Eskom Romansrivier - Ceres 66/132kV Double Circuit Powerline

Basic Assessment Report

Report Prepared for

Eskom Holdings SOC Limited

SRK Report Number 509264

DEA Reference Number: To be provided

Report Prepared by

srk consulting

September 2017

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DWS Reference Number: To be provided

Eskom Holdings SOC Limited

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SRK Project Number 509264

September 2017

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EXECUTIVE SUMMARY: BASIC ASSESSMENT REPORT
ROMANSRIVIER - CERES 66/132kV DOUBLE CIRCUIT POWERLINE

SRK Project Number: 508761

1 INTRODUCTION

The Witzenberg substation is currently supplied by one 132 kV single circuit powerline. This line runs over the Witzenberg Mountain Range from the Romansrivier substation (see Figure 1 1). Three 66kV feeders out of the Witzenberg substation supply the Ceres, Gydo and Slangboom substations from where Eskom's customers draw their electricity.

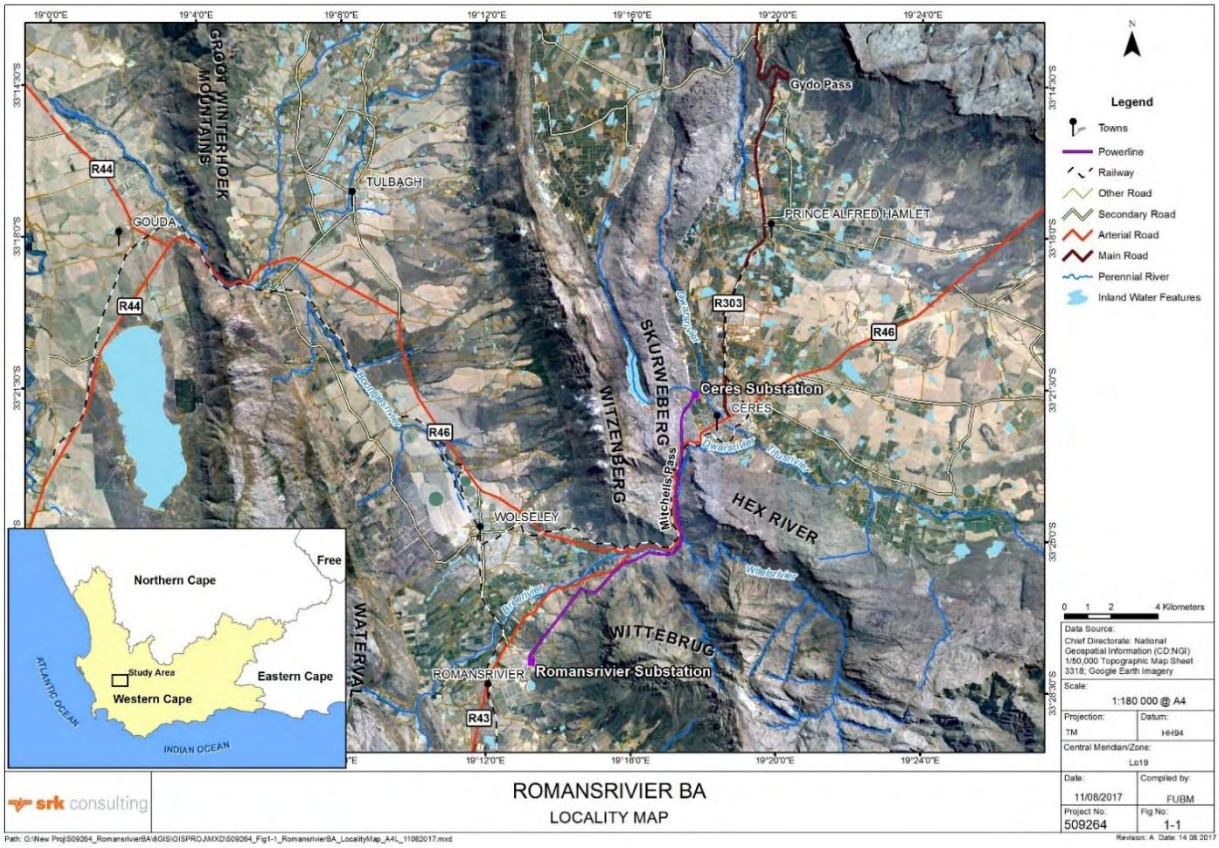
A 66 kV powerline runs from Romansriver to Witzenberg substations via Ceres. A portion of this line between Romansriver and Ceres burnt down, cutting supply from Romansriver to Ceres and Witzenberg, reducing the reliability of supply to the area.

Since this fire, the Ceres substation has been supplied by the 66 kV line from the Witzenberg substation only. Therefore, both the Ceres and the Witzenberg substations are solely dependent on the 132 kV line between Romansriver and Witzenberg. Should a fault occur on this line, Eskom would be unable to supply the dependent network (i.e. the towns of Prince Alfred Hamlet and Ceres) for several months until the line is repaired. Demand for power in the region is also increasing exponentially, particularly in the agricultural sector.

Eskom Holdings SOC Limited, Western Cape Operating Unit: Distribution Division (Eskom) therefore propose to construct a new double circuit powerline (132kV and 66kV) from the Romansrivier substation to the Ceres substation near Ceres in the Western Cape (the project).

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by Eskom to undertake the Basic Assessment (BA) process, which is required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982, as amended by GN R326) in support of an application for Environmental Authorisation (EA). In addition, the project will require a heritage approval in terms of the National Heritage Resources Act 25 of 1998 (NHRA) issued by Heritage Western Cape, and Water Use Authorisation (WUA) in terms of the National Water Act 36 of 1998 (NWA) from the Department of Water and Sanitation (DWS).

See page 7 for details on how you can participate in the process.



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2 GOVERNANCE FRAMEWORK

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an EA issued by the competent authority, in this case, the Department of Environmental Affairs (DEA). The EIA Regulations, 2014, promulgated in terms of NEMA, govern the process, methodologies and requirements for the undertaking of EIAs in support of EA applications. The EIA Regulations are accompanied by Listing Notices (LN) 1-3 that list activities that require EA.

The EIA Regulations, 2014 lay out two alternative authorisation processes. Depending on the type of activity that is proposed, either a BA process or a Scoping and Environmental Impact Reporting (S&EIR) process is required to obtain EA. LN 1 lists activities that require a BA process, while LN 2 lists activities that require S&EIR. LN 3 lists activities in certain sensitive geographic areas that require a BA.

SRK has determined that the proposed project triggers activities listed in terms of LN 1 and LN 3 of the EIA Regulations, 2014, as such the project requires a BA process to inform an application for EA (as well as heritage approval and WUA).

Table 1: Listed activities triggered by the project

No	Description
LN 1 (requiring BA)	
11	The development of facilities or infrastructure for the transmission and distribution of electricity- (i)outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.
12	The development of- (ii)infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from- (i)a watercourse;
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i)The undertaking of a linear activity (ii)Maintenance purposes undertaken in accordance with a maintenance management plan
LN 3 (requiring BA)	
4.	The development of a road wider than 4 metres with a reserve less than 13,5 metres. (i)Western Cape (ii)Areas outside urban areas (aa)Areas containing indigenous vegetation.
12	The clearance of an area of 300 square metres or more of indigenous vegetation in the Western Cape (i)Within an endangered ecosystem
14	The development of (ii)infrastructure or structures with a physical footprint of 10 square metres or more (a) within a watercourse; and (c) within 32 metres of a watercourse (i)outside urban areas: (aa) in a protected area identified in NEMPAA
18.	The widening of a road by more than 4 metres; or the lengthening of a road by more than 1 kilometre. (i)In the Western Cape: (ii) Outside urban areas (aa) Containing indigenous vegetation

In addition, WUA in terms of section 21 (c) and (i) of the NWA will be required from the DWS.

3 ENVIRONMENTAL PROCESS

The EIA Regulations, 2014 define the detailed approach to the BA process (see Figure 2).

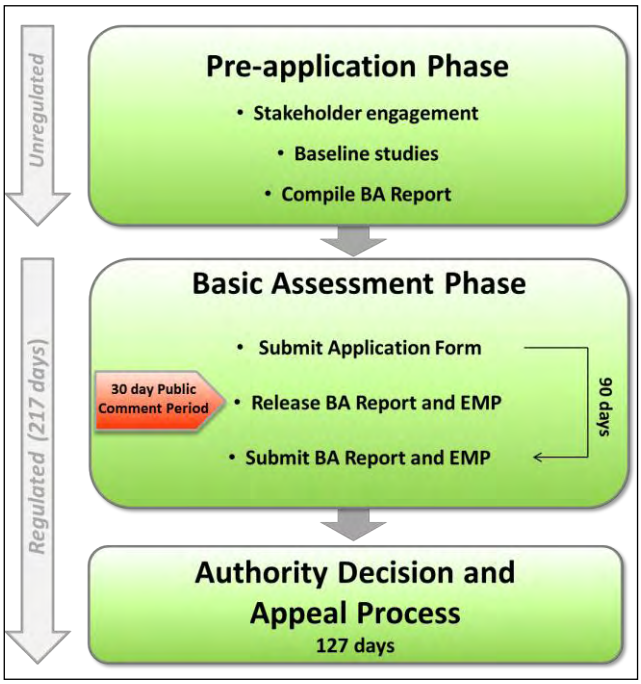

Figure 2:BA Process

The objectives of the BA process are to:

- Identify relevant authorities and key stakeholders to engage in the stakeholder engagement process;
- Facilitate the dissemination of information to the relevant authorities and stakeholders and provide them with an opportunity to raise issues or concerns related to the project;
- Identify potential issues and environmental impacts;
- Assess the significance of the potential environmental impacts identified;
- Describe and investigate alternatives that have been and / or could be considered; and
- Provide feasible mitigation measures to address any significant impacts identified.

The above objectives are achieved through the technical evaluation of the proposed activity, the undertaking of the

stakeholder engagement process and the submission of the relevant information and documentation to DEA.

4 DESCRIPTION OF THE SITE AND ENVIRONMENT

The project is located in the Ceres Valley (also known as the Warm Bokkeveld Valley) surrounded by mountains of the Cape Fold Belt (see Figure 1 1). The valley is accessed through mountain passes (Michell's Pass from Cape Town, Theronsberg Pass from Touws River and Gydo Pass from Citrusdal). The fertile Ceres Valley is known for producing deciduous fruits but is also an attractive tourist destination for outdoor activities.

The region has scenic value in terms of the rural setting influenced by the rural patterns created by rolling wheatfields, patchwork of fruit orchards and vineyards, and the sense of nature invoked by the steep mountainous backdrop. Residents and tourists are attracted to the area because of its natural scenery and location in the landscape. The landscape has, however, been modified by vertical elements traversing the landscape including powerlines, sections of which are located along the proposed powerline route.

The site extends from the Romansrivier substation to Ceres though Michell's Pass and includes numerous farms and other properties.

Figure 3:Rivers along the powerline route

Three types of freshwater features were identified in close proximity to the site:

- The Dwars / Breede and Koekedou Rivers (and associated tributaries, notably the Witels and Tierhokkloof Rivers) are the main surface drainage features (see Figure 3);
- A number of wetlands, that comprise mainly of channelled valley bottom wetlands and mountain seeps; and
- Numerous artificial wetlands (mainly farm dams).

A number of the watercourse and seeps are near-pristine in the Ceres area and have been evaluated as Critical Ecological Support Areas (CESAs) and located in Critical Biodiversity Areas (CBAs).

The site falls within the Northwest Fynbos Bioregion (F01) and spans six different vegetation types as depicted in Figure 4.

Two of these are listed as threatened due to historical loss of habitat: Breede Alluvium Fynbos (*Endangered*) and Ceres Shale Renosterveld (*Vulnerable*). All other vegetation types in the study area are listed as least threatened.

The section of the route that stretches from the Ceres substation via Michell's Pass to White Bridge falls within three formally protected areas, namely the Winterhoek Mountain Catchment Area, Matroosberg Mountain Catchment Area and Wittebrug Nature Reserve. Furthermore, a substantial proportion of the site comprises CBA1 and ESA1.

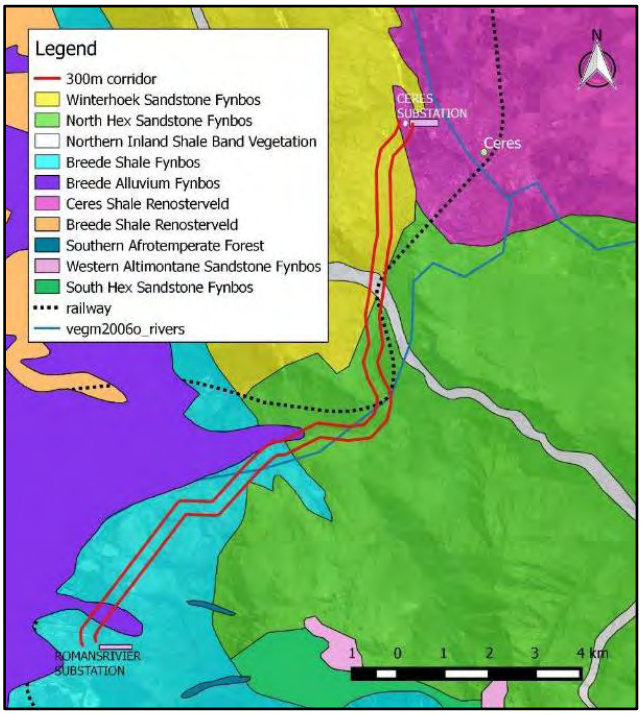

Figure 4:Vegetation along the powerline route

Various bird habitats were recorded in the study area including fynbos, drainage lines and rivers, dams, mountains, alien trees and agricultural and urban areas. Red Data species that could potentially occur in the study area include: Lanner Falcon (*Falco biarmicus*), Blue Crane (*Anthropoides paradiseus*), Greater Flamingo (*Phoenicopterus ruber*), Black Harrier (*Circus maurus*), African Marsh-harrier (*Circus ranivorus*), Secretarybird (*Sagittarius serpentarius*), Verreaux's Eagle (*Aquila verreauxii*), Cape Rock-jumper (*Chaetops frenatus*), Protea Seedeater (*Crithagra leucopterus*).

Although a number of pre-colonial archaeological resources (stone artefacts and rock paintings) occur in the study area, all were found to be located some distance from project infrastructure and therefore not at risk from the project. However, a number of built environment sites of heritage significance are located along the project route:

- The Old Toll House (1848 – Grade II);
- Remains of the Old Bain Road (1848 – most sections broadly graded as IIIA); and
- An "Anglo Boer war" structure (Undated – Grade IIIA).

Figure 5:Possible Anglo-Boer war structure

5 PROJECT DESCRIPTION

Key aspects of the project include:

- Installation of a 80 MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Installation of 132 kV and 66 kV feeder[1] bays at Romansriver substation and a 66kV feeder bay at Ceres substation;
- Construction of a double circuit distribution powerline (132kV and 66kV) on 68 pylon structures between Romansrivier and Ceres substations in the Breede River Valley / Michell's Pass (~20km);
- Construction of new access roads, including bridges and other watercourse crossings;
- Upgrading of various existing (access) roads;
- Stringing and restringing of conductors;
- Periodic and emergency repairs to pylons (during operations);
- Trimming and clearing of vegetation to maintain line clearance and access during operations; and
- Clearing of debris from bridges and other watercourse crossings during operations.

The proposed powerline will be installed on ~68 pylon structures between the Romansriver and Ceres substations and will be approximately ~20 km long. It is anticipated that there will be a disturbance footprint of approximately 225 m^2 per pylon, which includes an excavation footprint, soil stockpile and laydown area at each site. Blasting will be required to excavate the foundations at certain pylon locations.

Eskom will make use of existing access roads wherever possible during construction and maintenance activities. Where new access is required along the route, single lane access tracks will be utilised. A total clearance footprint of approximately 3.7ha is required for access tracks.

A number of watercourses are or will be crossed by new and existing access roads. The designs of significant crossings, or bridges, have been selected based on the nature of the watercourses, ecological considerations and technical constraints.

6 ALTERNATIVES

Appendix 3 Section 3 (h)(i) of the EIA Regulations, 2014, requires that all BA processes must identify and describe feasible and reasonable alternatives. Alternatives considered during screening phases of the project, include:

Location Alternatives: Eskom investigated two routes for the proposed double circuit line between Romansriver and Ceres substations, the "mountain route" and the "river route". Based on the outcomes of this investigation (mainly technical feasibility, cost and stakeholder comments), the "mountain route" was eliminated and only the "river route" has been assessed.

Activity Alternatives: Eskom provided the EAP with the technically preferred layout of pylon locations and access tracks. Following a site inspection and input from the EAP, specialists and Eskom managers, the layout was revised and finalised based on environmental concerns and technical feasibility.

Layout Alternatives: Factors that have informed the final layout include:

- Topographical features and technical constraints;
- Vehicular access;
- Environmental impacts, in particular the location of the proposed pylon positions relative to sensitive environmental features; and
- Costs of construction and maintenance.

Technology alternatives: The following technology alternatives were considered:

- Underground cabling in the Michell's Pass to avoid visual impacts;
- Three different types of pylon structure; and
- Bridge design.

[1] A feeder is a powerline transferring power from the substation to the transformers

The No-Go alternative implies that the powerline will not be constructed, attendant environmental impacts will not occur, and additional electricity supply to surrounding areas will not be provided. New development in the region would continue to be constrained by a lack of electrical supply capacity, and socio-economic benefits would be foregone.

7 ASSESSMENT OF POTENTIAL IMPACTS

Potential impacts associated with the project were assessed according to SRK's standard Impact Assessment Methodology. For all potentially significant impacts, the significance of the anticipated impact was rated without and with recommended mitigation measures. These impacts are presented in Table 2, which summarises:

- The impacts assessed in the BA Report;
- Their significance before and following the implementation of essential mitigation measures; and
- The key mitigation measures on which the significance rating is based (where applicable).

Impact Significance Ratings Legend:

Rating	+ve	-ve
Insignificant	I	I
Very Low	VL	VL
Low	L	L
Medium	M	M
High	H	H
Very High	VH	VH

The following specialists were consulted to identify and assess potential issues and impacts within their particular field of study and to identify practicable mitigation and optimisation measures to avoid or minimise potential negative impacts and/or enhance any benefits:

- Botanist;
- Freshwater (aquatic ecology);
- Avifauna;
- Heritage; and
- Visual.

Based on the professional experience of the EAP and the specialists, the key potential (direct) environmental impacts and potential benefits associated with the powerline are presented in Table 2.

Indirect impacts of the creation of new access tracks and the facilitation of invasive alien plant control and eradication, and access to natural areas in the event of a fire were considered. As well as improved access to protected and sensitive areas for individuals with nefarious intentions, such as poaching or arson. The net indirect benefit of the creation of new access tracks is considered to be of ***very low*** significance.

Cumulative impacts are considered to be of relatively ***low*** significance apart from the cumulative freshwater and terrestrial impacts, which are considered of ***medium*** significance.

Table 2: Summary of Impacts

Impact	Significance rating		Key mitigation/optimisation measures
	Without	With	
CONSTRUCTION PHASE IMPACTS			
Nuisance from reduced air quality	VL	I	• Implement dust suppression measures on access roads. • Investigate and respond to complaints about dust and take appropriate corrective action.
Nuisance from excessive noise	L	VL	• Notify the community of the proposed blasting schedule by way of notice boards near the blasting site and in the local press. • Limit particularly noisy operations (including blasting) to Mondays to Fridays between the hours of 08h00 and 17h00.
Loss of vegetation	H	M	• Apply site-specific mitigation specified in the EMPr. • Limit vegetation clearance and the footprint of construction activities to what is absolutely essential. • Define all areas outside of the planned project and construction footprint as no-go areas. • Demarcate no-go areas. • Restrict the movement of construction vehicles to new and existing access roads only.
Loss of floral SCC	H	L	• Appoint a suitably qualified botanist to conduct a spring season search and rescue for floral SCC (focusing on geophytes) in areas specified in the EMPr.
Reduction in faunal abundance	L	L	• Educate construction staff of the sensitivity and possible presence of rare tortoise species. • Photograph and record the location of any tortoise found on site, dead or alive. • Report the tortoise find to CapeNature. • Move live tortoise specimens the shortest distance possible away from the disturbance footprint. • Apply no-fire policy on site. • Extinguish veld fires should any break out. • Apply a no-poaching policy on site.

Impact	Significance rating		Key mitigation/optimisation measures
	Without	With	
Avifaunal displacement	L	I	• Construct pylons 51 - 55 between December and April only (outside of Verreaux's Eagles breeding season).
Degradation of freshwater ecosystems	H	M	• Apply site-specific mitigation specified in the EMPr. • Construct new watercourse crossings and upgrade existing watercourse crossings during the dry season only. • Limit the footprint area of the construction activity to what is absolutely essential. • Define all areas outside of the planned project and construction footprint (including roads and walking routes) as no-go areas. • Restrict the movement of construction vehicles to new and existing access roads only. • Close and rehabilitate erosion gullies as they form. • Undertake vegetation clearing by hand in watercourses. • String conductors through watercourses by hand. • Rehabilitate each site at closure by revegetating cleared areas and ripping and revegetating compacted areas.
Destruction of pre-colonial archaeology	I	I	• No mitigation required.
Loss of historical built environment	M	I	• Appoint an archaeologist to monitor construction activities once every two weeks. • Select construction and laydown areas in consultation with an archaeologist. • Limit, demarcate and control the construction footprint to prevent damage to remnants of the Old Bain Road.
Increased employment, income and skills development	I	L	• Comply with the provisions outlined in the Eskom Commercial Supply Chain Procedure.
Altered sense of place and visual intrusion	L	L	• Prune large indigenous trees and shrubs rather than clearing vegetation completely, where possible. • Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase.
OPERATIONAL PHASE IMPACTS			
Loss of vegetation	M	L	▪ Limit vegetation clearance, pruning and the footprint of maintenance activities to what is absolutely essential. ▪ Favour vegetation pruning over clearing. ▪ Remove any observed invasive alien plants.
Avifaunal mortalities from electrocution and collision with powerlines	L	I	▪ Install BFDs on specific spans.
Degradation of freshwater ecosystems	H	M	▪ Apply site-specific mitigation specified in the EMPr. ▪ Include design measures that allow for the spread of surface and subsurface flows across the full width of the watercourse at all road sections through seeps. ▪ Design low-level crossings through seeps that allow overtopping even during small floods (e.g. 1:2 year Return Interval (RI) events) and for the ongoing seepage and low flow through the structure. ▪ Get written sigh-off of final designs of all watercourse crossings from a freshwater ecologist. ▪ Inspect watercourses annually during routine maintenance and report on evidence of erosion at bridges and watercourse crossings. ▪ Respond to reports of erosion by closing gullies and reshaping and revegetating river and wetland banks.
Economic growth from increased electrical supply	H	H	▪ None
Decline in tourism	L	L	▪ Implement mitigation measures to reduce visual impacts during operations.
Loss of historical built environment	M	L	▪ Protect remnants of Old Bain road during maintenance activities. ▪ Prevent the use of the remnant of Old Bain Road by the public.
Altered sense of place and visual intrusion	H	H	▪ Utilise lattice structures in the Michell's Pass Valley and mountainous area above Ceres. ▪ Decommission the remaining 66 kV powerline within two years of the commencement of operations.

8 FINDINGS AND RECOMMENDATIONS

This Draft BAR has identified and assessed the potential biophysical and socio-economic impacts associated with the proposed double circuit powerline and associated infrastructure near Ceres in the Western Cape.

In terms of Section 31 (n) of NEMA, the EAP is required to provide an opinion as to whether the activity should or should not be authorised. In this section, a qualified opinion is ventured, and in this regard SRK believes that sufficient information is available for DEA to take a decision.

The double circuit powerline and associated infrastructure will result in unavoidable adverse biophysical impacts. Working on the assumption that Eskom is committed to ensuring that the EMPr is strictly implemented, none of these adverse impacts are considered unacceptably significant, however, visual impacts and economic benefits are key considerations.

In conclusion, and noting that the project is an important and strategic infrastructure project, SRK is of the opinion that on purely 'environmental' grounds (i.e. the project's potential socio-economic, cultural and biophysical implications) the application as it is currently articulated should be approved, provided the essential mitigation measures are implemented. Ultimately, however, the DEA will need to consider whether the project benefits outweigh the potential impacts.

9 STAKEHOLDER ENGAGEMENT

Stakeholder engagement is a key component of the BA process and is being undertaken in accordance with the requirements of the EIA Regulations, 2014. The stakeholder engagement activities are summarised in Table 3.

Relevant local, provincial and national authorities, conservation bodies, local forums and surrounding landowners and occupants have been notified of the BA process and the release of the BA Report for comment.

The public comment period is currently underway and will be completed on **23 October 2017**, following which the BAR will be submitted to DEA including the comments received for their consideration. If substantial changes are made to the BAR in response to comments received, the BAR will be released for a second public comment period prior to submission to DEA.

Table 3: Stakeholder Engagement during Scoping

Activity	Date
Submission of Application form to DEA	18 September 2017
Release BA Report to the Public	21 September 2017
Comment period	21 September – 23 October

HOW CAN YOU PARTICIPATE IN THE EIA PROCESS?

This BAR is not a final report and can be amended based on comments received from stakeholders. Stakeholders are therefore urged to participate:

REVIEW THE REPORT

Copies of the complete report are available for public review at the following locations:

- John Steyn (Ceres) Public Library;
- Witzenberg Municipality in Ceres; and
- SRK's office in Rondebosch, Cape Town.
- SRK's website: www.srk.co.za – click on the 'Library' and then 'Public Documents' links.

Interested and Affected Parties (IAPs) are invited to comment, and/or to register on the project database. IAPs should refer to the DEA&DP reference number, and must provide their comments together with their name, contact details (preferred method of notification, e.g. email), and an indication of any direct business, financial, personal or other interest which they have in the application, to the contact person below, by **23 October 2017.**

REGISTER OR PROVIDE YOUR OPINION

Register or send written comment to:

Amy Hill
SRK Consulting
Email: ahill@srk.co.za
Postnet Suite #206, Private Bag X18,
Rondebosch, 7701
Tel: + 27 21 659 3060
Fax: +27 21 685 7105

Comments must reach SRK no later than **23 October 2017** to be included in the Final BA Report. Only registered IAPs will be notified of future opportunities to provide comments.

Relevant Organs of State have been automatically registered as stakeholders. According to the EIA Regulations, 2014 all other **persons must request in writing to be placed on the register, submit written comments or attend meetings in order to be registered as stakeholders** and be included in future communication for the project.

Profile and Expertise of EAPs

SRK Consulting (South Africa) Pty Ltd (SRK) has been appointed by Eskom Holdings SOC Limited (Eskom) as the independent consultants to undertake the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA).

SRK Consulting was established in 1974 and comprises over 1 300 professional staff worldwide, offering wide-ranging expertise in the natural resources and environmental sectors. SRK's Cape Town environmental department has a proven track record of managing large, complex environmental and engineering projects in the Western Cape, Africa and internationally. SRK has rigorous quality assurance standards and is ISO 9001 certified.

As required by NEMA, the qualifications and experience of the key independent Environmental Assessment Practitioners (EAPs) undertaking the BA are detailed below and Curriculum Vitae provided in Appendix A.

Project Director: Christopher Dalgliesh, BBusSc (Hons), MPhil (EnvSci)
Certified with the Interim Board for Environmental Assessment Practitioners South Africa (CEAPSA)
Chris Dalgliesh is a Partner at SRK Consulting and the Head of the Environmental Department in Cape Town. He has over 24 years of experience as an environmental consultant working on a broad range of EIA, auditing, environmental planning and management, public consultation and environmental management system projects. Chris's experience includes managing and co-ordinating major EIAs throughout Southern Africa and South America in the mining, energy, land-use planning and development, water and waste management, and industrial sectors.

Project Consultant: Matthew Law, MCom Environmental Economics
Certified with the Interim Board for Environmental Assessment Practitioners South Africa (CEAPSA)
Matthew Law has 10 years' experience as an Environmental Management Consultant since 2007. He has significant experience in Environmental Impact Assessment (throughout Southern Africa), the drafting of Environmental Management Plans and as an Environmental Control Officer. Matthew has detailed knowledge of and practical experience with legislation governing applications relating to environmental authorisations, mining right applications and waste management and water use licensing.

Statement of SRK Independence

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK by Eskom. SRK has exercised all due care in reviewing the supplied information, but conclusions from the review are reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

Romansrivier-Ceres Powerline: EAP Affirmation

Section 16 (1) (b) (iv), Appendix 1 Section 3 (1) (r), Appendix 2 Sections 2 (i) and (j) and Appendix 3 Section 3 (s) of the Environmental Impact Assessment (EIA) Regulations, 2014 (promulgated in terms of the National Environmental Management Act 107 of 1998, as amended - NEMA), require an undertaking under oath or affirmation by the Environmental Assessment Practitioner (EAP) in relation to:

- The correctness of the information provided in the report;
- The inclusion of comments and inputs from stakeholders and interested and affected parties;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.

SRK and the EAPs managing this project hereby affirm that:

- To the best of our knowledge the information provided in the report is correct, and no attempt has been made to manipulate information to achieve a particular outcome. Some information, especially pertaining to the project description, was provided by the applicant and/or their sub-contractors. In this respect, SRK's standard disclaimer (inserted in this report) pertaining to information provided by third parties applies.
- To the best of our knowledge all comments and inputs from stakeholders and interested and affected parties have been captured in the report and no attempt has been made to manipulate such comment or input to achieve a particular outcome. Written submissions are appended to the report while other comments are recorded within the report. For the sake of brevity, not all comments are recorded verbatim and are mostly captured as issues, and in instances where many stakeholders have similar issues, they are grouped together, with a clear listing of who raised which issue(s).
- Information and responses provided by the EAP to interested and affected parties are clearly presented in the report. Where responses are provided by the applicant (not the EAP), these are clearly indicated.

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Appendices

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Acronyms and Abbreviations

BA	Basic Assessment
BBBEE	Broad Based Black Economic Empowerment
BFD	Bird Flight Diverter
CBA	Critical Biodiversity Area
DEA	(National) Department of Environmental Affairs
DEA&DP	(Western Cape) Department of Environmental Affairs and Development Planning
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
ESA	Ecological Support Area
EStA	Early Stone Age
FSP	Fine Scale Conservation Plan
GA	General Authorisation
GDPR	Regional Gross Domestic Product
GN	Government Notice
ha	Hectares
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
IAPs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
km	Kilometres
km²	Square kilometres
LM	Local Municipality
LN	Listing Notice
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act 107 of 1998 as amended
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act 25 of 1999
NID	Heritage Notification of Intent to Develop
NWA	National Water Act 36 of 1998
PES	Present Ecological State
RDL	Red Data List

S&EIR	Scoping and Environmental Impact Reporting
SAHRA	South African National Heritage Resources Agency
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SoW	Scope of Work
SPC	Spatial Planning Categories
SRK	SRK Consulting (South Africa) (Pty) Ltd
TMS	Table Mountain Sandstone
ToR	Terms of Reference
VAC	Visual Absorption Capacity
WMA	Water Management Area
WML	Waste Management Licence
WUA	Water Use Authorisation
WUL	Water Use Licence

Glossary

Aquifer	An underground body of permeable rock or unconsolidated materials (gravel, sand or silt) which can contain or transmit groundwater.
Avifauna	The collective birds of a given region.
Baseline	Information gathered at the beginning of a study which describes the environment prior to development of a project and against which predicted changes (impacts) are measured.
Basic Assessment Report	The report produced to relay the information gathered and assessments undertaken during the Environmental Impact Assessment.
Community	Those people who may be impacted upon by the construction and operation of the project. This includes neighbouring landowners, local communities and other occasional users of the area
Construction Phase	The stage of project development comprising site preparation as well as all construction activities associated with the development.
Consultation	A process for the exchange of views, concerns and proposals about a project through meaningful discussions and the open sharing of information.
Critical Biodiversity Area	Areas of the landscape that must be conserved in a natural or near-natural state in order for the continued existence and functioning of species and ecosystems and the delivery of ecosystem services.
Cumulative Impacts	Direct and indirect impacts that act together with current or future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors.
Ecological Support Area	Areas which play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development.
Ecology	The study of the interrelationships of organisms with and within their physical surroundings
Ecosystem	The interconnected assemblage of all living organisms that occupy a given area and the physical environment with which they interact.
Endemic / Endemism	Species unique (native or restricted) to a defined geographic location, i.e. ecological state of a species being unique to a defined geographic location.
Environment	The external circumstances, conditions and objects that affect the existence of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	Permission granted by the competent authority for the applicant to undertake listed activities in terms of the NEMA EIA Regulations, 2014.
Environmental Impact Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project.
Environmental Management Programme	A description of the means (the environmental specification) to achieve environmental objectives and targets during all stages of a specific proposed activity.

Ephemeral	A water body that does not flow or contain water year-round, in response to seasonal rainfall and run-off.
Fauna	The collective animals of a particular region, habitat or geological period.
Feasibility study	The determination of the technical and financial viability of a proposed project.
Fossil	Rare objects that are preserved due to unusual circumstances.
Flora	The collective plants of a particular region, habitat or geological period.
Geohydrology	The study of the character, source and mode of occurrence of groundwater
Heritage Resources	Refers to something tangible or intangible, e.g. a building, an area, a ritual, etc. that forms part of a community's cultural legacy or tradition and is passed down from preceding generations and has cultural significance.
Herpetofauna	Amphibians and reptiles of a particular region, habitat or geological period.
Hydrology	(The study of) surface water flow.
Impact	A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Independent EAP	An independent person with the appropriate qualifications and experience appointed by the Applicant to manage the Environmental Impact Assessment process on behalf of the Applicant.
Integrated Environmental Management	The practice of incorporating environmental management into all stages of a project's life cycle, namely planning, design, implementation, management and review.
Mitigation measures	Design or management measures that are intended to minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage.
Operational Phase	The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Perennial river	A river that flows year-round
Red Data List	Species of plants and animals that because of their rarity and/or level of endemism are included on a Red Data List (usually compiled by the IUCN) which provides an indication of their threat of extinction and recommendations for their protection.
Resilient System	An ecosystem or habitat that resists damage and recovers quickly.
Scoping	A procedure to consult with stakeholders to determine issues and concerns and for determining the extent of and approach to an EIA and EMPr (one of the phases in an EIA and EMPr). This process results in the development of a scope of work for the EIA, EMPr and specialist studies.
Specialist study	A study into a particular aspect of the environment, undertaken by an expert in that discipline.
Stakeholders	All parties affected by and/or able to influence a project, often those in a position of authority and/or representing others.
Sustainable development	Sustainable development is generally defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. NEMA defines sustainable development as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.

1 Introduction

1.1 Introduction

Eskom Holdings SOC Limited, Western Cape Operating Unit: Distribution Division (Eskom) propose to construct a new double circuit powerline (132kV and 66kV) to replace an existing partially burnt 66 kV wood pole powerline from the Romansrivier substation to the Ceres substation in the Witzenberg Municipality, Western Cape (the project – see Figure 1-1).

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by Eskom to undertake the Basic Assessment (BA) process, which is required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982, as amended by GN R326).

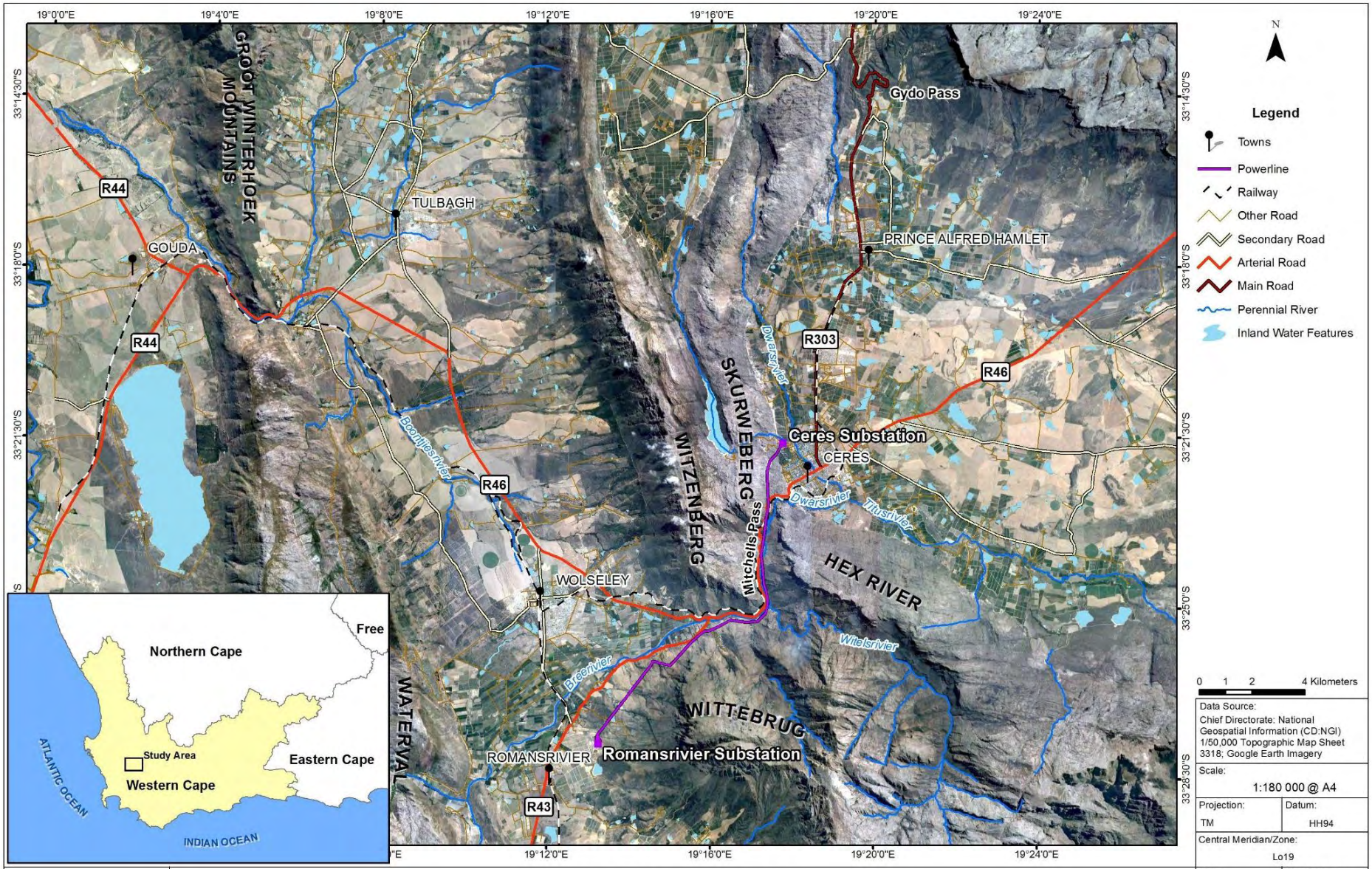
1.2 Purpose of the Report

In terms of relevant legislation, the project may not commence prior to obtaining a suite of authorisations (see Section 2). This report has been compiled in support of these applications. The BA Report (BAR) documents the steps undertaken during the pre-application phase to assess the significance of impacts and determine measures to mitigate the negative impacts and enhance the benefits (or positive impacts) of the proposed project. The report presents the findings of the BA and a description of the proposed public participation that forms part of the process.

The BAR is accompanied by an Environmental Management Programme (EMPr), which documents the management and monitoring measures that need to be implemented during the Design, Construction and Operational (maintenance in this case) Phases of the project to ensure that impacts are appropriately mitigated and benefits enhanced.

More specifically, the objectives of this BAR are to:

- Inform the stakeholders about the proposed project and the BA process followed;
- Obtain contributions from stakeholders (including the applicant, consultants, relevant authorities and the public) and ensure that all issues, concerns and queries raised are fully documented and addressed;
- Assess in detail the potential environmental and socio-economic impacts of the project;
- Identify environmental and social mitigation measures to address the impacts assessed; and
- Produce a BAR that will assist the Department of Environmental Affairs (DEA) and the Department of Water and Sanitation (DWS) to decide whether (and under what conditions) to authorise the proposed development.



srk consulting

ROMANSRIVIER BA

LOCALITY MAP

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Revision: A Date: 14 08 2017

1.3 Structure of this Report

This report discusses relevant environmental legislation and its application to this project, outlines the BA process, presents a detailed project description and environmental baseline, details the stakeholder engagement process followed and assesses the potential impacts of the project before concluding the report with a set of pertinent findings and key recommendations.

The report consists of the following sections:

Section 1: Introduction

Provides an introduction and background to the proposed project and outlines the purpose of this document and the assumptions and limitation applicable to the study.

Section 2: Governance Framework and Environmental Process

Provides a brief summary and interpretation of the relevant legislation as well as pertinent strategic planning documents, and outlines the approach to the environmental process.

Section 3: Project Description

Describes the location and current status of the site and provides a brief summary of the surrounding land uses as well as background to, motivation, and description of, the proposed project.

Section 4: Description of the Affected Environment

Describes the biophysical and socio-economic characteristics of the affected environment against which potential project impacts are assessed.

Section 5: Stakeholder Engagement

Details the stakeholder engagement approach and summarises stakeholder comments that informed the impact assessment.

Section 6: Environmental Impact Assessment

Describes the specialist studies undertaken and assesses the potential impacts of the project utilising SRK's proven impact assessment methodology.

Section 7: Conclusions and Recommendations

Provides an Environmental Impact Statement (EIS), describes the need and desirability of the project, summarises the recommendations of the BAR.

The BAR has been prepared in accordance with Section 19 of the EIA Regulations, 2014 (as amended).

1.4 Content of Report

Section 3 of Appendix 1 of the EIA Regulations, 2014 prescribe the required content in a BAR. These requirements and the sections of this BAR in which they are addressed, are summarised in Table 1-1.

Table 1-1: Content of BAR as per EIA Regulations, 2014

GN 982, Appendix 1 S 3(1) Ref.:	Item	Section Ref.:
(a) (i)	Details of the Environmental Assessment Practitioner (EAP) who prepared the report	p. ii
(a) (ii)	The expertise of the EAP, including a Curriculum Vitae	p. ii, App A
(b) (i)	The 21 digit Surveyor General code of the properties	3.1.1
(b) (ii)	The physical address and farm name (where available)	3.1.1

GN 982, Appendix 1 S 3(1) Ref.:	Item	Section Ref.:
(b) (iii)	The coordinates of the boundary of the property / properties (where (3) (b) (i) and (3) (b) (ii) are not available)	N/A
(c)	A plan indicating the location of the proposed activity / activities and associated infrastructure, or:	N/A
(c) (i)	For linear activities: a description and coordinates of the corridor in which the proposed activity is to be undertaken	3.4
(c) (ii)	On land where the property has not been defined, the coordinates within which the activity is to be undertaken	N/A
(d)	A description of the scope of the proposed activity, including:	3
(d) (i)	All listed and specified activities trigger and being applied for	2.1.2
(d) (ii)	A description of the associated structures and infrastructure related to the development	3.4
(e)	A description of the policy and legislative context within which the development is proposed including	2
(e) (i)	an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	2
(e) (ii)	how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	2
(f)	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location	7.2
(g)	A motivation for the preferred site, activity and technology alternative	7.4
(h)	A full description of the process followed to reach the proposed development footprint within the approved site, including:	
(h) (i)	Details of all the alternatives considered;	3.3
(h) (ii)	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	5
(h) (iii)	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them	N/A will be included in the Final BAR
(h) (iv)	the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	4
(h) (v)	The impacts and risks identified, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources, and can be avoided, managed or mitigated	6
(h) (vi)	the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives	6.1.4
(h) (vii)	positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	6.2-6.4
(h) (viii)	The possible mitigation measures that could be applied and level of residual risk	6.2-6.4
(h) (ix)	The outcome of the site selection matrix	3.3.4
(h) (x)	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	7.4
(h) (xi)	A concluding statement indicating the preferred alternatives, including preferred location of the activity	7.4

GN 982, Appendix 1 S 3(1) Ref.:	Item	Section Ref.:
(i)	A full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including:	6
(i) (i)	A description of all environmental issues and risks that were identified during the environmental impact assessment process	6.2-6.9
(i) (ii)	An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	6.2-6.9
(j)	An assessment of each identified potentially significant impact and risk, including:	6.2-6.4
(j) (i)	Cumulative impacts	6.8
(j) (ii)	The nature, significance and consequences of the impact and risk	6.2-6.9
(j) (iii)	The extent and duration of the impact and risk	6.2-6.9
(j) (iv)	The probability of the impact and risk occurring	6.2-6.9
(j) (v)	The degree to which the impact and risk can be reversed	6.2-6.9
(j) (vi)	The degree to which the impact and risk may cause irreplaceable loss of resources	6.2-6.9
(j) (vii)	The degree to which the impact and risk can be avoided, managed or mitigated;	6.2-6.9
(k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	6.2-6.4
(l)	An EIS which contains	7.1
(l) (i)	A summary of the key findings of the environmental impact assessment	7.1
(l) (ii)	A map at an appropriate scale which superimposes the proposed activity and its associated structures and the infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers	7.1
(l) (iii)	A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives	7.1
(m)	based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPrr;	6.2-6.4, 7.4
(n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	7.4
(o)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	7.4
(p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	7.4
(q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised	N/A
(r)	An undertaking under oath or affirmation by the EAP in relation to	p. v
(r) (i)	The correctness of the information provided in the reports	p. v
(r) (ii)	The inclusion of comments and inputs from stakeholders and I&APs	p. v
(r) (iii)	The inclusion of inputs and recommendations from the specialist reports where relevant; and	p. v
(r) (iv)	Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	To be provided in Final BAR
(s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(t)	Where applicable, any specific information required by the competent authority; and	N/A

GN 982, Appendix 1 S 3(1) Ref.:	Item	Section Ref.:
(u)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

1.5 Assumptions and Limitations

As is standard practice, the report is based on a number of assumptions and is subject to certain limitations. These are as follows:

- Specialist studies were subject to certain limitations as indicated in the attached reports. Of most relevance to the outcomes of this study is that botanical surveys were carried out in winter, and therefore certain floral species of conservation concern (SCC) may be present and were not identified by the botanist. This limitation is mitigated by the recommended spring season search-and-rescue of floral SCC at certain locations in the project footprint prior to construction;
- Current design information provided by Eskom is draft and preliminary. The final line design will only be in place after the geotechnical study and civil design have been completed, and following EA and Water Use Licencing. The final design will provide details on structure types, heights and quantities. It is therefore critical that freshwater, terrestrial (including avifaunal), visual and heritage specialists confirm that the final design does not lead to impacts not contemplated in this report, that the significance of impacts is not increased by infrastructure and infrastructure locations not considered in this report, or that additional site-specific mitigation is not required;
- Information provided by Eskom, other consultants and specialists is assumed to be accurate and correct (although preliminary – see above);
- SRK's assessment of the significance of impacts of the proposed development on the affected environment has been based on the assumption that the activities will be confined to those described in Section 3. If there are any substantial changes to the project description, impacts may need to be reassessed;
- Where detailed design information is not available, the precautionary principle, i.e. a conservative approach that overstates negative impacts and understates benefits, has been adopted;
- It is assumed that the stakeholder engagement process undertaken during the BA process has identified all relevant concerns of stakeholders; and
- Eskom will in good faith implement the agreed mitigation measures identified in this report and the attached EMPr. To this end it is assumed that Eskom will commit sufficient resources and employ suitably qualified personnel.

Notwithstanding the above, SRK is confident that these assumptions and limitations do not compromise the overall findings of the report.

2 Governance Framework and Environmental Process

2.1 Legal Requirements

There are a number of regulatory requirements at local, provincial and national level with which the proposed development will have to conform. Some of the key legal requirements include the following:

- National Environmental Management Act 107 of 1998 (NEMA);
- EIA Regulations 2014, promulgated in terms of NEMA (GN 982, as amended by GN 326);
- National Water Act 36 of 1998 (NWA);
- National Heritage Resources Act 25 of 1999 (NHRA);
- National Environmental Management: Biodiversity Act 10 of 2004 (NEM:BA); and
- National Environmental Management: Protected Areas Act 57 of 2003 (NEM:PAA).

A brief summary of SRK's understanding of the relevant Acts and Regulations that are applicable to this study is provided below. Note that other legislative requirements may also pertain to the proposed project. As such, the summary provided below is not intended to be definitive or exhaustive, and serves only to highlight key environmental legislation and obligations.

2.1.1 National Environmental Management Act 107 of 1998

NEMA establishes a set of principles which all authorities have to consider when exercising their powers. These include the following:

- Development must be sustainable;
- Pollution must be avoided or minimised and remedied;
- Waste must be avoided or minimised, reused or recycled;
- Negative impacts must be minimised; and
- Responsibility for the environmental consequences of a policy, project, product or service applies throughout its life cycle.

Section 28(1) states that "*every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring*". If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. These measures may include:

- Assessing the impact on the environment;
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks;
- Ceasing, modifying or controlling actions which cause pollution/degradation;
- Containing pollutants or preventing movement of pollutants;
- Eliminating the source of pollution; and
- Remedying the effects of the pollution.

Legal requirements for this project

Eskom has a responsibility to ensure that the proposed activities and the BA process conform to the principles of NEMA. In terms of Section 28 of NEMA, the proponent is obliged to take actions to prevent pollution or degradation of the environment, and to ensure that the environmental impacts associated with the project are considered, and mitigated where possible.

2.1.2 EIA Regulations, 2014

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an Environmental Authorisation (EA) issued by the competent authority (in this case the DEA). In this context, the EIA Regulations, 2014, promulgated in terms of NEMA, govern the process, methodologies and requirements for the undertaking of BAs in support of EA applications. Listing Notices 1-3 in terms of NEMA list activities that require EA ("NEMA listed activities").

The EIA Regulations 2014 lay out two alternative authorisation processes. Depending on the type of activity that is proposed, either a BA process or a S&EIR process is required to obtain EA. Listing Notice 1[1] lists activities that require a BA process, while Listing Notice 2[2] lists activities that require S&EIR. Listing Notice 3[3] lists activities in certain sensitive geographic areas that also require a BA process.

The regulations for both processes – BA and S&EIR - stipulate that:

- Public participation must be undertaken as part of the assessment process;
- The assessment must be conducted by an independent EAP;
- The relevant authorities must respond to applications and submissions within stipulated timeframes;
- Decisions taken by the authorities can be appealed by the proponent or any other Interested and Affected Party (IAP); and
- A draft EMPr must be compiled and released for public comment.

The EIA Regulations 2014 set out the procedures to be followed and content of reports compiled during the BA and S&EIR processes.

The NEMA National Appeal Regulations[4] make provision for appeal against any decision issued by the relevant authorities. In terms of the Regulations, an appeal must be lodged with the relevant authority in writing within 20 days of the date on which notification of the decision (EA) was sent to the applicant or IAP (as applicable). The applicant, the decision-maker, interested and affected parties and organ of state must submit their responding statement, if any, to the appeal authority and the appellant within 20 days from the date of receipt of the appeal submission.

The proposed project includes activities that are listed in terms of the EIA Regulations, 2014 (see Table 2-1).

[1] GN R983, as amended by GN 327
[2] GN R984, as amended by GN 325
[3] GN R985, as amended by GN 324
[4] GN R993, as amended by GN R205

Table 2-1: NEMA listed activities (2014) applicable to the proposed project

No.	Listed activity	Comments
Listing Notice 1 (GN R983)		
11	The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	The project entails the construction of a 20 km 132 kV / 66 kV double circuit powerline between Romansriver and Ceres substations.
12	The development of- (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse	It is assumed that this activity refers to a cumulative footprint of 100 square metres or more, within 32 m of any watercourse on site. Eight pylons, with a (disturbance) footprint of approximately 225 m^2 will be placed within 32 m from watercourses on site, with a total footprint of 1 800 m^2 within 32 m of watercourses on site. Access tracks will also need to be built or upgraded within 32m of watercourses, and five watercourse crossings will also be required for access tracks. Refer to Appendix I
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from- (i) a watercourse;	Five watercourse crossings will be required for access tracks (see Section 3.4.3). Construction of these crossings will entail the infilling, removal or moving of soil, sand , pebbles or rocks of more than 10 m^3 of material at these watercourses. Maintenance of watercourse crossings during operations may also require the clearing of material from watercourses or repairing of crossings at these structures, triggering this activity.
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) The undertaking of a linear activity (ii) Maintenance purposes undertaken in accordance with a maintenance management plan	Although this activity is excluded during the construction of the project (powerlines and roads are linear infrastructure), more than 1 ha of vegetation may be cleared during maintenance activities.
Listing Notice 3 (GN R985)		
4.	The development of a road wider than 4 metres with a reserve less than 13,5 metres. (i) Western Cape (ii) Areas outside urban areas (aa) Areas containing indigenous vegetation.	New access tracks with a width of between 4 and 6 m will need to be developed to access the pylons for construction and maintenance (see Figure 3-7 – Figure 3-11). Access track to pylons for construction and maintenance activities will be single lane tracks not exceeding 6 m in width.
12	The clearance of an area of 300 square metres or more of indigenous vegetation in the Western Cape	The project will require the clearance of approximately 400 m^2 of Breede Alluvium Fynbos which is an Endangered vegetation type.

No.	Listed activity	Comments
	(i) Within an endangered ecosystem	
14	The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more (a) within a watercourse; and (c) within 32 metres of a watercourse (i) outside urban areas: (aa) in a protected area identified in NEMPAA	Construction footprints at pylons 59, 60, 61, 62, 63 and 65, as well as the proposed watercourse crossing required to access pylons 64 and 65 will take place within 32 m of watercourses within a protected area (see Figure 3-11). Refer to Appendix I
18.	The widening of a road by more than 4 metres; or the lengthening of a road by more than 1 kilometre. (i) In the Western Cape: (ii) Outside urban areas (aa) Containing indigenous vegetation	Existing unsurfaced roads will be extended by more than 1 km to access pylons for construction and maintenance (see Figure 3-7 – Figure 3-11). Access tracks to pylons for construction and maintenance activities will be single lane tracks not exceeding 6 m in width.

Legal requirements for this project

Eskom is obliged to apply for EA for the activities listed in Table 2-1 and to undertake a BA process in support of the application, in accordance with the procedure stipulated in the EIA Regulations 2014.

2.1.3 National Water Act 36 of 1998

Water use in South Africa is controlled by the NWA. The executive authority is the Department of Water and Sanitation (DWS). The NWA recognises that water is a scarce and unevenly distributed national resource in South Africa. Its provisions are aimed at achieving sustainable and equitable use of water to the benefit of all users and to ensure protection of the aquatic ecosystems associated with South Africa's water resources. The provisions of the Act are aimed at discouraging pollution and wastage of water resources.

In terms of the Act, a land user, occupier or owner of land where an activity that causes or has the potential to cause pollution of a water resource has a duty to take measures to prevent pollution from occurring. If these measures are not taken, the responsible authority may do whatever is necessary to prevent the pollution or remedy its effects, and to recover all reasonable costs from the responsible party.

Section 21 of the NWA specifies a number of water uses, including:

(c) impeding or diverting the flow of water in a watercourse; and

(i) altering the bed, banks, course or characteristics of a watercourse;

These water uses require authorisation in terms of Section 22 (1) of the Act, unless they are listed in Schedule 1 of the NWA, are an existing lawful use, fall under a General Authorisation published in terms of Government Notice (GN) 509 of 2016 or if the responsible authority waives the need for a licence.

Legal requirements for this project:

The proposed project activities will trigger water use activities in terms of section 21 (c) and (i) of the NWA. Water Use Authorisation (WUA) will be required for the project from the competent authority, in this case the DWS.

2.1.3.1 General Authorisation in terms of Section 39 of the NWA: Section 21 (c) & (i)

Government Notice 509 of 2016, promulgated in terms of Section 39 of NWA, specifies the requirements for General Authorisation (GA) in terms of Sections 21 (c) and (i) of NWA. This GN defines the regulated area of a watercourse for Section (c) and (i) water uses in terms of the NWA as:

(a) The outer edge of the 1 in 100 year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;

(b) In the absence of a determined 1 in 100 year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to Section 144 of the NWA); or

(c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.

Portions of the project will occur within 100 m of various watercourses in the project area (Appendix I) and fall within a 500 m radius of various wetlands. As such, the project would take place within the regulated area of a watercourse as defined in GN 509 and may impede and/or alter watercourses in the catchment.

Provided that the water use is within the limits and conditions of the GA, GN 509 prescribes that a water user is not required to apply for a Water Use Licence (WUL) in terms of the NWA, but that these water uses can be authorised generally by the regional office of the DWS. The GA does not apply to the use of water within a regulated area of a watercourse where the risk class is medium or high as determined by a risk matrix completed by a suitably qualified specialist.

Legal requirements for this project:

Although construction of individual project components present only low risk to freshwater ecosystems in most cases (as defined by the DWS risk assessment matrix - as assessed by the freshwater ecologist) at least one bridge in a sensitive and near natural aquatic environment would be at least of moderate risk. Furthermore, project construction as a whole is anticipated to entail significant stress to sensitive and protected freshwater systems in the region, that could persist in the long term. As such, it is anticipated that GN 509 will not apply to the project, and that a WUL will be required.

2.1.4 National Heritage Resources Act 25 of 1999

The protection and management of South Africa's heritage resources are controlled by the NHRA. The enforcing authority for this act is the South African National Heritage Resources Agency (SAHRA). In the Western Cape, SAHRA has delegated this authority to Heritage Western Cape (HWC). In terms of the Act, historically important features such as graves, trees, archaeological artefacts/sites and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection.

Section 38 of the NHRA requires that any person who intends to undertake certain categories of development must notify HWC at the very earliest stage of initiating such a development and must furnish details of the location, nature and extent of the proposed development. A Notice of Intent to Develop (NID) must be submitted to enable HWC to decide whether a Heritage Impact Assessment (HIA) will be required.

Section 38 also makes provision for the assessment of heritage impacts as part of a BA process and indicates that, if such an assessment is deemed adequate, a separate HIA is not required. There is however the requirement in terms of Section 38 (8) for the consenting authority (in this case the DEA) to ensure that the evaluation of impacts on the heritage resources fulfils the requirements of the

relevant heritage resources authority (HWC), and that the comments and recommendations of the heritage resources authority are taken into account prior to the granting of the consent.

Section 38(1) of the NHRA specifies activities that trigger the need for the proponent to notify HWC of the proposed development, in order for HWC to determine the need for further Heritage Assessment.

The proposed project triggers a number of these activities, including:

(a) Construction of a road, wall, power line, canal or other similar form of linear development or barrier over 300 m in length; and

(b) Any development or activity that will change the character of a site (ii) involving three or more existing erven or subdivisions thereof.

Legal requirements for this project:

The proponent notified HWC of the proposed activities through the submission of a NID on 6 July 2017. In response to the NID, (on 27 July 2017 – reference number: 17070502AS0706E) HWC requested that an HIA, which integrates the findings of a Visual Impact Assessment (VIA – Appendix F6) and Archaeological Impact Assessment (incorporated into the HIA – Appendix F5), be conducted.

2.1.5 National Environmental Management: Biodiversity Act 10 of 2004

The purpose of the NEM:BA is to provide for the management and conservation of South Africa's biodiversity and the protection of species and ecosystems that warrant national protection. The NEM:BA makes provision for the publication of bioregional plans and the listing of ecosystems and species that are threatened or in need of protection. Threatened or Protected Species Regulations (2007), Guidelines for the determination of bioregions and the preparation and publication of bioregional plans (2009) and a National List of Ecosystems that are Threatened and in Need of Protection (2011) have been promulgated in terms of NEM:BA.

A published bioregional plan is a spatial plan indicating terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning. These areas are referred to as Critical Biodiversity Areas (CBAs) in terms of NEM:BA. Bioregional plans provide guidelines for avoiding the loss or degradation of natural habitat in CBAs with the aim of informing EIAs and land-use planning (including Environmental Management Frameworks [EMFs], Spatial Development Frameworks [SDFs], and Integrated Development Plans [IDPs]).

Permits to carry out a restricted activity involving listed threatened or protected species or alien species may only be issued after an assessment of risks and potential impacts on biodiversity has been undertaken.

Legal requirements for this project:

Although a bioregional plan has not been formally published for any areas in the Western Cape Province, various terrestrial CBAs and aquatic Ecological Support Areas (ESAs) identified in the Western Cape Biodiversity Spatial Plan (2017) are located in the proposed project area (see Figure 3-7 - Figure 3-11). The impacts of the project on the biodiversity of the area and, in particular, the CBAs and ESAs, must be assessed.

2.1.6 National Environmental Management: Protected Areas Act 57 of 2003

The protection and management of South Africa's protected areas are controlled by the NEM:PAA. The Act provides for:

- Declaration of nature reserves and determination of the type of reserve declared;

- Cooperative governance in the declaration and management of nature reserves;
- A system of protected areas to manage and conserve biodiversity; and
- The utilization and participation of local communities in the management of protected areas.

The following authorities are empowered under the Act to declare an area as a protected area (e.g. national park, nature reserve etc.):

- The Minister of Environmental Affairs;
- A Member of the Executive Committee (MEC) for Environmental Affairs in the respective Province; and
- A Municipality.

In designating a protected area, the relevant competent authority is obliged to follow an appropriate consultation process. The Act requires that local protected areas must be managed by the relevant municipality, or that management is assigned to an appropriately capacitated municipal entity. A municipality managing a local protected area must prepare a management plan for the protected area for approval by the provincial MEC.

The Minister or MEC may declare or extend a protected area in terms of Section 23 of NEM:PAA through a notice published in the Government Gazette. In terms of Section 24, parts of a nature reserve may only be excluded by resolution of the:

- National Assembly, where the reserve was declared by the Minister; or
- Provincial legislature, where the reserve was declared by the MEC.

Legal requirements for this project:

In terms of NEM:PAA, the section of the route that stretches from the Ceres substation via Michell's Pass to White Bridge falls within three formally protected areas, namely the Winterhoek Mountain Catchment Area, Matroosberg Mountain Catchment Area and Wittebrug Nature Reserve. Our understanding is that a servitude for this powerline can be registered without affecting the status of the nature reserve provided that it can still be managed in order to maintain biodiversity. As such, an application for exclusion of sections of these nature reserves will not be required, but rather a management agreement must be established between Eskom and the landowner / manager of the protected area during the legal registration process of the powerline servitude.

2.2 Planning Policy Framework

This section discusses a number of key formal planning policies relevant to the project. The policies and plans briefly discussed below include regional and local development and spatial plans, including the:

- Western Cape Provincial Spatial Development Framework (PSDF) (2014);
- Witzenberg Municipality Integrated Development Plan (IDP) (2012 – 2017);
- Witzenberg Municipality Spatial Development Framework (SDF) (2012); and
- Strategic Integrated Projects.

This section implicitly examines the extent to which the proposed project is consistent with relevant plans, supported by an explicit analysis of need and desirability in Section 7.2.

2.2.1 Western Cape Provincial Spatial Development Framework (2014)

The Western Cape PSDF (2014) identifies economic growth as a primary objective, and the agricultural industry is described in the PSDF as an economic sector targeted for support, specifically commercial agriculture in existing intensively farmed areas. The project is required to support ongoing economic growth particularly in the commercial agricultural sector (refer to Section 3.2).

2.2.2 Witzenberg Municipality Integrated Development Plan (2012 – 2017)

A key objective of any local municipality, in accordance with the Constitution, is service delivery through the provision of electricity. The Witzenberg Municipality's IDP (2012-2017) lists electricity as one of the basic services which should be a focus area.

During the stakeholder engagement process for the IDP, electricity was identified as a priority need for the municipality. More specifically, the main issue raised was constant power outages, notably in Wards 1 and 12.

The project aims to secure supply to the area (Ceres is currently supplied by a single 66 kV line from the Witzenberg substation, and is therefore prone to disruptions) and meet growing demand for power, particularly in the agricultural sector.

The Environmental Policy adopted by the Witzenberg Municipality aims to manage the environment in a sustainable manner through sustainable development, and contribute to the improvement of quality of life of all citizens of Witzenberg (IDP, 2012). This can be effected by, *inter alia*, establishing projects that ensure environmental sustainability and contribute to job creation and a better quality of life for all its citizens.

2.2.3 Witzenberg Municipality Spatial Development Framework (SDF) (2012)

The Witzenberg SDF (2012) recognises that the current challenges facing the Municipality, namely the rural predominance of Witzenberg taken together with the great development challenges on the one hand and resource constraints on the other, place great pressure on the Municipality's capacity to meet service infrastructure needs of the residents.

The Witzenberg Municipality's SDF (2012) provides strategic guidelines for future land-use in the municipality and encourages the optimal utilisation of existing resources, including agricultural resources, and seeks to support intensive use of land by providing infrastructure and bulk services.

2.2.4 Strategic Integrated Projects

Eighteen Strategic Integrated Projects (SIPs) have been developed and approved in terms of the National Infrastructure Plan (2012) to support economic development and address service delivery in South Africa. Each SIP comprises a large number of specific infrastructure components and programmes. The project will contribute to SIP 10: Electricity transmission and distribution for all.

2.3 Environmental Process

The general approach to this study is guided by the principles contained in Section 2 of NEMA and those of Integrated Environmental Management (IEM).

NEMA lists a number of **principles** that apply to the actions of organs of state and that also serve as reference for the interpretation of environmental legislation and administration of environmental processes. The principles most relevant to environmental assessment processes and projects for which authorisation is required are summarised below.

Principles relevant to the EIA process:

- Adopt a risk-averse and cautious approach;
- Anticipate and prevent or minimise negative impacts;
- Pursue integrated environmental management;
- Involve stakeholders in the process; and
- Consider the social, economic and environmental impacts of activities.

Principles relevant to the project:

- Place people and their needs at the forefront of concern and serve their needs equitably;
- Ensure development is sustainable, minimises disturbance of ecosystems and landscapes, pollution and waste, achieves responsible use of non-renewable resources and sustainable exploitation of renewable resources;
- Assume responsibility for project impacts throughout its life cycle; and
- Polluter bears remediation costs.

This BA process complies with these principles through its adherence to the EIA Regulations, 2014 and associated guidelines, which set out clear requirements for, *inter alia,* impact assessment and stakeholder involvement (see below), and through the assessment of impacts and identification of mitigation measures. An initial analysis of the project's compliance with the aims of sustainable development is provided in the impact assessment.

In accordance with the **IEM** Information Series (DEAT, 2004), an open, transparent approach, which encourages accountable decision-making, has been adopted.

The underpinning principles of IEM require:

- Informed decision making;
- Accountability for information on which decisions are made;
- A broad interpretation of the term "environment";
- An open participatory approach in the planning of proposals;
- Consultation with interested and affected parties;
- Due consideration of alternatives;
- An attempt to mitigate negative impacts and enhance positive impacts of proposals;
- An attempt to ensure that the social costs of development proposals are outweighed by the social benefits;
- Democratic regard for individual rights and obligations;
- Compliance with these principles during all stages of the planning, implementation and decommissioning of proposals; and
- The opportunity for public and specialist input in the decision-making process.

Although various environmental authorisations, permits or licences are required before the proposed project may proceed, the regulatory authorities are committed to the principle of cooperative governance and in order to give effect to this principle, a single BA process is required to inform all applications. To this end, a single BAR (this report) has been compiled. The BAR will be submitted to the DEA in support of the application for environmental authorisation of NEMA listed activities.

Supplementary applications will be made as required for the remaining authorisations.

The study will also be guided by the requirements of the EIA Regulations, 2014 (see Section 2.1.2), which are more specific in their focus and define the detailed approach to the BA process, as well as relevant guidelines published by the DEA and the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP), including:

- DEA's Integrated Environmental Management Guideline: Guideline on Need and Desirability (2017), which contains *"information on best practice and how to meet the peremptory requirements prescribed by the legislation and sets out both the strategic and statutory context for the consideration of the need and desirability of a development involving any one of the NEMA listed activities*" (DEA, 2017);
- DEA&DP's EIA Guideline and Information Document Series (DEA&DP, 2013), which includes guidelines on Generic Terms of Reference (ToR) for EAPs and Project Schedules, Public Participation, Alternatives, Need and Desirability, Exemption Applications and Appeals, an information; and
- DEA's Public Participation Guideline (DEA, 2012), which provides information and guidance for applicants, stakeholders and EAP's on the public participation requirements as prescribed in the EIA Regulations of 2014.

2.3.1 Submission of Applications

Various environmental authorisations, permits and licences are required before the proposed project may proceed. Application forms must generally be submitted at the outset of the BA process. The required authorisations and their status are listed in Table 2-2.

Table 2-2: Environmental Authorisations, permits and licences required for the project

Application	Authority	Status
EA	DEA	Application was submitted to the DEA on 15 September 2017 in compliance with Section 16 of the EIA Regulations.
Heritage Application	HWC	NID was submitted to HWC on 6 July 2017. Response to the NID was received from HWC on 27 July 2017 and **Case No. 17070502AS0706E** was allocated to the project.
WUA	DWS	Application was submitted to DWS on 21 September 2017. No reference number has been allocated as of yet.

2.3.2 BA Process and Phasing

The BA process consists of two phases, namely the Pre-Application (which has been completed) and Basic Assessment Phases (the current phase) (see Figure 2-1 below).

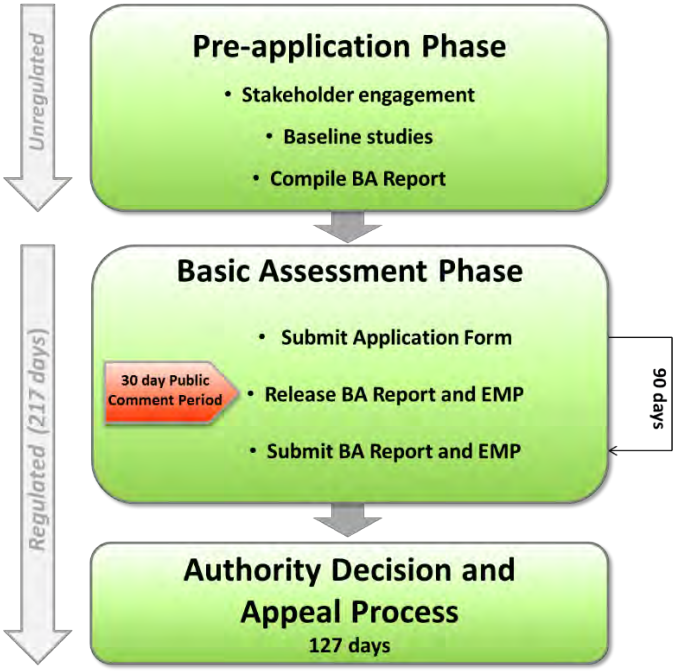


Figure 2-1: BA process

The objectives of the Pre-Application Phase were to:

- Identify stakeholders, including neighbouring landowners/ residents and authorities;
- Undertake specialist studies;
- Compile the draft BA Report which should:
  - Describe the affected environment;
  - Document and contextualise the biophysical baseline conditions of the study area and the socio-economic conditions of affected communities;
  - Assess in detail the potential environmental and socio-economic impacts of the project;
  - Identify environmental and social mitigation measures to avoid and/or address the impacts assessed; and
  - Develop and/or amend environmental and social management plans based on the mitigation measures developed in the BA Report and EMPr.

The objectives of the BA Phase are to:

- Inform stakeholders of the proposed activity, feasible alternatives and the BA process;
- Provide stakeholders with the opportunity to participate effectively in the process and identify any issues and concerns associated with the proposed activity, review specialist study ToR;
- Build capacity amongst stakeholders during the BA process so that they may actively and meaningfully participate;
- Inform and obtain contributions from stakeholders, including relevant authorities, the public and local communities and address their relevant issues and concerns;
- Submit a final BA Report to the relevant authorities (in this case, DEA and DWS).

Further detail about activities undertaken or planned during the BA process is presented in Section 5.

3 Project Description

The Witzenberg substation is currently supplied by one 132 kV[5] single circuit powerline. This line runs over the Witzenberg Mountain Range from the Romansrivier substation (see Figure 1-1). Three 66kV feeders out of the Witzenberg substation supply the Ceres, Gydo and Slangboom substations from where Eskom's customers draw their electricity.

A 66 kV powerline runs from Romansriver to Witzenberg substations via Ceres. A portion of this line between Romansriver and Ceres burnt down, cutting supply from Romansriver to Ceres and Witzenberg, reducing the reliability of supply to the area (i.e. the only supply to Witzenberg is the 132 kV line from Romansriver to Witzenberg, and the only supply to Ceres is from the remaining portion of the 66 kV line from Witzenberg to Ceres).

Since the fire on the 66 kV line between Romansriver and Ceres, the Ceres substation has been supplied by the 66 kV line from the Witzenberg substation (and consequently, by the 132 kV line between the Romansriver and Witzenberg substations) only. Therefore, both the Ceres and the Witzenberg substations are solely dependent on the 132 kV line between Romansriver and Witzenberg. Eskom would be unable to supply the dependent network (i.e. the towns of Prince Alfred Hamlet and Ceres) for several months should a fault occur on this line (i.e. until the line is repaired[6]).

Eskom therefore propose to construct a new double circuit powerline (132kV and 66kV) from the Romansrivier substation to the Ceres substation (see Figure 1-1). This line would provide 132 kV supply to Ceres, and replace the partially burnt 66 kV line between Romansriver and Ceres and secure supply to the Ceres and Witzenberg substations.

In a future phase of work, Eskom proposes to replace the 66 kV line running between the Ceres and Witzenberg substations with a single circuit 132 kV line.

3.1 Description of the Project Area

3.1.1 Site Description

The project is located in the Ceres basin / valley (also known as the Warm Bokkeveld Valley) surrounded by mountains of the Cape Fold Belt (see Figure 1-1). The valley is accessed through mountain passes (Michell's Pass from Cape Town, Theronsberg Pass from Touws River and Gydo Pass from Citrusdal). The fertile Ceres Valley is known for producing deciduous fruits but is also an attractive tourist destination for outdoor activities.

The main economic activity of the region is agriculture.

The site extends from the Romansrivier substation in Romansrivier (in the magisterial district of Tulbagh) to Ceres though Michell's Pass and includes numerous farms and other properties listed in Table 3-1 (also see Figure 3-1). The proposed route follows an existing 132 kV powerline servitude northwards from the Romansriver substation, then veers eastwards at Farm 1/294, and then north-eastwards at Farm 421 (see Figure 3-1) up the Breede River Valley through Michell's Pass (R46) towards Ceres.

[5] 1 kilovolt is equal to 1 000 volts

[6] Repairs to this line would take an excessive amount of time as the pylons are old and no designs (or spares) are available for this infrastructure).

Table 3-1: Properties comprising the site

Property	21 digit Surveyor General code	Owner
Farm 305	C07500000000030500000	Peter Dicey Trust
Farm 289	C07500000000028900000	Penkelly Trust
Farm 291	C07500000000029100000	Saggeus cc
Farm 301/4	C07500000000030100004	New Munster Trust
Farm 301/1	C07500000000030100001	
Farm 302	C07500000000030200000	
Farm 2/291	C07500000000029100002	Mathof cc
Farm 294/1	C07500000000029400001	Robert May
Farm 421	C07500000000029400001	Jacobus Willem Naude
Farm 288/1	C07500000000028800001	Cape Winelands District Municipality
Erf 1001	C01900010000100100000	Witzenberg Municipality
Erf 1002	C01900010000100200000	
Erf 5137	C01900010000513700000	
Erf 1887	C01900010000188700000	
Farm 320	C07500000000032000000	Graaff Fruit
Farm 1886	C01900010000188600000	Republieck SA
Farm 320/18	C07500000000032000018	Eskom Holdings Ltd

The study area for the purposes of the BA process comprised a 300 m corridor (i.e. 150 m on each side of the line) extending the full length of the originally proposed ~ 20 km powerline route (the site).

3.2 Proponent's Project Motivation

Eskom is responsible for the provision of reliable and affordable power to its customers in South Africa. In order for Eskom to meet its mandate and commitment to supply the ever-increasing electricity supply needs of end-users, it has to plan, establish and expand its infrastructure of transmission and distribution powerlines on an on-going basis, in support of the generation processes.

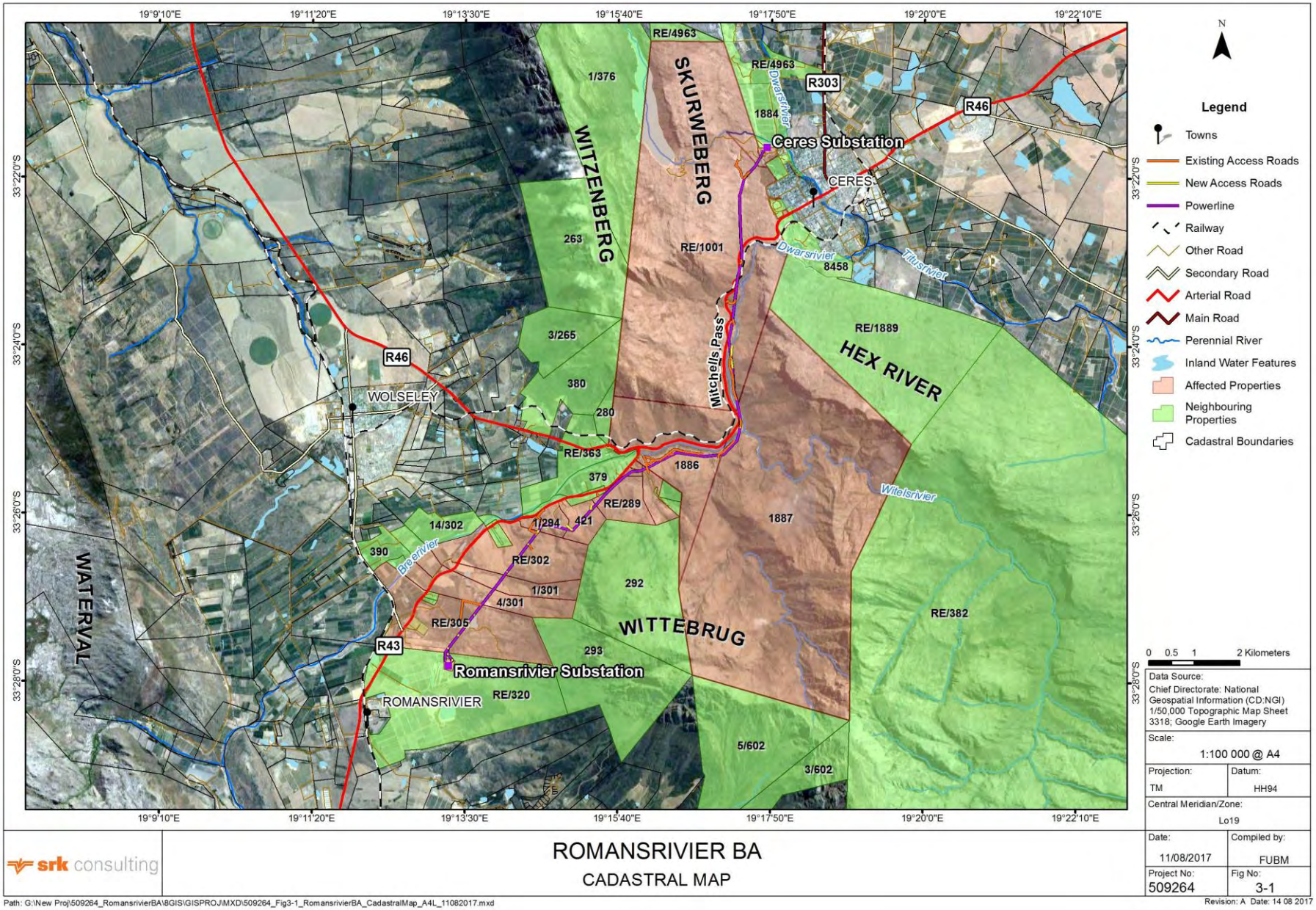
The Witzenberg Municipal area is experiencing rapid socio-economic development, especially in the agricultural sector, and a consequent exponentially increase in energy demand. In response, Eskom has:

- Optimised their Medium Voltage (MV) and High Voltage (HV) networks in this area;
- Installation of shunt capacitors; and
- Initiated other temporary solutions on the distribution feeders.

Nevertheless, Eskom is still unable to meet the electricity needs of the community. This is evidenced by the fact that Eskom has had to refuse 29 applications totalling 2 885 kVA on the MV network (and the last approved connection of a new customer was in November 2014, and even this was a partial approval as the full capacity could not be met) and limit large municipal applications to the HV network.

The Municipality also does not have any unallocated supply capacity to meet the current and future electrical demands of the community and the Municipality exceeds its monthly supply allocation from Eskom, and has to pay penalties for exceeding this limit in fulfilling its mandate of service (electrical) provision to the community. The Municipality has therefore requested that Eskom expedite the increase of electrical supply to the region.

A key current and future customer in the region is the Witzenberg Partners in Agri Land Solutions (PALS) initiative. PALS is a private initiative established by the commercial farmers in the district in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33°26'0"S
33°28'0"S
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Legend
Towns
Existing Access Roads
New Access Roads
Powerline
Railway
Other Road
Secondary Road
Arterial Road
Main Road
Perennial River
Inland Water Features
Affected Properties
Neighbouring Properties
Cadastral Boundaries
WITZENBERG
SKURWEBERG
HEX RIVER
WITTEBRUG
WATERVAL
WOLSELEY
CERES
ROMANSRIVIER
Ceres Substation
Romansrivier Substation
Mitchells Pass
Dwarsrivier
Titusrivier
Witelsrivier
Breerivier
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R303
R43
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Scale: 1:100 000 @ A4
Projection: TM
Datum: HH94
Central Meridian/Zone: Lo19
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agreement with Witzenberg agricultural producers, the Witzenberg Municipality and the community. The initiative aims to expedite land reform to stimulate economic growth, job creation and social harmony. All three tiers of government support the initiative.

The PALS initiative will require the expansion of electrical supply capacity in the region to reach its potential.

The PALS initiative is regarded by Government as a radical game changer for land reform in South Africa. The initiative has received recognition and is supported from the highest level of Government.

Furthermore, the loss of the Romansrivier-Witzenberg 132kV line (e.g. should 2 towers be damaged) will result in the total Witzenberg load having no supply as there is no alternate in-feed into the area. There are no spares for the type of lattice structures and no drawings for these old towers. This will have a disastrous impact on the nearly 3 000 customers who, in the worst case, may have no supply for months. This project would allow for the refurbishment of this without disrupting the supply to customers.

The project is therefore necessary to:

- Increase the supply of electricity to meet growing demand in Ceres;
- Improve the reliability of the electrical supply to Ceres and Witzenberg;
- Allow for the successful implementation of the PALS initiative, and other projects that will enhance the socio-economic development of the community; and
- Allow for the refurbishment of the existing Romansrivier-Witzenberg 132kV line.

3.3 Project Alternatives

Appendix 1 Section 3 (h)(i) of the EIA Regulations, 2014 requires that all BA processes must identify and describe alternatives to the proposed activity that are feasible and reasonable. Different types or categories of alternatives can be identified, e.g. location alternatives, type of activity, design or layout alternatives, technology alternatives and operational alternatives. The “No-Go” or “no development” alternative must also be considered.

Not all categories of alternatives are applicable to this project, as discussed below.

3.3.1 Location Alternatives

Eskom investigated two routes for the proposed double circuit line between Romansriver and Ceres substations, the “mountain route” and the “river route” (see Technical Feasibility Report - Appendix B). Based on the outcomes of this investigation, the “mountain route” was eliminated and only the “river route” has been assessed. A brief overview of the alternatives considered, and the reasons for selecting the “river route” follows.

Mountain Route

The mountain route follows an existing 132 kV powerline servitude northwards from the Romansriver substation until it reaches a servitude on the 400 kV Bacchus MTS line (see Appendix B). The route then follows the servitude of the 400 kV Bacchus MTS line eastwards over the Witzenberg Mountain Range. This route leaves the servitude of the 400 kV Bacchus MTS line southwest of the Ceres Dam (see Appendix B). The route then continues eastward down a valley before connecting with the Ceres substation west of the town of Ceres.

The 13.4 km route would require new and upgraded access to several pylon positions. The construction of the new powerline and the construction and upgrade of access routes would be

technically challenging and costly as this route ascends and descends a steep mountain range through a protected area.

River Route

The river route follows an existing 132 kV powerline servitude northwards from the Romansriver substation, then veers eastwards at Farm 1/294, and then north-eastwards at Farm 421 towards Ceres (see Figure 3-1). The current preliminary design indicates that sixty-eight pylons are required for this route. Access to pylons on this stretch of the route would be from access tracks that are to be extended from the R46 and unnamed, unsurfaced roads in the valley (see Figure 3-7 - Figure 3-11).

The partially burnt down 66 kV wood pole line is in the valley between Romansriver and Ceres. However, this route cannot be followed in its entirety because the proposed new double circuit line requires larger pylon structures. Furthermore, access on the burnt down 66 kV wood pole line is severely constrained and in an attempt to make it less inaccessible the new proposed route was selected.

In order to reduce the requirements for new access roads, a route has been selected that follows the existing R46 road (Michell's Pass) as far as possible. However, where steep slopes and a lack of space prevents the siting of pylons close to the existing road, the line needs to cross undulating terrain and a number of watercourses (five watercourse crossings will be required for this route, one through the Breede River) increasing the number of new access tracks required.

Eskom will make use of existing access roads wherever possible. Where new access is required along the powerline route, single lane access tracks will be utilised. A total clearance footprint of approximately 3.7 ha is required for access tracks on this route (see Figure 3-7 - Figure 3-11 and Appendix C).

This route is approximately 20 km long.

The investigation into the above alternative routes included a detailed financial and technical feasibility assessment (see Appendix B) as well as consultations with landowners and key stakeholders, most notably, CapeNature.

3.3.2 Activity Alternatives

As the proposal is to expand the electrical supply capacity to Ceres and to improve supply security to Ceres and Witzenberg, there are no reasonable activity alternatives.

3.3.3 Layout Alternatives

Numerous layout alternatives have been considered: Eskom provided the EAP with the technically preferred layout of pylon locations and access tracks. Specialists were then required to undertake screening of the study area to assess baseline conditions. Thereafter, the EAP, specialists and Eskom managers inspected the proposed route and access tracks to highlight areas of environmental concern (ecological, cultural or visual) with the technically preferred layout and to brainstorm alternative layouts.

Observations made during the site walk-down were then collated into a site observations document in order to inform the revised layout that has been supplied by Eskom. These observations, Eskom's responses indicating the technical feasibility of implementing the recommendations, and final observations of the final layout by specialists are attached as Appendix D.

Factors that have informed the final layout include:

- Topographical features and technical constraints, which inform the final location of the pylons;

- Vehicular access to proposed pylon positions, ensuring that the site is accessible by vehicles for construction and maintenance purposes;
- Environmental impact, in particular the location of the proposed pylon positions relative to sensitive environmental features, including heritage sites, sensitive vegetation clusters, seeps and wetlands; and
- Costs of construction and maintenance.

3.3.4 Site Selection Matrix

As the intention of the project is to supply the Ceres substation with power from the Romansriver substation, site alternatives are not possible.

3.3.5 Technology Alternatives

3.3.5.1 Underground Cabling

Underground cabling was considered by Eskom in the Michell's Pass to avoid visual impacts of the project. This alternative was screened out for the following reasons:

- Underground cabling requires cable termination stations (i.e. small substation) where they connect to overhead conductors. These stations would also entail visual impacts in this sensitive area;
- The cost of a cable is approximately eight times more per km as compared overhead conductors and termination stations cost approximately R600 000 each;
- Extensive trenching in a wide corridor is required for underground cabling. This would increase the intensity of freshwater and terrestrial ecology impacts of the project;
- Fault-finding is more difficult in underground cabling, and requires extensive excavations to detect the exact fault location, which would lead to additional ecological impacts in the long term; and
- The closest Eskom team that can repair cables are located in Cape Town and repairs will take approximately seven days, leaving the community without power for extended periods in the event of a fault.

3.3.5.2 Pylon Structures

Three different pylon structures have been considered for the project including (also see Section 3.4.2):

- Lattice pylon structure;
- Monopole pylon structure; and
- Wooden pylon structure.

The majority of structures selected are lattice structures due to their low visual impact and constructability in areas where access is constrained. The use of wooden pylons was excluded due to their susceptibility to fire damage in this fire prone area.

3.3.5.3 Bridges

Three different bridge designs have been considered for the project including (see Figure 3-2 and Section 3.4.3.1):

- Suspension;

- Low-level bridge; and
- Low-level drift.

Due to its sensitivity, a suspension bridge has been selected for the crossing of one relatively large and deep ephemeral stream (see Section 3.4.3).

Although the low-level drift design was preferred by the freshwater ecologist this alternative was screened out by project engineers in most cases (see Section 3.4.3.1) because of the anticipated maintenance requirements: small boulders in watercourses are likely to clog the underdrainage of drifts, causing frequent and consistent overtopping of the structures during normal flow conditions. The freshwater ecologist has made recommendations for the final design of low-level bridges, and with the implementation of these recommendations, this specialist has agreed to this design.

Where access roads will travers small seeps, crossings will be constructed with rock fill with bidem and 3mm crush material or subbase.

3.3.6 The No-Go Alternative

In addition, the No-Go alternative has been considered in the BAR in accordance with the requirements of the EIA Regulations, 2014. The No-Go alternative implies that the powerline will not be constructed, attendant environmental impacts will not occur, and additional electricity supply to surrounding areas will not be provided. New development in the region would continue to be constrained by a lack of electrical supply capacity, and the socio-economic benefits would be foregone.

3.4 Infrastructure and Construction

Key aspects of the project include:

- Installation of a 80 MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Installation of 132 kV and 66 kV feeder[7] bays at Romansriver substation and a 66kV feeder bay at Ceres substation;
- Construction of a double circuit distribution powerline (132kV and 66kV) on 68 pylon structures between Romansrivier and Ceres substations in the Breede River Valley / Michell's Pass (~20km);
- Construction of new access roads, including bridges and other watercourse crossings; and
- Upgrading of various existing (access) roads.

3.4.1 Transformer and feeder bays

An 80 MVA transformer will be installed in the existing Romansriver substation property, and new feeder bays will be installed at both the Romansriver and Ceres substations (see Figure 3-3). The substation is fenced and devoid of sensitive habitat.

[7] A feeder is a powerline transferring power from the substation to the transformers

srk consulting	**ROMANSRIVER – CERES POWERLINE** Suspension (above), bridge (middle) and drift (below) designs	Project No. 509264

Figure 3-2: Suspension, low-level bridge and low level drift bridge designs

srk consulting	**ROMANSRIVER – CERES POWERLINE** Romansriver (above) and Ceres (below) Substations	Project No. 509264

Figure 3-3: Romansriver and Ceres substations

The transformer will be transported to the Romansriver substation and installed within a bunded area (see Figure 3-4) before being filled with transformer oil and connected to existing infrastructure. Components of the feeder bays will be delivered to both substations and installed on site and connected to existing infrastructure.

srk consulting	ROMANSRIVER - CERES POWERLINE Transformer installed at Eskom substation	Project No. 509264

Figure 3-4: Transformer installed at Eskom substation

3.4.2 Powerline

Eskom currently only has a draft preliminary line design in place. The final line design will only be in place after the final geotechnical study, final civil designs, EA and WUL have been completed. The final design will provide final details on structure types, height and quantity. All information provided by Eskom is based on the draft preliminary design.

The proposed powerline will be installed on ~68 pylon structures between the Romansriver and Ceres substations and will be approximately ~20 km long (see Figure 3-7 – Figure 3-11). Pylon structures 1-7 are existing strain monopoles inside and around the Romansriver substation that will be replaced with new monopoles (see Figure 3-7). The remaining pylons will either be monopoles or steel lattice structures (see Table 3-2, Figure 3-5 and Figure 3-6). Steel lattice structures will generally been selected due to their lower visual impact, unless monopoles were required for technical reasons.

Table 3-2: New pylon structures along the route (preliminary design)

Pylon Number	Structure	Footprint[8]	Height
20 – 22; 69; 70	Monopole	5 m^2	~21 m
8 – 20; 23 - 68	Steel Lattice	20 m^2	~20 m

Appendix D includes a description of the location of each structure.

Foundations of pylons will be approximately 4.5 m deep. It is anticipated that there will be a disturbance footprint of approximately 225 m^2 per pylon, which includes an excavation footprint, soil stockpile and laydown area at each site. Blasting will be required to excavate the foundations at certain pylon locations (see Section 3.4.6).

[8] This represents the physical footprint of each structure. The disturbance footprint during construction will be significantly bigger than the physical footprint of infrastructure.

Portions of pylons and construction materials will be delivered to site via truck or helicopter (pylons 59 – 63 and 66) and installed in a modular fashion. Pylon structures will be assembled away from these sites and delivered in sections by a helicopter.

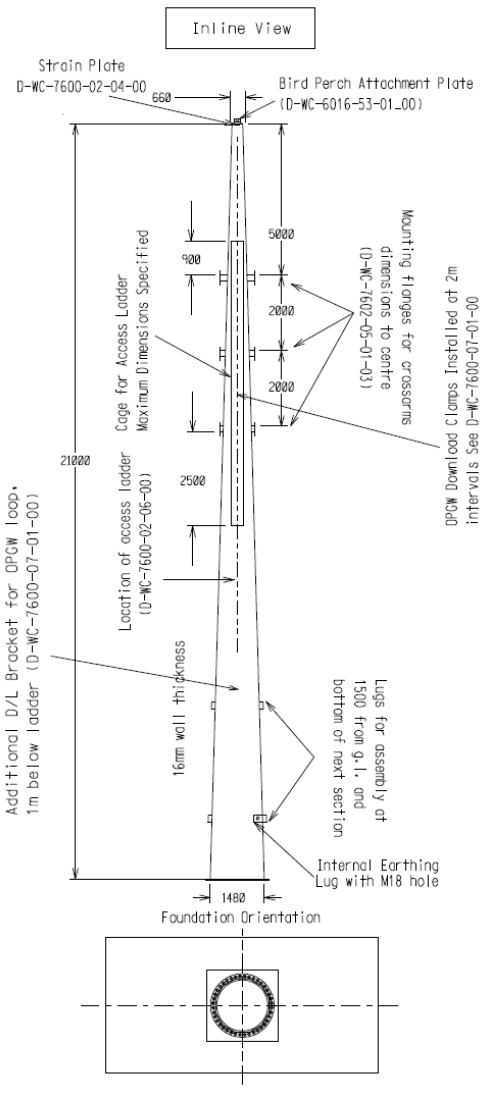
Wherever possible, new pylons are located in close proximity to existing infrastructure (pylons), roads and access roads to reduce new access requirements.

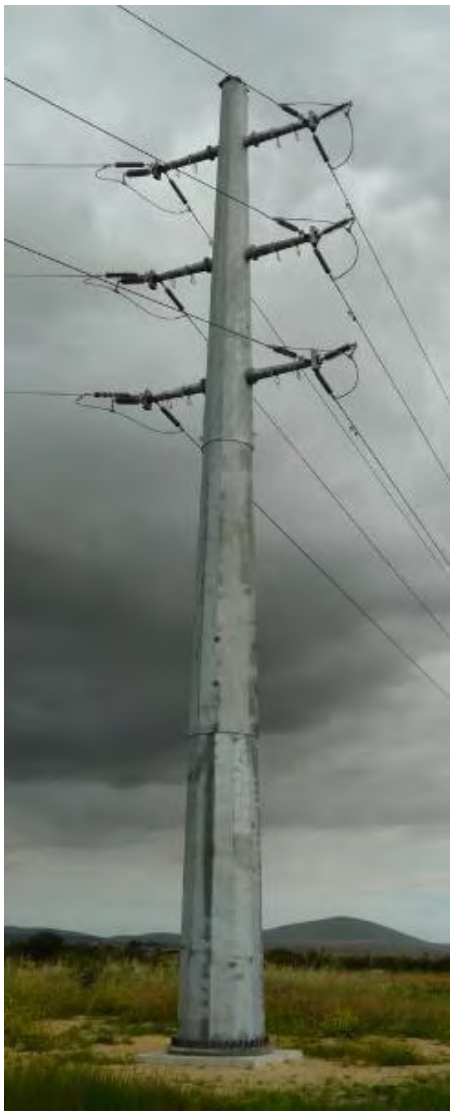
Helicopter assisted assembly has been selected for pylons 59 – 63 and 66 due to access restrictions and environmental sensitivities at these sites (see Figure 3-11). As well as laydown areas at each structure, a central tools container will also be required close to structures 59 – 63.

Construction site camps will be located centrally in disturbed areas (see Section 3.5.5).

The span between each pylon will vary between ~100m and ~400m.

The stringing of conductors will be undertaken by hand with a pulley system where watercourses lie between structures. Stringing will be undertaken mechanically in all other areas.





srk consulting	**ROMANSRIVER - CERES POWERLINE** Steel monopole	Project No. 509264

Figure 3-5: Steel monopole

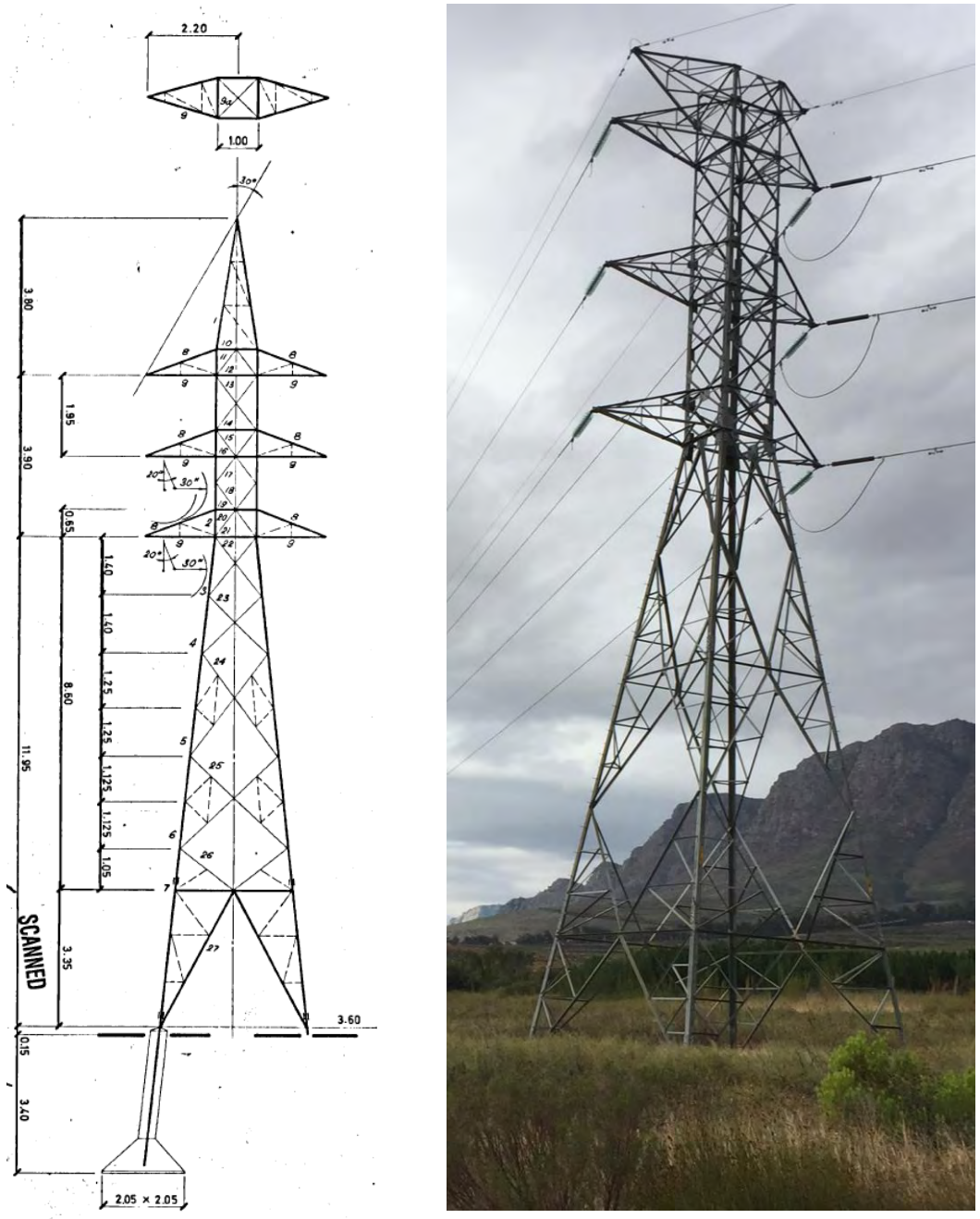
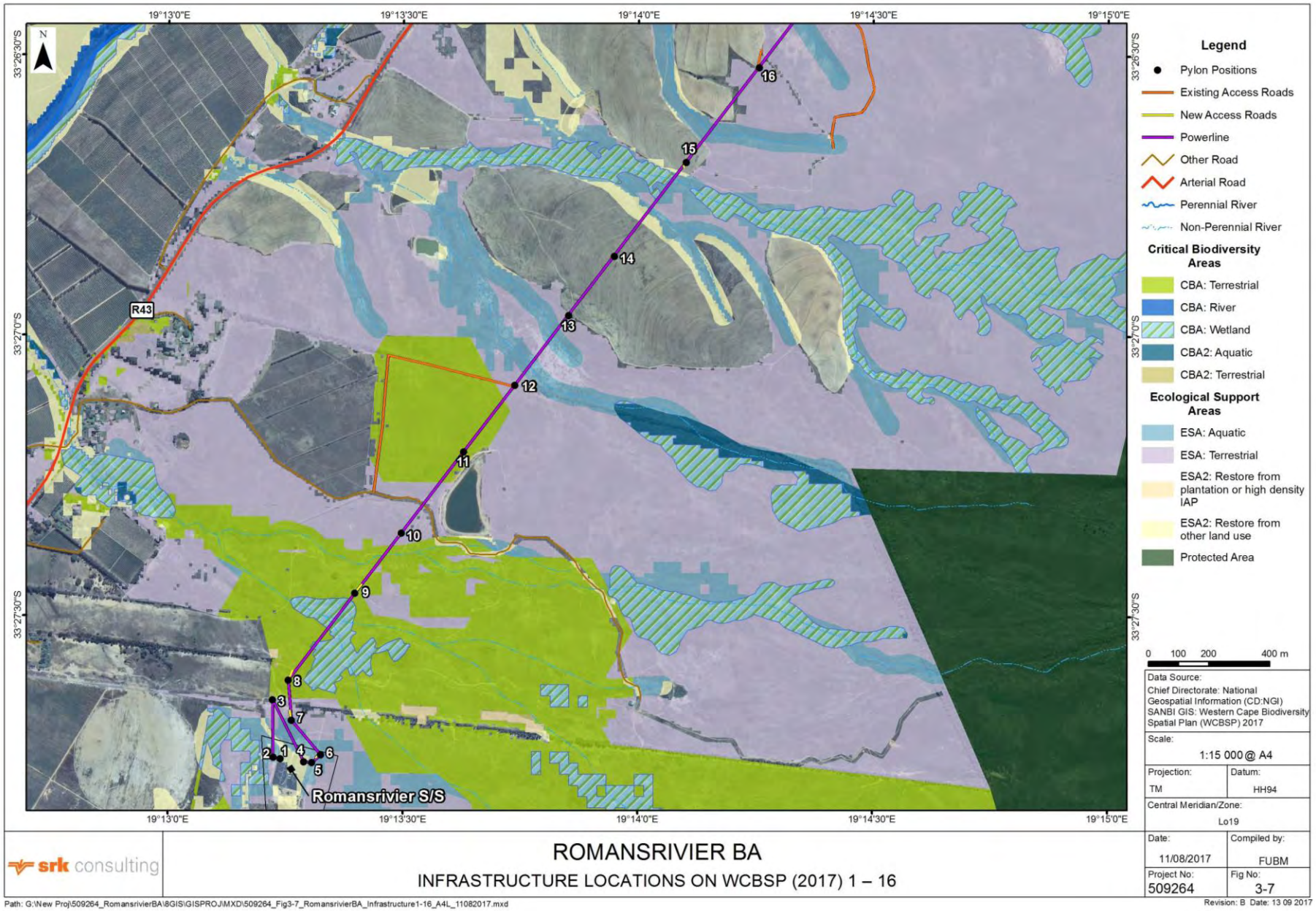


Figure 3-6: Double circuit steel lattice

3.4.2.1 Erosion Control

Where necessary, gabions will be installed at the foundations of pylons to reduce erosion from stormwater at these structures.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33°27'30"S
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Romansrivier S/S
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16
Legend
Pylon Positions
Existing Access Roads
New Access Roads
Powerline
Other Road
Arterial Road
Perennial River
Non-Perennial River
Critical Biodiversity Areas
CBA: Terrestrial
CBA: River
CBA: Wetland
CBA2: Aquatic
CBA2: Terrestrial
Ecological Support Areas
ESA: Aquatic
ESA: Terrestrial
ESA2: Restore from plantation or high density IAP
ESA2: Restore from other land use
Protected Area
0 100 200 400 m
Data Source:
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SANBI GIS: Western Cape Biodiversity Spatial Plan (WCBSP) 2017
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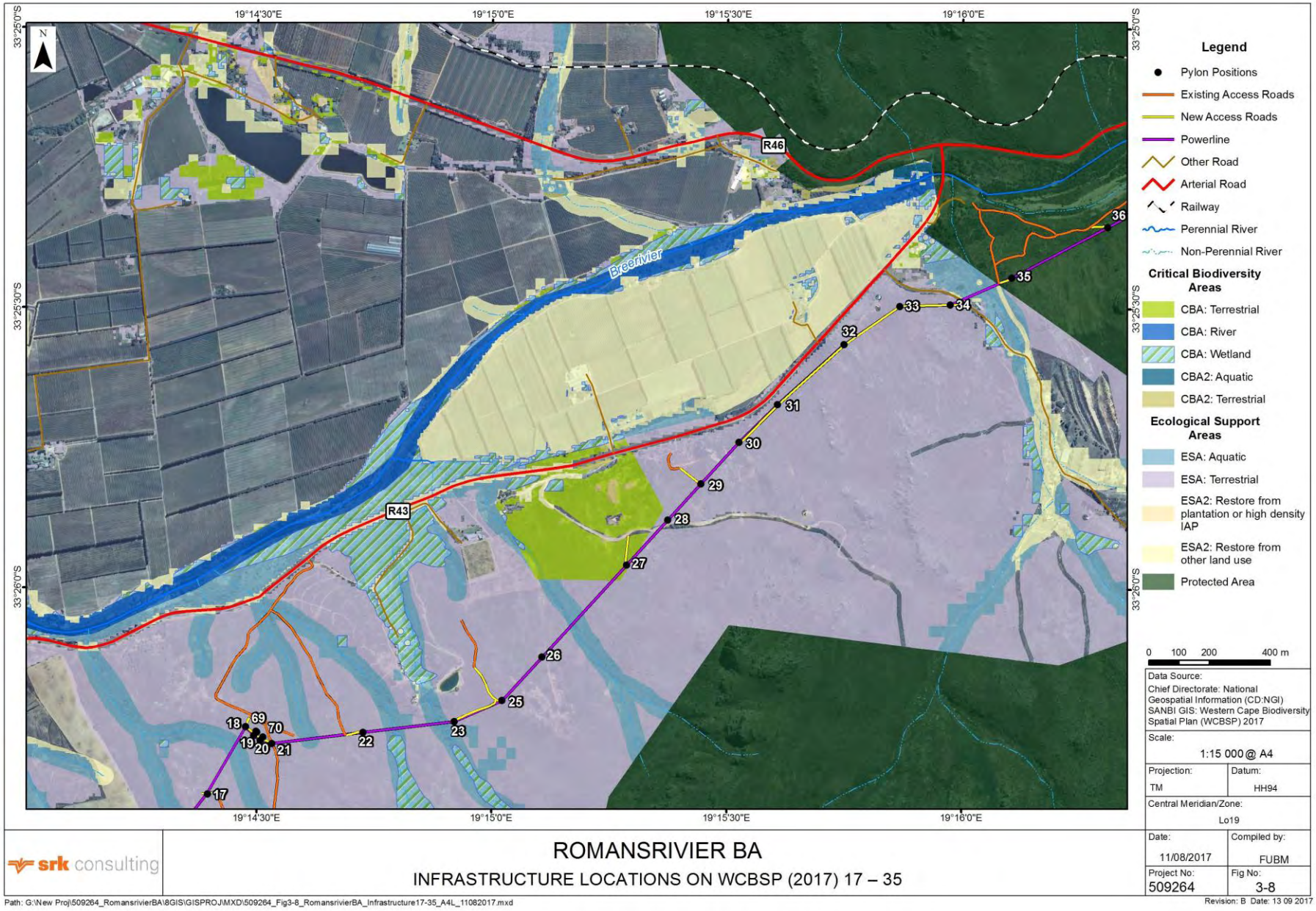
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Pylon Positions
Existing Access Roads
New Access Roads
Powerline
Other Road
Arterial Road
Railway
Perennial River
Non-Perennial River
Critical Biodiversity Areas
CBA: Terrestrial
CBA: River
CBA: Wetland
CBA2: Aquatic
CBA2: Terrestrial
Ecological Support Areas
ESA: Aquatic
ESA: Terrestrial
ESA2: Restore from plantation or high density IAP
ESA2: Restore from other land use
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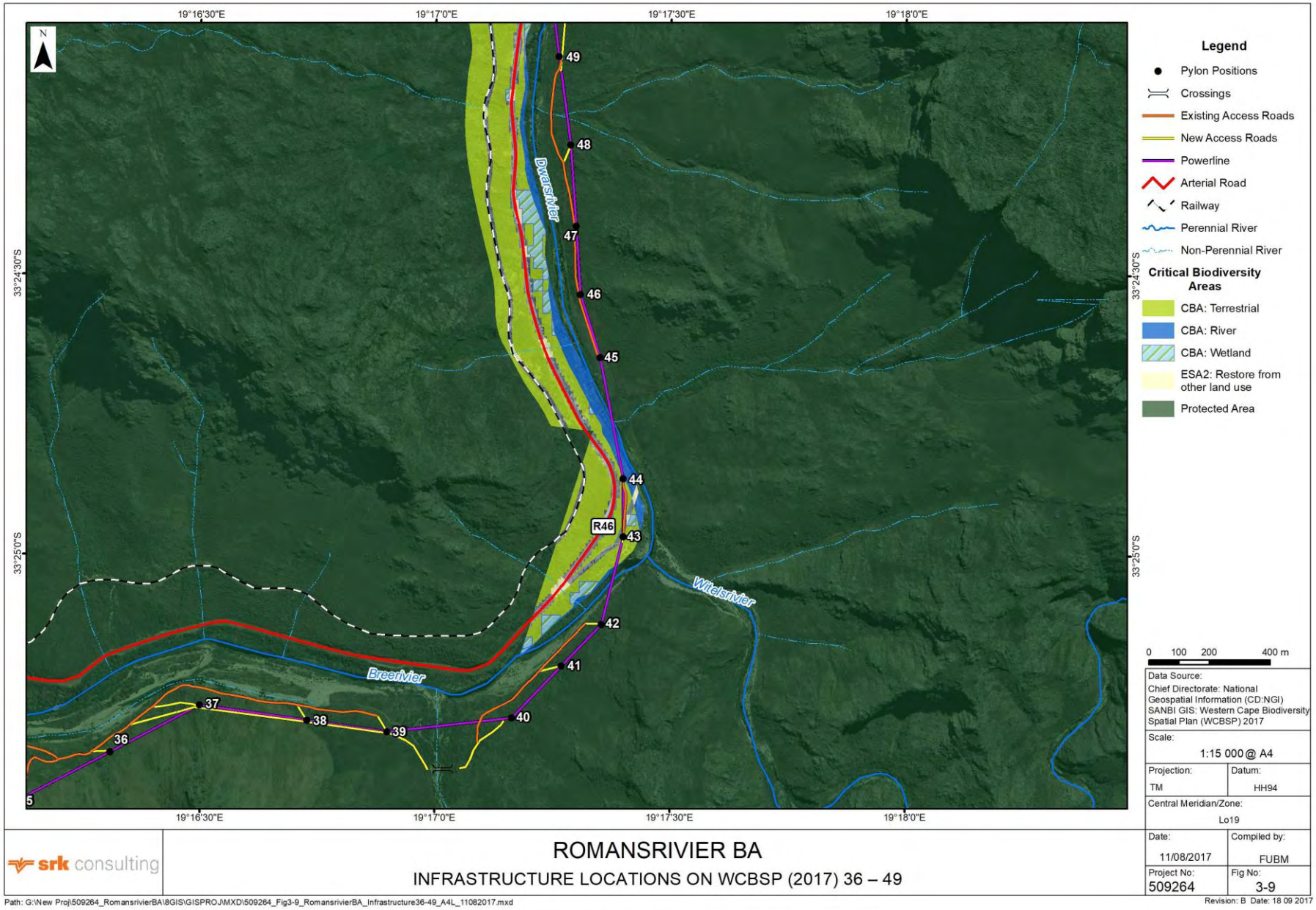
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Pylon Positions
Crossings
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Powerline
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CBA: Terrestrial
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Protected Area
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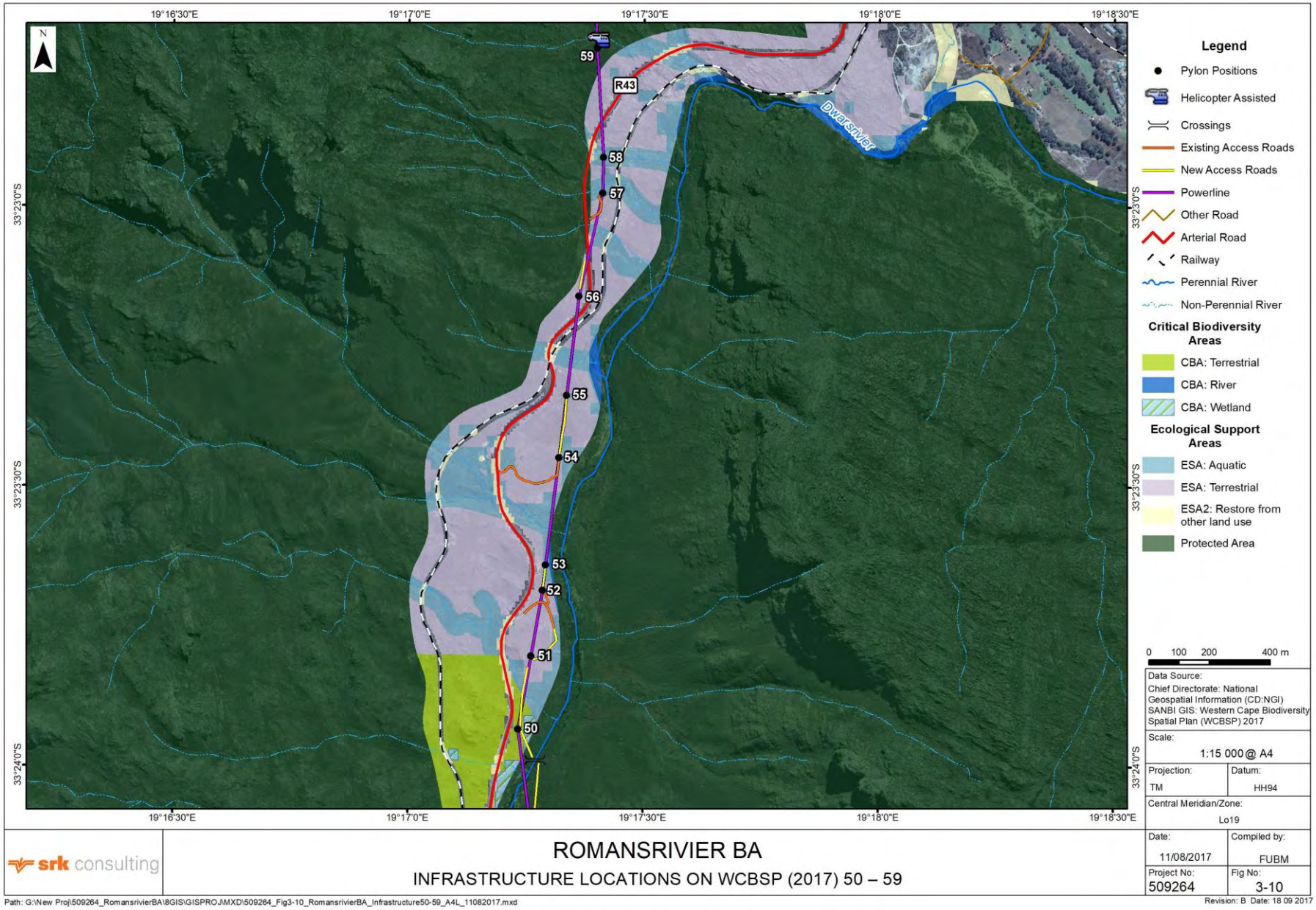
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Pylon Positions
Helicopter Assisted
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Existing Access Roads
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ESA2: Restore from other land use
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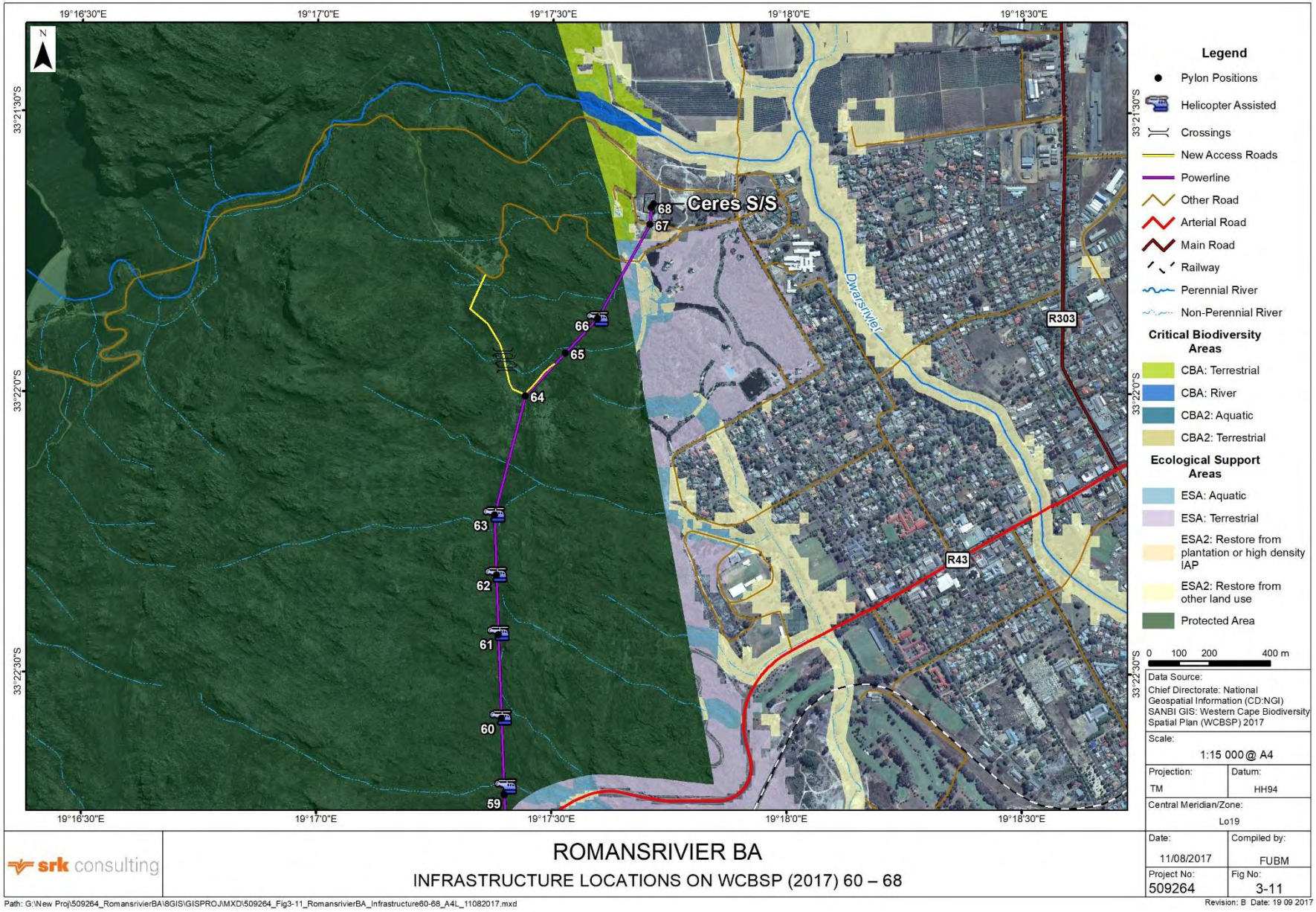
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Pylon Positions
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3.4.3 Access Roads

Eskom will make use of existing access roads wherever possible during construction and maintenance activities. Where new access is required along the powerline route, single lane access tracks will be utilised.

In order to reduce the number of new access roads, a route has been selected that follows the existing R46 road as far as possible. However, the proposed powerline route runs through a steep river valley with significant access constraints. As such more than 7 km of new access tracks are required (see Figure 3-7 - Figure 3-11) and numerous existing access tracks will be upgraded. In certain areas cut-and fill will be required to install new tracks, or to upgrade existing tracks.

Erosion control will be installed on access roads where necessary.

Appendix D includes a description of access requirements for each structure as well as environmental attributes of access routes.

A total clearance footprint of approximately 3.7 ha is required for access tracks.

3.4.3.1 Watercourse Crossings

A number of watercourses are crossed by new and existing access roads. The designs of significant crossings, or bridges, have been selected based on the nature of the watercourses, ecological considerations and technical constraints. The freshwater ecologist has specified a number of key Design Phase mitigation measures for bridges / crossings over sensitive watercourses (for both new and existing access roads) that must be implemented.

In terms of the larger crossings, bridges required to access structures 40 and 49 will be the low level bridge design, and the crossing required to access structure 64 will be the suspension design (see Figure 3-2).

Low-level bridges for the site are described as follows:

Low-level bridge structures will convey minor river flows through culverts or pipes placed perpendicular to the flow direction, that allow for regular overtopping of the structure in significant flood events. Culverts and pipes would be encased in mass concrete with a reinforced concrete slab to cover them.

Earth embankments on the river banks will be installed on service roads at these crossings to tie the low-level structure in with the vertical alignment of the service road.

The minimum width of the low-level structure, perpendicular to flow, is approximately 5m. The minimum height is approximately 1.3 m from the invert level of the pipes to the top of the cover slab.

On either side of the structure gabions and/or reno-mattresses will serve as erosion/scour protection for the approaches/embankments of the service road.

These low-level structures cannot be constructed with stone pitching or rip-rap, as the available energy during flood events easily displaces individual components. Hence the use of gabions, reno-mattresses and concrete structures.

The size of these crossings will be optimised for each site.

3.4.4 Construction Camps

Construction camps will be established in central areas that are transformed from an ecological perspective (e.g. cultivated lands). The Environmental Control Officer (ECO) will be required to approve the location of all site camps required during construction.

3.4.5 Waste

Waste management procedures during construction are specified in the EMPr (refer to Appendix E), and waste will be minimised or recycled (where possible) in accordance with the EMPr.

Waste produced during construction will include general construction waste (e.g. building rubble, packaging and domestic waste from activities at the site camp), vegetation cuttings, wooden poles from old pylons, and electrical conductors from the old line.

Construction waste will be collected in weather and vermin proof bins / skips located at laydown areas and the site camp. Waste will be stored centrally within or adjacent to the site camp before regular disposal to an appropriate licensed waste disposal facility.

Waste will not be disposed of, burned, or buried on site and will be disposed of at an appropriate licensed waste disposal facility. Waste management will be the responsibility of the Contractor.

Suitable material will be reused as far as possible for backfill for site levelling and landscaping. Wooden poles from the dismantled line may be donated to local farmers or businesses.

The volumes of waste that will be generated cannot be estimated at this stage, but are not expected to be significant or place strain on local waste management and disposal facilities.

3.4.6 Noise and Vibration

Sources of noise and vibration during construction include blasting and the operation of construction equipment (such as vehicles and generators).

Procedures for the management of noise and vibration (especially from blasting) have been specified in the EMPr (see Appendix E), however, key management includes:

- Erect notices at strategic locations to advise the community and road users of the blasting schedule;
- Restrict blasting at pylons 51 to 55 between the months of May and November (to account for the Verreaux Eagle breeding season – an active nest is located close to these pylons); and
- Maintain vehicles and equipment in good working order.

3.4.7 Water Use

Water will be required on site during construction, e.g. for domestic use, cement batching etc. It is assumed that water demand will not exceed $5m^3$ on average per day during the eight-month Construction Phase.

Water will be supplied from municipal sources only.

The EMPr includes measures aimed at minimising water demand and preventing water pollution.

3.4.8 Workforce

As work will be carried out by contractors, it is not possible to accurately estimate the size of the workforce. However, Eskom anticipates that the work will be contracted to at least three contractor teams of approximately 80 people each (two teams erecting pylons and stringing conductors, and one team undertaking civil works for access roads and bridges).

3.4.9 Investment

The project will require an investment of approximately R80 million by Eskom excluding helicopter assistance and civil works for roads and bridges.

3.4.10 Construction Schedule

Construction is estimated to take 8 months and is anticipated to commence in April 2018.

The project will be undertaken in the following sequence:

- Construction and upgrading of access roads and bridges;
- Construction of pylons for the new 66/132 kV line between Romansriver and Ceres;
- Stringing of the new 66 / 132 kV line between Romansriver and Ceres; and
- Electrification of the 66 / 132 kV line between Romansriver and Ceres.

3.4.11 Construction Hours

The majority of the construction activities are expected to occur during normal working hours of 07h00 to 18h00. Construction activities will largely be limited to Mondays to Saturdays. Construction activities will only be allowed on Sundays where unavoidable, and if the contractor is able to provide the engineer with adequate motivation.

3.5 Operation and Maintenance Activities

Following the completion of the Construction Phase, the powerline will be commissioned into operation. No physical operational activities are anticipated other than ongoing maintenance of the line.

Maintenance activities will be limited to:

- Decommissioning the existing 66 kV line between the Romansriver and Ceres substations;
- Periodic and emergency repairs to pylons;
- Restringing of conductors;
- Trimming and clearing of vegetation to maintain line clearance and access; and
- Clearing of debris from bridges and other watercourse crossings.

It is anticipated that the powerline will be operational for the foreseeable future / in the long-term, and no Decommissioning Phase is anticipated.

3.5.1 Decommissioning of Existing Line

Remaining wooden poles and conductors along the existing (burnt) 66 kV line will be dismantled and removed following construction of the new powerline.

Where there is no vehicle access to these structures, they will be dismantled manually removed from site on foot.

3.5.2 Repairs to Pylons

Periodic and emergency repairs to pylons will be required. Replacement components will be delivered to site by truck and installed with appropriate equipment (e.g. mobile cranes).

3.5.3 Restringing of Conductors

In response to damage on the line, it may be necessary to replace portions of the conductors. This will be undertaken by hand with a pulley system where watercourses lie between structures. Restringing will be undertaken mechanically in all other areas.

3.5.4 Trimming and Clearing of Vegetation

Trimming and clearing of vegetation will be required to maintain access and meet legal clearance requirements below conductors.

3.5.5 Site Camps

No site camps will be required during maintenance activities.

3.5.6 Access

Pylons will be accessed by vehicles on the tracks established during construction (see Section 3.4.3).

3.5.7 Waste

Waste management procedures during maintenance activities are specified in the EMPr (see Appendix E), and waste will be minimised or recycled (where possible) in accordance with the EMPr.

Waste produced during the Operational Phase will include small volumes of domestic waste, discarded pylon components and conductors and vegetation cuttings.

Domestic waste will be removed from site by hand on a daily basis during maintenance activities. Faulty pylon components, conductors and vegetation cuttings will be removed from site on truck when necessary. All waste generated during maintenance activities will be disposed of at appropriate licensed waste disposal facilities.

Waste will not be disposed of, burned, or buried on site.

The volumes of waste that will be generated during maintenance activities cannot be estimated at this stage, but are not expected to be significant or place strain on local waste management and disposal facilities.

3.5.8 Water Use

During maintenance activities, only small volumes of potable water will be required for maintenance staff.

3.5.9 Workforce

Maintenance teams are typically 2 - 15 people strong and consist of existing Eskom staff members and / or contractors employed for this purpose.