

HYDRA-PERSEUS AND BETA-PERSEUS 765KV TRANSMISSION POWER LINES ENVIRONMENTAL IMPACT ASSESSMENT

AMENDED PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

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GLOSSARY

ACER	ACER Africa Environmental Management Consultants
ARCUS GIBB	ARCUS GIBB (Pty) Ltd
DEAT	Department of Environmental Affairs and Tourism
ECA	Environment Conservation Act, 1989 (Act 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
ESR	Environmental Scoping Report
ESKOM	Eskom Holdings Limited
FS DTEEA	Free State Department of Tourism, Environmental and Economic Affairs
I&APs	Interested and Affected Parties
km	kilometre
kV	kilo volt
NC DTEC	Northern Cape Department of Tourism, Environment and Conservation
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
PPP	Public Participation Process
RoD	Record of Decision

1 INTRODUCTION

1.1 Project background

The Transmission Division of Eskom Holdings Limited (Eskom) proposes to construct three 765 kV transmission power lines of varying length. The power lines are to be constructed in the Free State Province and Northern Cape Province and are necessary in light of increased electricity demand in the broader Cape region.

The Scoping phase of the EIA process has largely been concluded, with the outcome thereof captured in the Environmental Scoping Report (ESR), which was made available for public comment in May 2006. The ESR provides a broad description of the preliminary biophysical and socio-economic issues related to the proposed project. The report contains a detailed project description, an evaluation of alternatives, a detailed record of the Public Participation Process (PPP) to date, the outcome of preliminary specialist investigations and defines the scope of further detailed investigations to be conducted during the EIA phase.

This document is the Plan of Study for Environmental Impact Assessment (EIA). It has been compiled in terms of Regulation 7 of Government Notice R.1183 (as amended), promulgated in terms of sections 26 and 28 of the Environment Conservation Act, 1989 (Act 73 of 1989, the ECA)

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2 SUMMARY OF PROJECT DESCRIPTION

2.1 Introduction

The proposed project entails the following:

- Establishment of one 765 kV transmission power line, approximately 260 km in length, between the Perseus Substation near Dealesville and the Hydra Substation near De Aar (**Hydra-Perseus line**);
- Establishment of two 765 kV transmission power lines, approximately 12 km in length, between the Perseus Substation near Dealesville and the Beta Substation south-west of Dealesville (**Beta-Perseus lines**); and
- Expansion of the existing Perseus Substation in order to accommodate the additional incoming and outgoing 765 kV transmission power lines.

In terms of the legislation, an Environmental Impact Assessment (EIA) must be conducted and the information from the EIA must then be presented to the authorities for decision-making. The decision-making authority for this project is the Department of Environmental Affairs and Tourism (DEAT).

2.2 Description of the study area

The 260 km Hydra-Perseus line traverses the Free State Province and the Northern Cape Province. The 2x12 km Beta-Perseus lines are situated in the Free State Province.

The study area (**Figure 1**) for the EIA process traverses the Free State and Northern Cape Provinces, and covers approximately 1 594 054 ha (15 940 km²), which is almost the size of the Kruger National Park or a country the size of Wales. The main settlements and towns situated within the study area are Dealesville, Petrusberg, Koffiefontein, Oppermans, Luckhoff, Orania, Vanderkloof, Phillipstown and De Aar.

The local municipalities potentially affected by the proposed power lines include Emthanjeni, Kopanong, Letsemeng, Mangaung, Renosterberg, Thembelihle and Tokoloho.

2.3 Summary of the Environmental Impact Assessment Process

The approach to the EIA for the proposed transmission power lines was described in the Plan of Study for Scoping accepted by DEAT on 14 March 2006. In this POSS, it was suggested that the project be divided into three phases, namely an:

- Initial Phase;
- Scoping Phase; and
- EIA Phase.

The Public Participation Process (PPP) is a continuous process undertaken during all of the phases. This approach is consistent with the requirements of Government Notice R.1183 (as amended), promulgated in terms of Sections 26 and 28 of the ECA.

2.3.1 Initial Phase

The Initial Phase of the EIA involved the initiation of the project, a start-up meeting with the EIA team and Eskom. The project start-up meeting was held on the 14th July 2005 at Megawatt Park. A Pre-Application meeting with Eskom, the consultant and the authorities was held on 22 August 2005 at DEAT National offices in Pretoria.

A further meeting with DEAT, Eskom and the consultant, to discuss the change of scope of the project took place on 22 February 2006.

2.3.2 Scoping Phase

The Scoping Phase of the proposed project comprised public participation activities (see below), identification and drafting of the POSS, submission of EIA application forms and compilation of the ESR (including preliminary findings of the specialist studies).

A Specialist Workshop was held on 15 August 2005 at ARCUS GIBB offices and site visits were held during August 2005 and March 2006.

2.3.3 Environmental Impact Assessment Phase

The EIA Phase comprises of a detailed environmental assessment of the most preferred alternatives for the proposed power lines identified during the Scoping Phase. The activities in this Phase include detailed specialist studies, assessment and mitigation of identified impacts and the compilation of an Environmental Management Plan (EMP) and Environmental Impact Report (EIR).



Figure 1: Regional location of the study area

3 SUMMARY OF THE SCOPING PHASE

3.1 Introduction

The Scoping Phase study focussed on a broad environmental assessment of the study area, and included preliminary specialist investigations and identification of relevant, sensitive biophysical and socio-economic aspects and areas. The main purpose was to identify and evaluate possible alignment corridors for the proposed power lines, and to identify preferred alignment corridors and related environmental issues that require further detailed investigation during the EIA Phase.

3.2 Description of the baseline environment

The climate of the area is described as dry-cold, with the majority of the area receiving less than 400 mm of rain a year. The study area is characterised by a narrow mean annual temperature range of between 15 °C and 18 °C.

The topography of the northern part of the study area is characterised by flat open plains that contain a number of salt pans. The soils are commercially cultivated either as dryland or by irrigation. The pans align generally north-south along ancient drainage lines. The topography of the southern area is characterised by open grassland plains with the vertical relief of plateaux and koppies formed by dolerite intrusions. The soils are predominantly shallow and are used as natural grassland pasture. The dominant landforms in the study area are plains, lowlands and hills. These are associated with the following terrain morphological units: plains and pans, slightly irregular plains and pans, lowlands with hills and hills.

The vegetation in the northern part of the study area is a patchwork of cultivated land and natural grassland. Few trees are present and if so they are clustered on rocky outcrops or along drainage lines. The southern area is predominantly grassland with natural fynbos on the slope of koppies and plateaux. Five regional vegetation types occur within the study area, of which Eastern Mixed Nama Karoo dominates at 76%. Based on the study area's environmental description, potential habitat for seven of the 117 potential Red Data flora species occur within the study area. These species are mainly associated with outcrops, either of shale or dolerite, where soils occur with a sandy texture on any aspect.

The landscape diversity of the northern part of the study area is influenced by the land use patterns of cultivation rather than any topographical features. This pattern is made up of the cultivated lands and natural veld areas, which are interspersed with the shallow salt pans. This pattern of diversity is significantly altered by the dense irrigated lands in the immediate surroundings of the Modder and Riet Rivers, which flow east to west across the area.

The northern half (between the Riet River and Modderspruit) has an agricultural character as a result of the dryland and irrigated lands. This character is significantly negatively modified by the four existing transmission lines which all fall within a 10 km wide corridor midway between the boundary of the study area.

Geologically, the entire study area is underlain by near-horizontally layered sedimentary rocks of the Karoo Supergroup.

From the analyses conducted during the preliminary specialist study, flat areas, especially those dry habitats with sandy soils are regarded as the most sensitive habitat types that best meet the habitat requirements of the group of faunal Red Data species which may occur in the study area.

A total of 22 Red Data bird species have been recorded in the study area, with the White Stork and Abdim's Stork being included as they are protected internationally under the "Bonn Convention on Migratory Species".

3.3 Summary of the Public Participation Process to date

The following steps preceded the compilation of the ESR:

- Identification of I&APs;
- Compilation of an electronic I&AP database;
- Project announcement;
- Identification of issues;
- Compilation of an I&AP issues report for inclusion in the ESR; and
- Circulation of the ESR to I&APs and incorporation of their comments into an updated Issues Report.

The identification and registration of I&APs is an ongoing process throughout the duration of the study, although concentrated during the initial phases. I&APs were identified from reconnaissance visits to the area, use of existing databases, internet searches, stakeholder referrals, advertisements, completed comment sheets and attendance registers at meetings.

The project and environmental assessment process was widely announced, with an invitation to the general public to register as I&APs and to actively participate in the PPP.

One-on-one interactions were held with individuals and representatives of relevant sectors including local, national and provincial government, agriculture, tourism and conservation. These meetings were particularly useful in identifying key issues and other relevant stakeholders.

A Key Stakeholder and Public Workshop to discuss the key issues around the proposed Transmission Power Line was held at Vanderkloof Holiday Resort on 02 November 2005. Stakeholders that were invited to the workshop were representatives of various sectors.

A considerable effort was made in contacting Farmers Associations and Unions in order to arrange Focus Group Meetings with their members. Landowners who attended the meetings assisted the Public Participation team with the identification of potentially affected landowners and, where possible, also provided relevant contact details. Eight (8) Focus Group Meetings have been held to date.

Focus Group Meetings are considered to be the most logical and practical point of contact with individual landowners. This interaction with landowners will continue throughout the EIA process.

A site visit with landowners was held on 14 March 2006. The site visit preceded the Focus Group Meeting and focussed in and around Perseus and Beta Substations.

An internal stakeholder meeting to discuss the key issues around the proposed Transmission Power Line was held at Indaba Lodge, Bloemfontein on 11 November 2005.

3.4 Identification of project alternatives

The consideration of project alternatives is a key requirement of an EIA as it provides a basis for choice for the competent authority. A number of different categories of alternatives were considered for the proposed development, including the following:

- Demand and scheduling alternatives;
- Process and technical alternatives; and
- Location alternatives.

The process followed in the selection of location alternatives for each of the proposed power lines was as follows:

3.4.1 Hydra-Perseus line

- The proposed Hydra-Perseus line is part of the 765 kV strengthening of the Alpha-Hydra-Gamma part of the transmission network, which is critical for the provision of energy to the broader Cape region in the short to medium term.
- A number of possible alternative corridors for the location of the power line were proposed. The alternatives were based on technical feasibility, sensitivity mapping and site observations, which identified the following constraints and requirements:
 - Four major transmission power lines exist between the Hydra and Perseus Substations. The proposed line will bypass the Hydra Substation and will thus have to be either west or east of the existing power lines;
 - The transmission line route should minimise the need to change direction; and
 - Each corridor would need to be 500 m in width in order to allow for minor directional change during construction.
- This assessment resulted in four corridors being identified, all of which are on the western side of the existing power lines. The four suggested corridors were subjected to a preliminary specialist study, which consisted of a field trip to the study area on 24-26 August 2005 and 29-31 August 2005 and the generation of specialist reports on the following:
 - Visual impacts;
 - Cultural heritage resources;
 - Avi-fauna;
 - Geological and geotechnical engineering;
 - Fauna;
 - Soils;
 - Flora; and
 - Socio-economic environment.
- A fifth alternative was also proposed involving small directional changes between the Central and Western corridor alternatives.

The following alternative alignment corridors were assessed for the Hydra-Perseus line (**Appendix 1**):

Alternative 1 – Existing 765 kV power line corridor (Green)

This alternative is located parallel to the existing 765 kV power line, which lies furthest west of the four existing lines between Perseus and Hydra Substations in the centre of the study area. This alignment was chosen to explore the possibility of restricting all the transmission lines into a single corridor.

Alternative 2 – Eastern Corridor (Yellow)

Alternative 2 refers to a position approximately 2 km west of the existing 765 kV transmission line. This alternative was selected as a result of the need to avoid the saline soils and pans.

Alternative 3 – Centre Corridor (Dark Blue)

Located approximately 5 km west of the existing 765 kV transmission line. In addition to avoiding saline soils and pans, this corridor is characterised by a higher lying landform and plains interrupted by dolerite remnant landforms of plateaux and koppies. These features will provide occasional screens and backdrops to the line.

Alternative 4 – Western Corridor (Red)

This corridor is located approximately 10 km west of the existing 765 kV power line. This corridor will be visually disassociated with the existing lines and on the highest lying area - yet able to be visually screened along portions of its length by ridges, plateaux and koppies.

3.4.2 Beta-Perseus line

- Upon confirmation of the addition of this line to the project scope, a second study area was defined. This study area is within the study area for the Hydra-Perseus line and was predominantly influenced by the technical limitation of the line crossing with the existing 400 kV lines.
 - No alternative corridors were proposed for the line as the short length of the line and homogenous surrounding environment suggested that the differences between the limited numbers of corridor alternatives possible (to avoid the cross-over of power lines) would be negligible.
 - All relevant specialists were however requested to undertake a desktop assessment of the impact of the addition of this line to the study area defined for the Hydra-Perseus line in order to confirm whether corridor alternatives were necessary or not.
 - All specialist studies confirmed that any route alignment within this study area would effectively have the same impact.
-

3.5 Specialist assessment of alternatives

3.5.1 Hydra-Perseus line

Although the Western and Central Corridors were identified during the Scoping Phase as the preferred alternatives for detailed study during the EIA Phase, the specialist reports agreed that the difference between one Corridor Alternative and another Corridor Alternative was in many respects insignificant.

The Scoping Phase of an EIA is generally used as the first screening of alternatives in order to eliminate one or more alternatives, such that the EIA Phase focuses on the most feasible alternatives. Normally, one or more fatal flaws are identified with respect to a particular alternative and this fatal flaw/s allow for the elimination of a particular alternative. In this project, no fatal flaws were identified during the Scoping Phase and the basis of exclusion of some alternatives was based on a non-quantitative comparison of the specialist studies in which the Western and Central Corridor Alternatives were clearly preferable to other alternatives. This did not imply that the other Corridor Alternatives had fatal flaws, and it was thus decided that the specialists would proceed to evaluate the Western and Central Corridor Alternatives during the EIA Phase. It was accepted that other alternatives would also need to be examined if the more detailed specialist studies provided information contrary to that provided during the Scoping Phase.

The specialists have since undertaken preliminary detailed studies on the Western and Central Corridor Alternatives and have identified amongst others the following:

- Certain farms along the Western and Central Corridor Alternatives contain significant archaeological artefacts;
- Various sections along the proposed Corridors are associated with high ecological value; and
- The homogeneity of the study area west of the four existing transmission lines is more pronounced than initially determined during the Scoping Phase.

The last bullet-point has required the EIA project team to re-evaluate the recommendation for only two Alternative Corridors to be evaluated during the EIA Phase. This is because of the fact that the fieldwork undertaken by the specialists has indicated that without further study on all the Alternative Corridors, no clear preference can be assigned to any of the Corridor Alternatives.

Given this information, the EIA project team, in consultation with the Applicant (Eskom Transmission Division) has decided that in terms of the precautionary principle advocated in the National Environmental Management Act, 1998 (Act 107 of 1998), all of the proposed Corridor Alternatives (Appendix 1) will be evaluated during the EIA Phase. The EIR will thus contain a detailed assessment of all the proposed Corridor Alternatives. The aim is that through the integration of all specialist studies and a qualitative alternative assessment, a consensus recommendation will be made by the project team on the most preferred Alternative Alignment Corridor for consideration by DEAT.

3.5.2 Beta-Perseus line

It was recommended that a 500 m corridor towards the east of the Beta-Perseus study area be identified and investigated during the EIA phase (**Appendix 2**). This recommendation was based on the following:

- The environment within the Beta-Perseus study area is relatively homogenous and any alignment of the double servitude is likely to have a similar environmental impact.
- The geological report suggested that the corridor be placed in the east, as the dolerite in this area would best facilitate the geotechnical requirements of the towers.

4 OVERVIEW OF THE ENVIRONMENTAL ISSUES IDENTIFIED DURING THE SCOPING PHASE

4.1 Potential environmental impacts

A list of potential environmental (bio-physical and socio-economic) impacts was identified in the ESR using the following information:

- Known environmental impacts from high voltage power lines;
- Site inspection of the project area;
- Various specialist studies; and
- Issues and concerns raised by I&APs.

Table 1 summarises the possible impacts during the construction and operational phases of the proposed project.

Table 1: Potential Impacts Identified during the Scoping Study for the Construction and Operation Phases of the Project

Potential Impact	Phase	
	Construction Phase	Operational Phase
Ecology (Fauna & Flora)	<ul style="list-style-type: none"> Irreversible habitat destruction associated with construction activities. 	<ul style="list-style-type: none"> Impacts of service roads and maintenance activities.
Avi-fauna	<ul style="list-style-type: none"> Destruction of habitat and disturbance of normal bird behaviour patterns. 	<ul style="list-style-type: none"> Risk of collisions of large terrestrial birds with the earth wires.
Geology and soils	<ul style="list-style-type: none"> Erosion due to vegetation clearance and erection of towers on banks of drainage lines. 	<ul style="list-style-type: none"> Erosion due to poorly constructed access roads. Loss of high potential agricultural land. Corrosion of towers due to soil chemistry.
Land use	<ul style="list-style-type: none"> Loss of land for cultivation or grazing. 	<ul style="list-style-type: none"> Restricted land use.
Employment opportunities	<ul style="list-style-type: none"> Use of local labour will increase economic activity in the area. 	<ul style="list-style-type: none"> Job creation.
Socio-economic	<ul style="list-style-type: none"> Decrease in agricultural production potential; Resettlement of farm labourers or any other affected communities; Possible displacement of graves; Disruption of current and existing land use and farming practices; Disruption of social relations as a result of temporary work camps; Spread of AIDS and other infectious diseases; and Employment of local labour. 	<ul style="list-style-type: none"> Loss of income from cultivated lands and Social disruption from displaced households.
Heritage Resources	<ul style="list-style-type: none"> Removal or damage of resources during excavations and construction activities. 	<ul style="list-style-type: none"> Removal or damage of resources during excavations and maintenance activities.
Noise	<ul style="list-style-type: none"> Noise due to construction activities and machinery. 	<ul style="list-style-type: none"> Noise from Electro-Magnetic Fields (EMFs)
Aesthetics	<ul style="list-style-type: none"> Visual intrusion during construction process 	<ul style="list-style-type: none"> The obscuring of views from existing farm houses; Exposure of entire silhouette of transmission tower by unnecessarily crossing plateaux or ridges; Degradation of areas of particular visual character; and Provision of views along the transmission line from existing roads, which will magnify the visual intrusion of the line.
Safety and security	<ul style="list-style-type: none"> Potential fire damage due to use to remove vegetation or cooking. Compromised safety of landowners due to access to site. 	<ul style="list-style-type: none"> Fires due to fault caused by lightning or vegetation encroachment.
Traffic	<ul style="list-style-type: none"> Increase of traffic within the study area due to construction activities. 	<ul style="list-style-type: none"> Increase of traffic within the study area due to maintenance activities.
Litter and waste	<ul style="list-style-type: none"> Production of general waste due to human activities during construction. 	<ul style="list-style-type: none"> Production of general waste due to human activities during construction.
Pollution from fuel spillages	<ul style="list-style-type: none"> Potential spillages of fuel from machinery and or oil leaks. 	<ul style="list-style-type: none"> Potential spillages of fuel from machinery and or oil leaks.
Windblown dust	<ul style="list-style-type: none"> Generation of dust caused by construction activities. 	<ul style="list-style-type: none"> Generation of dust caused by maintenance activities.
Health impacts	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Exposure of humans and animals to Electromagnetic Fields (EMFs) from power lines.

The most significant impact is likely to be visual due to the number of existing power lines in the area, particularly where the lines will need to cross the R64. The extent of the visual impact can be reduced through mitigation measures, which will be explored in the EIA Phase.

5 PROPOSED PROCESS FOR EIA PHASE

5.1 Terms of reference for specialist studies

Based on the recommendation of the specialists and the comments received during the Scoping Phase, it is proposed that all four alternative Alignment Corridors initially identified during the Scoping phase be further assessed during the EIA phase. This will involve the detailed assessment of four 500 m corridors and a comparison of the results to determine the preferred corridor.

The specialists will also be required to evaluate the impact of the expansion of the Perseus Substation.

In terms of the Beta-Perseus line, it is proposed that the 500 m corridor, to be used as a double servitude is identified after specialist assessment has been conducted within the entire study area for these lines.

It is proposed that the following specialist studies be undertaken in the EIA Phase:

- Fauna;
- Flora;
- Avi-fauna;
- Visual impact;
- Cultural and heritage resources;
- Socio-economic, specifically eco-tourism.

In general, each specialist study will comprise of the following for the Hydra-Perseus and Beta-Perseus lines:

- A description of the *status quo* of the study area;
- Evaluation of the potential impacts of the power lines using recognised impact assessment methodology; and
- Recommendation of appropriate mitigation measures to ameliorate the potential negative impacts.

5.1.1 Ecological Assessment (Fauna and Flora)

The ecological assessment will:

Provide a description of the ecological *status quo* of the study area.

Identify the location of sensitive fauna and flora.

Evaluate the potential impacts of the erection of powerlines on ecologically and environmentally sensitive habitats, ecosystems and current land use along the proposed transmission line routes.

Recommend appropriate mitigation measures to ameliorate the potential ecological impacts.

EkolInfo CC. will undertake this assessment.

5.1.2 Avi-faunal Assessment

The avi-faunal assessment should:

Provide a description of the avi-faunal *status quo* of the study area.

Identify bird-sensitive areas within the proposed alternative corridors.

Evaluate the potential impacts of the erection of powerlines on the avi-fauna and environmentally sensitive habitats, ecosystems and current land use along the proposed transmission line routes.

Recommend appropriate mitigation measures to ameliorate the potential impacts.

The Endangered Wildlife Trust will undertake this assessment.

5.1.3 Visual and Aesthetics

The visual and aesthetic assessment should:

Provide a background description of the current status of the visual aesthetics of the study area.

Identify the potential impact of the proposed alignment alternatives on the visual character and sense of place of the area and identify elements of particular visual quality that could be affected by the proposed project.

Evaluate the visual impacts of the individual transmission lines from critical areas and view fields.

Recommend mitigation measures to reduce the potential visual impacts generated by the proposed alternative corridors.

Cave, Klapwijk and Associates will undertake this assessment.

5.1.4 Heritage Resources

The heritage resource assessment should:

Provide a background to the cultural heritage significance of the area.

Identify sites of historical, cultural, archaeological and palaeontological significance.

Evaluate the potential impacts of the power lines on sites of historical, cultural, archaeological and palaeontological significance.

Recommend appropriate mitigation measures to ameliorate the potential negative impacts.

Mr. Albert van Jaarsveld will undertake this assessment.

5.1.5 Socio-Economic

The socio-economic assessment should:

Provide a description of the socio-economic *status quo* of the study area.

Identify sensitive areas within the proposed alternative corridors.

Evaluate the potential impacts of the erection of power lines on the socio-economic fabric of the study area.

Recommend appropriate mitigation measures to ameliorate the potential impacts.

MasterQ will conduct the socio-economic study.

Each of these reports will be attached to the EIR produced during the EIA Phase.

The most significant issues raised in the PPP relate to the management of safety, access to farms and general maintenance of the power lines. These impacts will be addressed in the EIR through specific management plans, including an EMP for the project.

5.2 Public Participation Process during EIA Phase

The PPP will continue in the EIA Phase with ongoing, regular communication with I&APs, authorities and other stakeholders. The findings of the EIR will be communicated in a key Stakeholder Workshop and further Focus Group Meetings will be held as the need arises. The availability of the EIR will be announced in the media and through letters and the EIR will be made available for comment for a period of 4 weeks (28 calendar days). All comments received will be captured in an updated Issues Report.

The Issues Report will form part of the EIR and all I&APs will be notified of the availability of the updated Issues Report.

5.3 Evaluation and Assessment of Significance

5.3.1 Assessment Criteria

For the purposes of identifying and assessing the potential significance of identified impacts, the project will be divided into three phases, namely the pre-construction, construction and operational phases.

The activities arising during each of these phases will be included in an assessment table, which will identify those activities that require management action and mitigation. The impacts will be evaluated using the following criteria:

- **Nature:** which shall include a description of what causes the effect, what will be affected and how it will be affected;
- **Extent:** which will give an indication of whether the impact will be local, limited to the immediate surroundings or regional;
- **Duration:** wherein it will be indicated whether the lifetime of the impact will be short, medium, long term or permanent;
- **Probability:** which shall describe the likelihood of the impact actually occurring, indicated as improbable, probable, highly probable or definite; and
- **Status:** which will be described as either positive, negative or neutral.

The significance of the impacts will then be determined and described as:

- **No impact:** where the activity will not cause any impact;
- **Low:** where it will not have an influence on the decision;
- **Medium:** where it should have an influence on the decision, unless mitigated; or
- **High:** where it would influence the decisions regardless of any possible mitigation.

The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

During this evaluation process, practical mitigation measures will be considered for implementation at project-level. Eventually all appropriate mitigation measures will be formulated into an Environmental Management Plan (EMP) that will in turn be incorporated into the Project Tender documents.

5.3.2 Proposed programme

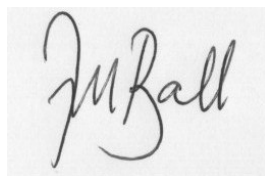
The EIR is expected to be completed and submitted during September 2006 for review and a decision. It is hoped a decision can be made by the end of October 2006.

6 CONCLUSION

This Plan of Study for EIA is aimed at meeting the requirements of the EIA Regulations as a minimum, and achieving the objectives of the EIA Phase in addressing potential environmental impacts and stakeholder concerns such that the most preferred corridor alignment for the proposed power lines is selected for consideration by the authorities.

We trust that the above will meet with your approval. Should you have any queries please do not hesitate to contact us.

Yours sincerely
For and on behalf of ARCUS GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to read 'JMBall', is centered on a light gray rectangular background.

JAANA-MARIA BALL
Director and Head: Environmental Services

Appendix 1

EIA Phase corridor alternatives for the Hydra-Perseus line

Appendix 2

EIA Phase study area for the Beta-Perseus lines