigation. The assessment considers all stages of the project's life cycle that is scoped into the assessment and is presented in this report. It is an iterative process that commences at project inception and runs through to the final design and project implementation (construction and operations). The impact prediction and evaluation stage for the substation were undertaken in October 2020 and the findings of the assessment are presented in this document and the existing powerline EIA.

Chapter 3 of the initial EIA provides an overview of the approach used in this EIA process and details each of the steps undertaken.

6 IMPACT ASSESSMENT FINDINGS AND PROPOSED MITIGATION MANAGEMENT MEASURES

6.1 INTRODUCTION

This section presents the findings of the EIA for the proposed project as per the EIA process, scope and methodology set out in Chapter 3 of the powerline EIA. Potential impacts have been identified that may arise as a result of the proposed substation project.

The following topics were considered during the scoping phase, most of which have been covered in the initial powerline EIA report:

- Soils and topography;
- Landscape (visual impacts, sense of place);
- Socioeconomics (employment, demographics, and land-use);
- Noise;
- Ecology (fauna and flora);
- Air quality (emissions, pollutants and dust); and
- Cultural heritage.

For each potential impact, a summary is provided which includes the activity that would cause an impact; the potential impacts; embedded or best practice mitigation (stated where required / available); the receptor that would be impacted; possible mitigation measures to be considered. The identified impacts are of non – significant nature and do not render any threat to the environment in a way that adversely challenges the resilience of it to continue in its modified form. Table 1 provides more details on the identified impacts

TABLE 1 - SUMMARIZED TABLE OF IMPACTS AND MITIGATION MEASURES

DESCRIPTION OF ACTIVITY	RECEPTOR	POTENTIAL IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES
Pollution	Soil	Inadequate management of hazardous, oils and, hydrocarbon waste can pollute soil.	<ul style="list-style-type: none"> – Good housekeeping; – Training and awareness through toolbox talks and induction; – Implement a standard operational procedure on waste management for all kinds of waste possible on-site (e.g. domestic, mineral, hydrocarbons, hazardous); – Implement a culture of correct waste collection, waste segregation and waste disposal; and – Utilise the mines current waste management system and recycling.
Vegetation clearing	Biodiversity	Loss / alteration of terrestrial habitats and loss of species as a result of vegetation clearing for substation construction	<ul style="list-style-type: none"> – Use existing roads for access to avoid new tracks; – Minimise clearance areas through proper planning of the construction site; – Where possible, rescue and relocate plants of significance; and – Promote revegetation of cleared areas that are not utilized upon completion.
Air Pollution	Air Quality	During construction phase, potential dust pollution will emanate from site preparation activities such as excavation particularly if it takes place during dry weather conditions. Consequently, this can impact the visibility of the nearby roads impacting on traffic safety.	<ul style="list-style-type: none"> – During construction, the debris and stockpiles of earth should be enclosed/covered/watered during dry or windy conditions to reduce dust emissions; – Construction trucks moving materials to site, delivering sand and cement to the site should be covered to prevent material dust emissions into the surrounding areas; – Masks should be provided to all personnel in areas prone to dust emissions during construction; – Drivers of construction vehicles must be sensitized so that they do not leave vehicles idling, and they limit their speeds so that dust levels are lowered; and – Maintain all machinery and equipment in good working order to ensure minimum emissions.

DESCRIPTION OF ACTIVITY	RECEPTOR	POTENTIAL IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES
Loss of biodiversity	Biodiversity	As a result of increased movement of machinery residing, nesting and slow moving organisms can be disturbed, injured or killed	<ul style="list-style-type: none"> – Restrict movements to areas of activities only; – Use existing tracks and routes only; – Identify rare, endangered, threatened and protected species in advance; – Route new tracks around protected species and sensitive areas; – Restrict movements to daytime hours; – Make workers aware and notify them on avoiding some areas; – No driving off designated access routes (into the bush) / off-road driving; and – No animals or birds may be collected, caught, consumed or removed from site.
Soil erosion	Soil	Vegetation clearing increase soil exposure and subsequent soil erosion	<ul style="list-style-type: none"> – Ensure erosion control and prevention measures are in place when vegetation clearance is required; – Where necessary, install diversions to curb possible erosion; and – Restore drainage lines when disturbed.
Loss of heritage	Community	Loss / alteration of terrestrial habitats and loss of species	<ul style="list-style-type: none"> – Implement a chance find procedure; – Raise awareness about possible heritage finds; – Report all finds that could be of heritage importance; – In case archaeological remains to be uncovered, cease activities and the project manager has to assess and demarcate the area; – Project manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform ECC with GPS position; – If needed, further investigation have to be requested for a professional assessment and the necessary protocols of the Chance Find Procedure have to be followed; – Archaeologist will evaluate the significance of the remains and identify appropriate action, (record and remove; relocate or leave premises, depending on the nature and value of the remains); – Inform the police if the remains are human; and

DESCRIPTION OF ACTIVITY	RECEPTOR	POTENTIAL IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES
			<ul style="list-style-type: none"> Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as directed.
Visual impacts	Community	Visual disturbance and loss of Sense of Place as a result of substation construction and operational activities	<ul style="list-style-type: none"> Plant compatible with surrounding area; NamPower to appoint a Town Planner for the surveying and re-zoning of the land for the; and purpose for submission and approval at the Surveyor Generals office.
Community and / or stakeholders	Community	The movement of vehicles and general construction and operation activities can create conflict with farm owners and neighbours about access, leaving gates open, suspicious movements, loss of farming area, etc.	<ul style="list-style-type: none"> Ensure documented permission to enter farms; Residents shall be provided at least two weeks' notice of drilling operations within 1 km of their property; Existing water points and feeding area need to be left unaffected; Use existing roads for access, avoid new tracks / cut lines; Compliance with all applicable laws and agreements; and Continuous engagement with residents to identify any concerns or issues, and mitigation and management measures agreed upon.
Noise and Lighting	Community	The noise produced from construction activities and by operating substation can be loud to adjacent landowners/farmers and light pollution may present a nuisance in residential areas or diminish enjoyment of the night time sky	<ul style="list-style-type: none"> Limit construction activities to daytime only; A barrier of mature trees or tall soil berms between the substation and nearby residences can be helpful in partially reducing noise impacts; and Newer downward-focused security lighting can help to avoid or reduce light pollution.
Public safety	Community	The health and safety of construction personnel and the public may be	<ul style="list-style-type: none"> To maintain safe conditions for the general public, all substations are fenced and have gates that must be locked at all times;

DESCRIPTION OF ACTIVITY	RECEPTOR	POTENTIAL IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES
		placed at risk as a result of the use of heavy machinery to construct the required substation infrastructure	<ul style="list-style-type: none"> – Appropriate signage must also be posted that shows the owner of the substation, the hazardous nature of the substation, and contact information;
Community and / or stakeholders	Community	The movement of vehicles and construction as well as operational personnel can be blamed as reasons for stock theft and poaching	<ul style="list-style-type: none"> – Develop and implement an operations manual or procedures to work on private farms and implement monitoring programmes thereafter; – Maintain continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon; – Ensure appropriate supervision of all activities; – Raise awareness and sensitize employees about contentious issues such as stock theft and poaching; and – Accidents and incidents need to be reported to project manager and recorded in incident register.
Community and / or stakeholders	Socio Economic	Substation construction can trigger job creation, skills development and opportunities for the local economy	<ul style="list-style-type: none"> – Maximize local employment; – As far as possible promote local procurement; and – Enhance development of local skills where possible.

7 CONCLUSION

ECC's EIA methodology was used to undertake the environmental assessment for the proposed project to identify if there is potential for significant effects to occur as a result of the proposed project. Through the scoping process, it was determined that there was no potential environmental risk that requires further specialist studies and assessment rather than those included in the powerline EIA. The identified impacts on the environment were found to be minor. Various mitigation measures have been identified and listed for implementation to avoid and/or reduce impacts as far as reasonably practicable. Additionally, this will ensure the environment is protected and unforeseen effects and environmental disturbances are avoided. Therefore, it is the opinion of ECC that an Environmental Clearance Certificate could be issued, on conditions that the management and mitigation measures specified in the powerline EMP and in this document are implemented and adhered to.

APPENDIX A – POWERLINE EIA REPORT AND ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B – APPROVED POWERLINE ENVIRONMENTAL CLEARANCE CERTIFICATE

APPENDIX C – PROPOSED SUBSTATION DRAWINGS