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Draft Scoping Report

Proposed 400kV Substation and Power
line for the ACWA Power Khanyisa IPP
Project, eMalahleni, Mpumalanga
Province

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ABBREVIATIONS

ACC	Air Cooled Condenser
AOL	Anglo Operations Limited
AOLTC	Anglo American Thermal Coal
AEL	Air Emissions License
AHP	Analytical Hierarchy Process
AO	Anglo Operations
AQMP	Air Quality Management Plan
BID	Background Information Document
Capex	Capital Expenditure
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CCR	Carbon Capture Ready
CCS	Carbon Capture Storage
CFB	Circulating Fluidised Bed
CO ₂	Carbon Dioxide
CSLF	Carbon Sequestration Leadership Forum
CSP	Concentrated Solar Power
DEA	Department of Environmental Affairs
DEIR	Draft Environmental Impact Report
DMR	Formerly Department of Minerals and Energy, now Department of Mineral Resources (DMR)
DoE	Department of Energy
DSR	Draft Scoping Report
DSM	Demand Side Management
DR	District road
DWS	Department of Water and Sanitation (formerly the Department of Water Affairs and Forestry)
Dx	Distribution (in the electricity sector)
EAP	Environmental Assessment Practitioner
EAPSA	Environmental Assessment Practitioners of South Africa

ECA	Environment Conservation Act (No. 73 of 1989)
ED	Electrodialysis
EDI	Electrodeionization
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EIR	Environmental Impact Report
EIUG	Energy Intensive User Group
ELM	Emalahleni Local Municipality
EMPr	Environmental Management Programme
EWRP	Emalahleni Water Reclamation Plant
EOI	Expression of Interest
EWT	Endangered Wildlife Trust
FBC	Fluidised bed combustion
FGD	Flue gas desulphurisation
FSR	Final Scoping Report
GA	General Authorisation in terms of the National Water Act (No. 36 of 1998)
GAR	Gross as received
GCS	Groundwater Consulting Services
GGP	Gross Geographic Product
GN	Government Notice
GW	Giga Watt
Gx	Generation (in the electricity sector)
ha	hectare
HIA	Heritage Impact Assessment
HSV	High Speed Voltage
HV	High Voltage
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEA	International Energy Agency
IEP	Integrated Energy Plan
IGCC	Integrated coal gasification combined cycle
IRP	Integrated Resource Plan

ISEP	Integrated Strategic Electricity Planning
IWULA	Integrated Water Use License Application
JV	Joint Venture
KK	Kleinkopje
km	kilometre
kV	kilovolt
kWh	kilowatt hour
l	litre
LM	Local Municipality
m	metre
m ³	cubic metre
mamsl	metres above mean sea level
MCDA	Multi-criteria Decision Analysis
MDEDET	Mpumalanaga Department of Economic Development, Environment and Tourism
MM	Mott MacDonald
MTPPP	Medium Term Power Purchase Programme
MHI	Major Hazardous Installation
MPa	Megapascals
MPRDA	Mineral and Petroleum Resources Development Act (No. 28 of 2002)
MR	Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998b)
mt	million tons
MTS	Major Transmission Substation
MYPD2	Multi-year Price Determination (2)
MW	Megawatt
NEMA	National Environmental Management Act (No. 107 of 1998)
NEM:WA	The National Environmental Management: Waste Act (No. 59 of 2008)
NEM:AQA	The National Environmental Management: Air Quality Act (No. 39 of 2004)
NERSA	National Energy Regulator of South Africa

NHRA	National Heritage Resources Act (No. 25 of 1999)
NO _x	Oxide of nitrogen
NWA	National Water Act (No 36 of 1998)
NWRS	National Water Resources Strategy
OEM	Original Equipment Manufacturer
OCGT	Open Cycle Gas Turbine
PAIA	Promotion of Access to Information Act (Act 2 of 2000)
PAJA	Promotion of Administrative Justice Act (Act 3 of 2000)
PGDS	Provincial Growth and Development Strategy
PM ₁₀	Particulates with a diameter of 10 µm or more
ppm	parts per million
pf	pulverised fuel
PPP	Public Participation Process
REFIT	Renewable Feed-in Tariff
RfQ	Request for Quotation
ROM	Run-of-mine
RSA	Republic of South Africa
SANBI	South African National Biodiversity Institute
SACE	South African Coal Estates
SAHRA	South African Heritage Resources Agency
SANRAL	South African National Roads Agency Limited
SANS	South African National Standard
SAM	Social Accounting Matrix
SIA	Social Impact Assessment
SCR	Selective Catalytic Reduction
SDF	Spatial Development Framework
SO ₂	Sulfur dioxide
SO _x	Oxide of sulfur
SoE	State-owned Enterprise
SSF	Sasol Synthetic Fuels
ToR	Terms of Reference
Tx	Transmission (in the electricity sector)
UCG	Underground Coal Gasification

UNFCCC	United Nations Framework Convention on Climate Change
USD	United States of America Dollar
VIA	Visual Impact Assessment
WESSA	Wildlife and Environmental Society of South Africa
WMA	Water Management Area
WWTW	Wastewater treatment works
WTW	Water treatment works
ZAR	South African Rand
ZLED	Zero Liquid Effluent Discharge

GLOSSARY OF TERMS

Airshed	Part of the atmosphere that behaves in a coherent way with respect to the dispersion of emissions. It typically forms an analytical or management unit and is also a geographic boundary for air quality standards
Base load	Electricity generated to meet the continuous need for electricity at any hour of the day or night at all times and during all seasons
Environment	The surroundings (biophysical, social and economic) within which humans exist and that are made up of <ol style="list-style-type: none"> i. the land, water and atmosphere of the earth; ii. micro organisms, plant and animal life; iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing
Environmental Impact Assessment (EIA)	A study of the environmental consequences of a proposed course of action.
Environmental Impact Report (EIR)	A report assessing the potential significant impacts as identified during the scoping phase.
Environmental impact	An environmental change caused by some human act
Peaking or peak load	Peaking refers to the periods between approximately 06:00 and 09:00 in the mornings and 18:00 and 21:00 in the evenings when electricity usage “peaks”
Public Participation Process	A process of involving the public in order to identify needs and address concerns, in order to contribute to more informed decision-making relating to a proposed project, programme or development
Mothballed	Withdrawn from service (used in reference to power stations).
Red Data Book (South African)	An inventory of rare, endangered, threatened or vulnerable species of South African plants and animals
Scoping	A procedure for determining the extent of and approach to an EIA, used to focus the EIA to ensure that only the significant issues and reasonable alternatives are examined in detail
Scoping Report	A report describing the issues identified during the scoping phase
Witbank	Former name of eMalahleni

1. INTRODUCTION

Anglo Operations (Pty) Ltd (AO) applied for an environmental authorisation for the coal-fired Khanyisa Power Station (hereinafter referred to as ACWA Power Khanyisa IPP Project) and associated infrastructure proposed near eMahlaheni in 2011 (see Figure 1.1). AO's goal was to procure its own dedicated supply for a portion of its electricity requirements via the Khanyisa Independent Power Producer (IPP) project. Such supply was aimed at increasing Anglo American's security of supply and limiting the impact of electricity price increases. A key motivator for the project is that electricity generating capacity in South Africa is expected to remain constrained for a number of years. An environmental authorisation (EA) for the 450 MW ACWA Power Khanyisa IPP Project was granted in October 2013.

AO has transferred all duties and responsibilities related to the Khanyisa project to International Company for Water and Power Project (hereafter referred to as ACWA Power). ACWA Power is an Independent Power Producer (IPP) and will be bidding the ACWA Power Khanyisa IPP Project under the Department of Energy's Coal Baseload Programme. The aim will be for ACWA Power to build, own, operate and decommission the power station. The power station will contribute to relieving the national/ Eskom generation capacity shortages. ACWA Power proposes to increase the approved capacity from 450 MW to 600 MW. An application for amending the Environmental Authorisation for increase the generation capacity is in process.

It should be noted that the proposed substation and power line do not form part of the ACWA Power Khanyisa IPP Project, but rather a self-build agreement between ACWA Power and Eskom requires that the applicant undertakes the EIA process on behalf of Eskom. ACWA Power will appoint a contractor who will be responsible for constructing the power lines and associated infrastructure. However, after construction, the ownership of the power lines and associated infrastructure will be handed over to Eskom Holdings SOC Limited (hereafter referred to as Eskom), who will maintain the power line and associated infrastructure during operational. As such, ACWA Power will be responsible for the activities related to the

preconstruction and construction phases of the project and Eskom will be responsible for all activities related to operation and decommissioning of the project.

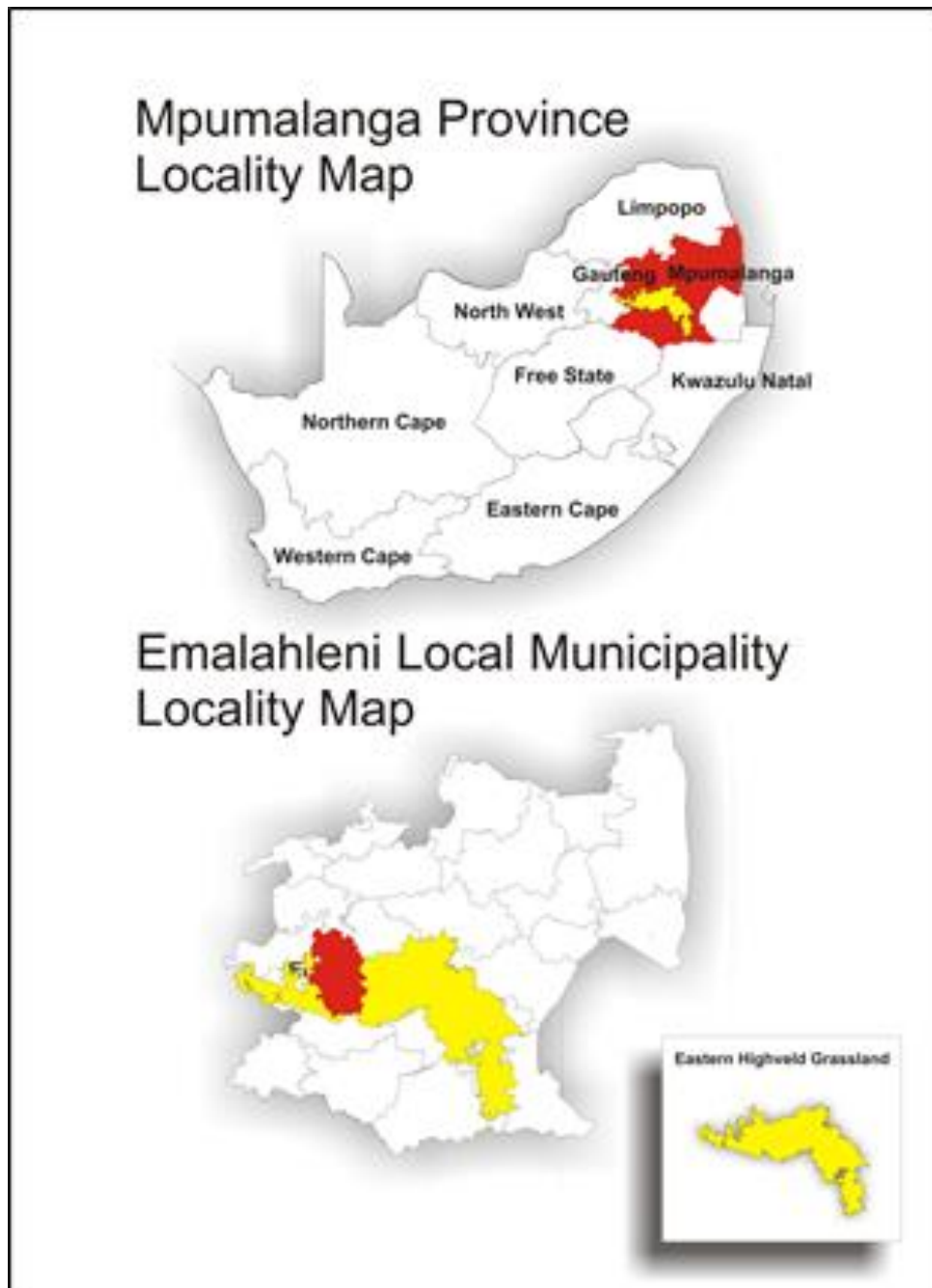


Figure 1.1: Project locality

ACWA Power Khanyisa IPP Project: Substation & Power Line - Draft Scoping Report

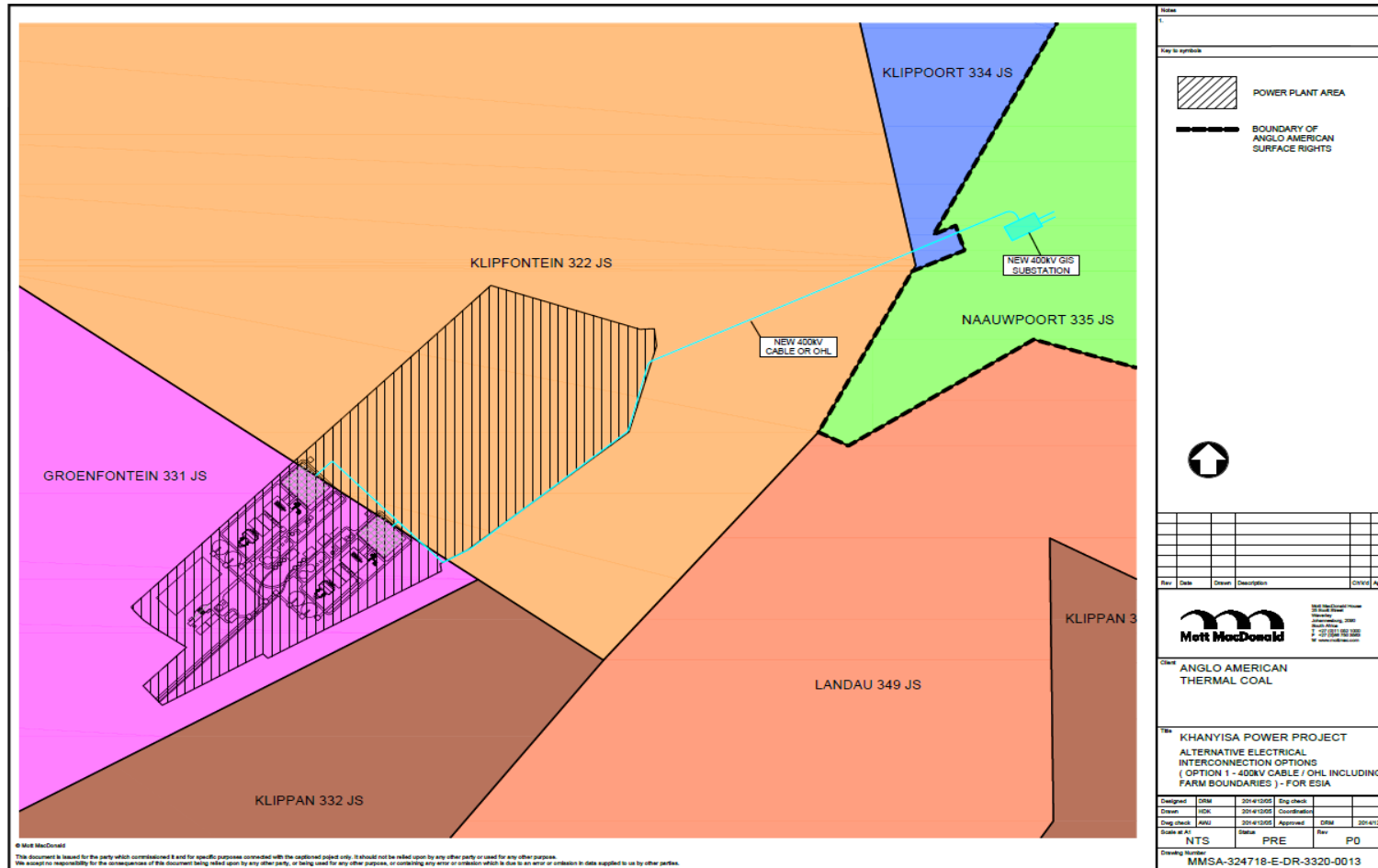


Figure 1.2: Locality map – 400kV Substation and Power line

1.1. Details of the EAP

Aurecon Pty Ltd has been appointed by ACWA Power to conduct the Environmental Impact Assessment for the relocation of the substation and power line from the proposed ACWA Power Khanyisa IPP Project.

Mr. Barend Smit, who is the Project Director and Unit Manager for the Environmental Unit at Aurecon, has gained over 25 years' experience in the strategic management of environmental aspects relating to the construction of bulk water supply projects such as dams, pipelines and tunnels, but also relating to roads, industrial and residential developments, and recreation and tourism infrastructure. He gained extensive experience in leading, managing and conducting a range of environmental impact assessments, and the preparation and subsequent implementation of project specific environmental management plans. Mr Smit has also managed social impact studies in the course of his work, and has experience in liaison with local communities in project areas. He gained significant experience in the contractual aspects of implementing environmental management plans as part of larger construction projects, and the procurement of specialist services for impact assessments. In addition, he has undertaken landscape designs especially for rehabilitation of rock quarries, borrow pits and spoil dumps in relation to tunnels, dams and roads, in addition to purely aesthetic landscape design. He is experienced in working as part of consortiums or independent projects teams set up for large scale engineering projects. Mr. Smit is registered with the South African Council for the Landscape Architectural Profession (SACLAP) as a Professional Landscap Architect.

Reuben Heydenrych, who will be reviewing the project, has been involved in Environmental Impact Assessment (EIA) processes in South Africa and in various other African countries, as required by relevant national legislation and in terms of international requirements as EIA team leader and team member. These projects have included exemptions, scoping, and full EIAs for projects such as power generation, transmission and distribution, rezoning, filling stations, water and sewage pipelines, roads (national, provincial and municipal), residential developments, game lodges, telecommunications structures, mines, infrastructure in sensitive environments and industrial processes. Reuben obtained a Masters in Philosophy: Environmental Management from the University of Cape Town (UCT), South Africa in 1993 and a Bachelors' Degree in Landscape Architecture from the University of Pretoria, South

Africa, in 1991. Reuben is registered as a professional landscape architect with the South African Council for the Landscape Architectural Profession (SACLAP).

The EIA process and coordination of the EIA process will be managed by Anne-Mari White, an environmental project leader with Aurecon. She will also provide overall project management (including client liaison, financial management and progress reporting). Anne-Mari is an Environmental Specialist, who started her studies at the University of Northwest and completed her BSc (Environmental Management) degree at the University of South-Africa (UNISA) in 2007. Anne-Mari is also registered with the South African Council for Natural Scientific Professions as a Certificated Natural Scientist (Reg No 300067/15). In addition to her qualification, she has done short courses in soil classifications and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal) as well as Environmental Impact Assessments (University of Northwest).

1.2. Policy, Legal and Administrative Framework

1.2.1. EIA requirements

The National Environmental Management Act (No. 107 of 1998) (NEMA), amongst other things, regulates the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it cannot be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto.

ACWA Power has the responsibility to ensure that the proposed activity and EIA process conforms to the principles¹ of NEMA. In developing the EIA process, Aurecon has been cognisant of this need, and accordingly the EIA process has been undertaken in terms of NEMA and the EIA Regulations promulgated in December 2014.

¹ NEMA Principles, Chapter 1, Sections 1-4

The EIA regulations identify certain activities that require authorisation from the competent environmental authority (in this case DEA) before commencing. Listed activities in Government Notice (GN) No. 984 of 2014 require a Scoping and EIR process whilst those in GN R 983 and 985 of 2014 require a BA (unless they are being assessed under a full EIA process). The activities being applied for in this EIA process are listed in **Table 1**.

Table 1: Listed activities in terms of NEMA GN No. 984 of 2014

NO.:	Listed Activity:	Relevant to:
R984 of 2014, Activity 9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex	Construction of the substation and 400kV power line on an area not previously assessed during the EIA process.
R985 of 2015, Activity 12	The clearance of an area of 300 m ² or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance plan	Construction of the substation and 400kV power line within a critical biodiversity plan as as identified in bioregional plans.

1.2.2. Water Use License requirements

A wetland is located within 500 m of the area proposed for the Substation and for this reason a Water Use License Application must also be submitted to the Department of Water Affairs and Sanitation (DWS) for approval. According to Section 21 of the Water Act 36, of 1998, the following activities will apply due to the location of the substation within less than 100m of a wetland. It is to be noted that the substation will not impede directly on this wetland, but that regulations under the National Water Act, 1998 require an application for the following water uses if a development occurs in a radius of less than 500m of a watercourse, which is defined to include a wetland:

21 (c): Impeding or diverting the flow of water;

21 (i): Altering the bed, banks, course or characteristics of a watercourse.

1.2.3. Other authorisations

Application to the DEA for Environmental Authorisation in terms of NEMA does not absolve the applicant from complying with other legal requirements. In this regard the following national and provincial legislation may apply and is considered in the assessment process:

- Electricity Regulation, 2006 (Act No. 4 of 2006);
- National Water Act, 1998 (Act No. 36 of 1998);
- Road Ordinance 22 of 1957;
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000);
- National Heritage Resources Act, 1999 (Act No. 25 of 1999);
- National Forests Act, 1998 (Act No. 84 of 1998); and
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

1.2.4. International Finance Corporation Performance Standards

The IFC has defined a set of Performance Standards on Social and Environmental Sustainability. The Performance Standards likely to be triggered by the project are listed below and the applicant must also comply with these Performance Standards:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

1.3. The Project

1.3.1. Need and Desirability

As electricity supply has been under immense strain since 2008, load shedding was implemented to stabilise the electricity system when the energy capacity is not sufficient. The Department of Energy has embarked upon various initiatives to alleviate the current electricity supply constraints to secure the provision of electricity into the future. One of these initiatives identified the capacity to be procured from Independent Power Producers (IPPs). An agreement was made between ACWA Power and the Department of Energy that a certain percentage of the electricity generated by Khanyisa Power Station will be fed back into the national grid. The 400kV substation and transmission lines are therefore essential in order to fulfill this requirement from ESKOM. ESKOM reconsidered the connection option, which was previously approved by the Department of Environmental Affairs and advised that this option was no longer feasible. For this reason an application has been made to relocate this substation to an area that is more feasible.

1.3.2. Description of the Project

The project essentially comprises the construction of a 400kV Substation and Power Line connecting the ACWA Power Khanyisa IPP Project to the national grid.

1.3.3. Project Location

The proposed substation is proposed approximately 2.5km north-east of the approved Khanyisa Power Station on portion 51 of the farm Naauwpoort 335 JS. The 400kV power lines will traverse three properties before it reaches the Khanyisa Power Station south-west of the proposed substation location area. The power line will traverse the following 3 farms:

- The Remaining Extent (T0JS00000000033400000) of the Farm **Klippoort 334 JS**;
- **Portion 49** (T0JS00000000033500049) and **51** (T0JS00000000033500051) of the Farm **Naauwpoort 335 JS**;
- **Portion 1** (T0JS00000000032200001) and **27** (T0JS00000000032200027) of the Farm **Klipfontein 322 JS**.

Coordinates of the Substation:

South-eastern corner: $25^{\circ} 57' 46.32''$ S
 $29^{\circ} 14' 48.26''$ E

North-eastern corner: $25^{\circ} 57' 42.71''$ S
 $29^{\circ} 14' 49.95''$ E

Northern corner: $25^{\circ} 57' 38.44''$ S
 $29^{\circ} 14' 48.16''$ E

Western corner: $25^{\circ} 57' 41.20''$ S
 $29^{\circ} 14' 41.51''$ E

Coordinates of the power line:

Start of linear activity: $25^{\circ} 57' 38.38''$ S
 $29^{\circ} 14' 48.89''$ E

Middle of linear activity: $25^{\circ} 57' 54.92''$ S
 $29^{\circ} 14' 11.40''$ E

End of linear activity: $25^{\circ} 58' 12.55''$ S
 $29^{\circ} 13' 37.84''$ E

2. THE PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the Public Participation Process (PPP) to date and the way forward with respect to the EA amendment process.

Engagement and consultation with Interested and Affected Parties (I&APs) forms an integral component of the EA amendment process and enables, *inter alia*, potentially directly affected landowners, neighbouring landowners and communities, authorities and key stakeholders to provide input into the proposed amendment.

I&APs were identified during the EIA phase of the project prior to its authorisation in 2013. The registered I&APs who were involved during the previous EIA process and in currently pending application for amendment of the environmental authorisation have been informed of the environmental application for the substation and power line by means of the following methods:

- Distributing the Background Information Document to all registered I&APs (either by post or email);
- Placing a site notice at the proposed site (see Annexure D); and
- Placing a newspaper advert in the Middelburg Observer and Witbank News on 22 May 2015.

The registered I&AP list is attached as Appendix C.3.

The draft Scoping Report will be available for review to all I&AP's from the 1st of July 2015. The deadline for comments on this draft Scoping Report will be on Monday 14 August 2015. A record of all I&AP comments and issues raised will be consolidated into an Issues and Response Report and included into the final Scoping Report to be submitted to the DEA.

3. CONSIDERATION OF ALTERNATIVES

Site selection is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

Substation positions and power line route in this area are complicated due to the fact that much of the area has rights for underground coal mining. The available land is constrained by both undermined areas, where construction is not permitted, and areas earmarked for future mining.

This is the reason, for instance, why a related amendment application was brought to change the authorised route for the access road to ACWA Power Khanyisa IPP Project: although the route had been authorised in 2013, it needed to be changed because coal reserves underneath the proposed route still needs to be mined. This context needs to be understood when the limited number of alternatives for the position of the Substation are considered: very few technically feasible alternative positions that are not affected by potential future underground mining are available.

3.1. Site Location Alternatives

Two alternatives were identified and investigated by the applicant for the proposed 400kV substation and power line:

3.1.1. Alternative 1: 132 kV power line to Kleinkopje Substation

Alternative 1 involves a 132kV Power line connecting the ACWA Power Khanyisa IPP Project with the existing 132kV Kleinkopje Substation located on the Farm Kleinkopje 115 IS. This Substation is located approximately 7km west of the approved ACWA Power Khanyisa IPP Project (**Figure 3.1**).

This alternative was investigated during the prefeasibility phase of the project and it was found that transmitting the electricity to a 132kV Substation and Power line will

result in unacceptable loss of electricity. For this reason it was found that the 132kV Substation and Power line will not be further assessed as it is not feasible.

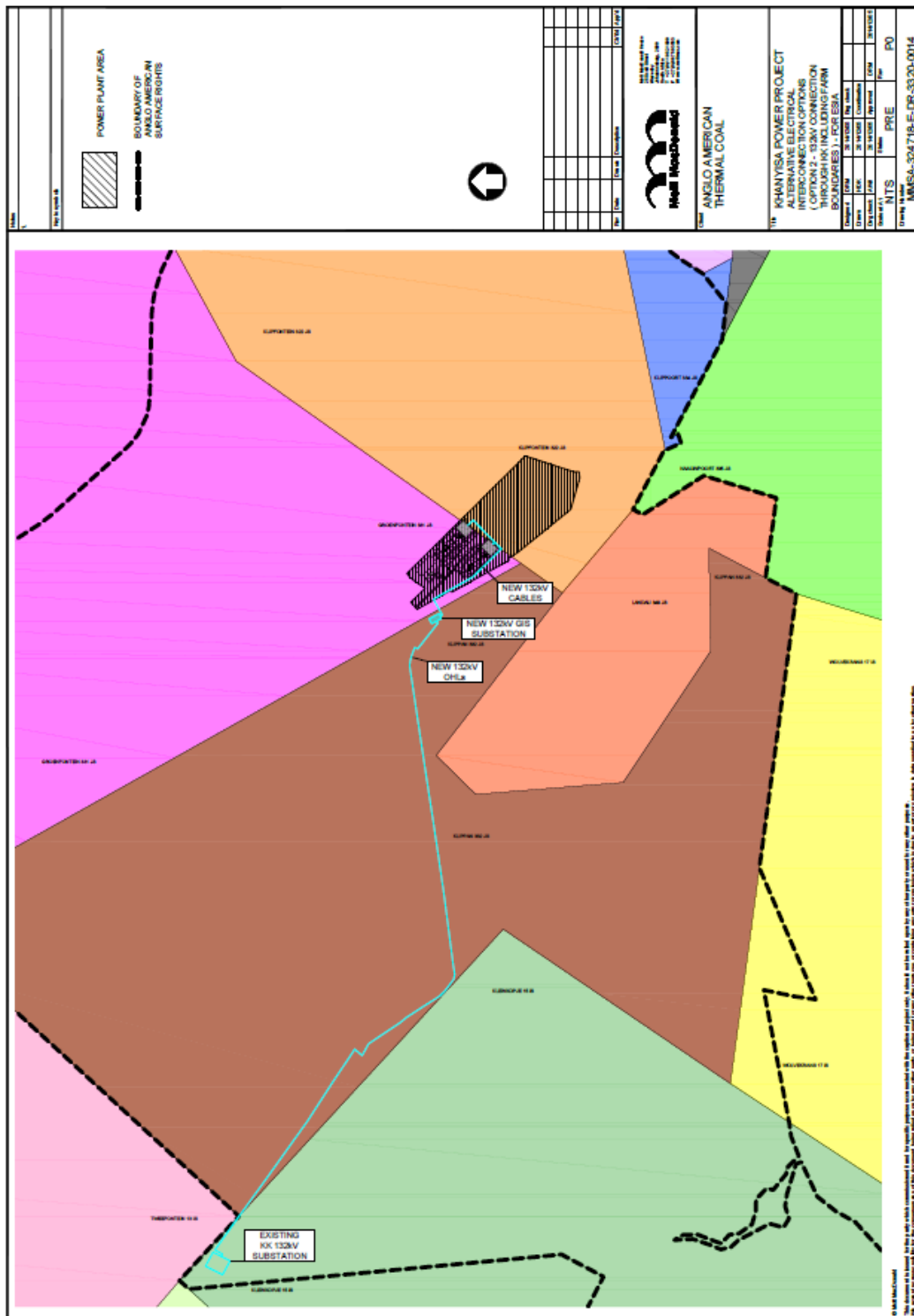


Figure 3.1: Alternative 1 - substation location

3.1.2. Alternative 2: 400 kV power line to Naauwpoort

This alternative involves the establishment of a 400kV Substation approximately 2km north-east of the approved ACWA Power Khanyisa IPP Project on portion 51 of the Farm Naauwpoort 335 JS. This substation is proposed to connect to the ACWA Power Khanyisa IPP Project through a 400kV power line. This alternative is illustrated in **Figure 1.2** and is technically preferred.

3.2. No – Go Alternative

The 'no-go' alternative is the option of not constructing the substation and power line at the proposed location. As described earlier in the report, the Substation has already been approved, but the current location is not feasible for ESKOM. Should the relocation not be approved, the ACWA Power Khanyisa IPP Project will not be able to feed electricity into the national grid as per ESKOM's requirement, which would defeat the object of constructing the project. Provided that no fatal flaws relating to the substation and power line are discovered in the course of this Scoping and EIR process, the no-go alternative is not a feasible alternative in this instance.

Considering the highly degraded state of the environment in the proposed project area, due to coal mining over several decades, it is unlikely that an environmental fatal flaw would be discovered to make the no-go alternative the preferred alternative.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The description of the affected environment given below draws on existing knowledge from published data, previous studies, specialist investigations, and site visits to the area. The identification of potential impacts is broad. In cases where there is currently inadequate information, a ToR and proposed specialist consultant is provided.

4.1. Receiving Environment

4.1.1. Topography

The landscape is characterised by slightly undulating plains, including some low hills and pan depressions. The terrain is dominated by level to gently undulating plains with limited relief at tributaries of the Olifants River. The altitude range is 1 540 – 1 560 mamsl.

4.1.2. Climate

The region has strongly seasonal summer-rainfall, with very dry and cold winters, with mean annual precipitation of 650 – 900mm. During the winter months the temperatures vary between a minimum of 1⁰C and a maximum of 16⁰C. During the summer months minimum temperatures of 13⁰C and maximum temperatures of 25⁰C can be expected.

4.1.3. Geology and Soils

The regional geology of the study area is dominated by Ecca Group arenite, shale and coal of the Vryheid Formation. The overburden at the adjacent Klipkopje Colliery was found to be mostly sandstone, siltstone and shale. While dolerite intrusions are present just below the surface, there are no outcrops within the study area (Oryx Environmental, 2003).

The study area falls within Ba4 landtype, which is a plinthic catena in which upland duplex and marginal soils are rare. Red, yellow and greyish soils with low to medium base status are dominant.

The current land-use pattern on site is predominantly cultivation (temporary, dryland) and mining (surface-based), with scattered patches of degraded, unimproved grassland, waterbodies, wetlands and plantations. This has resulted in a historic disturbance, albeit minimal, to the soil horizons and structure.

4.1.4. Vegetation

The study area falls within the Grassland Biome and more specifically the Eastern Highveld Grassland vegetation type. In its natural undisturbed state the vegetation is short dense grassland dominated by the usual Highveld grass composition with small, scattered rocky outcrops with wiry, sour grasses and some woody species.

This form of grassland can be found in both Mpumalanga and Gauteng Provinces, located on the plains between Belfast in the east and the eastern side of Johannesburg in the west and extending southwards to Bethal, Ermelo and west of Piet Retief. It occurs at an altitude 1520 – 1780 m, but also as low as 1300 m. Site-specific vegetation communities were identified by ECOREX Consulting Ecologists CC, during various field trips (Refer to Figure 6.1) and are described as follows:

- *Fuirena-Helichrysum* Wetland;
- *Seriphium-Imperata* Secondary Grassland;
- *Themeda-Tristachya* Untransformed Grassland;
- Transformed Grassland; and
- Transformed.

In pristine condition *Aristida*, *Digitaria*, *Eragrostis*, *Themeda* and *Tristachya* grass species dominate. The tree species *Acacia caffra*, *Celtis africana*, *Diospyros lycoides* subsp. *lycoides*, *Parinari capensis*, *Protea caffra* and shrubs / forbs *P. welwitschii* and *Rhus magalismsontanum* are also found.

Broad vegetation communities were identified using Google Earth™ satellite imagery, and extent of transformation or degradation was assessed in order to determine representivity of vegetation types. The vegetation community boundaries were ground-truthed during fieldwork in order to confirm current position. Potentially occurring plant species of conservation concern were derived from species lists for the quarter-degree grids 2529CC and 2629AA in the SANBI Plants of South Africa database (POSA), and from the PlantDat threatened species database of the MTPA. Likelihood of occurrence of these species was determined through personal field experience of those species and reference to individual accounts in Raimondo et al. (2009). From this background, the species of conservation concern listed in **Table 4.1** were identified as potentially being present on the site.

Table 4.1: Plant species of conservation concern potentially occurring in the study area

Species	Red Data Status	Growth Form	Habitat	Likelihood	Reason
<i>Crinum bulbispermum</i>	Declining	Geophyte	Along rivers or streams, wetlands	Moderate	Limited habitat present
<i>Crinum macowanii</i>	Declining	Geophyte	Grassland	High	Much habitat present
<i>Pachycarpus suaveolens</i>	Vulnerable	Herb	Grassland	Unlikely	No habitat present
<i>Ilex mitis var. mitis</i>	Declining	Tree	Riverine forest	Unlikely	No habitat present
<i>Callilepis leptophylla</i>	Declining	Herb	Grassland	Confirmed	
<i>Eucomis autumnalis subsp. clavata</i>	Declining	Geophyte	Grassland, wetlands	Moderate	Limited habitat present
<i>Hypoxis hemerocallidea</i>	Declining	Geophyte	Grassland, wetland edge, open woodland	Moderate	Limited habitat present
<i>Frithia humilis</i>	Vulnerable	Succulent	Flat sandstone sheets with shallow beds of fine sand	Unlikely	No habitat present
<i>Pavetta zeyheri subsp. middelburgensis</i>	Vulnerable	Shrub	Wooded rocky outcrops	Unlikely	No habitat present
<i>Encephalartos lanatus</i>	Vulnerable	Shrub	Rocky hill slopes along major river valleys	Unlikely	No habitat present
<i>Encephalartos middelburgensis</i>	Critically Endangered	Tree	Rocky hill slopes along major river valleys	Unlikely	No habitat present

4.1.5. Mpumalanga Biodiversity Conservation Plan

The Mpumalanga Biodiversity Conservation Plan (MBCP) (Ferrar & Lötter, 2009) is a spatial assessment of the conservation value of land in Mpumalanga and a decision support tool to assist planners and decision makers in sustainable land-use planning. The MBCP is regarded as the foundation for a provincial Biodiversity Conservation Strategy, as required by law. Mpumalanga's biodiversity has been ranked into six categories by the MBCP. The first four categories (protected areas, irreplaceable areas, highly significant areas, important & necessary areas) are not considered to be available for development via EIA but should be managed as living landscapes, whereas the last two categories (areas of least concern and areas with no natural habitat remaining) are considered available for development via EIA.

Much of the general vicinity of the study areas has been classified as least concern or no natural habitat remaining, because of high levels of habitat transformation and fragmentation. Areas of natural grassland have been classified as “*Important*” and “*Necessary*”, including those grasslands within the study area.

Guidelines for each MBCP category are given to assist planners and decision-makers. The land-use guidelines for *Important* and *Necessary* areas allow for restricted industrial development (which would include power plants) and restricted linear engineering structures, but not surface mining or dumping.

4.1.6. Economic Uses

These soils are excellent for agronomy, and extensive areas are cultivated for maize and other crops. In its natural state it is intensively grazed by cattle and sheep. The actual proposed development site has been transformed and is currently used for both agriculture and mining.

5. CONSTRUCTION AND OPERATIONAL PHASE IMPACTS

The construction and operational phases of the substation and power line are likely to result in a number of negative impacts on the biophysical and the social environment. These could potentially include:

- Disturbance of flora and fauna;
- Sedimentation and erosion of the wetland adjacent to the Substation;
- Increase in traffic volumes;
- Potential spillage of hazardous substances;
- Increased risk of fire;
- Security risks;
- Health issues;
- Noise pollution;
- Light pollution;
- Dust impacts; and
- Social impacts.

The significance of construction phase impacts is likely to be limited by their relatively short duration. Many of the construction phase impacts can be mitigated through the implementation of an appropriate EMPr. During the EIR phase, the construction phase impacts and cumulative impacts on the biophysical and socio-economic environment will be assessed, in terms of the methodology outlined in the Plan of Study for EIR (see **Chapter 6**). Furthermore, a framework EMPr will be compiled as part of the EIA process, and submitted as part of the EIR, to provide mitigation and ascribe responsibilities for many of the construction phase impacts.

5.1. Disturbance of Flora and Fauna

This impact considers impacts beyond the permanent footprint impacts of the proposed substation and power line. The area of untransformed grassland in the vicinity of the

Substation site has Medium-High importance for conservation-important flora and fauna. Destruction of this fragment of vegetation would worsen the high level of fragmentation of this vegetation type, which is currently classified as *Endangered*.

Untransformed Eastern Highveld Grassland is listed as a Vulnerable ecosystem under Notice 1477 of Government Gazette No. 32689 (6 November 2009). This means that the ecosystem has a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, and has been listed to prevent further degradation and loss of function, structure and composition. Destruction of this fragment within the study area would represent further degradation.

It is possible that some species on the Red Data List can be found on the project site and the construction of the substation and power line may have an impact on these species. Any threatened species will be identified during the ecological survey that will be conducted. These findings will be included in the EIR.

5.2. Sedimentation and erosion of the wetland

The sediment loads of any drainage depressions and wetlands or pans may increase due to the excavations on the site, and other construction related activities. This would be exacerbated during the wet season and during intense rainfall events. A wetland is located within 500m east of the proposed site for the substation. The erosion and sedimentation of the wetland during the construction phase of the Substation is a possibility and will be assessed during the EIA phase of the project.

5.3. Increase in traffic volumes

Construction vehicles are likely to make use of the existing roads, including the N12, R547, R544, and smaller arterial roads surrounding the proposed site, to transport equipment and material to the construction area. Furthermore, the construction site is likely to operate on a 24-hour basis at times. Construction related traffic could negatively affect traffic flow in the vicinity and on the integrity of the affected roads. Furthermore, this may exacerbate the risk of vehicle accidents.

5.4. Potential spillage on hazardous substances

As at any construction site, various hazardous substances are likely to be used and stored on site. These substances include amongst other things, diesel, curing compounds, shutter oil and cement. Utilisation of such substances in close proximity to the aquatic environment such as wetlands or pans is of greater concern than when used in a terrestrial environment.

Use of hazardous substances at a construction site is controlled by various pieces of legislation. However, the management and protection of the environment would be achieved through the implementation of an EMPr, which would, inter alia, specify the storage details of hazardous compounds and the emergency procedures to follow in the event of a spillage.

5.5. Increased Risk of Fire

Temperatures in the Witbank can rise to 35°C or more in summer. Furthermore, the natural vegetation is prone to fires started by lightning strikes, mostly in summer. Construction activities may increase the risk of fire in the area in both the wet summer months and the dry winter months. The outbreak of fire at the construction site could have serious safety, economic and ecological implications. The risk of fire would be managed through the EMPr, which would include procedures for dealing with emergency situations such as fires.

5.6. Security risks

As mentioned above, during the construction phase a large number of people are likely to be employed, with the numbers rising and falling throughout the construction period, dependent on the activities taking place at the time. While the contractor would want to source construction labour locally, it is inevitable that there will be an influx of people to the area. The increase in people to the area, as well as the periods where some construction workers are unemployed, could lead to an increase in crime and social friction in surrounding areas like eMalahleni, Ogies, Phola, Ga-Nala, Thubelihle, Rietspruit, Van Dyksdrift, Wilge and the surrounding areas.

5.7. Health Issues

The migration of construction workers into the eMalahleni region could result in an increase in the prevalence of diseases in the area, including HIV/AIDS and tuberculosis. Health risks

could be increased by an influx of sex workers to the area, fed by a large number of construction workers who are away from their families. Medical facilities in the area may not be equipped to deal with the increased requirement for healthcare as a result of the construction activities.

5.8. Noise Pollution

As mentioned above, the construction site may operate 24-hours a day for a portion of the construction period. An increase in noise pollution would be expected from the operation of heavy machinery during the construction period, as well as due to the increased traffic. The severity of this impact is likely to be reduced due to the low numbers of people in close proximity to sites.

5.9. Light Pollution

Large floodlights are likely to be installed at the construction site to enable construction activities to continue 24 hours per day, when required. As mentioned, many of the construction phase impacts could be managed or mitigated through the implementation of an appropriate enforceable EMPr. A framework EMPr will be compiled as part of this EIA process and will be contained in the EIR.

5.10. Dust Impacts

Construction vehicles are likely to make use of the existing roads, including the N12, R547, R544, and smaller arterial roads to transport equipment and material to the construction site. Furthermore, the construction site may operate on a 24-hour basis at times and large earthworks would be undertaken. These activities would exacerbate dust, especially in the dry winter months. The dust impact would be managed through the EMPr, which would include procedures for dealing with dust pollution events including watering of roads, etc.

5.11. Social impacts

A summary of the potential impacts linked to a potential social change has been listed below:

5.11.1. In-migration

In-migration could result in secondary impacts such as:

- Increased pressure on local services & infrastructure
- Increased incidence of STD's, HIV & AIDS
- Social nuisance e.g. prostitution, damage to property, discrepancy in income of workers

5.11.2. Change in land use:

- Loss of productive land leading to loss of profit leading to job losses;
- Increased property prices due to demand for accommodation during construction and operation

5.11.3. Increase in deviant social behaviour

- Increase in crime and disorder
- Breakdown of traditional values

5.11.4. Enhancement of economic opportunities

- Opportunity for local low skill employment
- Direct employment opportunities
- Indirect employment opportunities

6. PLAN OF STUDY FOR EIA

6.1. Purpose of this plan of study for EIA

The Scoping process has been documented in this Scoping Report, which has identified various potential environmental impacts and project alternatives that require detailed investigation. This Plan of Study is the culmination of the Scoping Phase and its purpose is to ensure that the EIA phase of this EIA process satisfies the requirements of NEMA. Accordingly, this Plan of Study for EIA outlines the anticipated process and products for the EIA phase.

This Plan of Study for EIA has been compiled in terms of Government Notice No. R. 982 of 2014 and will be submitted to DEA for its consideration.

6.2. Description of the activity

The nature of the activity is described in detail in **Chapter 4**, but in brief includes the development of the 400kV substation and power line associated with the ACWA Power Khanyisa IPP Project and responsible for feeding electricity generated into the national grid.

The construction of this substation and power line will likely be undertaken at the same time as the ACWA Power Khanyisa IPP Project and associated infrastructure, assuming that environmental authorisation is granted.

6.3. Description of aspects to be assessed during the EIA phase

6.3.1. Potential environmental impacts identified during scoping

Chapter 5 has reviewed the range potential environmental impacts associated with the proposed establishment of the Substation and Power line. Pursuant to this assessment, which was based on literature, input from the authorities and interested and affected parties (I&APs), a shortlist of potentially significant environmental impacts were identified for further, more detailed investigation during the EIR phase. Specifically the following potential environmental impacts have been identified:

- Construction phase impacts on the biophysical and social environments:

- Disturbance of flora and fauna;
 - Sedimentation and erosion of water ways;
 - Increase in traffic volumes;
 - Interruption of road services;
 - Potential spillage of hazardous substances on site;
 - Increased risk of fire;
 - Security risks;
 - Health issues;
 - Noise pollution;
 - Light pollution; and
 - Dust impacts.
- Operational phase impacts on the biophysical environment:
 - Impact on terrestrial fauna and flora;
 - Impact on aquatic flora and fauna, inclusive of wetlands;
 - Impact of founding conditions on the substation and power line; and
 - Impact on groundwater resources.
 - Operational phase impacts on the social environment:
 - Visual impacts;
 - Impact on the health of surrounding landowners;
 - Impact on heritage resources;
 - Impact on land use and planning; and
 - Impact on agricultural production.

6.3.2. Need for additional information: Specialist Studies

In reviewing the potential environmental impacts, all impacts as identified during this Scoping phase have been identified as being of concern and requiring further investigation. Accordingly, we propose to undertake the following specialist studies, in order to address a suite of potential environmental impacts.

Table 6.1: List of specialists and respective studies to be completed.

Study	Consultant and Organisation	Impact to be assessed
Ecological impact assessment (including avifaunal assessment)	Taylor Environmental Consultants	Impact on fauna and flora
Heritage impact assessment	JP Celliers of Kudzala Antiquity	Impact on artefacts with archaeological and social significance
Wetland Delineation	Emross Consulting Pty Ltd	Delineation of the wetland

A short summary of the various specialist consultants is given below. CVs are available upon request.

Ecological: Dr. Llew Taylor (Terrestrial Ecologist) of Taylor Environmental

Dr. Taylor is the owner and director of Taylor Environmental, a specialist consultancy specializing in Aquatic Assessments, Wetland Delineation, and Ecological Sensitivity Analysis. He is registered at the South African Council of Educators (No 355376) as well as the South African Council for Natural Scientific Professions as a professional Natural Scientist (Zoological Science, No 400077/92) He has a PhD, MSc (cum laude), BSc (Hons), BSc, GIS certificate (ReGIS), IEM certificate (University of Cape Town) and also conducted a course in Hydrology for Ecologists. He has over 15 years experience conducting fauna and flora surveys.

Heritage: JP Celliers of Kudzala Antiquity

JP Celliers is a trained archaeologist and Museum Professional. He holds a Masters Degree from the University of Pretoria with specialisation in Archaeology. He has been conducting Archaeological Impact Studies and Mitigation in a professional capacity since 2003 and is the Director of Kudzala Antiquity CC, a consulting business specialising in archaeological and related heritage work. He is a member in good standing of ASAPA (Association of South African Professional Archaeologists).

Wetland Delineation: Anthony Emery of Emross Consulting Pty Ltd.

Anthony Emery is the owner and director of Emross Consulting. He is an Ecologist and Zoologist with 18 years of experience in conservation planning, project management and Geographic Information Systems. He also has experience in strategic biodiversity and conservation planning. During the past 18 years he has achieved a lot of experience in the delineation and assessing the state of wetlands. He is registered with the South African Council for Natural Scientific Professions in the fields of ecology and zoology (Reg No. 400325/07).

6.4. Method of assessing the significance of potential environmental impacts

This section outlines the proposed method for assessing the significance of the potential environmental impacts outlined above. As indicated, these include both operational and construction phase impacts as well as the impacts assessed by the specialists.

For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described. These criteria would be used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the EIR would represent the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.²

The tables on the following pages show the scale used to assess these variables, and defines each of the rating categories.

Table 6.2: Assessment criteria for the evaluation of impacts

CRITERIA	CATEGORY	DESCRIPTION
Extent or spatial influence of impact	Regional	Beyond a 30 km radius of the candidate site.
	Local	Within a 30 km radius of the candidate site.
	Site specific	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	High	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	Medium	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	Low	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	Very Low	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	Zero	Natural and/ or social functions and/ or processes remain <i>unaltered</i>

CRITERIA	CATEGORY	DESCRIPTION
Duration of impact	Construction period	Up to 3 years
	Medium Term	Up to 5 years after construction
	Long Term	More than 10 years after construction

² The applicant will be requested to indicate at the Draft EIR stage which alternative and mitigation measures they are prepared to implement.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. The means of arriving at the different significance ratings is explained in Table 6.3.

Table 6.3: Definition of significance ratings

SIGNIFICANCE RATINGS	LEVEL OF CRITERIA REQUIRED
High	<ul style="list-style-type: none"> High magnitude with a regional extent and long term duration High magnitude with either a regional extent and medium term duration or a local extent and long term duration Medium magnitude with a regional extent and long term duration
Medium	<ul style="list-style-type: none"> High magnitude with a local extent and medium term duration High magnitude with a regional extent and construction period or a site specific extent and long term duration High magnitude with either a local extent and construction period duration or a site specific extent and medium term duration Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term Low magnitude with a regional extent and long term duration
Low	<ul style="list-style-type: none"> High magnitude with a site specific extent and construction period duration Medium magnitude with a site specific extent and construction period duration Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term Very low magnitude with a regional extent and long term duration
Very low	<ul style="list-style-type: none"> Low magnitude with a site specific extent and construction period duration Very low magnitude with any combination of extent and duration except regional and long term
Neutral	<ul style="list-style-type: none"> Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the PROBABILITY and CONFIDENCE of this impact would be determined using the rating systems outlined in Table 6.3 and Table 6.5 respectively. It is important to note that the significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the REVERSIBILITY of the impact is estimated using the rating system outlined in Table 6.6.

Table 6.4: Definition of probability ratings

PROBABILITY RATINGS	CRITERIA
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

Table 6.5: Definition of confidence ratings

CONFIDENCE RATINGS	CRITERIA
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

Table 6.6: Definition of reversibility ratings

REVERSIBILITY RATINGS	CRITERIA
Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Reversible	The impact is reversible within 2 years after the cause of the impact is removed.

6.5. Reasonable project alternatives identified during scoping

6.5.1. Location alternatives

The substation and power line cannot be seen as an isolated project as it is infrastructure that is required for the operation of ACWA Power Khanyisa IPP Project. Two location alternatives for the substation and power line were identified. However, only one alternative was found to be viable and therefore only one alternative will be further assessed during the EIA phase of the project.

6.5.2. No-go alternative

The no go alternative is not viable as the generated electricity will not be able to be transmitted to the national grid.

6.6. The Environmental Impact Report

The purpose of the EIR would be to undertake a comparative assessment of the relative significance of the potential environmental impacts for the proposed layout and routing alternatives for the substation and power line. The EIR would thus include the following:

- A brief overview of the potential environmental impacts and reasonable alternatives identified during scoping.
- A summary of the key findings of the various specialist studies as they pertain to the affected environment.
- An overview of the public participation process conducted during the compilation of the EIR.
- A detailed assessment of the significance of the potential environmental impacts for the various project alternatives. This assessment, which would use the methodology outlined in **Section 6.4**, would be informed by the findings of the specialist studies, professional judgement and comment from I&APs.
- An overview of the full range of mitigation measures including an indication of how these would influence the significance of any potential environmental impacts, together with a framework EMPr. The mitigation measures would be informed by the specialist studies, professional experience and comment received from I&APs.
- A set of recommendations regarding the way forward would be provided, should any of the proposed alternatives be authorised in terms of NEMA.

6.7. Public Participation Process

The purpose of the public participation process would be to provide I&APs with adequate opportunity to have an input into the environmental process. The public participation process would include the following:

6.7.1. Public comment on the draft EIR

Following the completion of the Draft EIR (refer to **Section 6.6** above), it will be lodged at a suite of relevant libraries and on the Aurecon website (www.aurecongroup.com/en/public-participation). Registered I&APs will be notified of the lodging by means of letters, and given 30 days in which to comment on the report. The report must also be lodged with the Competent Authority, who should in writing, within **43 days** of receiving the scoping report, or on receipt of the required information, reports, or comments, or the amended scoping report, consider it and –

- Accept the report and advise the EAP to proceed with tasks as stipulated the plan of study for the EIA;
- Request the EAP to make amendments to the report if required; or

- reject the report if it does not contain material information required or has not taken applicable guidelines into account.

The public comments would be consolidated into an Annexure of the EIR. This would take the form of an Issues trail, which would summarise the issues raised and provide the project team's responses thereto. The draft report would also be revised in light of feedback from the public.

6.7.2. Opportunity for appeal

All registered I&APs would be notified in writing of the release of the Environmental Authorisation. They would be reminded of their right to appeal against DEA's decision to the Minister of Environmental Affairs and Tourism in terms of the National Appeal Regulations (GN No R 993 of 2014).

6.8. Proposed tasks

A summary of the proposed tasks to be undertaken during the EIA process is given in Table 6.7 below.

Table 6.7: Proposed EIA tasks

Activity
<ul style="list-style-type: none"> • Finalising all specialist reports and incorporating their findings it into the Draft EIR
<ul style="list-style-type: none"> • Compilation of the Draft EIR and EMPr
<ul style="list-style-type: none"> • Informing all I&AP about the availability of the Draft EIR and EMPr for comment (30 days) <ul style="list-style-type: none"> ○ Letter to I&APs; ○ Lodge the draft EIR and EMPr at public venues and on the Aurecon website; and ○ Public meeting (if required by the nature or number of responses).
<ul style="list-style-type: none"> • Include all comments received from stakeholders and I&AP's into the final EIR and EMPr
<ul style="list-style-type: none"> • Submit the final EIR and EMPr to the DEA for decision-making
<ul style="list-style-type: none"> • Inform all I&APs and stakeholders of the decision that was made and give them an opportunity to appeal.

7. CONCLUSIONS AND WAY FORWARD

The purpose of this chapter is to briefly summarise and conclude the Scoping Report and describe the way forward.

As per the requirements of NEMA, this scoping report has contemplated the array of potential environmental impacts associated with the following proposed activities associated with the proposed 400kV substation and power line

Alternatives for the proposed substation and power line were considered during the prefeasibility phase of the project. However, EKSOM found some of these alternatives not to be viable and therefore they were not further assessed.

7.1. Potential impacts

The following potential environmental impacts have been identified for further consideration in the EIR:

- Impact on the terrestrial fauna and flora;
- Impact on aquatic flora and fauna, inclusive of the wetland;
- Impact of founding conditions on the substation and power line
- Impact on heritage resources;
- Impact on land use and planning;
- Sedimentation and erosion of water ways;
- Increase in traffic volumes;
- Interruption of road services;
- Storage of hazardous substances on site;
- Increased risk of fire;
- Security risks;
- Noise pollution;
- Light pollution; and
- Dust impacts.

The following specialist studies and specialists will be commissioned to provide more detailed information on those environmental impacts that have been identified as potentially being of most concern, as indicated in **Table 7.1**.

Table 7.1: Specialist studies and relevant specialists

Study	Consultant and Organisation
Ecological impact assessment and Avifaunal Report	Taylor Environmental Consultants
Heritage impact assessment	JP Celliers of Kudzala Antiquity
Wetland Delineation	Emross Consulting Pty Ltd

The approach to the EIR phase should be conducted in terms of the guidelines outlined in the Plan of Study for EIA in **Chapter 6**.

7.2. The way forward

The next stage of the Scoping and EIA process involves the submission of the Final Scoping Report for approval by the DEA.

Written comments on the report will be received until 14 August 2015. Cognisance will be taken of all comments when compiling the final report, and the comments, together with the study teams and client's responses thereto, will be included as ANNEXURE C.4 in the final Scoping Report. Where necessary, the report will be updated to take these comments into account.

Once the final Scoping Report has been completed, all I&AP comments have been incorporated and the client has approved it the report will be submitted to the DEA for their review and comment. DEA will either reject the application or instruct the applicant to proceed to the EIR phase, either as proposed in the Plan of Study for EIR, or direct that amendments are made before continuing.

8. REFERENCES

Aurecon. 2011. Final Scoping Report for the Khanyisa Power Station, Aurecon South Africa Pty Ltd

Department of Environmental Affairs and Tourism. 2004. Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11. DEA, Pretoria.

Department of Water Affairs and Forestry. 2004. Internal Strategic Perspective: Limpopo Water Management Area: Prepared by Goba Moahloli Keeve Steyn (Pty) Ltd, in association with Tlou & Matji (Pty) Ltd and Golder Associates (Pty) Ltd on behalf of the Directorate: National Water Resource Planning. Report No. P WMA 01/000/00/0304.

Eskom Holdings Limited. 2006. Annual report- 2006. South Africa.

Glazewski, J. 2005. Environmental Law in South Africa. 2nd Edition. LexisNexis Butterworths, Durban.

eMalahleni. Integrated Development Plan.

Mucina, L. and Rutherford, M.C.(eds). 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

National Electricity Regulator. 2004. National Integrated Resource Plan 2. Compiled by ISEP Eskom, National Energy Research Institute of the University of Cape Town and the National Electricity Regulator.

ELECTRONIC RESOURCES

Driver, A, Maze, K., Lombard, A.T., Nel, J., Rouget, M., Turpie, J.K., Cowling, R.M., Desmet, P., Goodman, P., Harris, J., Jonas, Z., Reyers, B., Sink, K. and Strauss, T. 2004. South African National Spatial Biodiversity Assessment [Online]. Available from <http://mapserver.uwc.ac.za> [viewed on 30/10/08]

Jeffrey, L.S. 2005. "Characterization of the coal resources of South Africa" *The Journal for the South African Institute of Mining and Metallurgy* [Online]. Available on

<http://www.saimm.co.za/publications/downloads/v105n02p095.pdf>
23/09/08]

[viewed on