FINAL SCOPING REPORT

THE PROPOSED BLANCO 400/132KV MTS SUBSTATION AND DROERIVIER PROTEUS LOOP-IN LOOP-OUT POWERLINE PROJECT

Prepared for:

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S · E · F
STRATEGIC ENVIRONMENTAL FOCUS

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DEA REF NO: 14/12/16/3/3/2/424
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SEF Project Code: 504769

PURPOSE OF DOCUMENT (FINAL SCOPING)

A period of 30 calendar days (**21 August to 10 September 2013**) has been provided for the review and commenting phase of the Final Scoping Report. All Interested and Affected Parties (I&APs) as well as State Departments have been notified of this review period.

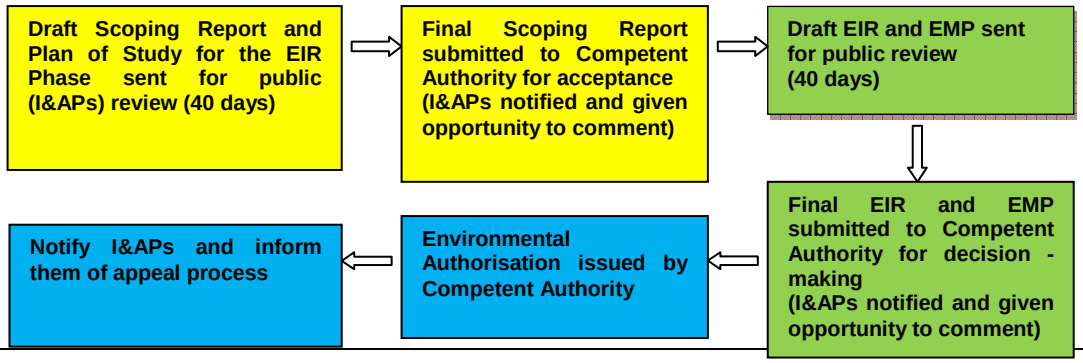
The Final Scoping Report contains the following information:

- A description of the project, including project motivation;
- Discussion of applicable alternatives;
- A description of the environment affected by the project;
- The public participation process; and
- The plan of study for the Environmental Impact Reporting (EIR) phase.

The Final Scoping Report can be viewed on the SEF website: www.sefsa.co.za

Should you wish to participate in the S&EIR process by contributing issues of concerns/comments, please register as an I&AP by completing the enclosed Registration and Comment Sheet or you can visit SEF's website at http://www.sefsa.co.za. To register as an I&AP or comment on the project, click on "Stakeholder Engagement". Click on the "register" button and complete the compulsory fields to register as an I&AP. On completion of these fields, you will receive an email titled **"Stakeholder Engagement – New Registration".** Click on client login and use the emailed details to login in and view the **Final Scoping Report** for the proposed Blanco substation and powerline project. Should you have any problems in obtaining the information from the Internet, please feel free to contact SEF for assistance.

Following the commenting period, the **Final Scoping Report** will be updated and submitted to the Department of Environmental Affairs (DEA) for consideration. After the acceptance of the Scoping Report, the EIR phase will be initiated. The flow diagram below highlights the phases in the project where I&APs have the opportunity to participate within the process.



PROJECT SUMMARY	
Project Name	Proposed Blanco 400/132kV MTS substation and the Droerivier Proteus Loop-in Loop-out powerline project.
Preferred Site / Routes	The six (6) site alternatives for the substation site which have been proposed are discussed in this report and presented in the Locality map attached as **Appendix 1.** The six (6) alternative routes proposed for the loop-in / loop-out power line routes are discussed in this report and presented in the Locality map attached as **Appendix 1**
Surveyor-General 21 Digit Code	**SG21 Codes of properties potentially affected by the proposed substation alternative sites:** C02700000000021700014 C02700000000021700037 C02700000000021700062 C02700000000031800005 C02700000000021800043 C02700000000003180001 **SG21 Codes of properties potentially affected by the placement the loop-in / loop-out power line alternative routes:** C02700000000002170003 C02700000000002170007 C02700000000002170014 C02700000000002170037 C02700000000002170045 C02700000000002170046 C02700000000002170047 C02700000000002170048 C02700000000002170053 C027000000000217000054 C02700000000002170059 C02700000000002170061 C02700000000002170062 C02700000000021700063 C02700000000002180028 C02700000000002180043 C02700000000003180001 C02700000000003180003 C02700000000003180005 C02700000000003180006 C02700000000003180008 C02700000000003180014 C02700000000002170057

	C02700000000002170051 C02700000000002170066 C02700000000002170070 C02700000000002170038 C02700000000002170016 C02700000000003420000
Generation Capacity	Proposed Blanco 400/132kV Main Transmission Substation and a Proteus - Droerivier 400kV line.
Development Footprint	The proposed surface area for the substation site is approximately 350 X 245 m in extent. The length of the loop-in / loop-out power line route is estimated in the region of 1.8 – 4 km (dependent on the alternative recommended). The 400kV powerlines each have a servitude of 55m, i.e. 110m for 2 lines. The 132kV powerlines have a servitude of 32m.
Development / Structure Height	The type of tower structure proposed for the 400kV Loop-in Loop-out power line will be from the 515 series (Heavy) Self - Supporting Suspension Tower (developed by Eskom in 1983) which will support quad (X4) wolf conductors in conjunction with 120KN glass insulators. The spacing between the sub-conductors is estimated at 380mm and the midspan ground clearance of this tower (in order to achieve optimal electrical performance) is approximately 9.1m.
Site Photographs	Refer to **Appendix 2**
Confirmation of Supply:	
Water (Construction & Operational Phases)	Supplier: George Local Municipality Construction Phase = Estimated at 40 000 l litres/per month Operational Phase = 3200l litres/per month
Sewage (Construction & Operational Phases)	Supplier: George Local Municipality Construction Phase = 2 m^3 / per month Operational Phase = 0.2 m^3 /per month
Electricity (Construction & Operational Phases)	Supplier: Eskom (from existing substation and power line) Construction Phase = 100 kw / per month Operational Phase = 20 kw/ per month
Solid Waste (Construction & Operational Phases)	Receiver: Municipal waste disposal site within the Blanco (George) area Construction Phase = 7 m^3/ per month Operational Phase = 0.5 m^3/ per month

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Strategic Environmental Focus (Pty) Ltd (SEF) is a privately owned company and was formed in 1997 with the objective of providing **expert solutions to pressing environmental issues. SEF is one of Africa's largest multi-disciplinary consultancies**, offering sustainable environmental solutions to private and public sector clients. With our integrated services approach in the management of natural, built and social environments; and with over a decade of experience, we bring a wealth of knowledge and expertise to each project.

SEF's Vision

SEF is a national sustainability consultancy that provides integrated social, biophysical & economic solutions by forging strategic stakeholder relationships, underpinned by SEF's core values.

SEF's Mission

SEF offers holistic sustainable solutions in response to global change.

SEF has assembled a team of professionals, consisting of a core of environmental experts with extensive experience in dealing with Environmental Impact Assessments (EIAs), Public Participation Processes, Architectural and Landscape Architecture, Mining and Environmental Management. SEF also has a team of specialist practitioners such as specialists in Heritage Impact Assessments (HIA), Wetland Delineation and Functional Assessments; Wetland/ Riparian Rehabilitation, Aquatic Assessments; Ecological (Fauna, Avifauna and Flora) Assessment, Visual Impact Assessments (VIAs), Soils and Agricultural Potential Assessments, Socio-Economic Assessments, etc.

SEF is a Qualifying Small Enterprise and a **Level 2 contributor in terms of the Broad Based Black Economic Empowerment** Act, 2003 (Act No. 53 of 2003) and has a procurement recognition level of 110%.

SEF commits itself to comply with the requirements and the implementation of a Quality Management System. The Quality Management System will be reviewed and implemented to continually improve efficiency and effectiveness of the organisation.

SEF uses a "green" approach to anything we embark on. We believe in using technology to our and the environment's best advantage. We encourage the use of green alternatives such as telephone and video conferencing instead of travelling for workshops and meetings and CDs instead of printed material, where possible.

The following project team members are involved in this S&EIR application process.

Table 1: Project Team Members

Name	Organization	Project Role
Ms Natalie Ritsch	SEF	Project Manager (& Public Participation)
Mr Ryan Jonas	SEF	Environmental Manager (& Public Participation)
Ms. Pelisa Tengwa	SEF	Environmental Assistant (& Public Participation)

Project Manager - Mrs Natalie Ritsch

Natalie has been an EAP for 8 years, and has been involved in the environmental science field for 13 years. She started her career as an Environmental Officer, and later Principal Environmental Officer, for the Department of Environmental Affairs and Development Planning (DEA&DP); a position she held for almost 4 years. During this time she was responsible for reviewing EIAs, commenting on land – use applications, drafting environmental decisions for signature by the decision – making authority, as well as, assisting with the handling of appeals. Natalie is currently a Project Manager for SEF and as such provides technical supervision of projects, project leadership on large-scale environmental assessments and quality assurance on EIA's, Basic Assessments (BAs) and strategic projects.

Environmental Manager – Mr. Ryan Jonas

Ryan has obtained a B.Sc (Natural Sciences) and Master's degree in Environmental Science from a local university and acquired 6 years full time working experience in the environmental science and management field with regard to projects within the major infrastructure development field and mining sector. Ryan has obtained a good working knowledge of environmental legislation in terms of the NEMA, 1998; MPRDA, 2002; NEM:WA, 2008 and NEWA, 1998 and is an Environmental Manager at SEF.

Table 2: Contact Details of Environmental Assessment Practitioners

Name	Contact Details
Ms Natalie Ritsch (Project Manager)	Strategic Environmental Focus (Pty) Ltd Postal Address : PO Box 1330, Durbanville, 7551 Tel +27 21 979 3822 Fax +27 21 979 3830 Email natalie@sefsa.co.za

EXECUTIVE SUMMARY

1 INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by Eskom Holdings SOC Limited to undertake an environmental application process for the proposed Blanco 400/132kV Main Transmission Substation (MTS) and the Droerivier Proteus Loop in – Loop out line project (*here after referred to as the Blanco substation and line project*)

A Scoping and Environmental Impact Reporting (S&EIR) process will be conducted for this project based on triggered listed activities within the Environmental Impact Assessment (EIA) Regulations of 2010 (Government Notice (GN) No's 543; 544; 545 and 546) promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The purpose of the Scoping phase is to describe the proposed activity and those reasonable alternatives that have been identified as well as the receiving environment that may be affected by the proposed project. The reports generated also describe the required public participation process followed during the Scoping phase as well as how it will be carried out during the EIR phase. All Interested and Affected Parties (I&APs) were provided with an opportunity to comment on the Draft Scoping Report and their comments were included in the Final Scoping Report to be submitted to the DEA for review. The DEA will, based on the Final Scoping Report, issue a decision on whether or not the application may proceed to the Environmental Impact Reporting (EIR) phase.

2 BRIEF PROJECT DESCRIPTION

The proposed Blanco substation and line project will be situated within the Blanco area under the jurisdiction of the George Local Municipality, Western Cape Province (Refer to **Appendix 1** for Locality Map).

Eskom proposes the establishment of a new 400/132kV MTS with an expected development footprint of approximately 350 X 250m and loop in – loop out power lines with a length in the region of 1.8 – 4km (*dependent on the alternative chosen*).

3 KEY IMPACTS

The following key impacts were identified and will be carried forward into the EIR phase for further investigation and assessment:

Biophysical Impacts:

- Loss/displacement of cultivated land (with high agricultural potential);
- Impact of construction traffic movement on the surrounding farm lands;
- Potential impacts on ground and surface water quality due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impacts on soils due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impacts on flora within the proposed substation development footprint area and along the proposed power line route, stemming from construction activities such as vegetation clearing and topsoil stripping within the site;
- Faunal displacement mainly during the construction phase of the project;

- Adverse impacts on avifauna due to the potential collisions with the newly erected power line (during the operational phase); and

- Adverse impacts on natural water resources in the project area (i.e. wetlands, rivers, streams and drainage lines) which affected by the proposed substation development footprint and crossed by the proposed power line route.

Socio-Economic Impacts:

- Increased dust and noise generation (and impact on the surrounding farmlands) during the construction phase of the project;

- Change in the visual character of the local area in which the project is located;

- Potential impacts on heritage resources affected by the construction of the substation or erection of the proposed power line;

- Potential loss of viable and high potential agricultural/ grazing land affected by the construction of the substation or erection of the proposed power line; and

- Local job creation during the construction and operational phases of the proposed project.

Cumulative Impacts:

- Increased loss of viable and high potential agricultural/ grazing land in the local area; and

- Increased visual impacts associated with additional power lines in the local area.

4 PROJECT ALTERNATIVES

To give effect to the principles of NEMA and Integrated Environmental Management (IEM), an EIA should assess a number of reasonable and feasible alternatives that may achieve the same end result as that of the preferred project alternative. Eskom has investigated six (6) possible alternative sites for the proposed 400/132kV Blanco substation. The initial scope included four (4) alternatives sites, however based on input from the affected landowners two (2) additional alternatives have been suggested and subsequently included (Refer to Locality Map in **Appendix 1).**

These alternatives include the following:

Alternative substation site 1

The proposed new 400kV/132kV substation is proposed to be located on the northern side of the existing 132kV Yard, across the local gravel road. This is the technically **preferred** location because it will be easy to integrate into the existing network. The property was previously owned by Eskom but has since been sold to a local farmer. There is a pivot which will be directly affected should this be an approved alternative.

Alternative substation site 2

Alternative 2 is proposed to be situated on the Western side of the existing substation across the road. This area is composed out of very flat land. A residential house and a cultivated agricultural land with a pivot will however be affected by this alternative. In addition, there is also a distribution line coming into the existing 132kV substation.

Alternative substation site 3

This alternative is proposed to be located on the north-eastern side of the existing substation, across the road. The location has a larger area and is also closer to the Droerivier Proteus 400kV line as compared to the other three. This alternative may however affect the existing distribution line passing through the site.

Alternative substation site 4

This alternative is proposed to be situated on the south western side of the existing substation. It is however further down away from the Droerivier Proteus 400kV line. The Loop in Loop-out line will thus cover a longer distance as compared to the other three alternatives and will affect several land owners.

Alternative substation site 5

Following the site visit of 19th of February 2013, an additional site alternative was suggested, which entails the construction of the substation on the portion of land adjacent to the existing Blanco distribution substation.

Alternative substation site 6

A further alternative was suggested by a landowner on 8th of May 2013, at the follow up meeting. This site was looked at but was subsequently regarded as not feasible based on the gradient of the site. An alternative area was then suggested, which is located to the east of the existing powerlines, at the foot of the mountains.

In terms of the 400kV loop-in / loop-out power line, Eskom has investigated **six (6) possible alternative routes** (Refer to Locality Map in **Appendix 1** for the proposed orientation of each of these powerline routes**).**

Power line route alternative 1:

This proposed alternative (with an approximate distance of 2.5 km) will connect (or "T") with an existing high voltage power line and follow a south-easterly route across a perennial river and agricultural land where it will feed into the proposed new 400kV/132kV substation (namely alternative substation 1).

Power line route alternative 2:

This proposed alternative (with an approximate distance of 2.9 km) will connect (or "T") with an existing high voltage power line then follow a southerly route across agricultural land and a secondary road, then at a turning point follow a south-easterly direction where it will cross over a perennial river and tree line, and will feed into the proposed new 400kV/132kV substation (namely alternative substation 2).

Power line route alternative 3:

This proposed alternative (with an approximate distance of 1.7 km) will connect (or "T") with an existing high voltage power line, cross a perennial river, then follow a southerly direction across a road and agricultural land and eventually feed into the proposed new 400kV/132kV substation (namely alternative substation 3).

Power line route alternative 4

This proposed alternative (with an approximate distance of 3.7 km) will connect (or "T") with an existing high voltage power line, then follow a southerly direction across agricultural land, a secondary road and a tree line until it will feed into the proposed new 400kV/132kV substation (namely alternative substation 4).

Power line route alternative 5

This proposed alternative (with an approximate distance of 3.1 km) will connect (or "T") with an existing high voltage power line, then follow a southerly direction across agricultural land, move in a south-easterly direction along the Geelhoutboom road, cross the road, and feed into the proposed new 400kV/132kV substation (namely alternative substation 5).

Power line route alternative 6

This proposed alternative (with an approximate distance of 4.1 km) will connect (or "T") with an existing high voltage power line, then follows the route of the existing 132kV powerlines heading towards Blanco, and will feed into the proposed new 400kV/132kV substation (namely substation 6).

5 CONCLUSIONS AND RECOMMENDATIONS

The EIR phase may only commence once the Competent Authority (DEA) accepts the Final Scoping Report and instructs the Environmental Assessment Practitioner (EAP) to continue with the tasks contemplated in the Plan of Study for the EIR phase of the environmental application process.

The EAP proposes that, on the basis of the information contained in this Scoping Report, that the DEA accept the Scoping Report and Plan of Study for the EIR phase. The more pertinent issues can then be thoroughly investigated and assessed, in terms of their significance. The ability to mitigate any of the impacts identified in this Scoping Report will also be investigated and detailed within a working/ dynamic Environmental Management Programme (EMP) for consideration by I&APs and ultimately by the DEA.

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LIST OF ABBREVIATIONS AND ACRONYMS

DEA	Department of Environmental Affairs (previously DEAT)
DEAT	Department of Environmental Affairs and Tourism
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Reporting
EMP	Environmental Management Programme
GN	Government Notice
ha	Hectares
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management
IRP	Integrated Resource Plan
ME	Mitigation Efficiency
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
SAHRA	South African Heritage Resources Agency
SEF	Strategic Environmental Focus (Pty) Ltd
SFM	Significance Following Mitigation
S&EIR	Scoping and Environmental Impact Reporting
SDF	Spatial Development Framework
WOM	Without Mitigation Measures
WM	With Mitigation Measures

GLOSSARY OF TERMS

Applicant	Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in sections 24(5), 24M and 44 of the National Environmental Management Act, 19998 (Act No. 107 of 1998).
Ecology	The study of the interrelationships between organisms and their environments.
Environment	The surroundings within which humans exist and that are made up of – (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	Systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR.
Environmental Management Programme	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Interested and Affected Party	Any person or groups of persons who may express interest in a project or be affected by the project, positively or negatively.
Key Stakeholder	Any person who acts as a spokesperson for his/her constituency and/or community/organization, has specialized knowledge about the project and/or area, is directly or indirectly affected by the project or who considers himself/herself a key stakeholder.
Stakeholder	Any person or group of persons whose live(s) may be affected by a project.
Study Area	Refers to the entire study area encompassing all the alternatives as indicated on the study area or locality map.

SECTION A: INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by Eskom Holdings SOC Limited to undertake an environmental application process (in the form of a Scoping & EIR) for the proposed Blanco 400/132kV Main Transmission Substation (MTS) and the Droerivier Proteus Loop in – Loop out line project.

A-1 DESCRIPTION OF PROPOSED ACTIVITY

A-1.1 Locality

The proposed Blanco substation and line project will be located within the Blanco area under the jurisdiction of the George Local Municipality in the Western Cape Province (Refer to **Appendix 1** for Locality Map).

A-1.2 Surrounding Land Use

The predominant land use within the project area can be described as Agriculture/ Farming.

A-1.3 Details of the Project

Eskom Transmission Grid Planning initiated a study to investigate possible solutions to address transformation constraints at Proteus Main Transmission Station (MTS) as well as the sub-transmission constraints experienced on the network supplying the Blanco area. In response to this, Eskom proposes the establishment of a new 400/132kV MTS with an expected development footprint of approximately 350 X 250m and loop in – loop out power lines with a length in the region of 1.8 – 4km (dependent on the alternative chosen).

The scope of work for this proposed project will therefore include the following:

- Establishment of a 2x500 MVA, 400/132kV Main Transmission Substation (MTS) near Blanco Substation.
- Loop-in loop-out line of the Proteus - Droerivier 400kV line to the Blanco proposed MTS.
- The new MTS 400/132kV will supply the existing Blanco Substation 132kV busbars.

A-2 LEGAL REQUIREMENTS APPLICABLE TO THIS APPLICATION

SEF registered the proposed substation and power line project with the DEA and the project has been assigned the reference number: 14/12/16/3/3/2/424. The legislation, guidelines and policies applicable to this project are as follows:

A-2.1 NEMA and the Environmental Impact Assessment Regulations

The EIA Regulations, promulgated under NEMA, focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

In terms of the EIA Regulations of 2010 and activities listed in GN No. 544 and 546 (requiring a Basic Assessment process) and GN No. 545 (requiring a S&EIR process), the following listed activities are deemed

by the EAP to be applicable to the proposed substation and power line project based on the information provided by the project proponent (namely Eskom Holdings SOC Limited).

GN No & Activity Number		Activity Description
GN No. 544 of 18 June 2010	23	The transformation of undeveloped, vacant or derelict land to – (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares; or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area, and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place for linear activities. **The area to be developed for the transmission power lines and substations will be greater than 1 hectare. The details of these footprints will be confirming during the EIA.**
	18	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from: **(i) a watercourse;…** but excluding where such infilling, depositing , dredging, excavation, removal or moving; (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (b) occurs behind the development setback line **The proposed project entails the construction of access roads for use during the construction phase and operational phase (For maintenance purposes) which cross over drainage lines and non-perennial watercourses occurring in the area. The installation of pylons associated with the loop-in and loop-out lines may also impact on any cross drainage lines and non-perennial watercourse or wetlands encountered in the study area. These factors will be considered during the EIA process and whether the activity is in fact triggered will be determined at that time.**
	22	The construction of a road, outside urban areas, (i) with a reserve wider than 13.5 meters (ii) where no reserve exists where the road is wider than 8 metres **The proposed project could entail the construction of access roads for use during the construction phase and operational phase (For maintenance purposes). The exact characteristics of such roads will be determined through the design process which will inform the EIA process.**
	24	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming to effect of this Schedule such land was zoned open space, conservation or had an into equivalent zoning **One of the proposed alternatives being considered may be the transformation of natural open space. The land use is assumed to fall within one of the specified land uses detailed in the activity.**
	26	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). **The proposed power line almost certainly crosses areas that fall within areas of importance in terms of NEM:BA. The position of the substation itself will also be influenced by the biodiversity status of each. This will be confirmed during the EIA especially via the specialist input of the biodiversity expert, selected due to his specific knowledge of the Western Cape vegetation. Preliminary indications have led to the selection of the alternatives to be considered partially based on the biodiversity factors, along with technical constraints.**
	38	The expansion of facilities for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase. **The proposed project will include a 132 kV and 400kV substation and transmission line.**
	40	The expansion of

		(iv) infrastructure by more than 50 square metres within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line. **The proposed project may require the placing of the Transmission and/ or the Transmission substation along or across a drainage or non-perennial water course.**
	47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas. **The proposed project could entail the expansion of existing roads to use as access roads for use during the construction phase and operational phase (for maintenance purposes).**
GN No. 545 of 18 June 2010	**8**	The construction 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. **The proposed project will entail the construction of a 400 kV power line and substation.**
Government Notice R. 546 of 2010	**4**	The construction of a road wider than 4 metres with a reserve less than 13,5 metres. (d) In Western Cape ii. All areas outside urban areas. **The proposed project could entail the construction of access roads for use during the construction phase and operational phase (for maintenance purposes) outside of an urban area. The exact specification of any such roads will be determined during the planning phase and will inform the EIA process.**
	10	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (e) In Western Cape ii. All areas outside urban areas **The construction camp may store hazardous material for use in the construction of the proposed project and the substation design will include transformer oil ponds. The capacities of hazardous material and the size of the ponds will be determined during the EIA process, that is, the combined capacity thereof will be confirmed during the EIA and it will be determined whether this activity is in fact triggered.**
	12	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (b) Within critical biodiversity areas identified in bioregional plans **Clearance of vegetation for the proposed power lines and substations areas will be required to a certain degree. The exact size of the area of indigenous vegetation to be cleared will be confirmed during the EIA along with the status of the footprint in terms of its biodiversity status.**
	13	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list. (2) The undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010. **(a) Critical biodiversity areas and ecological support areas identified in systematic biodiversity plans adopted by the competent authority.** **(c) In Western Cape:** **Outside urban areas, the following:** (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;

		(ff) Areas within 10 km from national parks or world heritage sites or 5 km from any protected areas identified in terms of NEMPAA or from the core area of a biosphere reserve. **Clearance of vegetation for the proposed power lines and substations areas will be required to a certain degree. The exact size of the area of indigenous vegetation to be cleared will be confirmed during the EIA along with the status of the footprint in terms of its biodiversity status.**
	14	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list; (3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010. **In Western Cape:** **i. All areas outside urban areas.** **Clearance of vegetation for the proposed power lines and substations areas will be required to a certain degree. The exact size of the area of indigenous vegetation to be cleared will be confirmed during the EIA along with the status of the footprint in terms of its biodiversity status.**
	16	The construction of: (iv) buildings with a footprint exceeding 10 square metres in size; or (v) infrastructure covering 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. (d) In Western Cape (ii) Outside urban areas in: (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve **The proposed project may have an impact on biodiversity rich areas, and will have an impact direct/ indirect on the adjacent land use.**
	19	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre **(d) In Western Cape:** **ii. All Areas outside urban areas;** **The project could entail the construction of access roads for the use during the construction phase and operational phase (for maintenance purposes) – the specifications thereof will be determined during planning and will inform the EIA process.**
	23	The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres. **(d) In Western Cape:** **ii. All areas outside urban areas** **The construction camp will store hazardous material for use in the construction of the proposed project. During operation hazardous substance will be stored at the substation. The capacities of hazardous material will be determined during the planning process and will inform the EIA process.**

	24	The expansion of: (c) buildings where the buildings will be expanded by 10 square metres or more in size; or (d) infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. d) In Western Cape: ii. Outside urban areas in; (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority …… (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve **The proposed power lines will cross over drainage lines and non-perennial watercourses and the study area falls within the parameters of the triggering environmental constraints.**

It must be noted that activities requiring a Basic Assessment process, as well as activities requiring a S&EIR process are triggered by the proposed development. Therefore, according to the above listed activities, a situation arises, whereby; the legal requirements of the activity listed in terms of GN No. 545 of 2010 supersede those of the activities listed in terms of GN No. 544 and 546 of 2010, and as such **this application shall undergo an S&EIR process**.

The aforementioned listed activities are deemed to include activities that could potentially have a detrimental impact on the social and biophysical state of an area and as such, are required to undergo an environmental impact assessment process.

A-2.2 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways.

Of specific importance to this application is Section 19 of the NWA, which states that an owner of land, a person in control of land or a person who occupies or uses the land which thereby causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring and must therefore comply with any prescribed waste standard or management practices.

Due to the various wetlands, rivers, streams, tributaries and drainage lines that occur within the project area, according to the NWA, the proposed Blanco substation and power line project may trigger the following water uses listed in Section 21:

(c) impeding or diverting the flow of water in a watercourse; and
(i) altering the bed, banks, course or characteristics of a watercourse.

Accordingly, the proposed project may thus require a **Water Use Licence (WUL)**, which is administered by the Department of Water Affairs (DWA).

A-2.3 Other Legal Requirements

A-2.3.1 Acts

Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the locus standi of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of the NEMA. Section 24 in the Bill of Rights of the Constitution specifically states that:

Everyone has the right -

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -
    - Prevent pollution and ecological degradation;
    - Promote conservation; and
    - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

This Act is applicable to this application for environmental authorisation, in the sense that it requires the project applicant to consider the protection and management of local biodiversity.

National Heritage Resources Act, 1999 (Act No. 25 of 1999)

This Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments (including roads) exceed 300 metres in length. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)

The Act recognises that everyone has a Constitutional right of access to any information held by the state and by another person when that information is required to exercise or protect any rights. The purpose of the Act is to foster a culture of transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their rights

A-2.3.2 Provincial Policies and/or Guidelines

Integrated Environmental Management (IEM)

IEM is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

The DEA Integrated Environmental Management Information Series guidelines are also considered during this S&EIR application process.

National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Protected species – Provincial Ordinances

Provincial ordinances were developed to protected particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

George Municipal Spatial Development Framework (SDF) 2012

The Spatial Development Framework (SDF) for George Local Municipality (compiled in 2012) covers the municipality's 5 238 km² jurisdictional area which accommodates over 175 000 people and extends from the dry and climatically extreme Little Karoo in the north, to the wetter more temperate Garden Route in the south. It is an area of considerable natural assets and beauty, including: expansive mountains and forests, wilderness areas, a varied coastline, and extensive lakes, rivers and estuaries. Its natural assets include parts of the Garden Route National Park and the Baviaanskloof Wilderness Area. This municipal area also includes fertile farmlands and timber plantations along the coastal plain, fruit orchards in the Langkloof and arid grazing areas in the Little Karoo. Three important national roads, namely the N2, N9 and N12, traverse the area, and George regional airport serves the Southern Cape and Little Karoo, including the neighbouring towns of Mossel Bay, Oudtshoorn, Knysna and Plettenberg Bay.

In terms of the **natural and cultural environment** within the George municipal area, the following **strengths** and **weaknesses** have been identified by this SDF. These include the following:

Strengths (natural and cultural environment):

- The municipal area is well endowed with rich and diverse terrestrial, marine and aquatic ecosystems, scenic attractions, and cultural landscapes, which collectively provide the attraction on which the local tourism economy is based;
- Significant progress has been made in mapping the area's natural assets, providing sound information as a basis for informing development and land use management decision-making;
- A start has been made with recording the municipal area's cultural and scenic assets;
- The municipal area's fertile soils and favourable climate can support increased farming and forestry activities;
- There is sufficient land to accommodate future settlement needs without damage to the environment or loss of agricultural or forestry land.; and
- The new Garden Route National Park has bolstered conservation.

Weaknesses (natural and cultural environment):

- The lake systems and estuaries are under stress as a result of a reduction in the quality and quantity of water entering the lakes, in turn related to agriculture, urban encroachment and associated habitat loss, increased tourism and recreation, and the introduction of invasive, alien species;
- Valuable agricultural and plantations land has been under pressure for urban development;
- Increasing development on steep slopes detracts from the area's visual quality and causes erosion and landslides;
- The area has few beaches, limited in carrying capacity;
- Residential development has restricted public access to coastal resources; and
- Whilst growth of the tourism and leisure sectors has bolstered rural development, impoverished rural communities remain marginalised.

External opportunities and threats which impact on this municipal area in terms of the **environment** include the following:

External opportunities:

- Mainstreaming of environmental awareness;
- Broad based adoption of 'green' technologies;
- Growing interest in cultural heritage of place;
- Voluntary adoption of conservation measures by land owners; and
- Environmental advocacy and activism

External threats:

- Climate change & sea level rise;
- Invasive alien vegetation infestation;
- Natural disasters (i.e. drought, floods, wild fires, etc.); and
- Complacency and poor monitoring and regulation of the environment.

SDF Objectives:

The general purpose of this municipal SDF is to set-out the local authority's goals, strategies and supporting policies to achieve, in the medium to long term, positive changes in the spatial organisation of its jurisdictional area towards a sustainable development future.

In terms of the draft Provincial *Guidelines for the Preparation of Credible Municipal Spatial Development Frameworks,* SDFs should:

- Be informed by a clear understanding of the spatial performance of the municipal area, and its role in the regional space economy;
- Be consistent with national and provincial spatial policies, and interpret their local application;
- Give spatial expression to the municipality's overarching vision, aims and strategic objectives, as contained in the municipal Integrated Development Plan (IDP);
- Articulate a clear spatial vision for the municipality's urban and rural areas, and specify the strategies to be implemented to realise this vision;

- Provide policy guidance to direct decision-making on the nature, form, scale and location of urban and rural development, land use change, infrastructure development, disaster mitigation, and environmental resource protection;

- Establish a policy framework for more detailed plans and guide the short and medium term proposals for local areas within the municipality;

- Provide a clear framework for public and private investment in infrastructure in the area;

- Be capable of implementation and monitoring; and

- Be grounded in public and political consensus around the plan's strategic framework.

This SDF is meant to articulate a clear spatial vision for a municipality's urban and rural areas, and specify strategies to be implemented to realise this objective. This spatial perspective provides the development context for the SDF with a planning vision, mission and guiding Principles. This SDF details **5 development strategies**, which includes the following:

- Restructuring and integrating the dysfunctional urban fabric, together with a public transport system and urban renewal interventions;

- Strengthening the economic vitality by enhancing the regional and local space economy, strategic developments to diversify and strengthen the economy, consolidating and reinforcing nodes of economic activity, and infrastructure services provision;

- Creating quality living environments through sustainable urban growth management, managing a hierarchy of city activity nodes, the use of strategic vacant land to take up new development demand, the densification of urban areas, and the provision of housing & public facilities;

- Safeguarding the environmental integrity and assets by establishing a city-wide open space system and environmental corridors, maintaining the functionality of critical biodiversity areas, applying the principles of the spatial planning categories, mitigating against impacts of climate change, managing visual landscapes and corridors as well as heritage resources; and

- Enhance the rural character and livelihood by protecting the productive landscape, managing the subdivision of land and by enhancing the rural livelihood and promoting integrated rural development.

In terms of the above mentioned strategies, the renew and upgrade of degraded urban areas and dysfunctional human settlements is a clearly defined objective with the identification of 5 urban renewal zones within this municipal area. One of these urban renewal areas, namely the **Blanco area** is briefly discussed below:

Urban Renewal zone 2: Blanco area

Originally Blanco developed as a distinct settlement from George, but now it is an integral part of the George urban area. Despite significant "estate" type development in the area, it has managed to retain many historic buildings and its unique pastoral village character and ways of life.

The Municipality will maintain the present environmental, rural and settlement character of Blanco through the following activities:

- Maintain 'tight' urban edges to protect the rural character of the area;

- Apply land use management guidelines to protect the human scale and pastoral character of the village (including the placement of buildings close to street boundaries);

- Permit sensitive mixed use development and densification along major routes (George Street and Montagu Street), including tourism-related facilities; and

- ·Allow infill residential development to densities of 20-30 units ha on identified vacant land parcels.

The proposed Western By-pass affects Blanco. Four alignment options for this route were investigated as part of the EIA process associated with the project. Environmental approval was given in July 2010 for the Gwaing - Blanco alignment in the Northern Sector and quarry alignment alternative 3 for the Southern Sector. This route must be considered for all future developments taking place in this area.

Blanco Local Structure Plan (Spatial Development Plan), May 2009.

As a result of the rapid expansion and transformation of Blanco during the past few years, this area was identified as one of the areas in George that requires more detailed forward planning than what was presented in the George Municipal SDF and therefore necessitated the development of a local structure plan (SDF) which has the objective of clearly defining effective guidelines and policies for the appropriate management of this area in terms of increased development pressure and inappropriate land use.

In terms of demographics the following statistics is relevant to the Blanco area:

- Population size of approximately 5500;
- Approximately 120 stay in informal dwelling areas;
- 18% of the 52% economically active people are unemployed;
- 90% of the population in the Blanco area earn less than R3200 per month; and
- The type of employment in the Blanco area is evenly spread among all categories but from skills and development point of view, 11% of the population work in elementary occupations.

An analysis (through site visits and land use surveys) was conducted by a task team in order to better understand the Blanco and immediate surrounding area. The following aspects relevant to this area was revealed through this study

Development Pressure:

- Due to the recent investment interest, the rural and agricultural areas have become under pressure for development;
- The need to ensure a balance between the preservation of agricultural resources and urban development has become inevitable;
- The impact of new residential developments on the existing road infrastructure is perceived problematic.

Urban edge:

- The determination of an urban edge to control and manage urban expansion has become inevitable;
- The urban edge should be determined in accordance with the approach, principles and criteria in the George Spatial Development Framework;
- The urban edge in this area is particularly informed by the distinctive characteristics of the area such as the topography, differentiated land uses and agriculture.

Village Charm:

- The old village charm of Blanco should be preserved and enhanced to create an attractive and well functioned town which fulfils the needs of the inhabitants as well as the visitors to the area;

Densification:

- New provincial policy promotes the principle of densification due to its cumulative positive impacts;
- Given the absence of an approved densification policy, densification is implemented on an ad hoc basis with certain new developments at relatively low densities.

Vacant land:

- There is limited underutilized and vacant land within the urban area which could through proper planning be used more efficiently;
- The historical function of the Village Green area must be re-determined and developed with appropriate land uses.
- Vacant agricultural zoned land has become increasingly more in demand for further development;
- Forward planning is required to identify appropriate land uses and to manage future development.

Tourism:

- Although limited tourist facilities exist, the positive impact of tourism and the possible contribution and spin-offs for the local economy of Blanco has not been realized by the various role players.
- An effective and practical tourism plan to promote tourism in Blanco needs to be compiled.

Needs of the community:

- Due to municipal budgetary constraints, the needs of the inhabitants are not always fulfilled as anticipated;
- One of the functions of a SDF is to identify the community needs and to address / implement the identified municipal IDP projects;
- Identified needs include, additional affordable housing, range of housing stock for different income groups, adequate recreation facilities, employment opportunities (economic development), revitalization programmes to uplift the urban built form, social upliftment services and programmes.

Integration:

- Given the historic settlement pattern, the town is still affected by the segregation of the various cultural groups.
- This should be addressed by practical and effective integration actions such as the provision of integrated housing projects and open space network linking the various neighbourhoods as well as facilities

Revitalisation:

- The current appearance of the built form necessitates urgent revitalization actions to enhance the area;
- The neglected visual appearance of the built form and streetscape could be attributed to the general lack of pride.
- The identified gateways / sense of arrival into the town and its critical function as a welcoming agent are underestimated and needs to be addressed
- The town lacks a communal focal point and should be addressed.

Functions of roads:

- The role and function of Montagu and George street and not defined and should be addressed.
- Various aspects, such as pedestrian safety, public transport, appropriate land uses, parking and streetscape should be addressed.

Effective strategies and actions:

- Strategies must be identified and implemented for the enhancement of tourism and revitalization programmes and actions**.**

In terms of the **restoration and conservation of the natural environment** within the Blanco area the following objectives have been defined:

- To reinstate the “sense of place” and function of the gateways;
- To limit and control development within environmentally less sensitive areas;
- To develop an integrated open space network; and
- To control pollution.

A-3 DETAILS OF THE APPLICANT

The details of the project applicant are:

Name of Applicant	Postal Address	Relevant Numbers
Ms. Martina Nailana Eskom Holdings SOC Limited	Megawatt Park, Maxwell Drive, Sandton, Johannesburg.	Tel: 011 800 3550 Fax: 011 800 3917 E-mail: NailanMa@eskom.co.za

A-4 NEED AND DESIRABILITY OF THE PROJECT

Eskom Transmission Grid Planning initiated a study to investigate possible solutions to address transformation constraints at Proteus Main Transmission station, as well as sub-transmission constraints experiences on the network supplying the Blanco area. The Blanco area is supplied from the Proteus MTS, which forms part of the Southern Cape Customer Load Network (CLN).

Proteus substation consosts of 2 X 500MVA, 400/132kV transformers and supplies Blanco 132kV substation and all the loads north of Blanco via 3 X 48kV, 132kV lines, from the Proteus MTS. Proteus MTS also supplies the 66kV network through 2 X 80MVA 132/66kV transformers and the 66kV network can also be back-fed from the Blanco substation. The load forecast for Proteus MTS indicates that the transformers will be supplying a peak demand of 502MVA in 213, and would therefore not comply with the N-1 Grid Code criteria.

The Network Development Plan (NDP) indicates that one of the 3 X 132kV lines from Proteus to Blanco has been in operation for 23 years and is about to reach its 25 year life expectancy and will require refursbishment. The remaining 132kV network consists of single 132kV lines supplying Outeniqua, Uniondale, Diesselsdorp and Oudtshoorn substations.

To resolve the network constraints, three strengthening options were considered, which involved various upgrades of different infrastructure. However based on analysis, it was agreed that the construction of the new Blanco MTS, would be the least life cycle option (see below).

The Blanco area requires a new 400kV substation to alleviate the Proteus Main Transmission Substation (MTS) transformer capacity issues and the N-1 distribution 132kV network constraints. It is evident that new loads around the Blanco area will not be accommodated without violating the loading and voltage conditions of the existing 132kV lines and the voltage limits. The proposed Blanco substation and line project will therefore alleviate current capacity constraints in the Blanco area through the following:

- Cater for load growth on the Distribution 132kV network;
- De-load the Proteus MTS;
- Resolves sub-transmission N-1 voltage and thermal loading constraints; and
- Saving system losses on the 132kV network.

The solution is recommended as it is the least life cycle cost solution, is sufficient over the 20 year planning window period and would reduce overall network system losses. The fault limits at the new proposed MTS and surrounding substations would remain within the rupturing capacity of the terminal equipment. It is further recommended that the 2x132kV Proteus-Blanco lines be operated as normally open points to further de-load Proteus MTS and to reduce overall transmission system losses. The new MTS must be located close to the existing Blanco substation.

SECTION B: THE RECEIVING ENVIRONMENT

In order to, with any level of confidence, assess the potential impacts of the proposed Blanco substation and power line project on the receiving environment, one needs to first assess the baseline conditions found over the study area. Using this *Status Quo* one can then, broadly speaking, determine the likely impacts that will emanate from a specific development typology on a well-defined receiving environment.

B-1 BIOPHYSICAL ENVIRONMENT

B-1.1 Geology and Geotechnical Suitability

The underlying geology of the project area comprises 50% Granite and 50% Quartzite. Refer to the Geology map in **Figure 1.**

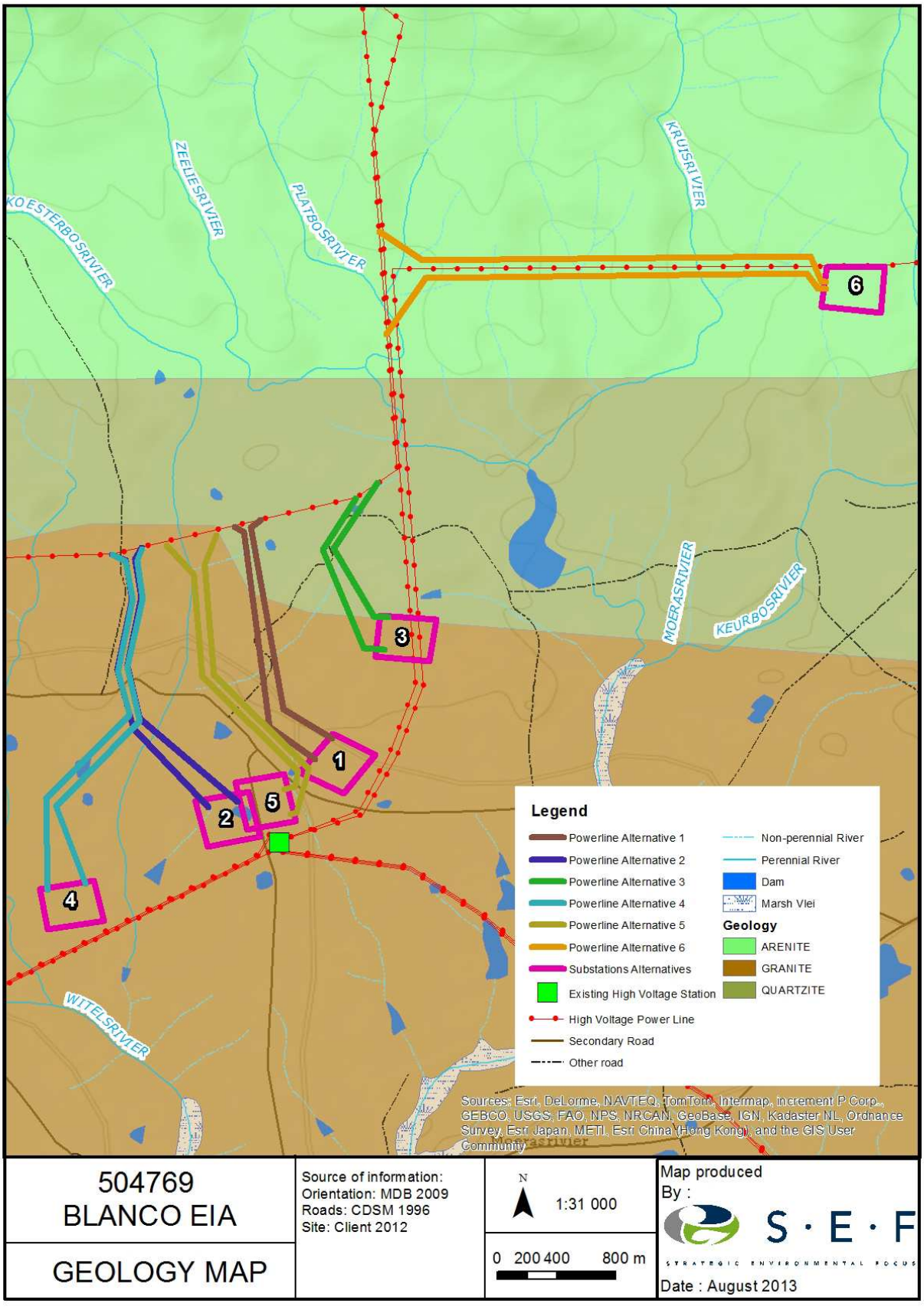

Figure 1: Geology map for the proposed project area

B-1.2 Soils, Land Use and Agricultural Potential

The rural areas west and south of Blanco village displays a rich and varied pattern of land use (i.e. forestry and agriculture) and fine grained texture of fields and pastures (including the cultivation of hops) defined further through closely planted trees (often utilised as windbreaks) along former boundaries and along roads and tracks. The area is also traversed by an extensive network of irrigation ditches.

The description of land use within the project area includes cultivated land, forestry and vacant areas (Refer to Land use map in **Figure 2 below**).

The composition of the soils within the project area is predominantly prismacutanic and pedocutanic diagnostic horizons and B horizons.

In terms of the agricultural potential of the land within the project area affected by the proposed Blanco substation and power line project an agri-potential assessment will be conducted during the EIR phase to verify and quantify any potential impacts.

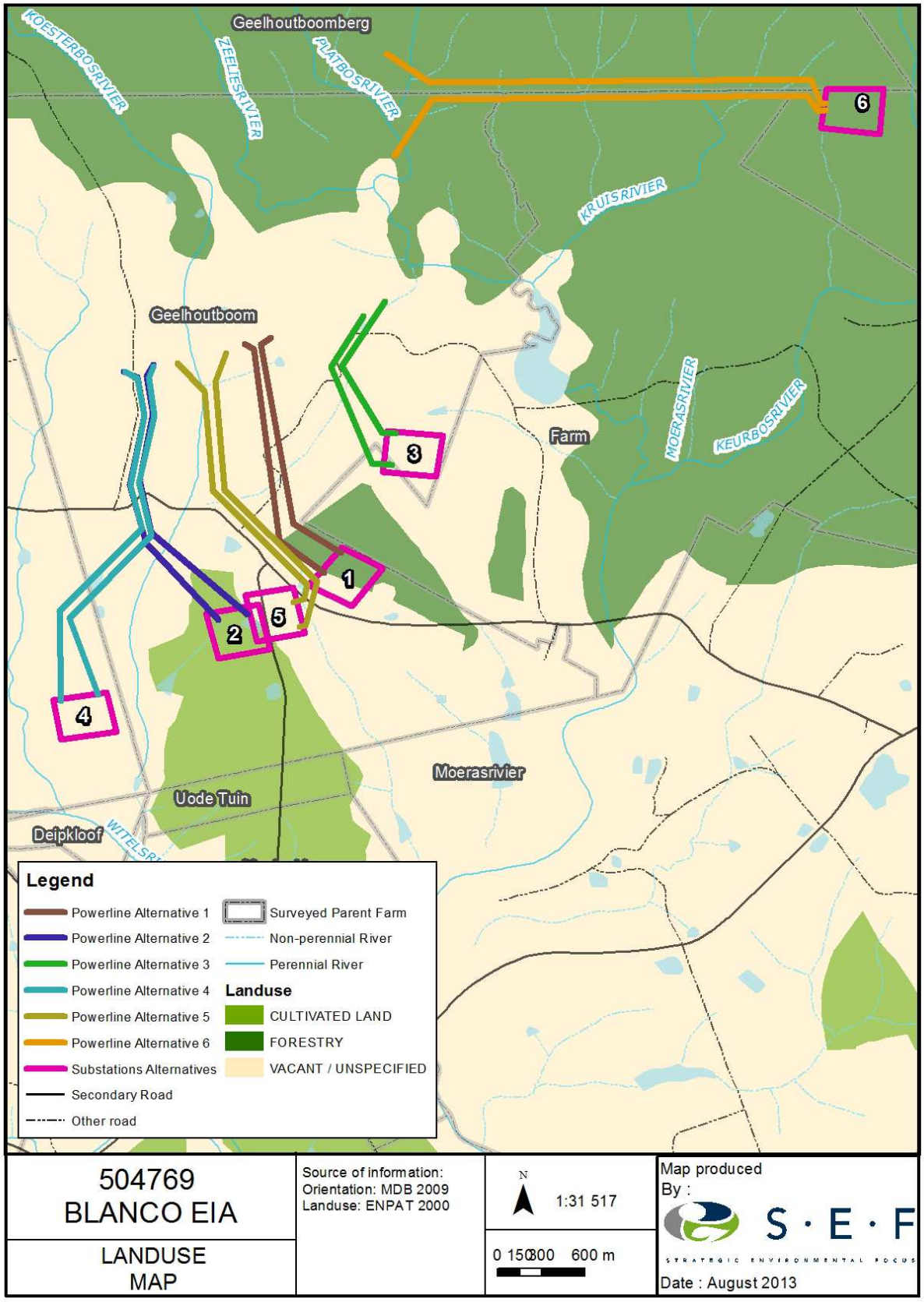

Figure 2: Land use map for the proposed project area

B-1.3 Topography and Hydrology

The general topography of the project area can be described as relatively flat with a gentle sloping gradient. Mountainous terrain is present on the outskirts of the project area..

The Blanco area is traversed by a number of river corridors, the most prominent watercourses being the Keur River (which becomes the Malgas River situated south of the Outeniqua Pass), the Norga River (flowing through the centre of this area) and the Moeras River (meandering south along its western boundary).

As per the hydrology map (**Figure 3**) below, a number of perennial, non-perennial rivers, wetland systems and dams occur within the project area.

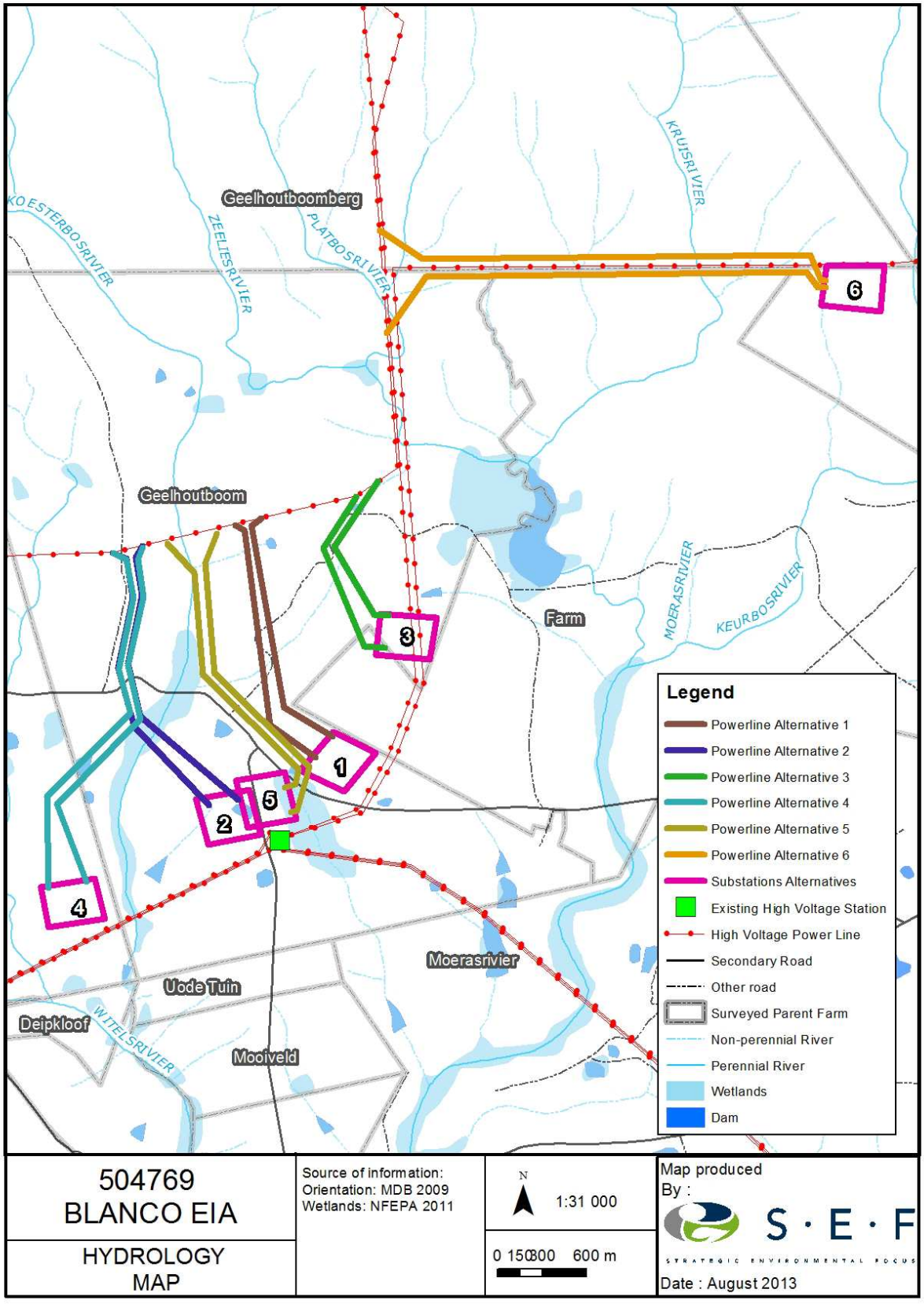

Figure 3: Hydrology map for the proposed project area.

A Wetland and Riparian Delineation Assessment will be undertaken during the EIR phase of the project to identify potential wetlands/ rivers/ drainage lines/ water bodies on the site to be affected by the substation and power line route alignment. If it is not possible to construct the proposed Blanco substation and power line project without impacting on any water bodies, rivers, drainage lines and wetlands (and their associated buffer zones), a Water Use License Application (WULA) will be required to be submitted to the DWA.

B-1.4 Climate

The George area receives approximately 662mm of rain per year, with rainfall occurring throughout the year. This town receives the lowest rainfall (36mm) in June and the highest (78mm) in March. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for George range from 18.2℃ in July to 27.6℃ in February. Th e region is the coldest during July when the mercury drops to 6.2℃ on average during the night.

B-1.5 Flora and Fauna

Flora

The study site is located within the Fynbos biome which occupies most of the Cape Fold Belt as well as the adjacent lowlands between the mountains and the Atlantic Ocean. There are three major vegetation complexes within the Fynbos biome namely Fynbos, Renosterveld and Strandveld. Directly translated Fynbos means “fine bush” and comprises an evergreen, fire-prone shrubland characterised by restioid bushes and ericoid shrubs (including families such as Ericaceae, Asteraceae, Rhamnaceae, Thymelaeaceae and Rutaceae) (Mucina & Rutherford, 2006). In structural terms, Fynbos is defined as a shrubland or restioland with a cover of more than 5% Restionaceae which usually contains elements of Ericaceae and Proteaceae. The Fynbos biome is divided into smaller units known as vegetation types. According to Mucina & Rutherford (2006), the study area is situated within the Garden Route Granite Fynbos and Garden Route Shale Fynbos.

The Garden Route Granite Fynbos is limited to the Western Cape Province where it consists of moderately undulating plains and undulating hills on the coastal forelands. Important taxa in the Garden Route Granite Fynbos include tall shrubs such as Passerina corymbosa, Cliffortia serpyllifolia, Protea coronata, P.lanceolata, P.nerriifolia as well as low shrubs such as Erica discolour, E.peltata, Phylica confusa, Syncarpha paniculata, Agathosma ovata, and Hermannia angularis. Succulent shrubs include Lampranthus sociorum and graminoids such as Tetraria cuspidata, Brachiaria serrata, Eragrostis capensis, Ficinia nigrescens, Heteropogon contortus, Pentaschistis eriostoma, Restio triticeus and Themeda triandra. According to Mucina & Rutherford (2006), this vegetation type is classified as Endangered, with less than 1% conserved in the proposed Garden Route National Park while more than 70% has been transformed by cultivation, pine plantations and urban development.

The Garden Route Shale Fynbos occurs in the Western and Eastern Cape Provinces and includes undulating hills and moderately undulating plains on the coastal forelands. In the wetter areas this vegetation type includes tall, dense proteoid and ericaceous Fynbos while the drier areas are dominated by graminoid Fynbos (Mucina & Rutherford, 2006). Important taxa in the Garden Route Shale Fynbos include Leucadendron eucalyptifolium, Protea aurea subsp. aurea, P.coronata, Leucospermum formosum, Metalasia densa and Passerina corymbosa while the low shrubs include species such as Acmadenia alternifolia, A.tetragona, Anthospermum aethiopicum, Cliffortia ruscifolia, Leucadendron salignum, Pelargonium cordifolium and Eriospermum vermiforme. Graminoid species include Ischyrolepis sieberi, Aristida junciformis, Brachiaria serrata, Cymbopogon marginatus, Elegia juncea, Eragrostis capensis, Restio triticeus, Themeda triandra and Tristachya leucothrix.

According to Mucina & Rutherford (2006), Garden Route Shale Fynbos is classified as Least Threatened with only about 1% transformed and infestations of alien species generally being low.

Refer to **Figure 4** for a map showing the regional vegetation of the area.

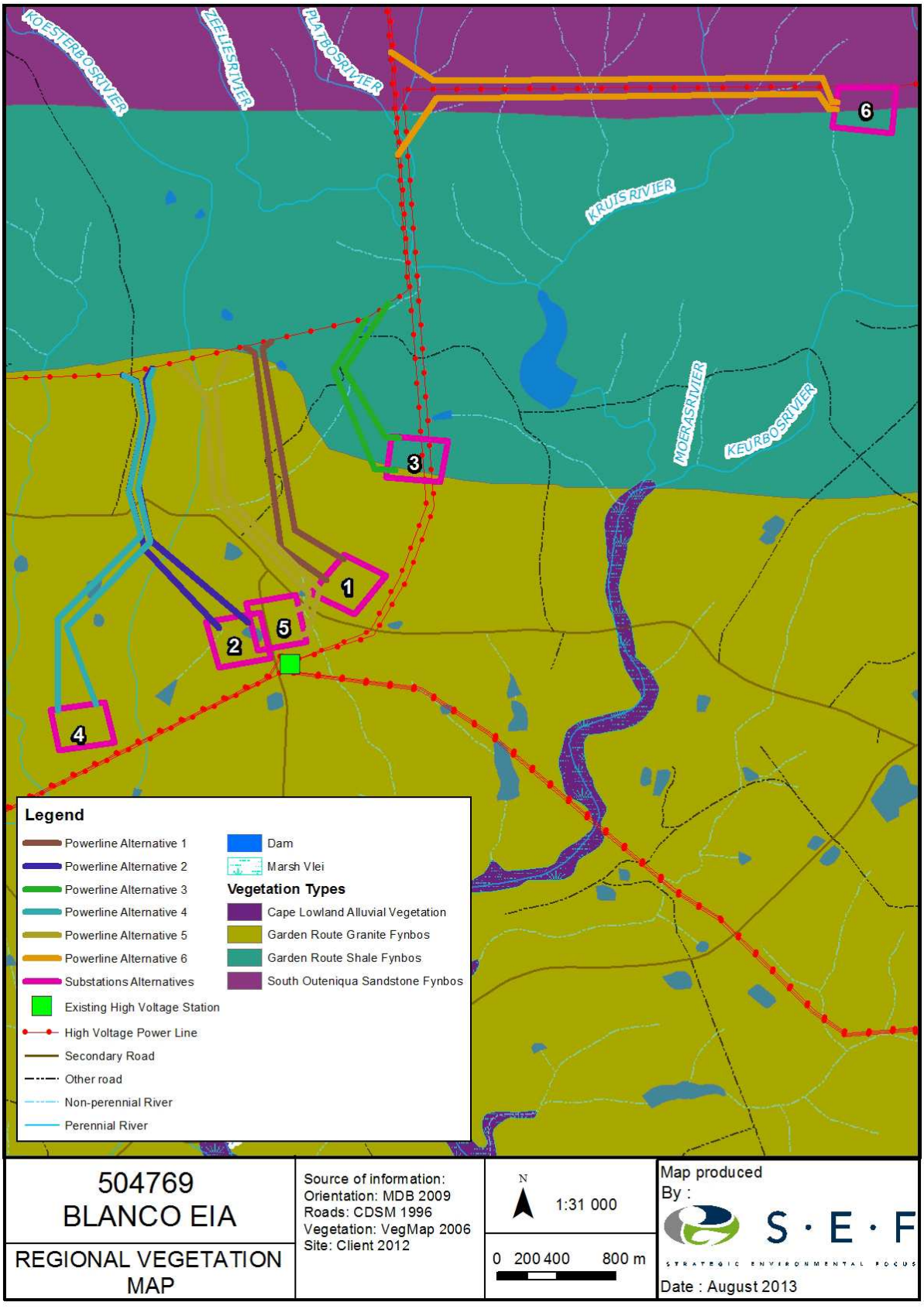

Figure 4: Regional vegetation map for the proposed project area.

Fauna

Faunal habitat within the predominantly agricultural landscape of the study area included areas of old fields now converted to secondary grassy shrubland, a few small watercourses with associated riparian vegetation, man-made farm dams and stands of exotic trees.

Although previously disturbed, the secondary shrubland provided suitable feeding and breeding habitat for many bird, mammal, reptile and invertebrate species (Photograph 8). The stands of exotic trees on site likely provided shelter for many faunal species especially birds and bats. Stands of exotic trees, especially in transformed landscapes, provide shelter for roosting, perching and nesting.

Watercourses and wetlands are usually areas of high faunal diversity as the riparian environment and while dense vegetation provides abundant cover, feeding and breeding habitat for many species of invertebrates, birds, mammals, reptiles and amphibians. When it is available, surface water provides drinking water for many faunal species while the soft substrate provides perfect burrowing environments for mammals, reptiles and invertebrates. The increase in prey and vegetation attracts a high diversity of birds, as well as terrestrial mammals and reptiles, including predators. Watercourses and the associated riparian vegetation also tend to be corridors of movement through the landscape for fauna and flora. They are especially important in cultivated or transformed landscapes where most of the natural terrestrial habitat has been destroyed or transformed.

B-2 SOCIAL ENVIRONMENT

B-2.1 Visual

The Blanco area is part of a regional settlement pattern within the Garden Route between the Outeniqua Mountains and the sea. The mountains and river corridors define the space and contribute to a **unique sense of place**. This sense of place (defined by the river corridors, agricultural environment mountains) in this area is a contributing factor to the increased popularity and interest in this town as a destination.

Scenic value can be described as the reaction to aesthetics of the environment as perceived by an individual or a group and therefore it is a very subjective perception. In terms of surrounding landscape compatibility, the construction of the Blanco substation and power line may be out of character, and as such a Visual Impact Assessment will be conducted during the EIR phase of the project to assess the significance of such an impact.

B-2.2 Heritage

The project area is situated within a unique rural cultural landscape which has a strong vibrant history and character which is quite distinguishable from the neighbouring town (namely George). The Blanco rural cultural landscape displays a relatively fine grained subdivision pattern, creating a patchwork of varied land use (although predominantly agriculture orientated). The landscape is further defined by traditional landscape features and patterns such as closely planted trees, creating the impression of fields and pastures as ‘”rooms” within the land.

A Heritage Impact Assessment will be conducted for the proposed Blanco substation and powerline project during the EIR phase. Should any heritage artefacts be uncovered, the relevant heritage agency will be appropriately consulted.

B-2.3 Noise

Noise control must form part of the planning stage of any development. During the construction phase of the proposed substation and powerline project, noise may be generated as a result of construction related activities such as: the use of machinery and equipment, and the movement of construction vehicles etc. These potential noise impacts must be mitigated, where possible. This will be investigated during the EIR phase of the project and suitable mitigation measures will be recommended.

B-2.4 Air

Vehicles travelling on exposed surfaces, earthworks as well as wind are the main generators of dust. The nuisance and aesthetic impacts associated with the dust generated during the construction phase of the proposed substation and powerline project should be minimal, if mitigating measures are implemented.

Dust generated off the earth's surface is generally regarded as a nuisance rather than a health or environmental hazard. On a large scale dust will impair atmospheric visibility; however, in the context of the proposed activity, the impact of dust production on air quality should be minimal taking into account that effective dust suppression techniques are available and will be recommended during the EIR phase. The nuisance aspect of dust will be minimal as the project area is sparsely populated.

SECTION C: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

C-1 APPROACH TO THE EIA

An Environmental Impact Assessment (EIA) is an effective environmental planning tool. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The EIA for this project complies with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the NEMA EIA Regulations, 2010 of the DEA. The guiding principles of an EIA are listed below.

Definition of the term "environment"

The term "environment" is used in the broadest sense in an environmental impact assessment. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.

C-2 GUIDING PRINCIPLES FOR AN EIA

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with Interested and Affected Parties (I&APs) representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should finally be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

The eight guiding principles that govern the entire process of EIA are as follows (see Figure below):

- **Participation:** An appropriate and timely access to the process for all interested parties.
- **Transparency:** All assessment decisions and their basis should be open and accessible.
- **Certainty:** The process and timing of the assessment should be agreed in advanced and followed by all participants.
- **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.
- **Credibility:** Assessment is undertaken with professionalism and objectivity.
- **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.
- **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.
- **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.

A S&EIR process is considered as a project management tool for collecting and analysing information on the environmental effects of a project. As such, it is used to:

- Identify potential environmental impacts;
- Examine the significance of environmental implications;

- Assess whether impacts can be mitigated;
- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and
- Advise whether development should go ahead.

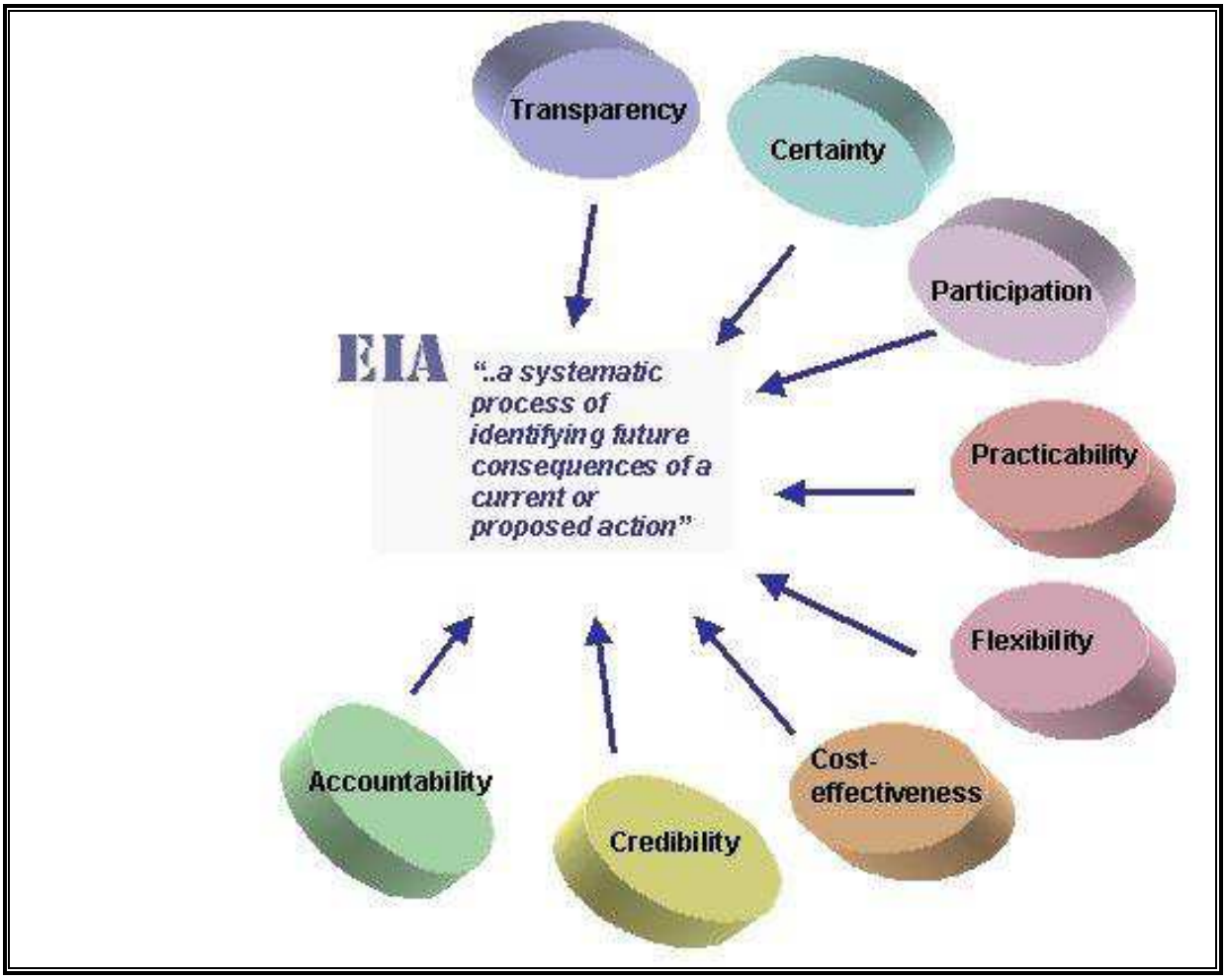

Figure 4: The eight guiding principles for the EIA process

A S&EIR process typically has four phases, as illustrated in the Figure below. The Public Participation process forms an integral part of all four phases and is discussed in greater detail in Section C – 4 of this draft Scoping Report.

C-3 S&EIR TECHNICAL PROCESS

This section provides a summary of the technical process to be followed for this S&EIR process.

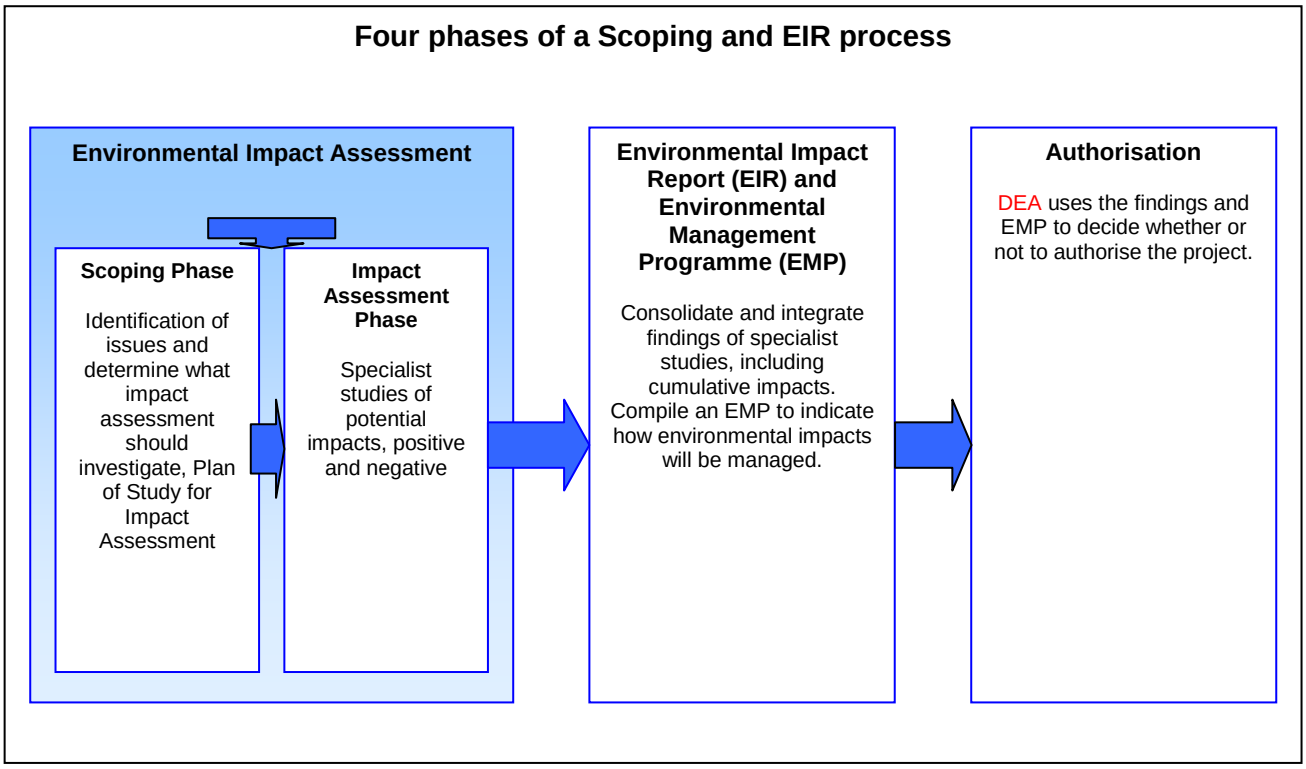

Figure 5: Flow diagram of the Scoping and EIR process

C-3.1 Pre-application Consultation with the DEA

No pre-consultation meeting was held between SEF and DEA. The EAP conducting the S&EIR process for the applicant, in support of their application for an environmental authorisation, is deemed to have a good understanding of the information requirements of the Department for the proposed substation and power line project, such that the Department's specific information requirements are deemed to have been met for the scoping phase of this project.

C-3.2 Application for Authorization

The application form informing the Department of intent to obtain an environmental authorisation was submitted to the DEA on the 23rd of October 2012 The project was subsequently registered and assigned the reference number DEA Ref: 14/12/16/3/3/2/424.(Refer to **Appendix 3** for a copy of this letter)

C-3.3 Information Gathering

Early in the EIA process, the technical specialists identified the information that would be required for the impact assessment and the relevant data was obtained. In addition, the specialists sourced available information about the receiving environment from reliable sources, I&APs, previous documented studies in the area and previous EIA Reports.

C-3.4 Specialist Studies

The following specialist studies were identified to be undertaken during the EIR phase:

- Agricultural Potential Assessment; and
- Wetland & Riparian Delineation and Functional Assessment;
- Ecological (including Fauna, Avifauna & Floral) Assessment;
- Visual Impact Assessment;
- Heritage Impact Assessment; and
- Noise Impact Assessment.

C-4 PUBLIC PARTICIPATION PROCESS

The principles of NEMA govern many aspects of the S&EIR process, including consultation with I&APs. These principles include the provision of sufficient and transparent information to I&APs on an ongoing basis, to allow them to comment; and ensuring the participation of historically disadvantaged individuals, including women, the disabled and the youth.

The principal objective of public participation is thus to inform and enrich decision-making. This is also the key role in the scoping phase of the process.

C-4.1 Identification of Interested and Affected Parties

I&APs representing the following sectors of society have been identified in terms of Regulation 55 of the EIA Regulations R543 of 2010 and will be notified of the proposed substation and power line project and the availability of the Draft Scoping Report for review and comment. These include the following:

- Provincial Authorities;
- Local Authorities;
- Ward Councillors;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent & Affected Landowners.

C-4.2 Public Announcement of the Project

The project was announced on the 24th of January 2013 in the following manner (Refer to **Appendix 4** for public announcement documentation):

- Publication of media advertisements (in English & Afrikaans) in the George Herald (local newspaper) and Die Burger (regional newspaper);
- On-site notices advertising the S&EIR process were placed at the proposed substation site alternatives (1-4) and A3 notices were placed at visible locations and venues in the town of Blanco; and
- Distribution of letters by fax/ post/ email to I&APs including Registration and Comment Sheets.

C-4.3 Open House Meeting

An open house public meeting was held at "Ibis Place" Country House on Thursday 7th February 2013, from16:00 – 19:00. The proposal was discussed and presented in poster format, detailing the project information. I&Aps were given the opportunity to raise their issues and concerns, if any, and to discuss these matters with the project team (SEF and Eskom).

C-4.4 Draft Scoping Report

I&APs and relevant State Departments were given the opportunity to raise comments or issues either in writing, by fax or email on the Draft Scoping Report for a period of 40 days (from 24th of January 2013 until 4th of March 2013). The availability of the Draft Scoping Report was announced by means of personal letters to all the registered I&APs on the distribution list, and by adverts placed in the abovementioned newspapers.

In addition, the Draft Scoping Report was distributed for comment as follows:

- Left in a public venue (George and/or Blanco Public Library);
- Hand-delivered/ couriered to the relevant authorities; and
- Posted on SEF's website at http://www.sefsa.co.za.

All the comments and concerns raised by I&APs during the S&EIR process have been captured in a Comment and Response Report, and are enclosed in **Appendix 4.**

A full Public Participation Report is enclosed in **Appendix 4**, which details the public participation process undertaken thus far during the Scoping Phase.

C-4.5 Final Scoping Report

The Scoping Report has been updated with comments and / or concerns raised by I&APs during the public review period of the Draft Scoping Report. The Comment and Response Report (in which comments and concerns raised are captured) is now attached to the Final Scoping Report which will be submitted to the DEA for review.

C-4.6 Public participation during the Environmental Impact Assessment Phase

Public participation during the Environmental Impact Assessment Phase of the S&EIR process will revolve around a review of the findings of the Environmental Impact Report (EIR) and inputs into the Environmental Management Programme (EMP). The findings will be presented in a Draft Environmental Impact Report and EMP (including the specialist studies conducted), which will be available for public review and comment.

SECTION D: IDENTIFICATION OF IMPACTS

D-1 IDENTIFICATION OF IMPORTANT ENVIRONMENTAL IMPACTS

The key environmental impacts listed in the following section have been determined through:

- Legislation; and
- Experience of the Environmental Assessment Practitioner (EAP).

The following issues were identified and will be carried forward into the EIR phase for further investigation and assessment:

D-1.1 Biophysical Impacts

- Loss/displacement of cultivated land (with high agricultural potential);
- Impact of construction traffic movement on the surrounding farm lands;
- Potential impacts on ground and surface water quality due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impacts on soils due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impact on flora within the proposed substation development footprint area and along the proposed power line route, stemming from construction activities such as vegetation clearing and topsoil stripping within the site;
- Potential impact on wetlands, rivers and streams which may be affected by the construction of the substation and power line; and
- Faunal displacement mainly during the construction phase of the project;

D-1.2 Socio-Economic Impacts

- Increased dust and noise generation (and impact on the surrounding farmlands) during the construction phase of the project;
- Change in the visual character of the local area in which the project is located;
- Potential impacts on heritage resources affected by the construction of the substation or erection of the proposed power lines;
- Potential loss of viable and high potential agricultural/ grazing land affected by the construction of the substation or erection of the proposed power lines; and
- Local job creation during the construction and operational phases of the proposed project.

D-2 IDENTIFICATION OF CUMULATIVE IMPACTS

Cumulative impacts, as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the particular project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment (see Figure below).

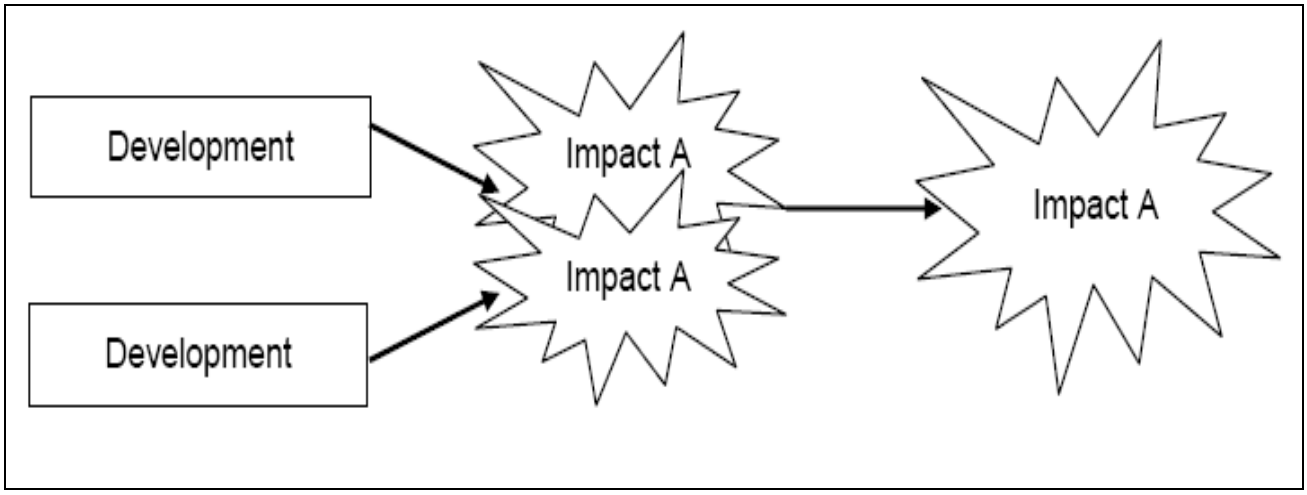

Figure 6: The identification of Cumulative Impacts

The following cumulative impacts have been identified in terms of the proposed development and warrant further investigation during the assessment phase:

- Increased loss of viable and high potential agricultural/ grazing land in the local area; and
- Increased visual impacts associated with additional power lines in the local area.

SECTION E: ALTERNATIVES

E-1 IDENTIFICATION OF ALTERNATIVES

The EIA procedures and regulations stipulate that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. During the EIR phase of the project, the identified alternatives will be assessed, in terms of environmental acceptability as well as socio-economic feasibility. To define the term alternatives as per Government Notice No. 543 of the NEMA EIA Regulations 2010 means:

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

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

The alternatives below will be further investigated during the EIR phase of the project:

A) Site/ Location Alternatives:

Eskom has investigated six (6) possible alternative sites for the proposed Blanco substation (refer to the Locality map attached in **Appendix 1**):

These alternatives sites are described below:

Alternative substation site 1:

The proposed new 400kV Substation is proposed to be located on the northern side of the existing 132kV Yard, across the local gravel road. This is the technically preferred location because it will be easy to Loop-in Loop-out the existing Droerivier Proteus 400kV line. The property was previously owned by Eskom but has since been sold to a local farmer. There is a pivot which will be directly affected should this be an approved alternative.

Alternative substation site 2:

Alternative 2 is proposed to be situated on the western side of the existing substation across the road. This area is composed out of very flat land. A residential house and cultivated agricultural land with a pivot will however be affected by this alternative. In addition, there is also a distribution line coming into the existing 132kV substation.

Alternative substation site 3:

This alternative is proposed to be located on the north-eastern side of the existing substation, across the road. The location has a larger area and is also closer to the Droerivier Proteus 400kV line as compared to the other three. This alternative may however affect the existing distribution line passing through the site.

Alternative substation site 4:
This alternative is proposed to be situated on the south western side of the existing substation. It is however further away from the Droerivier Proteus 400kV line. The Loop in Loop-out line will thus cover a longer distance as compared to the other three alternatives and will affect several land owners.

Alternative substation site 5
Following the site visit of 19th of February 2013, an additional site alternative was suggested, which entails the construction of the substation on the portion of land adjacent to the existing Blanco distribution substation.

Alternative substation site 6
A further alternative was suggested by a landowner on 8th of May 2013, at the follow up meeting. This site was looked at but was subsequently regarded to not feasible based on the gradient of the site. An alternative area was then suggested, which is located to the east of the existing at the foot of the mountains.

Site Investigation:
A site investigation (2012 – 09 – 04) was conducted by the project team (Eskom and SEF) to assess the suitability of each of the alternative sites (from an engineering and environmental perspective) proposed for the substation site. Further visits to the area were undertaken on the 19th of February 2013, as well as 26th of June 2013, to review two additional alternatives.

Each substation site location (as per the Locality map in **Appendix 1**) was evaluated by the project team and findings presented below:

Alternative substation site 1
It was noted that this site is a **preferred option** for the construction of the new substation in terms of the site's proximity to the existing Blanco substation and the grid network. Potential constraints identified on this site include, the slope (topography) of the site (as a flat topography is required for the new substation) and the presence of a water course (drainage line) which traverses across the site (a Water Use Licence application to the Department of Water Affairs under Section 21 of the National Water Act No. 36 of 1998 may be required).

Alternative substation site 2
It was noted that this site is also a **preferred option** in terms of the flat topography and its location directly adjacent to the existing Blanco substation (and therefore can be integrated easily into the existing grid network). The land is however utilised by a farmer for agricultural purposes and the centre pivot of the farmer's agriculture practises may be compromised (negatively impacted upon) by the construction of the substation, which may result in the land being acquired from the respective farmer (cost implication for Eskom).

Alternative substation site 3 *(Forested area)*
It was noted that this site is a less preferred site for the construction of the new substation, due to the topography of the site, as well as the distance from the existing powerlines. An adjacent portion of land (directly adjacent to the access road) was discussed, however in terms of limited surface area (78300m^2 plot required) and the potential presence of a wetland (high water table) this site was not regarded as ideal. It was however agreed that this site would remain as an alternative option which would need to be investigated in more detail.

Alternative substation site 4
It was noted that this site is the **least preferred option** for the construction of the new substation in terms of existing agricultural practises (farmer's land) and the presence of a water body (dam) and water course (riparian habitat) on site.

Alternative substation site 5
Following the site visit of 19th of February 2013, an additional site alternative was suggested, which entails the construction of the substation on the portion of land adjacent to the existing Blanco distribution substation.

Alternative substation site 6
A further alternative was suggested by a landowner on 8th of May 2013, at the follow up meeting. This site was looked at but was subsequently regarded as not feasible based on the gradient of the site. An alternative area was then suggested, which is located to the east of the existing powerlines, at the foot of the mountains.

In terms of the proposed routes for the loop-in / loop-out power lines, Eskom has investigated six (6) possible alternative sites (Refer to Locality Map in **Appendix 1** for the proposed orientation of each of these power line routes).

B) Power Line Alternatives:

Power line route alternative 1:
This proposed alternative (with an approximate distance of 2.5 km) will connect (or "T") with an existing high voltage power line and follow a south-easterly route across a perennial river and agricultural land where it will feed into the proposed new 400kV/132kV substation (namely alternative substation 1).

Power line route alternative 2:
This proposed alternative (with an approximate distance of 2.9 km) will connect (or "T") with an existing high voltage power line then follow a southerly route across agricultural land and a secondary road, then at a turning point follow a south-easterly direction where it will cross over a perennial river and tree line, and will feed into the proposed new 400kV/132kV substation (namely alternative substation 2).

Power line route alternative 3:
This proposed alternative (with an approximate distance of 1.7 km) will connect (or "T") with an existing high voltage power line, cross a perennial river, then follow a southerly direction across a road and agricultural land and eventually feed into the proposed new 400kV/132kV substation (namely alternative substation 3).

Power line route alternative 4
This proposed alternative (with an approximate distance of 3.7 km) will connect (or "T") with an existing high voltage power line, then follow a southerly direction across agricultural land, a secondary road and a tree line until it will feed into the proposed new 400kV/132kV substation (namely alternative substation 4).

Power line route alternative 5
This proposed alternative (with an approximate distance of 3.1 km) will connect (or "T") with an existing high voltage power line, then follow a southerly direction across agricultural land, move in a south-easterly direction along the Geelhoutboom road, cross the road, and feed into the proposed new 400kV/132kV substation (namely alternative substation 5).

Power line route alternative 6
This proposed alternative (with an approximate distance of 4.1 km) will connect (or "T") with an existing high voltage power line, then follows the route of the existing 132kV powerlines heading towards Blanco, and will feed into the proposed new 400kV/132kV substation (namely substation 6).

Layout/ Design Alternatives:

Alternative layout / design plans of the proposed substation and power lines may evolve from the findings of specialist studies that will be undertaken to inform the EIR phase. Design and layout alternatives will be proposed based on the environmental sensitivities as well as various alternatives for connection to the local grid in the Blanco area.

C) Tower design Alternatives

There are various tower design options available for use in the transmission line development. A variety or combination of tower designs are likely to be utilised for construction of the lines, depending on the characteristics and needs of the land and communities concerned. The section below describes the type of tower designs that could be placed along the length of the transmission line development. The final tower design alternatives will be decided based on a walk down of the proposed corridors, and upon discussion with the relevant parties involved.

The type of tower structure proposed for the 400kV Loop-in Loop-out power line is a 515 H (Heavy) Self - Supporting Suspension Tower (developed by Eskom in 1983) which will support quad (X4) wolf conductors in conjunction with 120KN glass insulators. The spacing between the sub-conductors is estimated at 380mm and the midspan ground clearance of this tower (in order to achieve optimal electrical performance) is approximately 9.1m.

Figure 7: An example of the type of tower structure (namely the 515 series) proposed to support the 400kV power line (internet source: http://www.greenbusinessguide.co.za/eskom-power-supply-tight)

D) No development Alternative:

The no-go alternative can be regarded as the baseline scenario against which the impacts of the power lines are evaluated. This implies that the current biophysical and socio-economic conditions associated with the proposed routes will be used as the benchmark against which to assess the possible changes (impacts) to these conditions as a result of the power lines.

In most cases, the no-go alternative will imply that the identified negative impacts of proceeding with the project will not be incurred. Conversely, selection of the no-go alternative will also result in the benefits (including the potential economic development and related job creation, and increased security of electricity supply for the local areas) of the project not being realised

The no-go alternative will be investigated in further detail in the impact assessment phase of the EIA process.

SECTION F: PLAN OF STUDY FOR EIR PHASE

F-1 SCOPE AND PURPOSE OF THE EIR PHASE

The EIR phase will focus on the proposed Blanco substation and power line project and the associated impacts thereof. The next step of the S&EIR process is the development of guidelines for the execution of the impact assessment and the compilation of an Environmental Impact Report, as well as an Environmental Management Programme (EMP). The compilation of these documents will take into account all comments and concerns raised by I&APs which are captured within the CRR as well as the findings of various specialist studies.

The Final Environmental Impact Report and EMP will be submitted to the DEA for consideration towards environmental authorisation.

F-2 METHODOLOGY OF THE EIR PHASE

F-2.1 Specialist Investigations and Terms of Reference (ToR)

A team of specialists were identified to provide technical and scientific input in assessing the impacts of the proposed Blanco substation and power line project. The following specialist studies will be incorporated into the Draft Environmental Impact Report:

- Ecological (including Fauna, Avifauna & Floral) Assessment;
- Heritage Impact Assessment;
- Visual Impact Assessment;
- Agricultural Potential Assessment; and
- Wetland & Riparian Delineation and Functional Assessment.

The Environmental and team of Specialists will focus on discipline-specific problems and examine each significant issue in further detail through the relevant specialist studies.

As per the Environmental Management Guidelines, specialists' Terms of Reference (ToR) must be clearly defined and clarified. This is to ensure that the specialists have covered all the issues and topics in an appropriate manner and at an appropriate level of detail. The proposed studies will take into consideration the present state of the receiving environment and provide an assessment of the impacts likely to be associated with the proposed project, as well as mitigation measures to be used to minimise possible impacts. The ToR for each specialist study is explained in greater detail below.

F-2.1.1 Flora and Fauna Assessment

The Floral and Faunal Assessment will aim to:

- Describe the relevant baseline conditions relating to the natural vegetation communities and faunal species in the area of investigation;
- Describe the anticipated environmental impacts on the natural vegetation and fauna during the construction and operational phases of the project;
- Describe how the negative environmental impacts, as described above, will be managed;
- Provide a description of the dominant and typical species occurring on site; and
- Provide a description of threatened, endemic or rare species to the Province, with an indication of the relative functionality and conservation importance of the specific community in the area under investigation.

F-2.1.2 Phase 1: Heritage Impact Assessment

A Heritage Impact Assessment will be undertaken in order to assess the impacts and significance in terms of culture and heritage on the site and propose mitigation measures. The ToR includes inter alia:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction and operation of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

F-2.1.3 Visual Impact Assessment

The Visual Impact Assessment will aim to:

- Describe the relevant baseline conditions relating to the receiving environment and its visual absorption capacity;
- Describe the anticipated visual impacts on the receiving environment during the construction and operational phases of the project; and
- Describe how the negative visual impacts as described above will be managed/ mitigated.

F-2.1.4 Agricultural Potential Assessment

An Agricultural Potential Assessment will be undertaken to assess the impacts on the agricultural potential and viability. This study may include, but not be limited to the following:

- The identification of the soil forms present on site;
- The size of the area where a particular soil form is found;
- GPS readings of the soil survey points;
- The depth of the soil at each survey point;
- Soil colour;
- Limiting factors;
- Clay content;
- Slope of the site;
- A detailed map indicating the locality of the soil forms within the specified area;
- Size of the site;
- Exact locality of the site;
- Current activities on the site, developments, buildings, etc;
- Surrounding developments/ land uses and activities in a radius of 500 m of the site;
- Access routes and the condition thereof;
- Current status of the land (including erosion, vegetation and a degradation assessment);
- Possible land use options for the site;
- Water availability, source and quality (if available);
- Detailed descriptions of why agriculture should or should not be the land use of choice;
- Impact of the change of land use on the surrounding area; and
- A shape file containing the soil forms and relevant attribute data as depicted on the map.

F-2.1.5 Wetland Delineation and Functional Assessment

A wetland delineation and functional assessment of the wetland(s)/ drainage line(s) on site will be conducted during the EIR phase of the project. It will identify the current condition of the wetland and identify the potential impacts of the proposed development on the wetland/ drainage line and recommend mitigation measures accordingly.
The proposed specialist studies will take into consideration the present state of the receiving environment and provide an assessment of the impacts likely to be associated with the proposed project, as well as mitigation measures to be used to minimise possible impacts.

F-2.2 Approach to Assessment of Impacts

The EAP in association with the relevant specialists will provide an outline of the approach used in the study. Assumptions and sources of information will also be clearly identified.

F-2.2.1 Impact Identification and Assessment

The EAP must make a clear statement, identifying the environmental impacts of the construction, operation and management of the proposed development. As far as possible, the EAPs must quantify the suite of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out below. Each impact will be assessed and rated. The assessment of the data must, where possible, be based on accepted scientific techniques, failing which the specialist is to make judgements based on his/ her professional expertise and experience.

F-2.2.2 Assessment Procedure: Proposed Impact Assessment Methodology

For the purpose of assessing impacts during the EIR phase of the project to follow, the project will be divided into two phases from which impacting activities can be identified, namely:

Construction Phase:	All the construction related activities on site, until the contractor leaves the site.
Operational Phase:	All activities, including the operation and maintenance of the proposed development.

The activities arising from each of these phases will be included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them.

The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).
	International	Where the impact has international ramifications that extend beyond the boundaries of

		South Africa.
Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed development.	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.
	Short-Medium Term	The impact will be relevant through to the end of a construction phase.
	Medium Term	The impact will last up to the end of the development phases, where after it will be entirely negated.
	Long Term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.	Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0%).
	Possible	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Likely	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Mitigation **–** The impacts that are generated by the development can be minimised if measures are implemented in order to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation **–** Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as "positive". Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;
Low: The impact is of little importance, but may require limited mitigation;
Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and
High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable.

Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation will be rated on the following scale:

No significance: The impact will be mitigated to the point where it is regarded as insubstantial; Low: The impact will be mitigated to the point where it is of limited importance;
Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;
Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and
High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. In order to establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Ranking, Weighting and Scaling – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist's element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance (See Figure below: Weighting description).

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2		Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4		Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Figure 8: Description of bio-physical assessment parameters with its respective weighting

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings,

resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1: Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x Weighting Factor

Identifying the Potential Impacts With Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Mitigation Efficiency (ME) – The most effective means of deriving a quantitative value of mitigated impacts is to assign each significance rating value (WOM) a mitigation effectiveness (ME) rating. The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact.

Thus, the lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Equation 2: Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency
Or
WM = WOM x ME

Significance Following Mitigation (SFM) – The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact will, therefore, be seen in its entirety with all considerations taken into account.

F-2.2.3 Integration of Specialist's Input

In order to maintain consistency in the impact assessment, it is suggested that all potential impacts to the environment (or component of the environment under review) should be listed in a table similar to the example shown below (more than one table will be required if impacts require assessment at more than one scale). The assessment parameters used in the table should be applied to all of the impacts and a brief descriptive review of the impacts and their significance will then be provided in the text of the specialist reports and consequently in the EIR. The implications of applying mitigation are reviewed in Section C-2.4 below.

Table 3: Example of an Impact Table

Nature			Status	-
Impact source(s)				
Affected stakeholders				
Magnitude	*Extent*			
	Intensity			
	Duration			
	Reversibility			
	Probability			
Significance	*Without mitigation*			H
	With mitigation			L
Confidence				

F-2.2.4 Mitigation Measures

Mitigation measures will be recommended in order to enhance benefits and minimise negative impacts and they will address the following:

- Mitigation objectives: what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an "educated guess" based on his/ her professional experience;
- Recommended mitigation measures: For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;
- Effectiveness of mitigation measures: The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and
- Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided. A duplicate column on the impact assessment tables described above will indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

F-2.3 Approach to the Assessment of Cumulative Impacts

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts).

Possible cumulative impacts of the project will be evaluated in the EIR. In addition, various other cumulative impacts e.g. other external impacts that could arise from the project will be further investigated in the EIR phase of the project.

The assessment of cumulative impacts on a study area is complex; especially if many of the impacts occur on a much wider scale than the site being assessed and evaluated. It is often difficult to determine at which point the accumulation of many small impacts reaches the point of an undesired or unintended cumulative impact that should be avoided or mitigated. There are often factors which are uncertain when potential cumulative impacts are identified.

F-2.3.1 Steps in Assessing Cumulative Impacts

The assessment of cumulative impacts will not be done separately from the assessment of other impacts. Cumulative impacts however, tend to have different time and space dimensions and therefore require specific steps. This may even mean that some of the actions in the assessment process, that preceded general impact identification, may have to be revisited after potential cumulative impacts have been identified. This will ensure that the scope of the EIR process is adequate to deal with the identified cumulative impacts.

Three (3) general steps, which are discussed below, will be recommended to ensure the proper assessment of cumulative impacts.

F-2.3.2 Determining the Extent of Cumulative Impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

F-2.3.3 Describing the Affected Environment

The following approach is suggested for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

F-2.3.4 Assessment of Cumulative Impacts

The general methodology which is used for the assessment of cumulative impacts should be coherent and should comprise of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

F-3 PUBLIC PARTICIPATION PROCESS DURING THE EIR PHASE

F-3.1 Stakeholder Engagement

All I&APs registered on the project's database will be kept informed of the EIA process. Notification letters will be submitted informing all registered I&APs of the availability of draft and final Environmental Impact Reports and EMPs for review and comment.

All comments and/or concerns received via telephone, fax, email or post will be incorporated into a Comment and Response Report (CRR) and included within the Final Environmental Impact Report. All correspondence received will be acknowledged.

F-3.2 Public Review of the Draft Environmental Impact Report

The Draft EIR will be available for comment at a public venue (i.e. the George Public and/or Blanco Branch Library) and will also be available on SEF's website (www.sefsa.co.za).

F-3.3 Public Review of the Final Environmental Impact Report

It is proposed that the Final EIR will be also made available for comment at public venues and available on SEF's website (www.sefsa.co.za). The public review period of the final report will run concurrently with the submission of the final report to the DEA for consideration towards environmental authorisation.

SECTION G: CONCLUSION AND RECOMMENDATIONS

In accordance with GN No. 543, the Scoping Report is aimed at describing the proposed activity and those reasonable alternatives that have been identified, as well as the receiving environment that may be affected by the proposed Blanco substation and power line project. In accordance with the EIA Regulations, an identification of relevant legislation and guidelines was also given, as well as a description of the public participation process that was and will be followed.

In conclusion, the Scoping Report established the scope of the proposed project throughout its phases, as well as its key impacts on the receiving and surrounding environments. The project motivation has also been described. The Scoping Report also sets out the proposed scope of the EIR phase that will be undertaken for the proposed project.

Comments and/or concerns identified by Interested and Affected Parties (I&APs) during the review period of the Draft Scoping Report have been incorporated into the Final Scoping Report for further investigation during the EIR Phase to follow. The Final Scoping Report and Plan of Study for the EIR phase will be submitted to the DEA for consideration.

The EAP proposes that, on the basis of the information contained in this Scoping Report, that the DEA accept the Final Scoping Report (updated with I&AP comment) and Plan of Study for the EIR phase and allow the EAP to proceed with the EIR phase of the project, such that the more pertinent issues can be thoroughly investigated and assessed, in terms of their significance and impact.

The ability to mitigate any of the potential impacts identified in this Scoping Report will also be investigated during the EIR phase and summarised into a working/ dynamic Environmental Management Programme (EMP) for consideration by I&APs and ultimately by the DEA.

SECTION H: REFERENCES

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SECTION I: APPENDICES

Appendix 1: Locality Map

Appendix 2: Photographs

Appendix 3: Authority Correspondence

Appendix 4: Public Participation
- 4.1: Adverts
- 4.2: Site Notices
- 4.3: I&AP Notifications
- 4.4: Stakeholder Database