



**PROPOSED DEVELOPMENT OF A 132 KV TRANSMISSION  
LINE (FROM THE EXISTING HARVARD 132 KV LINE TO  
NOORDSTAD) AS WELL AS 6 SUB-STATIONS,  
BLOEMFONTEIN, MANGAUNG METROPOLITAN  
MUNICIPALITY, FREE STATE PROVINCE**

**Draft Basic Assessment Report**

May 2017

Prepared for:



**CENTLEC**

Mr A.N. (Andries) Mgoqi

ceo@centlec.co.za ceo.secretary@centlec.co.za

051 412 2608

Prepared by:

Rikus Lamprecht

rikus@enviroworks.co.za

086 198 8895

Today's Impact | Tomorrow's Legacy

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Content Requirements of a Basic Assessment Process	Section in the Report
(a) details of – (i) the EAP who prepared the report, and (ii) the expertise of the EAP, including a curriculum vitae;	Appendix H
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section A: 1
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Appendix A
(d) a description of the scope of the proposed activity, including – (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	Section A: No 1
(e) a description of the policy and legislative context within which the development is proposed including – (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to <b>this</b> activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools framework, and instruments;	Section A: No 11
(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;	Section A: No 10
(g) a motivation for the preferred site, activity and technology alternative;	Section A: No 2
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (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; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential	Section A: No 2

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<p>environmental impacts and risk associated with the alternatives;</p> <p>(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;</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk;</p> <p>(ix) the outcome of the site selection matrix;</p> <p>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;</p>	
<p>(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including –</p> <p>(i) a description of all environmental issues and risk that were identified during the environmental impact assessment process; and</p> <p>(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;</p>	<p>Section D Appendix F</p>
<p>(j) an assessment of each identified potentially significant impact and risk, including-</p> <p>(i) cumulative impacts;</p> <p>(ii) the nature, significance and consequences of the impact and risk;</p> <p>(iii) the extent and duration of the impacts and risk occurring;</p> <p>(iv) the probability of the impact and risk occurring;</p> <p>(v) the degree to which the impact and risk can be reversed;</p> <p>(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and</p> <p>(vii) the degree to which the impact and risk can be avoided, managed or mitigated;</p>	<p>Section D Appendix F</p>
<p>(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulation and an indication as to how these findings and recommendations have been included in the final report;</p>	<p>Section D Appendix F</p>
<p>(l) an environmental impact statement which contains –</p> <p>(i) a summary of the key findings of the environmental impact assessment;</p> <p>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the proposed site indicating any areas that should be avoided, including buffers; and</p> <p>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;</p>	<p>Section D: No 2</p>
<p>(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMP'r;</p>	<p>Appendix G</p>
<p>(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</p>	<p>Section E Appendix G</p>



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authorisation;	
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Appendix D
(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;	Section E
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, 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: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (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	Section E
(s) where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(t) any specific information that may be required by the competent authority; and	Appendix J
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

## ABBREVIATIONS

BA	Basic Assessment
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CEL	Cost Estimate Letter
CIA	Cumulative Impact Assessment
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
CPA	Communal Property Association
CRR	Comments and Responses Report
CSP	Concentrated Solar Power
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DENC	Department of Environment and Nature Conservation
DM	District Municipality
DMR	Department of Mineral Resources
DoE	Department of Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
FSR	Final Scoping Report
Ha	Hectares
HTF	Heat Transfer Fluid
I & Aps	Interested and Affected Parties
IDP	Integrated Development Plan
IPP	Independent Power Producer
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality

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LSA	Late Stone Age
MAP	Mean Annual Precipitation
MASL	Metres Above Sea Level
MLL	Minimum living level
MSA	Middle Stone Age
MVA	Megavolt ampere
MW	Megawatt
NCPSDF	Northern Cape Provincial Spatial Development Framework
NDP	National Development Plan
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008)
NERSA	National Energy Regulator of South Africa
NFA	National Forests Act (Act 84 of 1998)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NIP	National Infrastructure Plan
NWA	National Water Act (Act 36 of 1998)
PFS	Pre-feasibility Study
PPP	Public Participation Process
PUC	Point of Utility Connection
PoSEIA	Plan of Study for Environmental Impact Assessment
REIPPP	Renewable Energy Independent Power Producers Procurement Programme
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Integrated Project
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
VIA	Visual Impact Assessment
WRYCM	Water Resource Yield Computer Model
WULA	Water Use Licence Application

## REPORT STRUCTURE

This report is set out as followed:

- Section A: Activity Description provides an overview of the development proposal and listed activities which are triggered in terms of listing notices GN R. 983 and R. 985; of the EIA Regulations, 04 December 2014.
- Section B: Description of Receiving Environment provides detail on the affected landscape in its present state. A range of aspects relating to the biophysical (e.g. geology, soil surface and sub-surface water and biodiversity), socio-economic and historic and cultural character of the immediate route and surrounding area are described herein, whilst applicable legislation, policy and guidelines considered are recognised.
- Section C: Public Participation describes the consultation component of this study between the EAP and Interested or Affected Parties (I&APs) and organs of state. Regulatory requirements of this process are discussed, with a summary of consultation made with state departments and comments and response given. Comment periods were afforded to parties, with an initial registration period provided to parties.
- Section D: Impact Assessment, Management, Mitigation and Monitoring Measures, describe how the proposed development may impact on the geographical and physical, biodiversity, socio-economic and historical and cultural aspects of the receiving environment. Resource uses of the proposed development phases, attributed to waste and emissions, water use, power supply and energy efficiency are further discussed.
- Section E: Recommendation of the EAP provides, based on such findings as various site surveys, impact assessment, investigation of alternatives and the review of strategic policy to consider the needs and desirability, the outgoing opinion of the EAP is detailed. Any noteworthy recommendations emanating from the study are described here.
- Section F: Appendices lists all supportive documents enclosed with this report, after which declarations of the Applicant, EAP and Specialist Parties are given.
- Section G – Lists the reference of the project.



**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**  
**Application Number:**  
**Date Received:**


Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

**Kindly note that:**

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

## **EXECUTIVE SUMMARY**

CENTLEC SOC Ltd, the applicant, intends to develop new infrastructure in the city of Bloemfontein Registration Division, Free State Province. The proposed development entails two main sets of developments namely a new 132 kV transmission line and secondly six associated sub-stations.

### **132 kV transmission line**

#### **Transmission line main loop**

The proposed 132 kV transmission line to be constructed will tie into and commence from the existing Harvard transmission line which is associated with the Cecilia sub-station situated next to Koppie Road in the south-west of Bloemfontein. The commencement/tie in point of the proposed transmission line will be on the Remaining Extent of the Farm Kwaggafontein no 2300 (SG: F0030000000023000000). From the commencement point, the proposed transmission line will have a main loop which will loop around the western and northern boundaries of Bloemfontein and will be situated outside the urban edge. From the commencement point, the main loop will traverse a significant number of farm portions (see Appendix 5).

The new transmission line will run parallel alongside an existing Eskom transmission line for the initial 8 km portion up to where it traverses the Remaining Extent of the Farm Knockacree no 1111 (SG: F00300000000111100000). From there it will split away on its own route to the east of the existing line.

The new transmission line will again join up and run parallel alongside the existing Eskom transmission line from Portion 4 of the Farm Mount Pleasant no 221 (SG: F00300000000022100004).

The new transmission line will then join up with an existing CENTLEC 33 kV transmission line on Portion 5 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500005) from where it will run mostly parallel alongside the existing line for approximately 4.5 km up to where it reaches its final tie in point at the existing Bayswater distribution centre on Portion 8 of the Farm Hillside no 2830 (SG: F00300000000283000008) situated in the north-east of Bloemfontein.

The linear length of the main loop of the proposed transmission will be approximately 35.4 km.

### **Transmission line first split-off**

A short 132 kV line section is proposed to split off from the main loop of the transmission line on the Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000) in order to reach the position where the proposed Olivier distribution centre is to be built on Portion 12 of the Farm Groenvlei no 2844 (SG: F00300000000284400012). This entire split-off section of approximately 3.5 km to where it reaches the Olivier distribution centre position will be buried underground as this is located in the vicinity of the Tempe Military Base Airstrip. The reason for the underground section will be to ensure that all the above ground components of the entire transmission line are located outside a minimum 600 m distance from the airstrip. A maximum 1.5 m wide trench will be excavated to conceal the transmission line for the stated section after which the trench will be closed up again. The section will traverse a number of additional farm portions which are not part of the main loop list of farm portions.

### **Transmission line second split-off**

A second 132 kV line section is also proposed to split off from the main loop of the transmission line in order to reach the position where the proposed Hillandale distribution centre is to be built on the Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000). Two line route alternatives namely Alternatives 1 and 2 are suggested by the applicant for the second section splitting off.

The linear length of Alternative 1 will be approximately 5.6 km.

The linear length of Alternative 2 will be approximately 2.4 km.

The proposed transmission line will consist of a linear series of pylons (towers) which will be situated approximately 100 m - 300 m apart. The exact locations and distance between the pylons will be dependent on site specific terrain and soil conditions. This will only be determined during the final design stage. The main purpose of the pylons will be to ensure the transmission line maintains a minimum ground clearance height of 6.3 m. The transmission line servitude corridor will be a maximum of 30 m wide but the centre of the new line must also maintain a minimum distance of 50 m away from the centre of the existing Eskom line.

The tower type to be used will be determined during the final design stages of the powerline (based on load and other calculations). It is however envisaged that the bird friendly Steel Monopole tower type will mainly be used rather than the Steel Lattice tower type. The Steel Monopole tower type is also to be



implemented in any identified environmentally sensitive or important areas such as Critical Biodiversity Areas (CBA) or heritage sites. The maximum surface area footprint per pylon of the Steel Monopole tower type will be 2 m x 2 m/4 m<sup>2</sup> while that of the Steel Lattice tower type will be 10 m x 10 m/100 m<sup>2</sup>. Both the potential pylon designs will have a maximum height of 30 m.

The anticipated duration of the construction phase of the proposed transmission line will be a maximum of 6 months.

### **Six 132 kV sub-stations**

The six individual 132 kV sub-stations to be constructed will be associated with the new transmission line and will assist with the transmission and distribution of the transmission line's electricity. They will be situated on the following farm portions:

- Outspan distribution centre
  - Remaining Extent of the Farm Outspan no 1960 (SG: F00300000000196000000)
- Rooidam distribution centre
  - Remaining Extent of the Farm Knockacree no 1111 (SG: F00300000000111100000)
- Olivier distribution centre
  - Portion 12 of the farm Groenvlei no 2844 (SG: F00300000000284400012)
- Tevrede distribution centre
  - Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000)
- Mimosa distribution centre
  - Portion 7 of the Farm Fairview no 2845 (SG: F00300000000284500007)
- Hillandale distribution centre
  - Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000)

The maximum footprint sizes of each of the six sub-stations are indicated under section 1.3 of the Basic Assessment report.

According to Mucina & Rutherford (2006) the proposed transmission line route corridor traverses four vegetation types. The majority of the route corridor is located within the Bloemfontein Dry Grassland (Gh 5) while a small portion forms part of the Winburg Grassy Shrubland (Gh 7), Bloemfontein Karroid Shrubland (Gh 8) and the Highveld Alluvial (Aza 5) vegetation types.

An approximately 3.3 km portion of the proposed transmission line route corridor will traverse a Critical Biodiversity Area 1 (CBA) as classified by the Provincial Spatial Biodiversity Plan, 2014. Critical Biodiversity Areas are areas which play an important role in conservation and reaching certain required biodiversity targets for ecosystem types, species or ecological processes (Collins, 2015). Pylons will be constructed within the CBA. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses.

**Legislation**

The proposed project triggers the following listed activities as per the National Environmental Management Act (Act 107 of 1998) Environmental Impact Assessment Regulations, 2014 (Government Notices R983, R984 and R985 in Government Gazette No. 38282 of 04 December 2014):

<b>Listed activity as described in GN 983, 984 and 985</b>	<b>Description of the relevant project activity</b>
<p><b>GN R983 (LN 1), Activity 11:</b></p> <p>The development of facilities or infrastructure for the transmission and distribution of electricity –</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</p>	<p><b>Transmission line main loop</b> The proposed project entails the development of a 132 kV transmission line of which the main loop will be approximately 35.4 km in length and will fall outside the urban edge of Bloemfontein, Free State Province.</p> <p><b>Transmission line first split-off</b> A short 132 kV line section is proposed to split off from the main loop of the transmission line. The proposed split-off section will be approximately 3.5 km in length and will fall outside the urban edge of Bloemfontein, Free State Province.</p> <p><b>Transmission line second split-off</b> A second 132 kV line section with two alternatives is also proposed to split off from the main loop of the transmission line. The proposed split-off sections will be approximately 5.6 km (Alternative 1) or 2.4 km (Alternative 2) in length, depending on which alternative is approved, and will fall inside the urban edge of Bloemfontein, Free State Province. It is however less than 275 kilovolts in size therefore not triggering part (ii) of this listed activity.</p> <p><b>Six 132 kV sub-stations</b> The proposed project also entails the construction of six individual 132 kV sub-stations which will be associated with the new transmission line. These proposed sub-stations will assist with the transmission and distribution of the transmission</p>

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<p><b>GN R983 (LN 1), Activity 12:</b></p> <p>The development of –</p> <ul style="list-style-type: none"> <li>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</li> </ul> <p>where such development occurs –</p> <ul style="list-style-type: none"> <li>(a) within a watercourse</li> <li>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</li> </ul>	<p>line's electricity.</p> <p><b>Transmission line</b></p> <p>The proposed transmission line will be located in close proximity to and will cross various watercourses. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 100 m<sup>2</sup>. The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings will therefore exceed 100 m<sup>2</sup>.</p> <p><b>Six 132 kV sub-stations</b></p> <p>The associated six individual sub-station footprints will not fall within 32 metres of any watercourses.</p>
<p><b>GN R983 (LN 1), Activity 27:</b></p> <p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p>	<p><b>Transmission line</b></p> <p>No significant clearance of natural vegetation will take place during pylon construction for the transmission line.</p> <p><b>Six 132 kV sub-stations</b></p> <p>The combined footprint area size of the six sub-stations associated with the transmission line will be a maximum of 5.1 ha.</p>
<p><b>GN R985 (LN 3), Activity 12:</b></p> <p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(b) In the Free State Province:</p> <ul style="list-style-type: none"> <li>ii. Within critical biodiversity areas identified in bioregional plans.</li> <li>iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.</li> </ul>	<p><b>Transmission line</b></p> <p>An approximately 3.3 km portion of the proposed transmission line will traverse a Critical Biodiversity Area (CBA). Pylons will have to be constructed within the CBA. The combined total of such pylon placement area footprints will exceed 300 m<sup>2</sup>. Although the proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line inside the CBA will exceed 300 m<sup>2</sup>, no significant vegetation clearance will be conducted.</p> <p>The proposed transmission line will be located in close proximity to and will cross various watercourses. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 300 m<sup>2</sup>. The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings will therefore exceed 300 m<sup>2</sup>.</p>

	<p><b>Six 132 kV sub-stations</b> The associated six individual sub-station footprints will not fall within any CBA's.</p>
<p><b>GN R985 (LN 3), Activity 14:</b></p> <p>The development of –</p> <ul style="list-style-type: none"> <li>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</li> </ul> <p>Where such development occurs –</p> <ul style="list-style-type: none"> <li>(a) within a watercourse;</li> <li>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</li> </ul> <p>(b) In the Free State Province:</p> <ul style="list-style-type: none"> <li>ii. outside urban areas:             <ul style="list-style-type: none"> <li>(ff) critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</li> </ul> </li> </ul>	<p><b>Transmission line</b></p> <p>The proposed transmission line will be located in close proximity to and will cross various watercourses.</p> <p>An approximately 3.3 km portion of the proposed transmission line will traverse a Critical Biodiversity Area (CBA). Pylons will be constructed within the CBA. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 10 m<sup>2</sup>.</p> <p>The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings inside the CBA will therefore exceed 10 m<sup>2</sup>.</p> <p><b>Six 132 kV sub-stations</b> The associated six individual sub-station footprints will not fall within any CBA's.</p>

**Pre-application public participation meeting**

An unofficial pre-application public participation meeting was conducted on 25 March 2017 at the Langenhovenpark Public Library. The main objective of the meeting was to pro-actively attempt to identify and address some of the major concerns that landowners may have so as to try to finalise a line route corridor which would as far as practicably possible suite relevant landowners. After the conclusion of the meeting, a final line route corridor was decided upon by the applicant based on the comments and recommendations received during the meeting. This final line route corridor will be applied for during the Basic Assessment process.

**Alternatives**

The proposed transmission line route layout consists of a main loop as well as two split-off lines. There is no alternative route layout for the main loop although the original route has been significantly revised based on the comments and recommendations received during the pre-application public participation meeting. The process of reaching the final route being applied for has therefore pro-actively attempted to accommodate the public and relevant landowners as far as practicably possible.

The first split-off line from the main loop has no alternative route layouts although the original route has been significantly revised based on the comments and recommendations received during the pre-application public participation meeting.

The second split-off line has two possible alternative route layouts namely Alternative 1 (preferred alternative) and Alternative 2.

The proposed route layout of the entire transmission line was determined on the basis of practical accessibility as well as which would practicably cause the least possible impact/disturbance to landowners and occupiers and to natural areas.

### **Six sub-stations**

There are no site alternatives for the footprint positions of the proposed six individual sub-stations. The original position of the Rooidam distribution centre was however moved to a new location based on the comments and recommendations received during the pre-application public participation meeting.

### **Public Participation Process**

A comprehensive Public Participation Process (PPP) will be undertaken with all stakeholders and Interested and Affected Parties (I & AP's), including the relevant Organs of State and competent authority (Department of Environmental Affairs DEA) as identified.

The PPP will be conducted in accordance with the requirements of Regulation 41 of the EIA Regulations, 2014 and the designated Public Participation Officer ensured that the PPP is facilitated in a manner which ensures reasonable opportunity for all stakeholders and registered I & AP's to comment and provide input on the proposed project.

- Background Information Documents (BID) were distributed to all relevant landowners of properties through which the proposed transmission line will traverse and sub-stations will be developed as far as practicably possible. BID's were also distributed as far as practicably possible to landowners of adjacently located properties who might be affected by the proposed development. Landowners were informed of the proposed project and contact details were obtained in the process (see the I & AP notification register below).his process was conducted on the following dates:
  - 10, 14, 15, 16 & 18 February 2017

- An unofficial pre-application public participation meeting was conducted on 25 March 2017 at the Langenhovenpark Public Library. The main objective of the meeting was to pro-actively attempt to identify and address some of the major concerns that landowners may have so as to try to finalise a line route corridor which would as far as practicably possible suite relevant landowners. After the conclusion of the meeting, a final line route corridor was decided upon by the applicant based on the comments and recommendations received during the meeting. This final line route corridor will be applied for during the Basic Assessment process.
- The Draft Basic Assessment Report will be completed and submitted to the competent authority (Department of Environmental Affairs) on 23 May 2017 for comments. The competent authority acknowledgement of receipt letter will be included into the final PPP Report.
- An advertisement will be placed in the Volksblad newspaper on 23 May 2017 as well as the Bloemfontein Express newspaper on 24 May 2017. The Bloemfontein Express is a free local newspaper distributed in the Mangaung Metropolitan Municipal area. The advertisement will provide details on the project and an invitation for the public to register an interest in the project. The advertisement also indicated the Public Participation Process commencement and closing dates as well as all the other necessary information required. Proof of advertisement will be included into the final PPP Report.
- Site notices will be placed on 23 May 2017 at strategic, conspicuous and accessible locations in the vicinity of the proposed project area. The site notices will provide details on the project and an invitation for the public to register an interest in the project. The site notices will also indicate that the Public Participation Process for the proposed project would commence on 23 May 2017 and conclude on 23 June 2017 as well as all the other necessary information required. Proof of site notices will be included into the final PPP Report.
- Two hardcopies of the draft Basic Assessment Report will be made available to the public for comment on 23 May 2017 in the Langenhovenpark and Noordstad areas of Bloemfontein. Proof of hardcopies placement will be included into the final PPP Report.
- A hardcopy will be hand delivered to the competent authority on 23 May 2017.
- A notification email will be sent to all the identified stakeholders, I & AP's and relevant organs of state on 23 May 2017. The email will provide details on the project and an invitation for all to register an interest in the project. The email will also indicate that the Public Participation Process for the proposed project would commence on 23 May 2017 and conclude on 23 June 2017 as well as all the other necessary information required. Proof of email and delivery receipts will be included into the final PPP Report.

- A comprehensive list of stakeholders was identified during the completion of the Basic Assessment Report. This list will be utilised for the purposes of the transmission line PPP.

Summary of impacts associated with the construction phase of the proposed development

	Proposed project	No-Go Alternative
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of vegetation of pre-existing transformed and disturbed cultivated lands and road servitudes within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (21)	-
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (18)	-



BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/transformation of vegetation of pre-existing transformed and disturbed cultivated lands and road servitudes within the sub-station footprints associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (40)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (24)	-

BASIC ASSESSMENT REPORT

	Proposed project	
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of semi-natural and natural vegetation within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type and the Winburg Grassy Shrubland (Gh 7) vegetation type</b>	
	Alternative 1	Alternative 2
<b>Cumulative impact prior to mitigation:</b>	Medium	Low
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (42)
<b>Cumulative impact post mitigation:</b>	Low	Low
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (28)	Low (22)

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/transformation of natural vegetation within the sub-station footprints associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	-
Cumulative impact post mitigation:	Medium	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (72)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/transformation of a Critical Biodiversity Area associated with the transmission line route corridor	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (80)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (57)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/damage to Red Data Listed or protected species individuals associated with the transmission line route corridor and sub-station footprints	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (54)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (36)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Surface material erosion	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (40)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (20)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Alien invasive species establishment	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (56)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Damage to or impeding of watercourses	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (60)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (38)	-



BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Avifaunal habitat destruction and displacement caused by sub-station development	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (32)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Avifaunal disturbance and displacement caused by transmission line development	
	Alternative 1	Alternative 2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (24)	Low (24)
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (24)	Low (24)

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Damage or destruction of archaeological and palaeontological heritage	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (27)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (18)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Potential visual impact on sensitive visual receptors, located within a 5km radii of the Harvard Powerline	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High(100)	-
Cumulative impact post mitigation:	Medium	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (54)	-

Summary of impacts associated with the operational phase of the proposed development

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued destruction/transformation of semi-natural and natural vegetation within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type and the Winburg Grassy Shrubland (Gh 7) vegetation type	
	Alternative 1	Alternative 2
Cumulative impact prior to mitigation:	Medium	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (51)	Medium (42)
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	Low (22)

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued destruction/transformation of a Critical Biodiversity Area associated with the transmission line route corridor	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (80)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (57)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued destruction/damage to Red Data Listed or protected species individuals associated with the transmission line route corridor and sub-station footprints	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (54)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (36)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued surface material erosion	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (40)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (20)	-



BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued alien invasive species establishment	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (56)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Continued damage to or impeding of watercourses	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (60)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (38)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Avifaunal habitat destruction and displacement caused by sub-station development	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (32)	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Positive avifaunal impact caused by sub-station development	The proposed development will not take place and as such this impact will not occur
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Avifaunal collision and electrocution caused by transmission line development	
	Alternative 1	Alternative 2
Cumulative impact prior to mitigation:	Medium	Medium
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	Medium-High (76)
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (57)	Medium (57)

BASIC ASSESSMENT REPORT

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Positive avifaunal impact caused by transmission line development	The proposed development will not take place and as such this impact will not occur
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-

## **Environmental Impact Statement**

### **Heritage Impact Assessment**

The powerline footprint traverses existing road reserves, degraded farmland and areas formerly disturbed by the residential developments. The associated distribution centre footprints are located on degraded farmland, areas formerly disturbed by the residential developments and relatively undisturbed patches of open veld. The Rayton, Lilyvale Hillandale and Bayswater farms north of Bloemfontein represent historically as well as archaeologically significant landscapes. The proposed route options however circumvent these areas, which also include the Seven Dams Conservancy and the Botanical Gardens.

A pedestrian survey revealed no evidence of in situ Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock art, graves or historically significant structures older than 60 years within the proposed footprints. It is advised that both options for the Hillandale loop-in represents low potential impact for underground finds because it largely traverses previously disturbed areas. As far as the archaeological heritage is concerned, the power line and distribution centre footprints are considered to be of low archaeological significance and are assigned a site rating of Generally Protected C. The proposed development may proceed with no further assessments required.

If, in the unlikely event that capped archaeological remains not observed are discovered during the construction phase of the project, it is recommended that the relevant heritage authority and a professional archaeologist are called in to investigate.

### **Ecological Impact Assessment**

More than half of the transmission line route corridor (approximately 20.6 km) and four of the sub-station footprints are situated in pre-existing transformed and disturbed areas with little to no natural vegetation remaining. These areas therefore don't play a significant role in the ecological functionality of the natural surrounding ecosystem and vegetation and have a low conservation value. It is in the opinion of the specialist that the construction of the proposed transmission line and associated sub-stations in such transformed areas will therefore not pose any significant additional ecological impacts and the project should be allowed to continue.

Although the proposed transmission line route corridor crosses a number of watercourses and also traverses semi-natural and natural areas forming part of an endangered vegetation type as well as a

Critical Biodiversity Area (CBA), the majority of the transmission line will have a small actual surface footprint impact on vegetation; impact will mainly be restricted to pylon construction footprints. The presence of an existing line has also slightly reduced the local pristineness in its immediate vicinity. The significance of the impact on the CBA will therefore be lower than it would have been if the line had to traverse another portion of the CBA on its own. The two remaining sub-stations will also be situated within natural areas but their impacts will be restricted to their physical surface footprints.

Although Alternative 1 will also be an acceptable route to follow due to the low level of the actual impacts on the natural vegetation, it is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type. It is also recommended that the Steel Monopole tower type be implemented rather than the Steel Lattice tower type as far as practicably possible due to its smaller physical surface footprint size and subsequent reduced impact on the vegetation.

Only one Red Data Listed species (*Boophone disticha*; Declining) and number of provincially protected species were identified within the proposed transmission line route corridor and associated sub-station footprints. The development of the transmission line and associated sub-stations will inevitably destroy or damage such individuals. The physical impacts relating to the transmission line will however be localised in extent and mainly restricted to the actual proposed pylon footprint areas. Although a Red Data Listed species was identified, the presence and distribution extent is low.

It is in the opinion of the specialist that all identified potential ecological impacts in such important areas can be suitably reduced to within acceptable levels and that the project should therefore be allowed to continue. The proposed project may however only continue if all recommended mitigations measures as per this ecological report are adequately implemented and managed for both the construction and operational phases of the proposed project. All necessary authorisations and permits must also be obtained prior to any commencement.

### **Avifaunal Impact Assessment**

It is highly likely that the proposed new power line — representing a permanent collision hazard as it does — will cause the death of many birds over the course of its lifespan, regardless of the mitigation strategy followed. Most of the victims will likely include pigeons, doves, ducks or other species which



are not currently of any particular conservation concern. However, two Red Data species are relatively common in the area and could potentially collide with the proposed power lines.

It is concluded that there are no fatal flaws with the proposed Havard-Noordstad power line project. However, it is recommended that the mitigation strategies considered in the specialist report be implemented. Once the route is finalised and the exact position of the towers have been surveyed and pegged, the input of an avifauna specialist must be obtained in order to determine where anti-collision devices such as bird flight diverters must be installed as per the recommendations herein.

### **Visual Impact Assessment**

It is envisaged that the structures, will be highly visible from a two kilometre (2 km) radius especially for commuters and residence within this radius. The study area contains elevated areas and built up environments minimizing the visual impact to 5 km. Beyond the five kilometre buffer the proposed project will be visible from elevated areas such as koppies. It is anticipated that should the applicant decide to implement the recommended mitigation measures the overall visual impact of the Harvard Powerline will be moderate. The Visual Impact of Layout Alternative 1 and 2 is more or less the same; however, Alternative one is less visible within a two kilometre (2 km) radius. The Specialist would thus recommend that the Applicant construct Alternative 1.

### **No-go alternative**

The no-go alternative addresses the scenario of the status-quo remaining the same, with no development of the proposed transmission line and six sub-stations taking place. The no-go alternative would entail that the current land use does not change.

### **Advantages of the no-go alternative**

The potential negative environmental impacts associated with the proposed project and its alternatives will be avoided if the proposed project is not implemented. No potential disturbance or impacts will occur on the identified CBA through which the transmission line will traverse or on avifauna. No significantly high rating impacts were however identified which could not be mitigated to within acceptable levels.

### **Disadvantages of the no-go alternative**

Due to the rapid, continual growth in electricity demand over the last couple of years in the northern development areas of Bloemfontein, the existing 132 kV ring network has become increasingly under

enormous pressure, especially during peak electricity demand periods. The demand is therefore continuously exceeding the possible supply from the current network. If the proposed project does not go ahead, the current electricity shortage within the Langenhovenpark and northern development areas of Bloemfontein will continue to increase in frequency and duration.

Existing and proposed future development and residential areas are in need of adequate, reliable electricity supply, which will be sufficiently provided by the proposed transmission line and sub-station development. The adequate distribution of generated electricity is crucial within the context of South Africa's current energy crisis. Electricity provision is also a basic human necessity and right which adds to the improvement of livelihood and quality of living.

If the proposed project does not go ahead, the local community will also forego the significant economic benefits which the project will have on the area such as immediate additional employment opportunities and revenue streams during the construction phase.

The no-go option would therefore not be preferable.

### **Conclusion**

After careful consideration of the findings and outcomes during the Basic Assessment process, Enviroworks is of the opinion that based on all information that was captured in this report; the proposed development will not lead to unacceptable impacts or fatal flaws and should be considered plausible in the framework of NEMA. It is indicated that the majority of the anticipated impacts are rated as low to medium while the impacts rated as medium-high (CBA destruction) and (avifaunal collision and electrocution) can be adequately addressed through the various mitigation measures and reduced to an acceptable level.

Although Alternative 2 is recommended in terms of the Ecological and Avifaunal Impact Assessments in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type Alternative 1 is also ecologically acceptable and is also more acceptable from a social and visual impact point of view and will have the least significant negative effect on relevant landowners. Alternative 1 is therefore more acceptable and preferred by the majority of relevant landowners. Enviroworks therefore recommend that the preferred route layout Alternative 1 for the proposed transmission line be considered and approved.

# 1 SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?   NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix J.

## 1.1 PROJECT DESCRIPTION

### 1.1.1 Describe the project associated with the listed activities applied for

CENTLEC (Pty) Ltd, the applicant, is a private company incorporated in accordance with the company laws of the Republic of South Africa, and was established as a municipal entity as contemplated in Section 82 (1) of the Local Government: Municipal Systems Act No 21 of 2000. The core services of the company include new electrification networks, refurbishment and maintenance of existing networks and electricity supply. The company distributes electricity in areas under the jurisdiction of the Mangaung, Kopanong, Naledi, Mantsopa and Mohokare Municipalities. CENTLEC's customer base is over 90% domestic and less than 5% commercial consumers.

CENTLEC intends to develop new infrastructure in the city of Bloemfontein Registration Division, Free State Province. The proposed development entails two main sets of developments namely a new 132 kV transmission line and secondly six associated sub-stations.

#### **132 kV transmission line**

##### **Transmission line main loop**

The proposed 132 kV transmission line to be constructed will tie into and commence from the existing Harvard transmission line which is associated with the Cecilia sub-station situated next to Koppie Road in the south-west of Bloemfontein. The commencement/tie in point of the proposed transmission line will be on the Remaining Extent of the Farm Kwaggafontein no 2300 (SG: F0030000000023000000). From the commencement point, the proposed transmission line will have a main loop which will loop around the western and northern boundaries of Bloemfontein and will be situated outside the urban edge. From the commencement point, the main loop will traverse the following farm portions:

- Remaining Extent of the Farm Kwaggafontein no 2300 (SG: F0030000000023000000)
- Portion 1 of the Farm Spitskop no 2671 (SG: F00300000000267100001)

## BASIC ASSESSMENT REPORT

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- Portion 3 of the Farm Picton no 2264 (SG: F00300000000226400003)
- Remaining Extent of the Farm Freewater no 2505 (SG: F00300000000250500000)
- Portion 3 of the Farm Alexandria no 1746 (SG: F00300000000174600003)
- Portion 1 of the Farm Outspan no 1960 (SG: F00300000000196000001)
- Remaining Extent of the Farm Outspan no 1960 (SG: F00300000000196000000)
- Remaining Extent of the Farm Sans Souci no 1786 (SG: F00300000000178600000)
- Remaining Extent of the Farm Geerdsburg no 1961 (SG: F00300000000196100000)
- Portion 1 of the Farm Geerdsburg no 1961 (SG: F00300000000196100001)
- Remaining Extent of the Farm Highlands no 2707 (SG: F00300000000270700000)
- Remaining Extent of the Farm Bokmekier no 2711 (SG: F00300000000271100000)
- Portion 1 of the Farm Voorspoed no 1788 (SG: F00300000000178800001)
- Portion 2 of the Farm Voorspoed no 1788 (SG: F00300000000178800002)
- Remaining Extent of the Farm Voorspoed no 1788 (SG: F00300000000178800000)
- Portion 3 of the Farm Voorspoed no 1788 (SG: F00300000000178800003)
- Portion 4 of the Farm Voorspoed no 1788 (SG: F00300000000178800004)
- Portion 5 of the Farm Voorspoed no 1788 (SG: F00300000000178800005)
- Portion 6 of the Farm Voorspoed no 1788 (SG: F00300000000178800006)
- Portion 11 of the Farm Voorspoed no 1788 (SG: F00300000000178800011)
- Portion 17 of the Farm Knockacree no 1111 (SG: F00300000000111100011)
- Remaining Extent of the Farm Knockacree no 1111 (SG: F00300000000111100000)
- The new transmission line will run parallel alongside an existing Eskom transmission line for the initial 8 km portion up to where it traverses the Remaining Extent of the Farm Knockacree no 1111 (SG: F00300000000111100000). From there it will split away on its own route to the

east of the existing line.

- Portion 2 of the Farm St Elmo no 2138 (SG: F00300000000213800002)
- Portion 4 of the Farm Kenilworth no 2734 (SG: F00300000000273400004)
- Portion 6 of the Farm Kenilworth no 2734 (SG: F00300000000273400006)
- Portion 20 of the Farm Kenilworth no 2734 (SG: F00300000000273400020)
- Portion 18 of the Farm Kenilworth no 2734 (SG: F00300000000273400018)
- Portion 1 of the Farm Kenilworth no 2734 (SG: F00300000000273400001)
- Remaining Extent of the Farm Josephine no 343 (SG: F00300000000034300000)
- Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000)
- Remaining Extent of the Farm Heeltevrede no 2685 (SG: F00300000000268500000)
- Portion 1 of the Farm Heeltevrede no 2685 (SG: F00300000000268500001)
- The new transmission line will again join up and run parallel alongside the existing Eskom transmission line from Portion 4 of the Farm Mount Pleasant no 221 (SG: F00300000000022100004).
- Portion 1 of the Farm Cumbrae no 1139 (SG: F00300000000113900001)
- Remaining Extent of the Farm Cumbrae no 1139 (SG: F00300000000113900000)
- Portion 2 of the Farm Cumbrae no 1139 (SG: F00300000000113900002)
- Remaining Extent of the Farm Georgina no 2798 (SG: F00300000000279800000)
- Remaining Extent of the Farm Fairview no 2845 (SG: F00300000000284500000)
- Portion 1 of the Farm Fairview no 1756 (SG: F00300000000175600001)
- Portion 7 of the Farm Mimosa Glen no 885 (SG: F00300000000088500007)
- Portion 2 of the Farm Fairview no 1756 (SG: F00300000000175600002)

- Portion 7 of the Farm Fairview no 2845 (SG: F00300000000284500007)
- Remaining Extent of the Farm Olrig no 1710 (SG: F00300000000171000000)
- Portion 2 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500002)
- Portion 3 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500003)
- Portion 8 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500008)
- Portion 11 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500011)
- Portion 6 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500006)
- Portion 13 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500013)
- Portion 5 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500005)

The new transmission line will then join up with an existing CENTLEC 33 kV transmission line on Portion 5 of the Farm Annex Wildealskloof no 1205 (SG: F00300000000120500005) from where it will run mostly parallel alongside the existing line for approximately 4.5 km up to where it reaches its final loop in point at the existing Bayswater distribution centre on Portion 8 of the Farm Hillside no 2830 (SG: F00300000000283000008) situated in the north-east of Bloemfontein.

- Portion 12 of the Farm Ribblesdale no 1506 (SG: F00300000000150600012)
- Portion 13 of the Farm Ribblesdale no 1506 (SG: F00300000000150600013)
- Portion 11 of the Farm Ribblesdale no 1506 (SG: F00300000000150600011)
- Portion 10 of the Farm Ribblesdale no 1506 (SG: F00300000000150600010)
- Remaining Extent of the Farm Mooihoek no 1078 (SG: F00300000000107800000)
- Remaining Extent of the Farm Hillside no 2830 (SG: F00300000000283000000)
- Portion 8 of the Farm Hillside no 2830 (SG: F00300000000283000008)
- The linear length of the main loop of the proposed transmission will be approximately 35.4 km.

**Transmission line first split-off**

A short 132 kV line section is proposed to split off from the main loop of the transmission line on the Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000) in order to reach the position where the proposed Olivier distribution centre is to be built on Portion 12 of the Farm Groenvlei no 2844 (SG: F00300000000284400012). This entire split-off section of approximately 3.5 km to where it reaches the Olivier distribution centre position will be buried underground as this is located in the vicinity of the Tempe Military Base Airstrip. The reason for the underground section will be to ensure that all the above ground components of the entire transmission line are located outside a minimum 600 m distance from the airstrip. A maximum 1.5 m wide trench will be excavated to conceal the transmission line for the stated section after which the trench will be closed up again.

Additional farm portions forming part of the first split off section and which are not part of the main loop list of farm portions.

- Remaining Extent of the Farm Mara no 2571 (SG: F00300000000257100000)
- Portion 1 of the Farm Oranje View no 600 (SG: F00300000000060000001)
- Portion 12 of the Farm Groenvlei no 2844 (SG: F00300000000284400012)

**Transmission line second split-off**

A second 132 kV line section is also proposed to split off from the main loop of the transmission line in order to reach the position where the proposed Hillandale distribution centre is to be built on the Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000). Two line route alternatives namely Alternatives 1 and 2 are suggested by the applicant for the second section splitting off.

Additional farm portions forming part of Alternative 1 (preferred alternative) and which are not part of the main loop list of farm portions.

- Remaining Extent of the Farm Olrig no 1710 (SG: F00300000000171000000)
- Remaining Extent of the Farm Mountain View no 1707 (SG: F00300000000170700000)
- Portion 1 of the Farm Mountain View no 1707 (SG: F00300000000170700001)
- Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000)

Additional farm portions forming part of Alternative 2 and which are not part of the main loop list of farm portions.

- Remaining Extent of the Farm The Kloof no 2921 (SG: F00300000000292100000)
- Portion 1 of the Farm Penrose no 2378 (SG: F00300000000237800001)
- Remaining Extent of the Farm Cerillio no 2766 (SG: F00300000000276600000)
- Remaining Extent of the Farm Penrose no 2378 (SG: F00300000000237800000)
- Remaining Extent of the Farm Cleveleys no 2990 (SG: F00300000000299000000)
- Portion 5 of the Farm Bergendal no 1706 (SG: F00300000000170600005)
- Portion 3 of the Farm Bergendal no 1706 (SG: F00300000000170600003)
- Portion 8 of the Farm Bergendal no 1706 (SG: F00300000000170600008)
- Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000)

The linear length of Alternative 1 will be approximately 5.6 km.

The linear length of Alternative 2 will be approximately 2.4 km.

The proposed transmission line will consist of a linear series of pylons (towers) which will be situated approximately 100 m - 300 m apart. The exact locations and distance between the pylons will be dependent on site specific terrain and soil conditions. This will only be determined during the final design stage. The main purpose of the pylons will be to ensure the transmission line maintains a minimum ground clearance height of 6.3 m. The transmission line servitude corridor will be a maximum of 30 m wide but the centre of the new line must also maintain a minimum distance of 50 m away from the centre of the existing Eskom line.

The tower type to be used will be determined during the final design stages of the powerline (based on load and other calculations). It is however envisaged that the bird friendly Steel Monopole tower type (e.g. ESKOM D-DT 7641, D-DT 7649) will mainly be used rather than the Steel Lattice tower type. The Steel Monopole tower type is also to be implemented in any identified environmentally



sensitive or important areas such as Critical Biodiversity Areas (CBA) or heritage sites. The maximum surface area footprint per pylon of the Steel Monopole tower type will be 2 m x 2 m/4 m<sup>2</sup> while that of the Steel Lattice tower type will be 10 m x 10 m/100 m<sup>2</sup>. Both the potential pylon designs will have a maximum height of 30 m.

The anticipated duration of the construction phase of the proposed transmission line will be a maximum of 6 months.

### **Six 132 kV sub-stations**

The six individual 132 kV sub-stations to be constructed will be associated with the new transmission line and will assist with the transmission and distribution of the transmission line's electricity. They will be situated on the following farm portions:

- Outspan distribution centre
  - Remaining Extent of the Farm Outspan no 1960 (SG: F00300000000196000000)
- Roodam distribution centre
  - Remaining Extent of the Farm Knockacree no 1111 (SG: F00300000000111100000)
- Olivier distribution centre
  - Portion 12 of the farm Groenvlei no 2844 (SG: F00300000000284400012)
- Tevrede distribution centre
  - Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000)
- Mimosa distribution centre
  - Portion 7 of the Farm Fairview no 2845 (SG: F00300000000284500007)
- Hillandale distribution centre
  - Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000)

The maximum footprint sizes of each of the six sub-stations are indicated under section 1.3 of this report. It will include transformer bays which will contain transformer oils. Bunded racking will be constructed to ensure that any oil spills will be adequately attenuated and prevented from release into the environment. For health and safety purposes, the sub-station shall be securely fenced to prevent unauthorized access.

Only the Outspan distribution centre is intended to be constructed initially along with the transmission line construction. The anticipated construction time periods for the other distribution centres are as follow:

- Hillandale distribution centre
  - Year 2019/2020
- Roodam distribution centre
  - Year 2020/2021
- Tevrede & Olivier distribution centre
  - Year 2021/2022
- Mimosa distribution centre
  - Year 2023/2024

**1.1.2 Provide a detailed description of the listed activities associated with the project as applied for**

Listed activity as described in GN 983, 984 and 985	Description of the relevant project activity
<p><b>GN R983 (LN 1), Activity 11:</b></p> <p>The development of facilities or infrastructure for the transmission and distribution of electricity –</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</p>	<p><b>Transmission line main loop</b></p> <p>The proposed project entails the development of a 132 kV transmission line of which the main loop will be approximately 35.4 km in length and will fall outside the urban edge of Bloemfontein, Free State Province.</p> <p><b>Transmission line first split-off</b></p> <p>A short 132 kV line section is proposed to split off from the main loop of the transmission line. The</p>

	<p>proposed split-off section will be approximately 3.5 km in length and will fall outside the urban edge of Bloemfontein, Free State Province.</p> <p><b>Transmission line second split-off</b> A second 132 kV line section with two alternatives is also proposed to split off from the main loop of the transmission line. The proposed split-off sections will be approximately 5.6 km (Alternative 1) or 2.4 km (Alternative 2) in length, depending on which alternative is approved, and will fall inside the urban edge of Bloemfontein, Free State Province. It is however less than 275 kilovolts in size therefore not triggering part (ii) of this listed activity.</p> <p><b>Six 132 kV sub-stations</b> The proposed project also entails the construction of six individual 132 kV sub-stations which will be associated with the new transmission line. These proposed sub-stations will assist with the transmission and distribution of the transmission line's electricity.</p>
<p><b>GN R983 (LN 1), Activity 12:</b></p> <p>The development of –</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs –</p> <p>(a) within a watercourse</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	<p><b>Transmission line</b> The proposed transmission line will be located in close proximity to and will cross various watercourses. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 100 m<sup>2</sup>. The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings will therefore exceed 100 m<sup>2</sup>.</p> <p><b>Six 132 kV sub-stations</b> The associated six individual sub-station footprints will not fall within 32 metres of any watercourses.</p>
<p><b>GN R983 (LN 1), Activity 27:</b></p> <p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p>	<p><b>Transmission line</b> No significant clearance of natural vegetation will take place during pylon construction for the transmission line.</p> <p><b>Six 132 kV sub-stations</b> The combined footprint area size of the six sub-stations associated with the transmission line will be a maximum of 5.1 ha.</p>
<p><b>GN R985 (LN 3), Activity 12:</b></p>	<p><b>Transmission line</b> An approximately 3.3 km portion of the proposed</p>

<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(b) In the Free State Province:</p> <ul style="list-style-type: none"> <li>ii. Within critical biodiversity areas identified in bioregional plans.</li> <li>iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.</li> </ul>	<p>transmission line will traverse a Critical Biodiversity Area (CBA). Pylons will have to be constructed within the CBA. The combined total of such pylon placement area footprints will exceed 300 m<sup>2</sup>. Although the proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line inside the CBA will exceed 300 m<sup>2</sup>, no significant vegetation clearance will be conducted.</p> <p>The proposed transmission line will be located in close proximity to and will cross various watercourses. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 300 m<sup>2</sup>. The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings will therefore exceed 300 m<sup>2</sup>.</p> <p><b>Six 132 kV sub-stations</b> The associated six individual sub-station footprints will not fall within any CBA's.</p>
<p><b>GN R985 (LN 3), Activity 14:</b></p> <p>The development of –</p> <ul style="list-style-type: none"> <li>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</li> </ul> <p>Where such development occurs –</p> <ul style="list-style-type: none"> <li>(a) within a watercourse;</li> <li>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</li> </ul> <p>(b) In the Free State Province:</p> <ul style="list-style-type: none"> <li>ii. outside urban areas: <ul style="list-style-type: none"> <li>(ff) critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</li> </ul> </li> </ul>	<p><b>Transmission line</b></p> <p>The proposed transmission line will be located in close proximity to and will cross various watercourses.</p> <p>An approximately 3.3 km portion of the proposed transmission line will traverse a Critical Biodiversity Area (CBA). Pylons will be constructed within the CBA. Pylons will not be constructed within watercourses but may need to be placed within 32 metres of watercourses. The combined total of such pylon placement area footprints could exceed 10 m<sup>2</sup>.</p> <p>The proposed transmission line servitude corridor will be 30 m wide and the area footprint sizes of the line at watercourse crossings inside the CBA will therefore exceed 10 m<sup>2</sup>.</p> <p><b>Six 132 kV sub-stations</b> The associated six individual sub-station footprints will not fall within any CBA's.</p>

## 1.2 FEASIBLE AND REASONABLE ALTERNATIVES

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

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

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

### **Pre-application public participation meeting**

An unofficial pre-application public participation meeting was conducted on 25 March 2017 at the Langenhovenpark Public Library. The main objective of the meeting was to pro-actively attempt to identify and address some of the major concerns that landowners may have so as to try to finalise a line route corridor which would as far as practicably possible suite relevant landowners. After the conclusion of the meeting, a final line route corridor was decided upon by the applicant based on the comments and recommendations received during the meeting. This final line route corridor will be applied for during the Basic Assessment process.

**1.2.1 Site alternatives**

**Transmission line main loop**

There is no site alternative for the proposed transmission line.

**Transmission line first split-off**

There is no site alternative for the proposed transmission line.

**Transmission line second split-off**

There is no site alternative for the proposed transmission line, only two route layout alternatives.

**Six sub-stations**

There are no site alternatives for the footprint positions of the proposed six individual sub-stations. The original position of the Rooidam distribution centre was however moved to a new location based on the comments and recommendations received during the pre-application public participation meeting. The six individual sub-stations will be located at the following coordinates:

<b>Alternative 1 (preferred alternative)</b>		
<b>Description</b>	<b>Lat (DDMMSS)</b>	<b>Long (DDMMSS)</b>
The Outspan distribution centre will be located at the following coordinates:	29° 04'11.19"S	26° 08'28.34"E
Original Rooidam distribution centre coordinates which have been revised based on the comments and recommendations received during the pre-application public participation meeting:	29° 02'24.52"S	26° 07'53.83"E
The final Rooidam distribution centre will be located at the following coordinates:	29° 02'38.86"S	26° 08'44.84"E
The Olivier distribution centre will be located at the following coordinates:	29° 03'01.97"S	26° 10'10.92"E
The Tevrede distribution centre will be located at the following coordinates:	29° 01'08.42"S	26° 10'17.38"E
The Mimosa distribution centre will be located at the following coordinates:	29° 00'39.63"S	26° 13'49.14"E
The Hillandale distribution centre will be located at the following coordinates:	29° 02'17.41"S	26° 12'46.07"E

Four corner point coordinates of the Outspan distribution centre:

- North-western corner                      29°04'09.120"S 26°08'27.540"E
- North-eastern corner                      29°04'11.140"S 26°08'30.410"E
- South-eastern corner                      29°04'13.220"S 26°08'28.590"E

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- South-western corner 29°04'11.120"S 26°08'25.860"E

Four corner point coordinates of the original Rooidam distribution centre which have been revised based on the comments and recommendations received during the pre-application public participation meeting:

- North-western corner 29°02'35.850"S 26°08'43.060"E
- North-eastern corner 29°02'35.880"S 26°08'46.790"E
- South-eastern corner 29°02'39.140"S 26°08'46.740"E
- South-western corner 29°02'39.040"S 26°08'43.160"E

Four corner point coordinates of the final Rooidam distribution centre:

- North-western corner 29°02'23.100"S 26°07'52.570"E
- North-eastern corner 29°02'23.030"S 26°07'55.460"E
- South-eastern corner 29°02'26.110"S 26°07'55.630"E
- South-western corner 29°02'26.050"S 26°07'52.740"E

Four corner point coordinates of the Olivier distribution centre:

- North-western corner 29°03'00.360"S 26°10'09.750"E
- North-eastern corner 29°03'00.350"S 26°10'12.500"E
- South-eastern corner 29°03'02.930"S 26°10'12.460"E
- South-western corner 29°03'02.320"S 26°10'09.740"E

Four corner point coordinates of the Tevere distribution centre:

- North-western corner 29°01'05.550"S 26°10'16.360"E
- North-eastern corner 29°01'06.020"S 26°10'19.630"E
- South-eastern corner 29°01'09.170"S 26°10'19.440"E
- South-western corner 29°01'08.690"S 26°10'16.200"E

Four corner point coordinates of the Mimosa distribution centre:

- North-western corner 29°00'38.130"S 26°13'47.840"E
- North-eastern corner 28°00'38.330"S 26°13'50.810"E
- South-eastern corner 29°00'40.900"S 26°13'50.650"E
- South-western corner 29°00'40.650"S 26°13'47.660"E

Four corner point coordinates of the Hillandale distribution centre:

- North-western corner                      29°02'14.390"S 26°12'45.970"E
- North-eastern corner                      29°02'16.520"S 26°12'48.790"E
- South-eastern corner                      29°02'18.930"S 26°12'46.530"E
- South-western corner                      29°02'16.850"S 26°12'43.760"E

**1.2.2 Lay-out alternatives**

The proposed transmission line route layout consists of a main loop as well as two split-off lines. There is no alternative route layout for the main loop although the original route has been significantly revised based on the comments and recommendations received during the pre-application public participation meeting. The process of reaching the final route being applied for has therefore pro-actively attempted to accommodate the public and relevant landowners as far as practicably possible.

The first split-off line from the main loop has no alternative route layouts although the original route has been significantly revised based on the comments and recommendations received during the pre-application public participation meeting.

The second split-off line has two possible alternative route layouts namely Alternative 1 (preferred alternative) and Alternative 2.

The proposed route layout of the entire transmission line was determined on the basis of practical accessibility as well as which would practicably cause the least possible impact/disturbance to landowners and occupiers and to natural areas.

**Transmission line main loop**

**Alternatives:**

Original Alternative

- Starting point of the activity
- Middle point of the activity (12.7 km)
- End point of the activity

**Latitude (S):**

**Longitude (E):**

29° 05' 58.14"	26° 07' 52.82"
29° 01' 18.78"	26° 10' 35.07"
29° 03' 40.50"	26° 13' 53.60"



	Latitude (S):	Longitude (E):
<b>Alternatives:</b>		
Final Alternative 1 (preferred alternative)		
• Starting point of the activity	29° 05' 58.14"	26° 07' 52.82"
• Middle point of the activity (17.7 km)	28° 59' 33.51"	26° 12' 13.91"
• End point of the activity	29° 04' 26.63"	26° 14' 41.19"

The route layout coordinates for every 250 m of the final main loop of the proposed transmission line are indicated in Appendix L. The final route layout is also indicated on the locality map (Appendix A).

**Transmission line first split-off**

A short 132 kV line section is proposed to split off from the main loop of the transmission line on the Remaining Extent of the Farm Genoegtevrede no 2974 (SG: F00300000000297400000) in order to reach the position where the proposed Olivier distribution centre is to be built on Portion 12 of the Farm Groenvlei no 2844 (SG: F00300000000284400012).

	Latitude (S):	Longitude (E):
<b>Alternatives:</b>		
Original Alternative		
• Starting point of the activity	29° 02' 38.53"	26° 08' 23.91"
• Middle point of the activity (1.9 km)	29° 03' 05.79"	26° 09' 07.64"
• End point of the activity	29° 03' 01.78"	26° 10' 10.82"

	Latitude (S):	Longitude (E):
<b>Alternatives:</b>		
Final Alternative 1 (preferred alternative)		
• Starting point of the activity	29° 01'08.42"	26° 10'17.38"
• Middle point of the activity (1.75 km)	29° 02' 06.66"	26° 10' 13.46"
• End point of the activity	29° 03' 01.78"	26° 10' 10.82"

The route layout coordinates for every 250 m of the final first split-off section of the proposed transmission line are indicated in Appendix L. The final route layout is also indicated on the locality map (Appendix A).

**Transmission line second split-off**

A second 132 kV line section is also proposed to split off from the main loop of the transmission line in order to reach the position where the proposed Hillandale distribution centre is to be built on the Remaining Extent of the Farm Bergendal no 1706 (SG: F00300000000170600000). Two line route alternatives namely Alternatives 1 and 2 are suggested by the applicant for the second section splitting off.

<b>Alternatives:</b>	<b>Latitude (S):</b>	<b>Longitude (E):</b>
<b>Alternative 1 (preferred alternative)</b>		
• Starting point of the activity	29° 00' 41.66"	26° 13' 57.69"
• Middle point of the activity (2.8 km)	29° 01' 02.98"	26° 12' 51.00"
• End point of the activity	29° 02' 10.40"	26° 12' 35.83"
<b>Alternative 2</b>		
• Starting point of the activity	29° 03' 14.75"	26° 13' 37.95"
• Bend point of the activity (1.2 km)	29° 02' 42.53"	26° 13' 18.24"
• End point of the activity	29° 02' 10.40"	26° 12' 35.83"

The route layout coordinates of every 250 m for both Alternatives 1 and 2 for the second split-off section of the proposed transmission line are indicated in Appendix L. The difference in the route layouts of the two alternatives is also indicated on the locality map (Appendix A).

### **Six sub-stations**

There are no layout alternatives for the footprint positions of the proposed six individual sub-stations. The original position of the Rooidam distribution centre was however moved to a new location based on the comments and recommendations received during the pre-application public participation meeting.

### **1.2.3 Technology alternatives**

The proposed transmission line will consist of a linear series of pylons (towers) which will be situated approximately 100 m - 300 m apart. The exact locations and distance between the pylons will be dependent on site specific terrain and soil conditions. This will only be determined during the final design stage. The main purpose of the pylons will be to ensure the transmission line maintains a minimum ground clearance height of 6.3 m. The transmission line servitude corridor will be a maximum of 30 m wide.

The tower type to be used will be determined during the final design stages of the powerline (based on load and other calculations). It is however envisaged that the bird friendly Steel Monopole tower type will mainly be used rather than the Steel Lattice tower type. The Steel Monopole tower type is also to be implemented in any identified environmentally sensitive or important areas such as Critical Biodiversity Areas (CBA) or heritage sites. The maximum surface area footprint per pylon of the Steel Monopole tower type will be 2 m x 2 m/4 m<sup>2</sup> while that of the Steel Lattice tower type will be 10 m x 10 m/100 m<sup>2</sup>. Both the potential pylon designs will have a maximum height of 30 m.

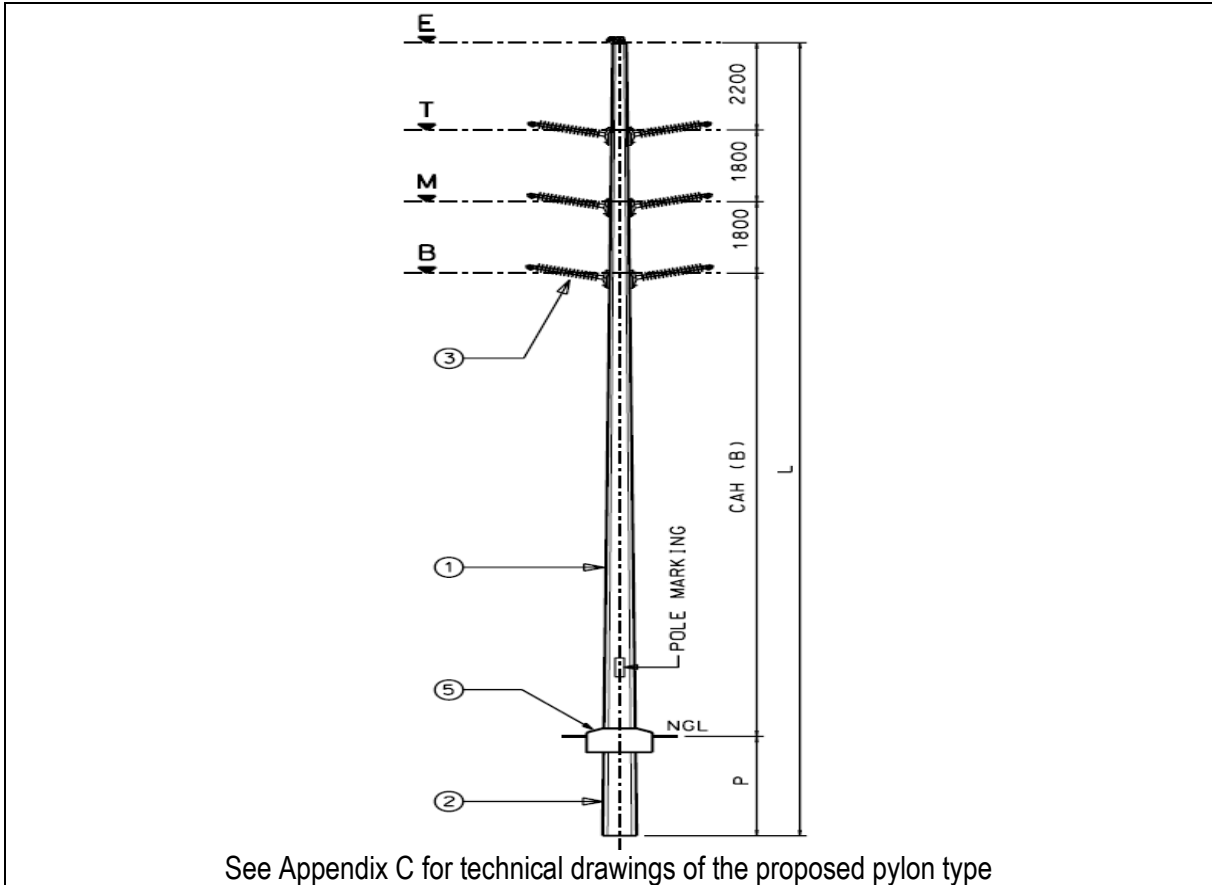
The anticipated duration of the construction phase of the proposed transmission line will be a maximum of 6 months.

**Alternative 1 (preferred alternative)**

Steel Monopole tower type

- Maximum height of 30 m
- Maximum surface area footprint per pylon of 2 m x 2 m = 4 m<sup>2</sup>.
- The design is more bird friendly due to a reduced surface and subsequent smaller potential obstruction/impact area. It will therefore result in less avifaunal impacts when compared to the alternative 2 design.
- The surface impact on vegetation and faunal habitats will also be smaller than that of the Steel Lattice tower type due to its smaller physical surface footprint.
- This tower type alternative is however a more expensive option to use for the transmission line pylons and could negatively influence the financial feasibility of the project.
- The use of this tower type alternative will therefore be implemented as far as possible on the transmission line route and will definitely be implemented in identified environmentally sensitive or important areas such as Critical Biodiversity Areas (CBA) or heritage sites.

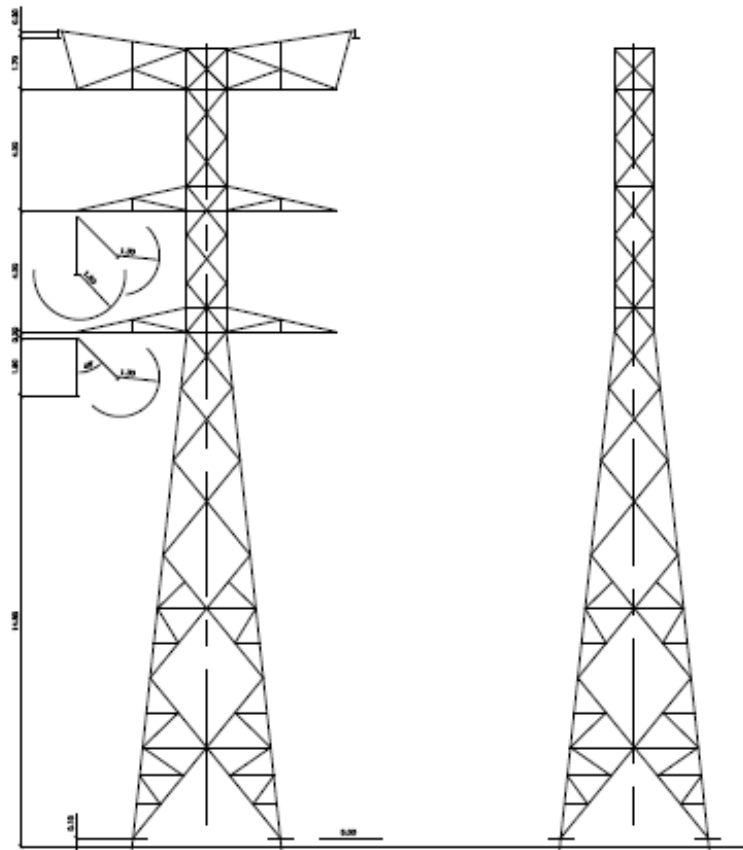




**Alternative 2**

Steel Lattice tower type

- Maximum height of 30 m
- Maximum surface area footprint per pylon of 10 m x 10 m = 100 m<sup>2</sup>.
- The design is unfortunately more bird intrusive due to an enlarged surface and subsequent potential obstruction/impact area. It will therefore result in more avifaunal impacts when compared to the alternative 1 design.
- The surface impact on vegetation and faunal habitats will also be larger than that of the Steel Monopole tower type due to its larger physical surface footprint.



See Appendix C for technical drawings of the proposed pylon type

#### 1.2.4 Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Not applicable

#### 1.2.5 No-go alternative

The no-go alternative addresses the scenario of the status-quo remaining the same, with no development of the proposed transmission line and six sub-stations taking place. The no-go alternative would entail that the current land use does not change.

##### **Advantages of the no-go alternative**

The potential negative environmental impacts associated with the proposed project and its alternatives will be avoided if the proposed project is not implemented. No potential disturbance or impacts will occur on the identified CBA through which the transmission line will traverse or on avifauna. No significantly high rating impacts were however identified which could not be mitigated to within acceptable levels.

##### **Disadvantages of the no-go alternative**

Due to the rapid, continual growth in electricity demand over the last couple of years in the northern development areas of Bloemfontein, the existing 132 kV ring network has become increasingly under enormous pressure, especially during peak electricity demand periods. The demand is therefore continuously exceeding the possible supply from the current network. If the proposed project does not go ahead, the current electricity shortage within the Langenhovenpark and northern development areas of Bloemfontein will continue to increase in frequency and duration.

Existing and proposed future development and residential areas are in need of adequate, reliable electricity supply, which will be sufficiently provided by the proposed transmission line and sub-station development. The adequate distribution of generated electricity is crucial within the context of South Africa's current energy crisis. Electricity provision is also a basic human necessity and right which adds to the improvement of livelihood and quality of living.

If the proposed project does not go ahead, the local community will also forego the significant economic benefits which the project will have on the area such as immediate additional employment opportunities and revenue streams during the construction phase.

The no-go option would therefore not be preferable.

### 1.3 PHYSICAL SIZE OF THE ACTIVITY

#### 1.3.1 Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

##### Transmission line main loop

Alternative 1 (preferred alternative)

##### Length of the activity:

Approximately 35 400 m

##### Transmission line first split-off

Alternative A1 (preferred alternative)

##### Length of the activity:

Approximately 3500 m

##### Transmission line second split-off

Alternative 1 (preferred alternative)

##### Length of the activity:

Approximately 5600 m

Alternative 2

Approximately 2400 m

##### Six sub-stations

There are no site alternatives for the footprint positions of the proposed six individual sub-stations. The maximum footprint area sizes of the six sub-stations are indicated below:

##### Outspan distribution centre

Alternative 1 (preferred alternative)

##### Size of the activity:

Maximum 8000 m<sup>2</sup>

##### Rooidam distribution centre

Alternative 1 (preferred alternative)

##### Size of the activity:

Maximum 10 000 m<sup>2</sup>

##### Olivier distribution centre

Alternative 1 (preferred alternative)

##### Size of the activity:

Maximum 5000 m<sup>2</sup>

##### Tevrede Distribution Centre

Alternative 1 (preferred alternative)

##### Size of the activity:

Maximum 9000 m<sup>2</sup>

**Mimosa Distribution Centre**

Alternative 1 (preferred alternative)

**Size of the activity:**

Maximum 9000 m <sup>2</sup>
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**Hillandale Distribution Centre**

Alternative 1 (preferred alternative)

**Size of the activity:**

Maximum 10 000 m <sup>2</sup>
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**1.3.2 Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):**

**Transmission line main loop**

Alternative 1 (preferred alternative)

**Size of the site/servitude:**

35 400 m x 30 m = Servitude 106.2 ha
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**Transmission line first split-off**

Alternative A1 (preferred alternative)

**Size of the site/servitude:**

3500 m x 30 m = Servitude 10.5 ha
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**Transmission line second split-off**

Alternative 1 (preferred alternative)

**Size of the site/servitude:**

5600 m x 30 m = Servitude 16.8 ha
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Alternative 2

2400 m x 30 m = Servitude 7.2 ha
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### 1.4 SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	
	N/A

Describe the type of access road planned:

Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route will mainly be used.

## 1.5 LOCALITY MAP

An A3 locality map must be attached to the back of this document, as **Appendix A**. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1 km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).
- **See Appendix A for an A3 size of the Locality map**

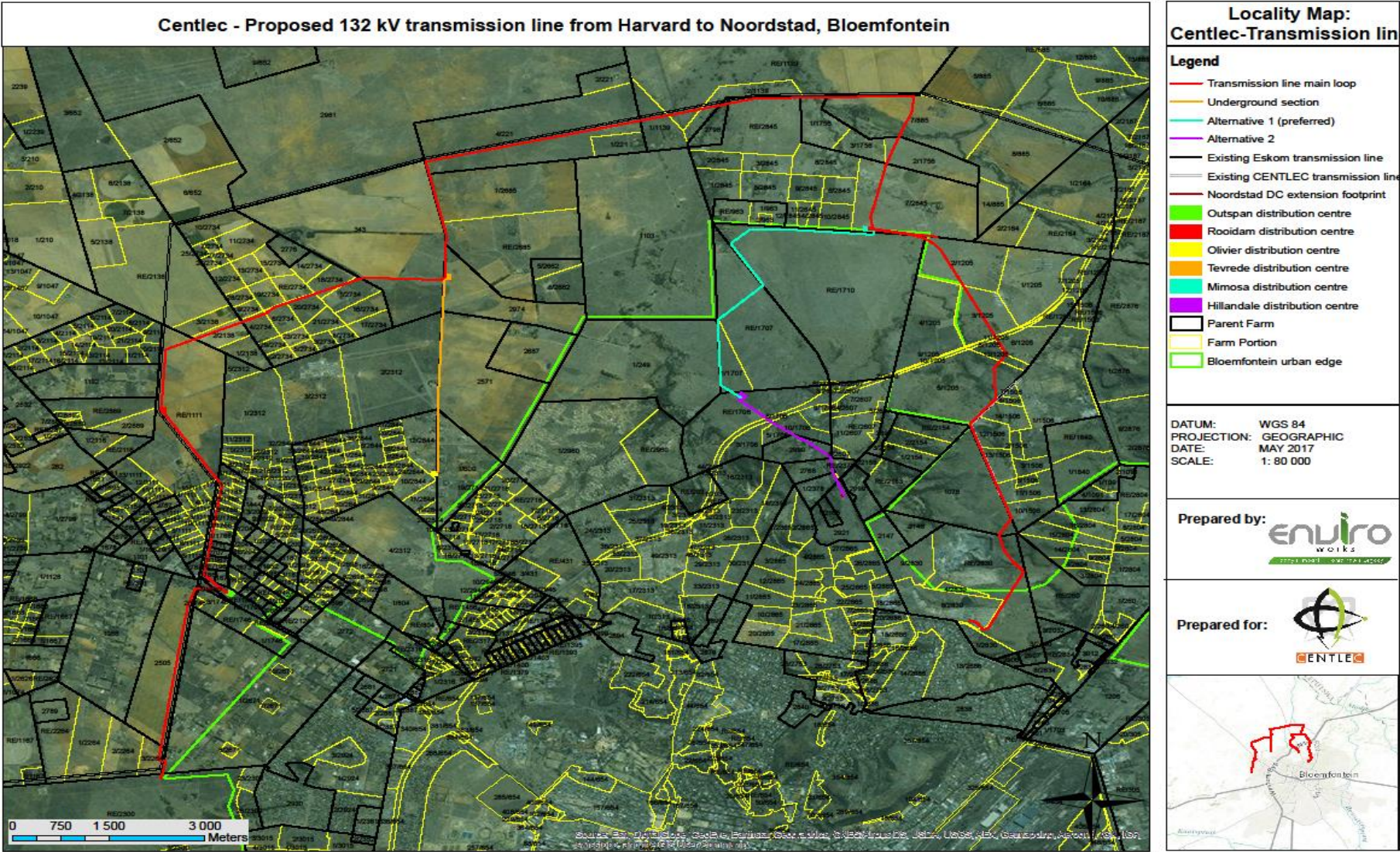


Figure 1: Locality/layout/route map of the proposed project area (see Appendix A for an A3 size version)

## 1.6 LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.
- **See Appendix A for an A3 size of the Locality/Layout/Route map (Figure 1 above)**

## 1.7 SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

- **See Appendix A for the A3 size of the Sensitivity and Vegetation maps**

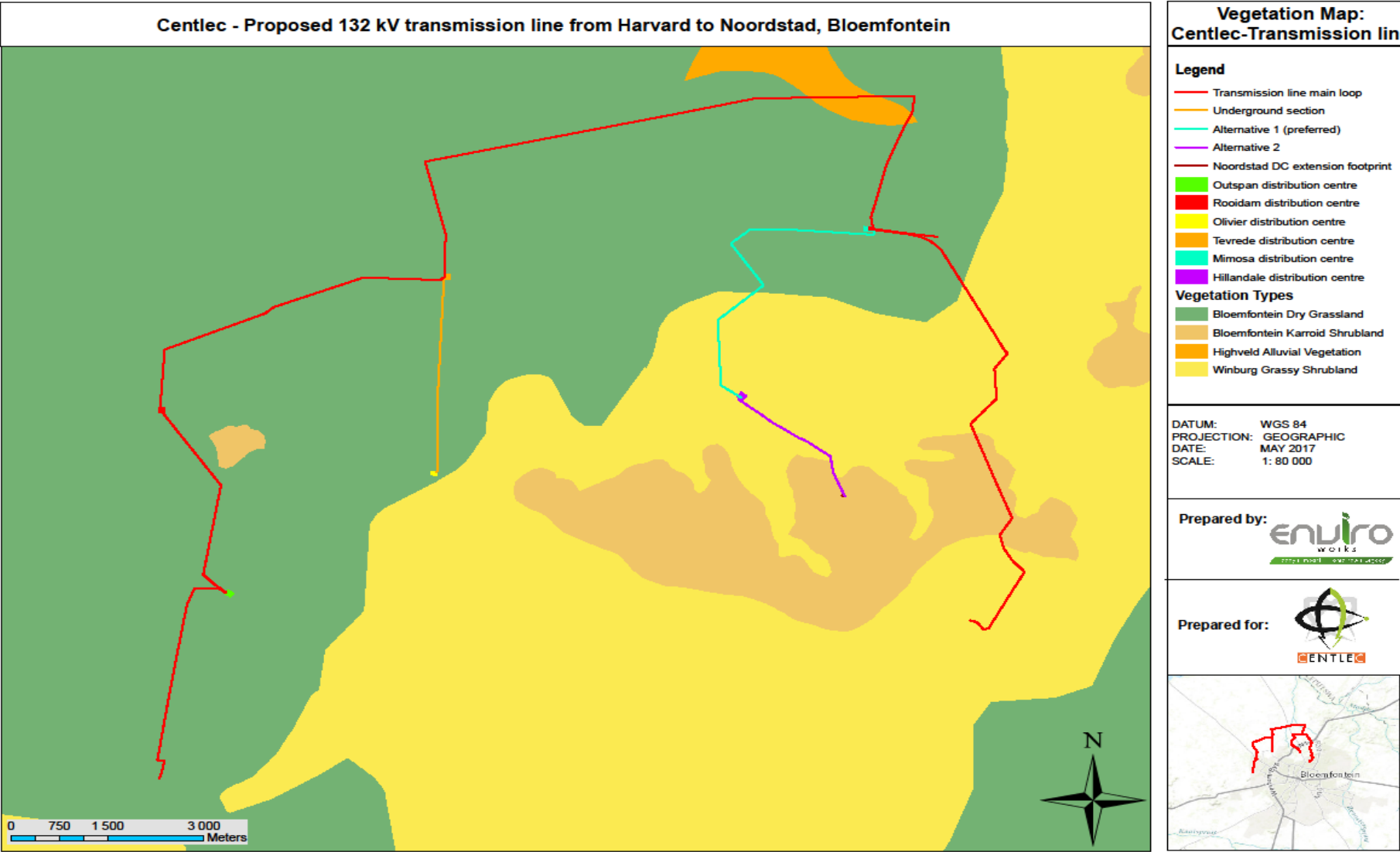


Figure 2: Vegetation map of the proposed project area (see Appendix A for an A3 size version)



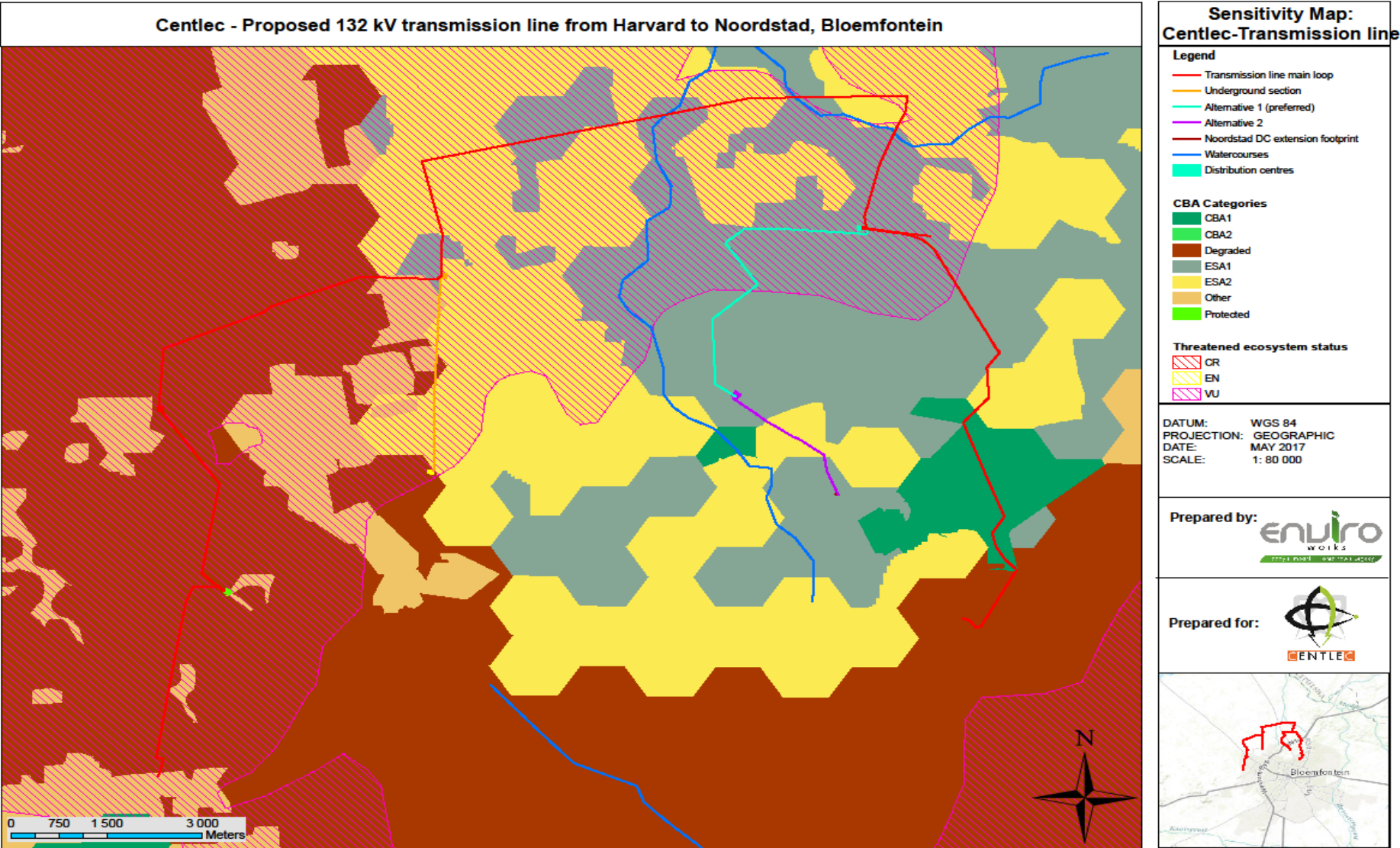


Figure 3: Area sensitivity map of the proposed project area (see Appendix A for an A3 size version)

## 1.8 SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

- **See Appendix B for Photo report**



## 1.9 FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

- **See Appendix C for technical drawings of the proposed pylon type to be used and technical layout of the 132 kV transmission line**

## 1.10 ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>		<b>NO</b>	Please explain
The current land use of the properties will not be affected. A change in land use will not be required as the 132 kV transmission line and associated six sub-stations servitudes will be considered as special use within the existing land use rights. Servitudes will simply be registered for the proposed transmission line and associated six sub-stations.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<b>YES</b>		Please explain
<p>The Free State Province Provincial Spatial Development Framework (FSPSDF) (March 2014) comprises six main growth pillars where each pillar has a set of developmental drivers to assist in achieving the objectives.</p> <p>Pillar 3 pertains to Improved Quality of Life of which Driver 8 specifically focusses on Expansion and Maintenance of basic and road infrastructure at local level. Driver 8 identifies the following key aspects for achieving the desired objectives:</p> <ul style="list-style-type: none"> <li>a) Maintain and upgrade basic infrastructure at local level.</li> <li>b) Provide new basic infrastructure at local level (i.e water, sanitation and electricity).</li> <li>c) Provide and upgrade Bulk Services.</li> <li><b>d) Implement alternative sanitation, water and electricity infrastructure.</b></li> <li>e) Improve technical capacity of local municipalities for sustainable local infrastructure.</li> <li>f) Develop and maintain an efficient road, rail and public transport network.</li> </ul> <p>The development of the proposed transmission line and associated sub-stations is essential for the continuation of adequate, reliable electricity supply to the northern suburbs of Bloemfontein. This will ensure a continued basic quality of living is maintained for the local community and subsequently assist in achieving the pillar objectives.</p> <p>If the proposed transmission line and associated sub-stations are not developed, the electricity demand will start to surpass the current capable supply in several of the northern suburbs of Bloemfontein in the near future which will result in a decrease in basic quality of living in the area.</p>			
<b>(b) Urban edge / Edge of Built environment for the area</b>		<b>NO</b>	Please explain
The entire main loop as well as the first split-off line of the proposed transmission line will fall outside the urban edge of Bloemfontein. The second split-off line located in the north-eastern portion will however fall inside the urban edge.			

<p><b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>As per Chapter 2: Situational Analysis of the Integrated Development Plan for the Mangaung Metropolitan Municipality, Section 2.1.8.2 states the following:  <i>“CENTLEC, a Municipal utility, is responsible for providing electricity in Mangaung. When a development within the urban area occurs it is necessary to do electrical design in such a manner that will make provision for electrical supply capacity for a number of years to come. The ongoing growth due to the new development over the years results in electrical load growth as well. CENTLEC is faced with the following challenges concerning the lack of investment in respect of electrical infrastructure:</i></p> <ul style="list-style-type: none"> <li>• Accelerating the provision of household electricity connections.</li> <li>• Fast-tracking the completion of Fichardtspark, Cecilia Park Distribution Centre and <b>Northern Ring from Noordstad to Harvard Distribution Centres</b> and Airport Development Node sub-station;</li> <li>• Recruiting additional staff;</li> <li>• Fast-tracking supply chain management processes; and</li> <li>• Enhancing debt collection strategies of the electricity services arrears debt.</li> </ul> <p>This section concisely indicates that the proposed transmission line development is necessary and in line with the Mangaung Metropolitan Municipality Integrated Development Plan (2016/2017).</p>			
<p><b>(d) Approved Structure Plan of the Municipality</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>The SDF of the Mangaung Metropolitan Municipality is the only structure plan available. The proposed development is for service infrastructure increase and will therefore not have any effect on the Municipality’s Structure Plans.</p>			
<p><b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>The proposed development would not compromise the integrity of the environmental management priorities for the area. No environmental fatal flaws were identified by the specialists and it was determined that the impacts can be mitigated to an acceptable level. The impact of the construction phase on watercourses will be adequately managed and mitigated. In addition, the development would result in considerable socio-economic benefits for the local community.</p>			

<b>(f) Any other Plans (e.g. Guide Plan)</b>	<b>YES</b>	Please explain
<p>The proposed development is aligned with Eskom’s Integrated Strategic Electricity Planning (ISEP) process, which is destined to provide energy and demand forecasting for up to 20 years into the future. As part of this process, data is gathered on supply- and demand-side costs and performances. Then the mix of these options and the timing of their use are optimised to meet the load forecast with suitable reliability, taking into account risks and assessment criteria.</p> <p>The proposed development is also in line with the National Integrated Resource Plan (NIRP) which aims at providing a long-term, cost-effective resource plan for meeting electricity demand, which is consistent with reliable electricity supply and environmental, social and economic policies.</p>		
<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>	<b>YES</b>	Please explain
<p>The strategy of the Mangaung Metropolitan Municipality IDP importantly outlines five key performance areas that embed the Back to Basic Approach that should be pursued to progressively improve the performance of municipalities.</p> <p>Area 1. Basic Services – creating decent living conditions</p> <ul style="list-style-type: none"> <li>• Develop fundable consolidated infrastructure plans;</li> <li>• Ensure infrastructure maintenance and repairs to reduce losses in respect to:</li> <li>• Water and sanitation;</li> <li>• Human Settlement;</li> <li>• <b>Electricity;</b></li> <li>• Waste Management;</li> <li>• Roads; and</li> <li>• Public Transportation</li> <li>• Ensure the provision of Free Basic Services and the maintenance of Indigent Register</li> </ul> <p>Improvement of basic services and subsequent quality of living is a high priority for the municipality and continued reliable electricity supply forms a key component in achieving this objective.</p>		

BASIC ASSESSMENT REPORT

<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>	YES	NO	Please explain
<p>In line with national electricity generation and job creation priorities, the construction of the proposed transmission line and associated sub-stations will provide significant benefit to the local community.</p> <p>Benefits will firstly come in the form of direct employment and skills development opportunities primarily during the construction but also subsequent operational phases which will assist in the alleviation of unemployment in the area.</p> <p>Secondly, the development of the proposed transmission line and associated sub-stations is essential for the continuation of adequate, reliable electricity supply to the northern suburbs of Bloemfontein. This will ensure a continued basic quality of living is maintained for the local community. It will also enable further subsequent economic and developmental progress in the community. The project will therefore provide a financial as well as social benefit to the area.</p> <p>Due to the rapid, continual growth in electricity demand over the last couple of years in the northern development areas of Bloemfontein, the existing 132 kV ring network has become increasingly under enormous pressure, especially during peak electricity demand periods. The demand is therefore continuously exceeding the possible supply from the current network. If the proposed project does not go ahead, the current electricity shortage within the Langenhovenpark and northern development areas of Bloemfontein will continue to increase in frequency and duration.</p> <p>Existing and proposed future development and residential areas are in need of adequate, reliable electricity supply, which will be sufficiently provided by the proposed transmission line and sub-station development. The adequate distribution of generated electricity is crucial within the context of South Africa's current energy crisis. Electricity provision is also a basic human necessity and right which adds to the improvement of livelihood and quality of living.</p>			
<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES		Please explain
<p>This proposed development itself forms part of enabling the provision of a "necessary service" in terms of adequate, reliable local electricity supply. The construction of the proposed transmission line and associated six sub-stations will therefore beneficially add to the energy capacity of the local area.</p>			

<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p>YES</p>		<p>Please explain</p>
<p>CENTLEC (Pty) Ltd, the applicant, was established as a municipal entity and therefore forms part of the municipal planning processes.</p> <p>The improvement and maintenance of electricity distribution infrastructure is a high priority aspect for the local municipality as per the IDP and the proposed transmission line and associated six sub-stations development will significantly contribute in a positive way to the infrastructure planning and improvement and increased capacity within the local municipality.</p> <p>Comment will be obtained from the municipality during the public participation process.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES</p>		<p>Please explain</p>
<p>One objective regarding electricity distribution within the National Development Plan (NDP) is that the proportion of people with access to the electricity grid should rise to at least 90 % by 2030, with non-grid options available for the rest. Resolving maintenance and the refurbishment of backlogs is one of the actions set out in the NDP to solve this issue. This proposed transmission line and associated sub-station will therefore assist in positively contributing to the improvement of the equitable national electricity supply situation.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	<p>YES</p>		<p>Please explain</p>
<p>The majority of the proposed transmission line route corridor runs along cultivated lands and developed and transformed areas. Little significant/important natural areas will be impacted upon by the proposed line with the exception of the identified CBA. The footprint areas for the proposed sub-stations are also mostly located in isolated and transformed areas. The development will therefore not pose significant restrictions to the continuation of the current land-uses.</p> <p>The location and route chosen for the transmission line is favourable in achieving the desired objective of efficient electricity distribution into the local grid while minimising the environmental impact as far as possible. The land use and any natural vegetation in the area will not be adversely affected once the pylons have been constructed as the actual footprint of natural areas to be transformed by the project, will not be of significant size.</p>			

<b>9. Is the development the best practicable environmental option for this land/site?</b>	<b>YES</b>	Please explain
<p>Once the pylons have been constructed, the majority of the area will again be available for and be able to continue its required land use. The Monopole pylon designs to be used in the CBA have a smaller physical footprint than the alternative pylon designs. This will significantly decrease the environmental impact and footprint on the natural CBA area to be traversed. The project will therefore not adversely affect the current land use capability and environmental potential. Once construction is completed the mitigated impacts will be minimal.</p> <p>The footprint areas for the proposed sub-stations are mostly located in isolated and transformed areas. They are not located within any ecologically sensitive or important ecosystems or watercourses. The project will therefore not adversely affect the current land use capability and environmental potential.</p>		
<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	<b>YES</b>	Please explain
<p>The benefits of the proposed transmission line and associated sub-stations developments will significantly outweigh the potential negative impacts thereof. The proposed project will beneficially contribute to improving the socio-economic conditions of the area. Local job creation, skills development, continued basic quality of living as well as continued adequate, reliable local electricity supply are significant local benefits. Adequate electricity supply also enables continued development and economic progress in areas.</p> <p>The negative impacts on the existing environment will be minimal. The only potentially high/significant impact could be associated with transmission line collision and electrocution of the following two avifaunal Red Data Listed species namely Secretarybird R118 (Vulnerable) and the Lanner Falcon R172 (Vulnerable) in the area. These impacts can however be suitably mitigated to within acceptable levels as far as practicably possible.</p> <p>The Ecological Impact Assessment conducted by the specialist yielded negative impacts on the ecology of relatively low significance. The only potentially high/significant impact could be associated with transformation of a Critical Biodiversity Area as well as damage to or impeding of watercourses associated with the transmission line route corridor. These impacts can however be suitably mitigated to within acceptable levels as far as practicably possible.</p> <p>As far as the archaeological heritage is concerned, the power line and distribution centre footprints are considered to be of low archaeological significance and are assigned a site rating of Generally Protected C. The proposed development may proceed with no further assessments required.</p>		

BASIC ASSESSMENT REPORT

<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>		<b>NO</b>	Please explain
<p>Various transmission line networks are present in the local area. This forms part of the necessary municipal electrical distribution grid. The proposed transmission line and associated sub-station development will form part of a distribution network required for electricity transmission in the area. Distribution networks are usually upgraded and changed over time in order to optimise efficiency and adjust to the changes in requirements and demands. It is therefore possible that the network may be altered in the future.</p>			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>		<b>NO</b>	Please explain
<p>The proposed project activities will not have a negative effect on any person's rights; it will in fact ensure the maintenance of the current socio-economic conditions and basic quality of living of the area through continued reliable electricity supply.</p>			
<b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b>		<b>NO</b>	Please explain
<p>The proposed transmission main loop will be constructed outside the urban edge of Bloemfontein while only the second split-off line will fall inside the urban edge. Infrastructure for the provision of services would not significantly alter or negatively impact the urban edge.</p>			



14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	YES	Please explain
<p>The National Government recently adopted an Infrastructure Plan that is intended to transform the economic landscape of South Africa, create a significant number of new jobs, strengthen the delivery of basic services to the people of South Africa and support the integration of African economies. The Infrastructure Plan of South Africa sets out the challenges and enablers, which South Africa needs to respond to, in the building and developing of relevant infrastructure.</p> <p>Based on the work of the Presidential Infrastructure Coordination Commission (PICC), seventeen Strategic Integrated Projects (SIPs) have been developed and approved to support economic development and address service delivery in the poorest provinces. Each SIP is comprised of a large number of specific infrastructure components and programmes.</p> <p>The proposed development of the transmission line will contribute beneficially to SIP 6 and 10. SIP 6 regarding integrated municipal infrastructure projects, include projects that:</p> <ul style="list-style-type: none"> <li>• Develop national capacity to assist the 23 least resourced districts (19 million people) to address all the maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure; and</li> </ul> <p>SIP 10, regarding electricity transmission and distribution for all, includes projects that:</p> <ul style="list-style-type: none"> <li>• Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development; and</li> <li>• Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.</li> </ul> <p>The aim of the project is to expand and improve the transmission and distribution network in the area in order to ensure continued reliable electricity supply for the future.</p>		

<p><b>15. What will the benefits be to society in general and to the local communities?</b></p>	<p>Please explain</p>
<p>Due to the rapid, continual growth in electricity demand over the last couple of years in the northern development areas of Bloemfontein, the existing 132 kV ring network has become increasingly under enormous pressure, especially during peak electricity demand periods. The demand is therefore continuously exceeding the possible supply from the current network. If the proposed project does not go ahead, the current electricity shortage within the Langenhovenpark and northern development areas of Bloemfontein will continue to increase in frequency and duration.</p> <p>Existing and proposed future development and residential areas are in need of adequate, reliable electricity supply, which will be sufficiently provided by the proposed transmission line and sub-station development. The adequate distribution of generated electricity is crucial within the context of South Africa's current energy crisis. Electricity provision is also a basic human necessity and right which adds to the improvement of livelihood and quality of living.</p> <p>If the proposed project does not go ahead, the local community will also forego the significant economic benefits which the project will have on the area such as immediate additional employment opportunities and revenue streams during the construction phase.</p> <p>The proposed development will ensure continued reliable electricity supply for the future in the area. This will ensure that the current basic quality of living is maintained in the area. The construction and subsequent operation of the proposed development will also provide a significant financial boost to the area in terms of job creation and skills development. The capacity for the potential development of new residential areas and other commercial endeavours will also be created once the proposed electrical services development is completed. This will enhance the economic growth and development process within the area.</p>	
<p><b>16. Any other need and desirability considerations related to the proposed activity?</b></p>	<p>Please explain</p>
<p>Without this development taking place, continued reliable electricity distribution to the relevant areas cannot be ensured for the future and this could result in a decline in the basic quality of living in the area.</p>	
<p><b>17. How does the project fit into the National Development Plan for 2030?</b></p>	<p>Please explain</p>
<p>The key point in Chapter 4 of The National Development Plan (NDP) of 2030, is that South Africa needs to maintain and expand its electricity, water, transport and telecommunication infrastructure in order to support economic growth and social development goals. The plan further envisages that, by 2030, South Africa will have an energy sector that promotes inter alia, economic growth and development through adequate investment in energy infrastructure.</p> <p>The proposed project will fit into the NDP of 2030 through the construction and improvement of electricity infrastructure that will ensure continued reliable electricity supply to the area in the future. The capacity for the potential development of new residential areas and other commercial endeavours will also be created once the proposed electrical services development is completed. This will enhance the economic growth and development process within the area.</p>	

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

Through the undertaking of a Basic Assessment Process by a competent EAP, informed by guidelines, the consideration of impacts and alternatives (advantages and disadvantages coupled thereto) has been made. Moreover, the conducting of public participation and specialist investigations form part of the process, whilst mitigation measures and the need and desirability of the proposed project were interrogated. This ensured that all provisions of the Act were considered and as such Integrated Environmental Management were accounted for.

**19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.**

Through the undertaking of a Basic Assessment process by a competent EAP, informed by guidelines, the consideration of impacts and alternatives (advantages and disadvantages coupled thereto) has been made. Moreover, the conducting of a public participation process and specialist investigations formed part of this basic assessment process, whilst mitigation measures and the needs and desirability of the proposed project were interrogated. This ensured that all provisions of the Act were considered and as such integrated environmental management were accounted for as follow:

*(2) Environmental Management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural heritage and social interests equitably.*

The goal of this BA is to identify and mitigate potential socio-economic impacts in order to meet the terms of Section 24 of the Constitution.

*(3) Development must be socially, environmentally and economically sustainable.*

The overall goal of this BA is to predict, identify and manage potential positive and negative impacts in the socio-economic, cultural-heritage and biophysical environments in order to meet the needs of present generations without compromising the needs of future generations which will give effect to sustainable development.

*(4)(a) Sustainable development requires the consideration of all relevant factors including the following:*

- i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- ii. that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- iii. that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
- iv. that waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;*
- v. that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
- vi. that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
- vii. that a risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*

- viii. *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*

Specialists were appointed to undertake Ecological, Avifaunal and Heritage Impact Assessments as part of this Basic Assessment Process to consider all impacts relating to the above. An Environmental Management Program Report (EMPr) was compiled to mitigate and manage all activities during the planning, construction and operational phases.

- (b) *Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*

All aspects, including socio-economic, cultural-heritage and biophysical was evaluated and assessed in order to minimize potential negative impacts which will give effect to Integrated Environmental Management, as set out in Chapter 5 of NEMA, 1998.

- (c) *Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.*

A public participation process will be undertaken in terms of Section 41 of the NEMA EIA Regulations, which came into effect on 4 December 2014, in order to give effect to Section 32 of the Constitution in such a way that adherence is given to Section 24 of the Constitution.

- (d) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.*

The proposed project will contribute to service delivery to meet basic human needs.

- (e) *Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*

The EMPr will be applicable throughout the lifecycle of the project.

- (f) *The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.*

A public participation process will be undertaken in terms of Section 41 of the NEMA EIA Regulations, which came into effect on 4 December 2014, in order to give effect to Section 32 of the Constitution in such a way that adherence is given to Section 24 of the Constitution.

- (g) *Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.*

The Department of Environmental Affairs (DEA) decision making process has to be in accordance with the above.

- (h) *Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*

- (i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.*

This BAR does give effect to Section 5 of NEMA whereby all social, economic and environmental impacts of activities were considered, assessed and evaluated.

- (j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.*

Human rights will be taken into account during all phases of the proposed project.

- (k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.*

The decision will take place in an open and fair manner and to give effect to Section 32 of the Constitution. I&AP's will be notified of the decision in terms of the requirements as set out in Section 41 of the NEMA EIA Regulations, 2014.

- (l) There must be intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment.*

All Governmental Authorities will be considered during the BA process to give their inputs on the project.

- (m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.*

CENTLEC is a municipal entity and actual or potential conflicts of interest between organs of state should / will be resolved through conflict resolution procedures.

- (n) Global and international responsibilities relating to the environment must be discharged in the national interest.*

The proposed project will contribute to local service delivery. Sufficient, uninterrupted electricity supply will be ensured to the local community.

- (o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*

It is not foreseen that any cultural-heritage resources will be affected by the proposed project. The appropriate Heritage Specialists were appointed to undertake Impact Assessments in this field.

- (p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.*

An EMPr were compiled in order to prevent or minimize any potential negative impacts to the environment. It will be the responsibility of the Applicant and Contractor to adhere to all measures set out in the EMPr, in order to give effect to Section 28 (1) of NEMA.

- (q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.*

- (r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.*

An Ecologist and avifaunal specialist were appointed to undertake an Ecological and Avifaunal Impact Assessment in which all possible impacts on wetlands, rivers and ecosystems were assessed and mitigation measures will be implemented. Refer to the EMP-r in Appendix G of this report.

### 1.11 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
<b>Legislation</b>			
Constitution of the Republic of South Africa, Act No. 108 of 1996	The constitution recognises the right to a safe and healthy environment for all citizens of the republic. As such, this forms a guiding principle of environmental management.	South African Government	1996
National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, and the EIA Regulations of 4 December 2014 promulgated in terms of Section 24(5) of NEMA and Listing Notices (Government Notice No. R. 983 and 985)	The proposed project triggers activities that would require environmental authorisation to be granted as set out in GN R No. 983 and GN R No. 985.	Department of Environmental Affairs (DEA)	1998, 2014
National Environmental Management Biodiversity Act (Act 10 of 2004) (NEMBA)	Under NEMBA the project applicant is required to take appropriate reasonable measures to limit the impacts on biodiversity, to obtain permits if required and to invite SANBI to provide commentary on any documentation resulting from the proposed development.	Department of Environmental Affairs (DEA) and South African National Biodiversity Institute (SANBI)	2004

BASIC ASSESSMENT REPORT

<b>Title of legislation, policy or guideline</b>	<b>Applicability to the project</b>	<b>Administering authority</b>	<b>Date</b>
National Forests Act (Act 84 of 1998)	<p>The aim of the National Forests Act is to promote the sustainable usage, management and development of forests for the benefit of all in South Africa. The Act also makes special provisions for the protection of specific forests and tree species which duly require formal protection in order to ensure their prolonged existence.</p> <p>The National Forests Act was therefore utilised to determine the potential presence of any protected forests or tree species in the proposed project area in order to ensure that the correct processes are followed for the approval of any listed activities for which a permit may be necessary regarding such forests or species, should it be required.</p>	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
National Heritage Resources Act (Act 25 of 1999) (NHRA)	In terms of section 38 of the NHRA, Heritage Impact Assessment (HIA) is triggered by the proposed project due	South African Heritage Resources Association (SAHRA).	1999



BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>to the linear activity exceeding 300 m and the sub-station footprints exceeding 5000 m<sup>2</sup>.</p> <p>A case must be opened on the South African Heritage Resources Association (SAHRA) website.</p>		
National Water Act (Act 36 of 1998) (NWA)	The development takes place within a 500 m radius of a watercourse, and therefore a water use license is required with regards to water uses (c) and (i) of the NWA.	Department of Water Affairs and Sanitation (DWS)	1998
Conservation of Agricultural Resources Act (Act No. 43 of 1983) (CARA)	<p>CARA aims to provide for the protection and control over utilisation of the country's agricultural resources in order to promote conservation of soils, water and natural vegetation as well as the combatting of weeds and invader plants.</p> <p>CARA was therefore used for determining the agricultural significance, value and subsequently the adequate management of the proposed project area.</p>	Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Agriculture, Land Reform and Rural Development in the Northern Cape Province	1983

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Veld and Forest Fire Act, Act No. 101 of 1998	The purpose of the NVFFA is to prevent and combat veld, forest and mountain fires throughout the Republic. As such, fire prevention as an aspect of the EMPr must be accounted for.	Department of Agriculture, Forestry and Fisheries	1998
<b>Guidelines</b>			
Public Participation Guideline, 2012	In terms of NEMA, the Public Participation Process is required as part of the Basic Assessment for this project.	Department of Environmental Affairs	2012
Impact Assessment Guidelines, 2002	To evaluate the significance of environmental impacts of the proposed project.	Department of Environmental Affairs	2002
Specialist Studies Guidelines, 2002	To gather information on the positive and negative impacts associated with the project alternatives. To determine recommendations for mitigation actions that may either enhance potential benefits or minimize harmful effects.	Department of Environmental Affairs	2002
Guidelines for Environmental Management Plans, 2004	An Environmental Management Programme should be included as part of the BA for this project.	Department of Environmental Affairs	2004

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Mangaung Metropolitan Municipality Integrated Development Plan (IDP)	Each municipality is required to produce an IDP which would address pertinent issues relevant to their municipality. Common concerns include municipal transformation and development, and service delivery and infrastructural development. With regards to the latter, electricity, amongst other municipal services, is highlighted as a priority issue warranting attention, in particular the provision of access to electricity to affected communities and the improvement of the electricity infrastructure (mini-sub, cables).	Mangaung Metropolitan Municipality	2014
Free State Province Spatial Development Framework (FSPSDP)	This document highlights the provincial infrastructure and service development objectives and priorities. It indicates the issues which need to be addressed in order to achieve the required objectives as well as provides a framework for addressing these issues.	Free Sate Provincial Government	2014

BASIC ASSESSMENT REPORT

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<b>Title of legislation, policy or guideline</b>	<b>Applicability to the project</b>	<b>Administering authority</b>	<b>Date</b>
Integrated Strategic Electricity Planning (ISEP), 2005	The ISEP provides a framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.	Eskom	2005

## 1.12 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### 1.12.1 Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	
-----	--

If YES, what estimated quantity will be produced per month?

≤ 1 m <sup>3</sup>
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How will the construction solid waste be disposed of (describe)?

The majority of solid waste generated during the operational phase will constitute concrete spill (from foundations) and electrical cable (from stringing). The small amounts of solid waste collected shall be disposed of at the registered/licensed municipal landfill site. Skip waste containers and waste collection bins will be maintained on site and the contractor will arrange for them to be collected regularly when needed and transported to the licensed landfill site. Waste separation will be implemented.

Under no circumstances will waste be burned or buried on site.

No solid waste shall be produced during operation phase.

Where will the construction solid waste be disposed of (describe)?

The small amounts of solid waste collected shall be disposed of at the registered/licensed municipal landfill site. Skip waste containers and waste collection bins will be maintained on site and the contractor will arrange for them to be collected regularly when needed and transported to the licensed landfill site. Waste separation will be implemented.

Will the activity produce solid waste during its operational phase?

NO
----

If YES, what estimated quantity will be produced per month?

Not applicable
----------------

How will the solid waste be disposed of (describe)?

Not applicable.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Not applicable.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Not applicable

*If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? 

	NO
--	----

  
 If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? 

	NO
--	----

  
 If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

**1.12.2 Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? 

	NO
--	----

  
 If YES, what estimated quantity will be produced per month? 

Not applicable
----------------

  
 Will the activity produce any effluent that will be treated and/or disposed of on site? 

	NO
--	----

  
*If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Will the activity produce effluent that will be treated and/or disposed of at another facility? 

	NO
--	----

If YES, provide the particulars of the facility:

<b>Facility name:</b>	Not applicable	
<b>Contact person:</b>		
<b>Postal address:</b>		
<b>Postal code:</b>		
<b>Telephone:</b>	<b>Cell:</b>	
<b>E-mail:</b>	<b>Fax:</b>	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Not applicable
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**1.12.3 Emissions into the atmosphere**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? 

	NO
--	----

  
 If YES, is it controlled by any legislation of any sphere of government? 

	NO
--	----

  
 If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

<b>Dust and vehicle, construction machine emissions during the construction phase of the proposed development will be the only emissions released into the atmosphere.</b>
--

**1.12.4 Waste permit**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA? 

	NO
--	----

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

**1.12.5 Generation of noise**

Will the activity generate noise?

YES	
	NO

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

The proposed construction of the new 132 kV transmission line and associated six sub-stations will generate noise during the construction phase. Noise will be generated by vehicles transporting equipment, and by construction activities around the transmission line and associated six sub-stations.

These impacts are not considered to be significant enough to warrant a formal noise impact assessment.

During the operational phase, the transmission line may produce a corona (low 'buzzing' or 'crackling' noise). A corona can be caused by water droplets forming on a conductor resulting in the breakdown of air molecules perceived as the crackling noise. However, corona rings will be used on conductors to prevent/reduce the noise. In addition, the transformers within the sub-station will also produce a low level humming noise. There are however no significant settlements or homesteads in the immediate/close vicinity which will be significantly affected by this type of noise.

To ensure that the noise generated during the construction phase is minimised, the following mitigation measures are proposed (these will be included in the Environmental Management Programme for the project, attached as Appendix G):

- All equipment used on site shall be fitted with suitable silencers to control noise pollution;
- The following will prevail:
- Unless otherwise specified by the EO/ECO, normal working hours will apply (i.e. from 06h30 to 17h00, Mondays to Fridays);
  - Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours;
  - No loud music will be permitted on site or in the site camp.

If blasting is required during the construction period of the 132 kV transmission line, the following guidelines will be followed:

- The type, duration and timing of the blasting procedures will be planned with due cognisance of other land uses and structures in the vicinity;
- The local landowners and communities will be adequately informed ahead of any blasting event;
- The use of nitrate-free explosives will be favoured wherever possible (i.e. methods including drilling and black powder, expanding mortar or old fashioned plugs and feathers);
- Noise mufflers and/or soft explosives will be used by staff during blasting;
- Appropriate measures to limit undesired flyrock will be taken;
- Audible warning of a pending blast will be given at least 3 minutes in advance of a blast; and all flyrock (of diameter 150mm and larger) which falls beyond the cleared working area, together with the rock spill, will be collected and removed.

### 1.13 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

<b>Municipal</b>					
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

Not applicable	
<b>YES</b>	

- **The project requires a Water Use License from the Department of Water and Sanitation (DWS) due to numerous watercourses being crossed and the development potentially being within 500 m of a wetland. A pre-application meeting was conducted with DWS on 3 March 2017 (see proof of pre-application meeting in Appendix I). It was indicated by DWS that a Water Use License Application can only be submitted once the servitudes have been registered. An application will be submitted to DWS once the servitudes have been registered.**



## 1.14 ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

Eskom has confirmed that they will provide an adequate connection and capacity for required electricity supply during the construction phase. During the operational phase the activity will not use electricity but rather distribute electricity to a substation from where it is divided into smaller voltages for distribution to end-users.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable to this project given that the activity does not utilise electricity but rather distributes it.

## 2 SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix J. All specialist reports must be contained in Appendix D.

- See specialist declarations of interest in Appendix J
- See specialist reports in Appendix D

### Property description/physical address:

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

- See appendix E for the full list of properties

### Current land-use zoning as per local municipality IDP/records:

The majority of the properties are zoned as holdings with some special uses in terms of section 26.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

- See Appendix E for current land uses

Is a change of land-use or a consent use application required?

- The current land use of the properties will not be affected. A change in land use will not be required as the 132 kV transmission line and associated six sub-stations servitudes will be considered as special use within the existing land use rights. Servitudes will simply be registered for the proposed transmission line and associated six sub-stations.
- See Appendix E for proof of landowner notification.

## 2.1 GRADIENT OF THE SITE

Indicate the general gradient of the site.

### Main loop

Alternative 1 (preferred alternative):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

Section traversing the Critical Biodiversity Area

Steep	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### First split-off

Alternative 1 (preferred alternative):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

### Second split-off

Alternative 1 (preferred alternative):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

Alternative 2:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Associated six sub-stations

Alternative 1 (preferred alternative):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

## 2.2 LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

### Main loop

Alternative 1 (preferred alternative)

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

Section traversing the Critical Biodiversity Area

2.1 Ridgeline	<input checked="" type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input checked="" type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

### First split-off

Alternative 1 (preferred alternative)

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

### Second split-off

Alternative 1 (preferred alternative)

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

Alternative 2

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

**Associated six sub-stations**

Alternative 1 (preferred alternative)

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

## 2.3 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

### Main loop

Alternative 1:	
Shallow water table (less than 1.5m deep)	YES
Dolomite, sinkhole or doline areas	NO
Seasonally wet soils (often close to water bodies)	YES
Unstable rocky slopes or steep slopes with loose soil	NO
Dispersive soils (soils that dissolve in water)	NO
Soils with high clay content (clay fraction more than 40%)	YES
Any other unstable soil or geological feature	NO
An area sensitive to erosion	NO

### Area traversing the Critical Biodiversity Area

Alternative 1:	
Shallow water table (less than 1.5m deep)	YES
Dolomite, sinkhole or doline areas	NO
Seasonally wet soils (often close to water bodies)	YES
Unstable rocky slopes or steep slopes with loose soil	YES
Dispersive soils (soils that dissolve in water)	NO
Soils with high clay content (clay fraction more than 40%)	YES
Any other unstable soil or geological feature	NO
An area sensitive to erosion	NO

### First split-off

Alternative 1:	
Shallow water table (less than 1.5m deep)	NO
Dolomite, sinkhole or doline areas	NO
Seasonally wet soils (often close to water bodies)	NO
Unstable rocky slopes or steep slopes with loose soil	NO
Dispersive soils (soils that dissolve in water)	NO
Soils with high clay content (clay fraction more than 40%)	YES
Any other unstable soil or geological feature	NO
An area sensitive to erosion	NO

**Second split-off**

	<b>Alternative 1:</b>		<b>Alternative 2</b>	
Shallow water table (less than 1.5m deep)	YES		YES	
Dolomite, sinkhole or doline areas		NO		NO
Seasonally wet soils (often close to water bodies)	YES		YES	
Unstable rocky slopes or steep slopes with loose soil		NO		NO
Dispersive soils (soils that dissolve in water)		NO		NO
Soils with high clay content (clay fraction more than 40%)	YES		YES	
Any other unstable soil or geological feature		NO		NO
An area sensitive to erosion		NO		NO

**Associated six-sub-stations**

	<b>Alternative 1:</b>	
Shallow water table (less than 1.5m deep)		NO
Dolomite, sinkhole or doline areas		NO
Seasonally wet soils (often close to water bodies)		NO
Unstable rocky slopes or steep slopes with loose soil		NO
Dispersive soils (soils that dissolve in water)		NO
Soils with high clay content (clay fraction more than 40%)	YES	
Any other unstable soil or geological feature		NO
An area sensitive to erosion		NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

## 2.4 GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

### Main loop

Alternative 1 (preferred alternative)

<b>Natural veld - good condition<sup>E</sup></b>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	<b>Cultivated land</b>	<b>Paved surface</b>	<b>Building or other structure</b>	Bare soil

Section traversing the Critical Biodiversity Area

<b>Natural veld - good condition<sup>E</sup></b>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

### First split-off

Alternative 1 (preferred alternative)

<b>Natural veld - good condition<sup>E</sup></b>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	<b>Cultivated land</b>	<b>Paved surface</b>	<b>Building or other structure</b>	Bare soil

### Second split-off

Alternative 1 (preferred alternative)

<b>Natural veld - good condition<sup>E</sup></b>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	<b>Cultivated land</b>	<b>Paved surface</b>	Building or other structure	Bare soil



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Alternative 2

<b>Natural veld - good condition<sup>E</sup></b>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	<b>Paved surface</b>	<b>Building or other structure</b>	Bare soil

**Associated six sub-stations**

Alternative 1 (preferred alternative)

<b>Natural veld - good condition<sup>E</sup></b>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	<b>Cultivated land</b>	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

- **See Appendix D for specialist reports**

## 2.5 SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

### Main loop

Alternative 1 (preferred alternative)

Perennial River		<b>NO</b>	UNSURE
Non-Perennial River	<b>YES</b>		UNSURE
Permanent Wetland		<b>NO</b>	UNSURE
Seasonal Wetland		<b>NO</b>	UNSURE
Artificial Wetland		<b>NO</b>	UNSURE
Estuarine / Lagoonal wetland		<b>NO</b>	UNSURE

Section traversing the Critical Biodiversity Area

Perennial River		<b>NO</b>	UNSURE
Non-Perennial River	<b>YES</b>		UNSURE
Permanent Wetland		<b>NO</b>	UNSURE
Seasonal Wetland		<b>NO</b>	UNSURE
Artificial Wetland		<b>NO</b>	UNSURE
Estuarine / Lagoonal wetland		<b>NO</b>	UNSURE

### First split-off

Alternative 1 (preferred alternative)

Perennial River		<b>NO</b>	UNSURE
Non-Perennial River		<b>NO</b>	UNSURE
Permanent Wetland		<b>NO</b>	UNSURE
Seasonal Wetland		<b>NO</b>	UNSURE
Artificial Wetland		<b>NO</b>	UNSURE
Estuarine / Lagoonal wetland		<b>NO</b>	UNSURE

**Second split-off**

Alternative 1 (preferred alternative)

Perennial River		<b>NO</b>	UNSURE
Non-Perennial River		<b>NO</b>	UNSURE
Permanent Wetland		<b>NO</b>	UNSURE
Seasonal Wetland		<b>NO</b>	UNSURE
Artificial Wetland		<b>NO</b>	UNSURE
Estuarine / Lagoonal wetland		<b>NO</b>	UNSURE

Alternative 2

Perennial River		<b>NO</b>	UNSURE
Non-Perennial River		<b>NO</b>	UNSURE
Permanent Wetland		<b>NO</b>	UNSURE
Seasonal Wetland		<b>NO</b>	UNSURE
Artificial Wetland		<b>NO</b>	UNSURE
Estuarine / Lagoonal wetland		<b>NO</b>	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

In accordance with the specialist report (See Appendix D), the proposed transmission line route will traverse a number of identified watercourses. These watercourses consist of either small seasonal drainage lines or larger semi-perennial streams classified as first and second order streams. No significantly large watercourses such as locally or regionally important rivers are crossed by the proposed line route.

The Present Ecological Status (PES) of these watercourses have been classified as class B by the specialist as they are largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged.

**Associated six sub-stations**

Alternative 1 (preferred alternative)

Perennial River		NO	UNSURE
Non-Perennial River		NO	UNSURE
Permanent Wetland		NO	UNSURE
Seasonal Wetland		NO	UNSURE
Artificial Wetland		NO	UNSURE
Estuarine / Lagoonal wetland		NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The associated six individual sub-station footprints will not fall within 32 metres of any identified watercourses or wetlands.

- The project requires a Water Use License from the Department of Water and Sanitation (DWS) due to numerous watercourses being crossed and the development potentially being within 500 m of a wetland. A pre-application meeting was conducted with DWS on 3 March 2017 (see proof of pre-application meeting in Appendix I). It was indicated by DWS that a Water Use License Application can only be submitted once the servitudes have been registered. An application will be submitted to DWS once the servitudes have been registered.**

## 2.6 LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

<b>Natural area</b>	Dam or reservoir	Polo fields
<b>Low density residential</b>	Hospital/medical centre	Filling station <sup>H</sup>
<b>Medium density residential</b>	<b>School</b>	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	<b>Church</b>	<b>Agriculture</b>
Retail commercial & warehousing	Old age home	<b>River, stream or wetland</b>
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	<b>Mountain, koppie or ridge</b>
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	<b>Major road (4 lanes or more) <sup>N</sup></b>	Historical building
Office/consulting room	<b>Airport <sup>N</sup></b>	Protected Area
<b>Military or police base/station/compound</b>	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
<b>Quarry, sand or borrow pit</b>	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

The proposed transmission line will traverse the N1 highway at two separate locations namely on Portion 8 of the Farm Bergendal no 1706 (SG: F00300000000170600008) as well as Portion 11 of the Farm Wildealskloof no 1205 (SG: F00300000000120500011). The minimum ground clearance of 6.3 m of the proposed transmission line will however be adequate over the portion of the N1 highway in order not to impact or restrict on any traffic operations.

The first split-off of the proposed transmission line is approximately 3.5 km in length. This entire split-off section to where it reaches the Olivier distribution centre position will be buried underground as this is located in the vicinity of the Tempe Military Base Airstrip. The reason for the submergence will be to ensure that all the above ground components of the entire transmission line are located outside a minimum 600 m distance from the airstrip.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Not applicable

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Not applicable

## BASIC ASSESSMENT REPORT

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Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	<b>YES</b>	
Core area of a protected area?		<b>NO</b>
Buffer area of a protected area?		<b>NO</b>
Planned expansion area of an existing protected area?		<b>NO</b>
Existing offset area associated with a previous Environmental Authorisation?		<b>NO</b>
Buffer area of the SKA?		<b>NO</b>

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

- **See Appendix A for Sensitivity map**

## 2.7 CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

	<b>NO</b>

Nothing significant within the proposed servitude area or in the immediate vicinity or the associated six sub-station footprints.

See the results of the Heritage Impact Assessment below.

Comments and recommendations received from the South African Heritage Resources Agency (SAHRA) will also be incorporated into the Final Basic Assessment Report and EMPr.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

The powerline footprint traverses existing road reserves, degraded farmland and areas formerly disturbed by the residential developments. The associated distribution centre footprints are located on degraded farmland, areas formerly disturbed by the residential developments and relatively undisturbed patches of open veld. The Rayton, Lilyvale Hillandale and Bayswater farms north of Bloemfontein represent historically as well as archaeologically significant landscapes. The proposed route options however circumvent these areas, which also include the Seven Dams Conservancy and the Botanical Gardens.

A pedestrian survey revealed no evidence of in situ Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock art, graves or historically significant structures older than 60 years within the proposed footprints. It is advised that both options for the Hillandale loop-in represents low potential impact for underground finds because it largely traverses previously disturbed areas. As far as the archaeological heritage is concerned, the power line and distribution centre footprints are considered to be of low archaeological significance and are assigned a site rating of Generally Protected C. The proposed development may proceed with no further assessments required.

If, in the unlikely event that capped archaeological remains not observed are discovered during the construction phase of the project, it is recommended that the relevant heritage authority and a professional archaeologist are called in to investigate.

- **See Appendix D for specialist report.**

Will any building or structure older than 60 years be affected in any way?  
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

	<b>NO</b>
	<b>NO</b>

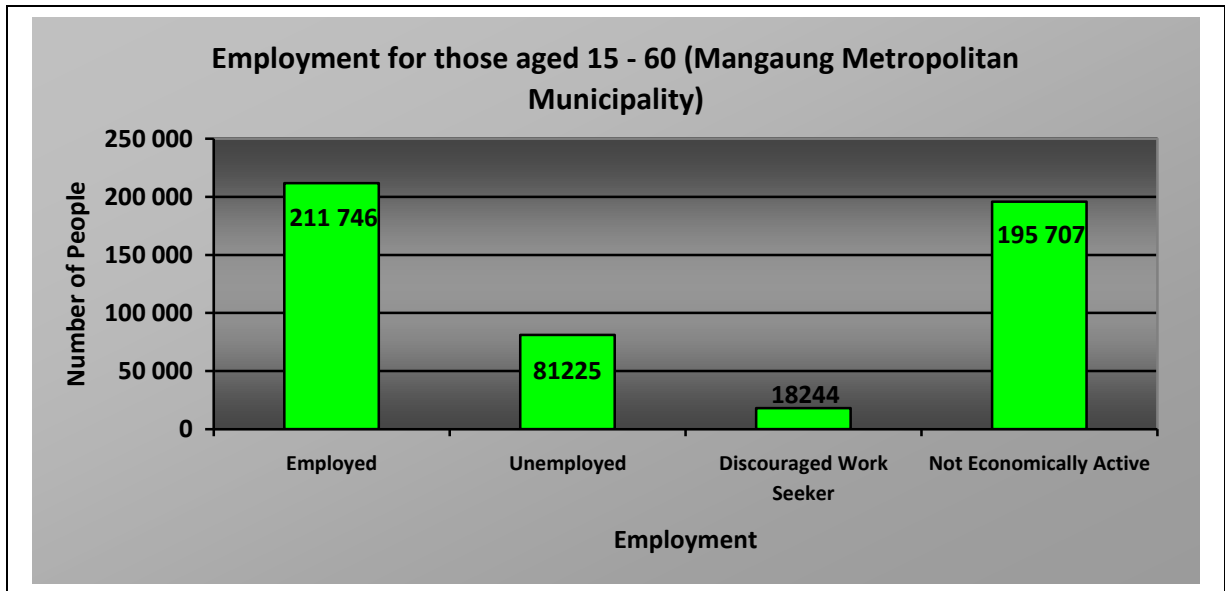
If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 2.8 SOCIO-ECONOMIC CHARACTER

### 2.8.1 Local Municipality

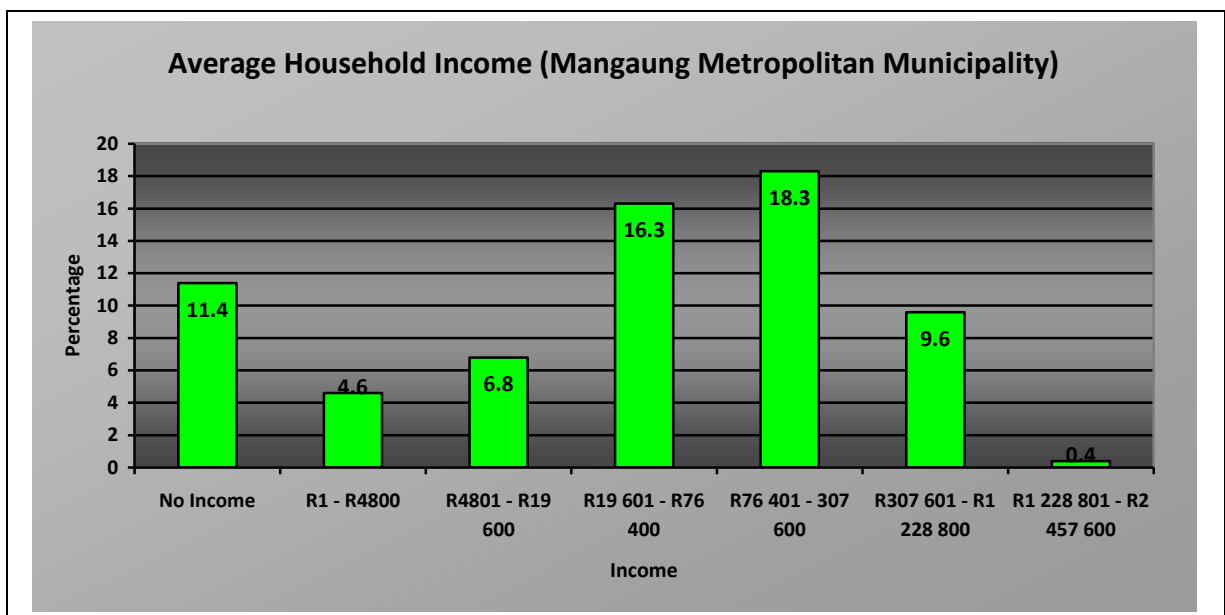
Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

#### Level of unemployment:



Source: Source: Statistics South Africa

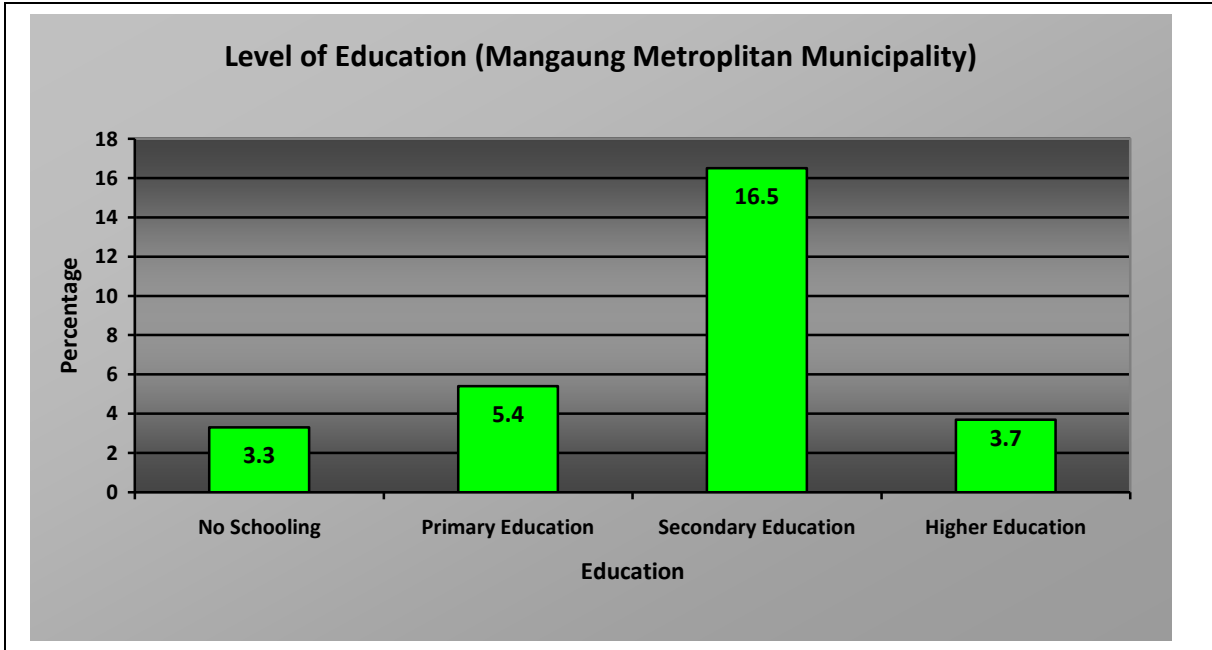
#### Economic profile of local municipality:





Source: Source: Statistics South Africa

**Level of education:**



Source: Source: Statistics South Africa

**2.8.2 Socio-economic value of the activity**

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

What is the expected value of the employment opportunities during the development and construction phase?

What percentage of this will accrue to previously disadvantaged individuals?

R 180 million
Not applicable. Increase in electricity demand and price dependent.
<b>YES</b>
<b>NO</b>
Existing contractor teams will be utilised for new CENTLEC Developments.
Not applicable
Not applicable

How many permanent new employment opportunities will be created during the operational phase of the activity?	No permanent employment opportunities will be created for the operational phase.
What is the expected current value of the employment opportunities during the first 10 years?	Not applicable
What percentage of this will accrue to previously disadvantaged individuals?	Not applicable

**Visual Impact Assessment**

It is envisaged that the structures, will be highly visible from a two kilometre (2 km) radius especially for commuters and residence within this radius. The study area contains elevated areas and built up environments minimizing the visual impact to 5 km. Beyond the five kilometre buffer the proposed project will be visible from elevated areas such as koppies. It is anticipated that should the applicant decide to implement the recommended mitigation measures the overall visual impact of the Harvard Powerline will be moderate. The Visual Impact of Layout Alternative 1 and 2 is more or less the same; however, Alternative one is less visible within a two kilometre (2 km) radius (see figure below). The Specialist would thus recommend that the Applicant construct Alternative 1. The following mitigatory considerations can assist in minimising the visual impact: Visual Impact Assessment:

- Minimise vegetation clearance to ensure that visual absorption capacity is not destroyed;
- A site layout plan must be submitted prior to construction to ensure infrastructure is placed in such a manner that minimum vegetation is cleared;
- Consolidate infrastructure as much as possible and make use of already disturbed areas rather than pristine sites, wherever possible;
- Lighting:
  - Make use of downward directional lighting fixtures;
  - Make use of minimum lumen or wattage in fixtures;
  - Make use of down-lighters, or shielded fixtures;
  - Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.

Construction Phase Mitigation:

- Ensure vegetation is not unnecessarily cleared or removed during the construction period;
- Reduce the construction period through careful logistical planning and productive implementation of resources;

- Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads;
- Ensure that rubble, litter, and disused construction materials are appropriately stored and then disposed regularly at licensed waste facilities;
- Reduce and control construction dust through the use of approved dust suppression techniques as and when required;
- Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting;
- Ensure that all areas are properly rehabilitated.

See Appendix D for full specialist report.

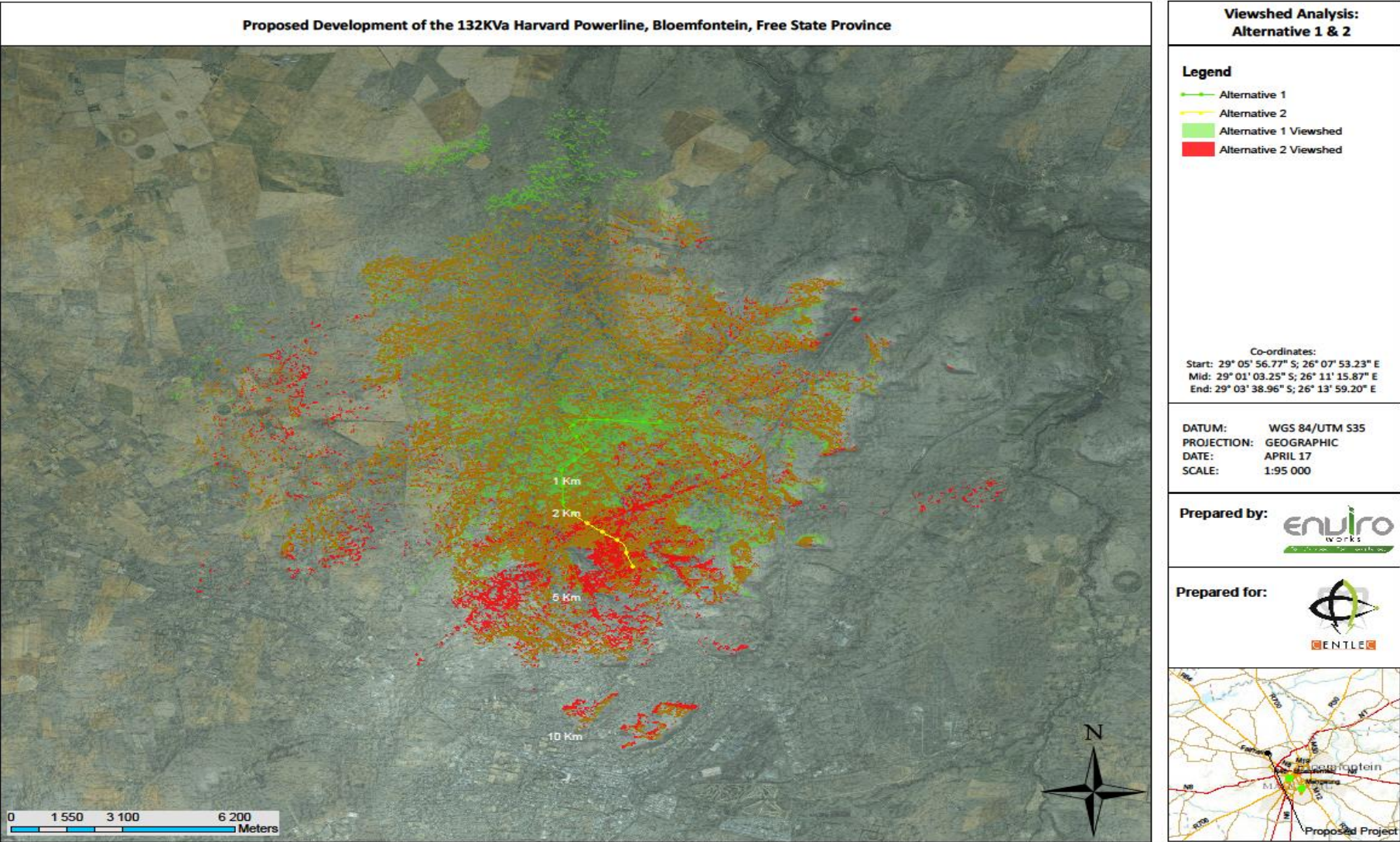


Figure 4: Viewshed analyse of Alternatives 1 & 2 for the proposed project

## **2.9 BIODIVERSITY**

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

**2.9.1 Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
<b>Critical Biodiversity Area (CBA)</b>	<b>Ecological Support Area (ESA)</b>	<b>Other Natural Area (ONA)</b>	No Natural Area Remaining (NNR)	<p>An approximately 3.3 km portion of the proposed transmission line will traverse a Critical Biodiversity Area (CBA). Pylons will be constructed within the CBA. The transmission line will be constructed overhead and the Steel Monopole tower type is to be implemented in any identified environmentally sensitive or important areas such as the CBA. The physical footprint impact of the proposed transmission line will be limited to the pylon positions.</p> <p>The associated six individual sub-station footprints will not fall within any CBA's.</p> <p>Potential significant reasons for the area being categorised as a CBA:</p> <ul style="list-style-type: none"> <li>• The Lesser Kestrel utilises this area for foraging.</li> <li>• The plant species <i>Strumaria tenella</i> may occur within the development footprint and destruction of individuals of the species must be avoided.</li> <li>• The CBA planning units account for the Winburg Grassy Shrubland (Gh 7) and Bloemfontein Karroid Shrubland (Gh 8) vegetation types. The proposed development will however pose minimal physical footprint impact to the vegetation types if the construction phase is adequately managed.</li> </ul>

			<p>ESA's are included due to the fact that less than 10 % of the surface has been transformed or degraded. Belonging to this category are mostly natural land that are considered to represent prime corridor areas.</p> <p>Other natural areas are natural vegetation that has not been classified as CBA or ESA.</p> <p>An approximately 23.5 km portion of the proposed transmission line will traverse an Ecological Support Area (ESA) and other natural areas. Pylons will be constructed within the ESA and other natural areas. The physical footprint impact of the proposed transmission line will be limited to the pylon positions.</p> <p>The associated six individual sub-station footprints (total of 5.1 ha) will fall within an ESA and other natural areas.</p>
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- See Appendix A for the Sensitivity map indicating the presence of CBA's and ESA's

**2.9.2 Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	%	30
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	10
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	60 The majority of the proposed transmission line route runs along transformed road reserves and cultivated or otherwise developed lands.

**2.9.3 Complete the table to indicate:**

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
<b>Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</b>	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable	YES				NO		NO
	Least Threatened							

- The Bloemfontein Dry Grassland (Gh 5) vegetation type is classified as having a vulnerable status in terms of the national threatened ecosystems system.
- See Appendix A for the Vegetation and Sensitivity maps indicating the vegetation types and threatened ecosystems



**2.9.4 Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)**

**Vegetation Types**

According to Mucina & Rutherford (2006) the proposed transmission line route corridor traverses four vegetation types. The majority of the route corridor is located within the Bloemfontein Dry Grassland (Gh 5) while a small portion forms part of the Winburg Grassy Shrubland (Gh 7), Bloemfontein Karroid Shrubland (Gh 8) and the Highveld Alluvial (Aza 5) vegetation types.

The associated six sub-stations will only be situated within the Bloemfontein Dry Grassland (Gh 5) and Winburg Grassy Shrubland (Gh 7) vegetation types (Mucina & Rutherford, 2006).

- Bloemfontein Dry Grassland (Gh 5) vegetation type
  - This vegetation type mainly consists of slightly undulating bottomland landscape covered with tall, dense grassland.
  - The conservation status of the vegetation type is classified as endangered due to significant cultivation transformation and urbanisation expansion pressures in the Bloemfontein area.
  - The entire vegetation type is classified as having a vulnerable status in terms of the national threatened ecosystems system.
- Winburg Grassy Shrubland (Gh 7) vegetation type
  - This vegetation type constitutes solitary hills, slopes and escarpments with habitats ranging from open grassland to shrubland. It is characterised by extended ridge areas with mainly grassland and few shrubs. Gound-truthing has indicated that the proposed route corridor will only traverse any significant hills or escarpments in its north eastern section and will rather mainly be confined to the undulating bottom lands of the Bloemfontein Dry Grassland (Gh 5) vegetation type.
  - The vegetation type is classified as least threatened.
  - Within the Winburg Grassy Shrubland (Gh 7), a number of dolerite rocky outcrops/domes are noticeable. Although not necessarily indicated as such on the vegetation map due to their small size, they form part of the Bloemfontein Karroid Shrubland (Gh 8) vegetation type.
- Bloemfontein Karroid Shrubland (Gh 8) vegetation type
  - This vegetation type constitutes isolated sheets/outcrops of Jurassic dolerites which are scattered within the sediments of the Adelaide subgroup. These outcrops usually possess a shallow layer of sand of aeolian origin overlaying the dolerite. This soil structure therefore only supports low shrubland dominated by dwarf small leaved karroid and succulent shrubs. Grasses are restarted to depressions and crevices filled with fine soil.
  - These rocky outcrops are scattered within the landscape.
  - The vegetation type is endangered by urbanisation development.
- Highveld Alluvial (Aza 5) vegetation type
  - This vegetation type constitutes a flat topography supporting riparian thickets mostly dominated by *Acacia karroo*, accompanied by seasonally flooded grasslands and disturbed herblands.
  - The proposed line route corridor will on traverse this particular at a specific isolated position.
  - The vegetation type is classified as least threatened.

### **Red Data Listed and Protected species**

Only one Red Data Listed species (*Boophane disticha*; Declining) and number of provincially protected species were identified within the proposed transmission line route corridor and associated sub-station footprints. The development of the transmission line and associated sub-stations will inevitably destroy or damage such individuals. The physical impacts relating to the transmission line will however be localised in extent and mainly restricted to the actual proposed pylon footprint areas. Although a Red Data Listed species was identified, the presence and distribution extent is low.

**The following section was extracted from the specialist Ecological Impact Assessment report (see Appendix D for full specialist report)**

### **Results**

The proposed project area can roughly be divided into the following sections based on landscape structure, land use, composition and condition of vegetation:

- Pre-existing transformed and disturbed cultivated lands and road servitudes associated with the Bloemfontein Dry Grassland (Gh 5) vegetation type
- Semi-natural urbanised and cultivated areas associated with the Bloemfontein Dry Grassland (Gh 5) vegetation type
- Natural, currently undeveloped rural areas associated with all three relevant vegetation types
- Critical Biodiversity Area associated with the Winburg Grassy Shrubland (Gh 7) and Bloemfontein Karroid Shrubland (Gh 8) vegetation types
- Watercourses/drainage areas
- Six sub-station footprints

Each of these identified areas is discussed in detail in the specialist report in Appendix D.

### **Conclusion**

More than half of the transmission line route corridor (approximately 20.6 km) and four of the sub-station footprints are situated in pre-existing transformed and disturbed areas with little to no natural vegetation remaining. These areas therefore don't play a significant role in the ecological functionality of the natural surrounding ecosystem and vegetation and have a low conservation value. It is in the opinion of the specialist that the construction of the proposed transmission line and associated sub-stations in such transformed areas will therefore not pose any significant additional ecological impacts and the project should be allowed to continue.

Although the proposed transmission line route corridor crosses a number of watercourses and also traverses semi-natural and natural areas forming part of an endangered vegetation type as well as a Critical Biodiversity Area (CBA), the majority of the transmission line will have a small actual surface footprint impact on vegetation; impact will mainly be restricted to pylon construction footprints. The presence of an existing line has also slightly reduced the local pristineness in its immediate vicinity. The significance of the impact on the CBA will thereof be lower than it would have been if the line had to traverse another portion of the CBA on its own. The two remaining sub-stations will also be situated within natural areas but their impacts will be restricted to their physical surface footprints.

Although Alternative 1 will also be an acceptable route to follow due to the low level of the actual impacts on the natural vegetation, it is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type. It is also recommended that the Steel Monopole tower type be implemented rather than the Steel Lattice tower type as far as practicably possible due to its smaller physical surface footprint size and subsequent reduced impact on the vegetation.

It is in the opinion of the specialist that all identified potential ecological impacts in such important areas can be suitably reduced to within acceptable levels and that the project should therefore be allowed to continue. The proposed project may however only continue if all recommended mitigations measures as per this ecological report are adequately implemented and managed for both the construction and operational phases of the proposed project. All necessary authorisations and permits must also be obtained prior to any commencement.

**The following section was extracted from the specialist Avifaunal Impact Assessment report (see Appendix D for full specialist report)**

### **Priority species**

Three groups of priority species can be described, namely Red Data species, the resident avifaunal community, and waterbirds. No range restricted species are known to occur in the vicinity of the project site.

### **Red Data species**

The 37 Red Data species recorded in the SAC9Q-block during SABAP1 and SABAP2 are listed in the Avifaunal Impact Assessment Report (Appendix D). They include one Critically Endangered species, nine Endangered species, ten Vulnerable species and 17 Near-Threatened species. Species most likely to be encountered in the immediate vicinity of the proposed power line include the Secretary bird R118, Lanner Falcon R172, and European Roller R446. The African Rock Pipit R721 is a localised resident associated with the mountainous terrain and is known to occur at two localities, each within 1.9km from the proposed power line. The rest of the species is at best transient visitors to the area.

### **Resident avifaunal community**

The habitat along the proposed power line route includes cultivated fields, grassland, scrub/woodland and hilly terrain. The power line will also cross a number of drainage lines. Construction activities could lead to the disturbance of several resident species (no Red Data species) associated with these habitats, but in all cases the risk is considered to be low, except for the Greater Kestrel R182 which may breed on close-by pylons. The impact would be most severe if the construction phase overlaps with the breeding season of these birds. During its operational phase, the power line will pose a permanent collision treat to many species with the risk considered to be high for ten non-threatened species but only moderate for two Red Data species and eight others.

### **Waterbirds**

Wetlands typically represent discrete habitats within landscapes, e.g. rivers, dams and pans. When they have water they attract a variety of animals, leading to a concentration of biota. Most prominent among these are birds, in particular waterbirds, many of which are also known to colonise ephemeral wetlands soon after they received water. Because of its potential of attracting birds to a specific location, a wetland in an area often implies increased bird movements there. Therefore, in cases where man-made structures pose some form of danger to birds, the presence of a wetland in the same area can greatly increase the potential for undesirable incidents, particularly since many waterbird species

are flying around between dusk and dawn (Avian Power Line Interaction Committee (APLIC) 2012). Power lines near wetlands are known to cause high mortalities in waterbirds.

There are numerous open water wetlands in and around the proposed project site. Most of them represent ephemeral systems which are temporarily inundated by rain. The eastern and western branches of the Stinkhoutspruit, which drains the eastern half of the project site, represent movement corridors for waterbirds and other species associated with the trees and bushes found along it.

Waterbirds constitute more than a quarter (28.6%) of all bird species recorded to date in the SAC9Q-block. Disturbance of waterbirds are foreseen for only two species during the construction phase. However, during its operational phase the proposed power line will pose a permanent threat to several waterbirds with the risk for collisions in most cases considered to be low. Exceptions involve five of the more common species where the risk is considered to be high.

Along the northern section of the proposed Tevrede-Mimosa power line section there are two wetlands which each appear capable of holding water for an extended period of time and which lie directly in the proposed path of the power line. This poses a severe threat not only for the species which utilise these wetlands directly, but also for their predators.

### **Receiving environment from an avifaunal perspective**

In this section, consideration is given to each habitat occurring in the project site and environs and the bird species associated with each. Habitat Generalists are considered separately at the end.

#### **Woodland**

Woodland habitats are mostly associated with the small holdings in the west, and the Stinkhoutspruit in the east. Almost a third of the species recorded in the SAC9Q-block (32.2%) are associated with woodland habitats. Nearly one third (32.8%) of these species however also show a preference for other habitats, particularly grassland, scrub and forest habitats. Eight of the 37 Red Data species are associated with woodland habitats, but none of them are likely to experience disturbance during the construction phase. During the operational phase the proposed power lines will pose a permanent collision/electrocution risk to six of these species, of which the European Roller R446 is most likely to be encountered in the area. There are 17 non-threatened species associated with woodland habitats which could experience a low risk of disturbance during the construction phase, none of which are known to have been involved in accidents with power lines. Collision incidents are known for an

additional ten non-threatened species, with the risk considered to be low in all species except for the Southern Pale Chanting Goshawk R162 where the risk is considered to be moderate, and the Red-eyed Dove R352 where the risk is considered to be high.

### **Aquatic**

Aquatic habitats and the birds associated with it were already considered under the earlier waterbird heading.

### **Grassland**

A sizeable proportion of the route of the proposed power line will be crossing over open grassland. Only 17.5% of the species recorded in the SAC9Q-block are associated with grassland habitats. A large proportion of these species (60.3%) are however also associated with other habitats. A fifth of the grassland species are endemics. None of the nine Red Data species associated with grassland are likely to experience disturbance. Fatal incidents involving power line infrastructure are known for three of these species, but all three are presently infrequent visitors to the project site. Of the non-threatened species associated with grassland, 19 are residents with a low risk that they could experience disturbance during construction, especially if construction coincides with their breeding season. In one species, the Egyptian Goose R102, the risk is considered to be moderate as a pair is possibly breeding on an existing pylon close to the proposed new power line. For two of the three species which are known to collide with power lines the risk of this happening is considered to be moderate. An additional five other grassland species recorded in the SAC9Q-block are also known to collide with power lines. In all cases except the Northern Black Korhaan R239a (moderate) the risk is considered to be low.

### **Scrub**

In the study area scrubland is associated with the Bloemfontein Karroid Shrubland found in the vicinity of the proposed Rooidam substation in the west, and along the hilly eastern section of the proposed power line. Although only 13.9% of the species recorded in the SAC9Q-block are associated with scrub habitats, more than a quarter (26.0%) of them are endemics. Two-thirds of these species are however also associated with other habitat, mainly grassland or woodland. None of the six Red Data species associated with scrubland are likely to experience disturbance. Fatal incidents involving power line infrastructure are known for three of these species, but all three are presently infrequent visitors to the project site. Thirteen non-threatened species associated with scrubland are residents with a low risk that they could experience disturbance during construction, especially if construction coincides with

their breeding season. Only the Greater Kestrel R182 is expected to be exposed to a moderate risk of disturbance. Except for the Greater Kestrel

R182 and Red-capped Lark R507, none of the rest are known to collide with power lines. Fatal interactions with power line infrastructure are known for an additional three species associated with scrub. In all these cases the risk for collisions are considered to be low, except for the Southern Pale Chanting Goshawk R162 (moderate risk) which is relatively common in the north-eastern portion of the project site.

### **Montane/Rocky**

In the project site this type of habitat is closely associated with Bloemfontein Karroid Shrubland and is confined to an isolated outcrop near the proposed Rooidam substation, and the mountain area in the east. Only 4.2% of the species known to occur in the SAC9Q-block are associated with this type of habitat with approximately a quarter of them being endemics. The Verreaux's Eagle R131 and African Rock Pipit R721 are the only Red Data species in this group, but neither presently occurs in the footprint area. Three non-threatened species associated with montane habitats are relatively common in the eastern aspect of the study area and could potentially experience disturbance during the construction phase. For an additional two species, collision (and electrocution) incidents are known. In the case of the Peregrine Falcon R171, an individual was observed to hunt at a wetland which is in the path of the proposed new power line. Consequently the proposed power line may pose a moderate risk to these birds.

### **Other habitats**

Neither forest nor marine habitats occur in the immediate vicinity of the proposed development.

All 15 species associated with forest habitats are also associated with woodland, and four of them are additionally associated with scrub. Thirteen of the 18 species associated with marine habitats are also associated with freshwater systems. Although the remaining five species are primarily associated with marine habitats, they also frequent inland aquatic systems.

### **Habitat generalists**

Habitat generalists constitute 17.8% of the species occurring in the SAC9Q-block. This includes seven Red Data species of which only the Secretarybird R118 and Lanner Falcon R172 are presently resident in the area. Neither of the latter two species is likely to experience disturbance during construction, however both species will be exposed to a moderate risk of collisions with the proposed new power line. Six non-threatened species are resident habitat generalists which may experience disturbance

during the construction phase, but in all cases the risk is considered to be low. For the three species for which fatal incidents with power line infrastructure is known, the risk is considered to be moderate or high (xdfv; Laughing Dove R355). Fatal power line related incidents are known for an additional 27 habitat generalists, but for most of them the risk is considered to be low. The exceptions are the Rock Dove R348 and Speckled Pigeon R349 which commutes daily between the city and the surrounding agricultural fields, the Cattle Egret R071 and Hadedda Ibis R094 which are relatively common in the area, and the African Sacred Ibis R091 which is expected to move daily across the proposed new power line at the Noordstad dumping site.

### **Conclusions & Recommendations**

It is highly likely that the proposed new power line — representing a permanent collision hazard as it does — will cause the death of many birds over the course of its lifespan, regardless of the mitigation strategy followed. Most of the victims will likely include pigeons, doves, ducks or other species which are not currently of any particular conservation concern. However, two Red Data species are relatively common in the area and could potentially collide with the proposed power lines.

It is concluded that there are no fatal flaws with the proposed Havard-Noordstad power line project. However, it is recommended that the mitigation strategies considered in the specialist report be implemented. Once the route is finalised and the exact position of the towers have been surveyed and pegged, the input of an avifauna specialist must be obtained in order to determine where anti-collision devices such as bird flight diverters must be installed as per the recommendations herein.



### 3 SECTION C: PUBLIC PARTICIPATION

#### 3.1 ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Die Volksblad & Bloemfontein Express Newspaper	
<b>Date published</b>	Will be included into the Final BA & PPP Report.	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	Will be included into the final BA & PPP Report.	Will be included into the final BA & PPP Report.
<b>Date placed</b>	23 May 2017 & 24 May 2017	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

- **See Appendix E for all proof in the Public Participation Process Report**

### 3.2 DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I & APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

A comprehensive Public Participation Process (PPP) will be undertaken with all stakeholders and Interested and Affected Parties (I & AP's), including the relevant Organs of State and competent authority (Department of Environmental Affairs DEA) as identified.

The PPP will be conducted in accordance with the requirements of Regulation 41 of the EIA Regulations, 2014 and the designated Public Participation Officer ensured that the PPP is facilitated in a manner which ensures reasonable opportunity for all stakeholders and registered I & AP's to comment and provide input on the proposed project.

- Background Information Documents (BID) were distributed to all relevant landowners of properties through which the proposed transmission line will traverse and sub-stations will be developed as far as practicably possible. BID's were also distributed as far as practicably possible to landowners of adjacently located properties who might be affected by the proposed development. Landowners were informed of the proposed project and contact details were obtained in the process (see the I & AP notification register below).his process was conducted on the following dates:
  - 10, 14, 15, 16 & 18 February 2017
- An unofficial pre-application public participation meeting was conducted on 25 March 2017 at the Langenhovenpark Public Library. The main objective of the meeting was to pro-actively attempt to identify and address some of the major concerns that landowners may have so as to try to finalise a line route corridor which would as far as practicably possible suite relevant landowners. After the conclusion of the meeting, a final line route corridor was decided upon by the applicant based on the comments and recommendations received during the meeting. This final line route corridor will be applied for during the Basic Assessment process.
- The Draft Basic Assessment Report will be completed and submitted to the competent authority (Department of Environmental Affairs) on 23 May 2017 for comments. The competent authority acknowledgement of receipt letter will be included into the final PPP Report.
- An advertisement will be placed in the Volksblad newspaper on 23 May 2017 as well as the Bloemfontein Express newspaper on 24 May 2017. The Bloemfontein Express is a free local

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newspaper distributed in the Mangaung Metropolitan Municipal area. The advertisement will provide details on the project and an invitation for the public to register an interest in the project. The advertisement also indicated the Public Participation Process commencement and closing dates as well as all the other necessary information required. Proof of advertisement will be included into the final PPP Report.

- Site notices will be placed on 23 May 2017 at strategic, conspicuous and accessible locations in the vicinity of the proposed project area. The site notices will provide details on the project and an invitation for the public to register an interest in the project. The site notices will also indicate that the Public Participation Process for the proposed project would commence on 23 May 2017 and conclude on 23 June 2017 as well as all the other necessary information required. Proof of site notices will be included into the final PPP Report.
- Two hardcopies of the draft Basic Assessment Report will be made available to the public for comment on 23 May 2017 in the Langenhovenpark and Noordstad areas of Bloemfontein. Proof of hardcopies placement will be included into the final PPP Report.
- A hardcopy will be hand delivered to the competent authority on 23 May 2017.
- A notification email will be sent to all the identified stakeholders, I & AP's and relevant organs of state on 23 May 2017. The email will provide details on the project and an invitation for all to register an interest in the project. The email will also indicate that the Public Participation Process for the proposed project would commence on 23 May 2017 and conclude on 23 June 2017 as well as all the other necessary information required. Proof of email and delivery receipts will be included into the final PPP Report.
- A comprehensive list of stakeholders was identified during the completion of the Basic Assessment Report. This list will be utilised for the purposes of the transmission line PPP.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Xolisa Songcaka	Eskom	songcaxh@eskom.co.za
Andrea van Gense	Eskom	vgenseal@eskom.co.za
John Geeringh	Eskom	John.geeringh@eskom.co.za
Willem Voigt	Telkom	VoigtW@telkom.co.za
Andre Bodenstein	Transnet	andre.bodenstein@transnet.net
Ms. Victoria Bota	SANRAL	BotaV@nra.co.za
Ntando PZ Mbatha (Heritage Coordinator)	Heritage Free State	mbatha.npz@sacr.fs.gov.za
Natasha Higgitt	SAHRA	nhiggitt@sahra.org.za

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Daryl Barnes	Zoo Manager	daryl.barnes@mangaung.co.za
Mamello Mpholo	CENTLEC	mamello.mpholo@CENTLEC.co.za
Kishoor Pitamber	YBG	kpitamber@ybg.co.za
Paul Lambrechts	YBG	paul@ybg.co.za
Jack Armour	Free State Agriculture	jack@vslandbou.co.za
Belinda Glenn	Endangered Wildlife Trust	belindag@ewt.org.za
Harry Roberts	SACAA - South African Civil Aviation Authority	robertsh@caa.co.za
L Stroh	SACAA - South African Civil Aviation Authority	strohl@caa.co.za
Johan der der Berg	SENTECH	vdbergj@sentech.co.za
Simon Gear	BirdlifeSA	advocacy@birdlife.org

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.
- **See Appendix E for all proof of notifications in the Public Participation Process Report**

### 3.3 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

**Table 1: Summary of comments received and responses provided prior to the official commencement of the PPP**

Commenting party	Comment received	Response provided
<p>1. Wally Goodrich</p> <p>Portion 4 of the Farm Voorspoed no 1788 (SG: F00300000000178800004)</p>	<p>Via email on 14 February 2017</p> <p>Dear Mr Lamprecht</p> <p>This is just a friendly mail stating that I object to any electrical lines to be erected on my property. No access will be granted to anyone, to enter my property at any given time. You may register Walter Goodrich Trust as a I &amp; AP, as we will be objecting to the proposed erection of this line on our property. We will take this matter to the high courts if needed.</p> <p>Regards Walter Goodrich Trustee</p>	<p>Via email on 15 February 2017</p> <p>Good day Mr Goodrich</p> <p>Hope all is well. Your comments regarding the project are duly noted and will be included in the EIA Report . As indicated to you telephonically, you will be officially informed once the 30 day public participation process commences. During this process you will be required to formally submit any comments or objections regarding the project. Feel free to contact me with any further uncertainties. Have a safe day.</p> <p>Regards</p>
<p>2. Andre Venter</p>	<p>Via email on 16 February 2017</p> <p>Hi Rikus</p> <p>Andre venter van Vuurenlaan 36 groenvlei. Gedeelte 1 Van 12 Van plaas Roidam Rikus die kaart wat jy saam met die inligting dokumente gestuur het, is vir my onduidelikheid Van waar die krag drade gaan loop. 1) Kan jy my dalk net inlig waar die drade gaan loop en hoe die drade ons eiendom se waarde gaan beïnvloed. 2) Watse gesondheids nadele sulke</p>	<p>Via email on 16 February 2017</p> <p>Goeie dag Andre</p> <p>Hoop dit gaan goed. U kommentaar op die projek word genoteer en sal in die EIA verslag ingesluit word. Soos egter telefonies bespreek, sal u offisieel ingelig word van die aanvang van die 30 dae publieke deelname proses. Gedurende hierdie proses sal u versoek word om enige kommentaar of</p>

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	<p>hoogs spanning drade vir ons gaan inhou.            3)Gaan dit enige verskil maak aan ons huideglike krag onderbreeking probleme            Groete Andre            Cell 0825460166</p>	<p>besware rakende die projek formeel in te dien aan my.            Kontak my gerus met enige verdere onsekerehede.            Geniet die naweek.             Groete</p>
3. Hennie van Rensburg	<p>Via email on 17 February 2017</p> <p>Dear Rikus</p> <p>Herewith please be advised that I, Hendrik Schalk Jansen van Rensburg, ID 6405015026086, cell 0836307843 elect to be registered as a affected party regarding the abovementioned EIA.</p> <p>Regards            Hennie</p> <p>Hennie van Rensburg            Property Developer            Retail Department   Engen Sales + Marketing Division            PO Box 414 • Bloemfontein • 9300 •            Fax:+27 51 503 7047            Tel: +27 51 503 7006 Cell: +27 83 630 7842            Hennie.vanRensburg@engenoil.com</p> <p>Reply via email on 17 February 2017            Rikus</p> <p>Het jou twee keer gekontak en kon jou nie bereik nie.</p> <p>Hennie</p>	<p>Via email on 17 February 2017</p> <p>Good day Mr van Rensburg</p> <p>Thank you for registering an interested in the project.            I am unfortunately struggling to get hold of you telephonically.            Will you kindly please give me a call on my cell phone to discuss.            Thank you.</p> <p>Regards</p>
4. Fanie Joubert	<p>Via email on 10 March 2017</p> <p>Hi Rikus,</p> <p>Hoop dit gaan goed.</p> <p>Dis vir ons nodig om kennis van die beplande kraglyne se roetes te kry om daarop te kan reageer.</p> <p>Sal jy asb vir my die beplande roetes mail, Het huidig geen kennis daarvan</p>	<p>Via email on 13 March 2017</p> <p>Goeie dag Mnr Joubert</p> <p>Hoop dit gaan goed.            Soos telefonies bespreek, projek en spesialis inligting is ongelukkig nog in die proses om gefinaliseer te word.            Sodra die finale verslae rakende die voorgestelde</p>

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	<p>nie. Ek woon in Pta en is 1/4 aandeelhouer in die plaas Hillandale 249.</p> <p>Groete Fanie Joubert. 0828780481.</p>	<p>projek voltooi is, sal alle geaffekteerde partye formeel ingelig word van die beskikbaarheid van die inligting en die aanvang van die publieke deelname proses.</p> <p>Stuur asb ook vir my die ander relevante individue se kontak inligting deur, baie dankie.</p> <p>Laatweet gerus indien daar enige onduidelikhede is. Geniet die week.</p> <p>Groete</p>
5. Johann Nel	<p>Via email on 31 March 2017</p> <p>Hi Rikus,</p> <p>Ek was Saterdag by die vergadering ,maar het nie tot die einde gebly nie. Wat is die pad nou vorentoe? Ek sien in die epos word daar genoem dat 'n eposl uitgestuur sal word rakende die PPP, is dit al uitgestuur?</p> <p>Groete Johann</p>	<p>Via email on 31 March 2017</p> <p>Goeie dag Mnr Nel</p> <p>Hoop dit gaan goed. n Finale lynroete word tans gefinaliseer deur CENTLEC gebasseer op die inligting en moontlike voorstelle van Saterdag se vergadering. Sodra die omgewingsimapkstudie se verslae voltooi is en die aansoek ingedien word gedurende April 2017 sal n offisiële epos uitgestuur word aan alle betrokke partye om die aanvang van die 30 dae publieke deelname aan te kondig. Laat weet gerus indien daar enige verdere onsekerhede is. Geniet die naweek.</p> <p>Groete</p>
6. Department of Agriculture , Forestry and Fisheries - Malcolm P	<p>Via email on 4 April 2017</p> <p>Good Morning We have no Protected trees in that area</p>	<p>Via email on 4 April 2017</p> <p>Good day sir Hope all is well.</p>

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	We will therefore have no i=concerns regarding this line M Procter DD DAFF Free State	Thank you very much for the feedback in this regard. Your comment will be noted in the PPP Report. Have a safe week.  Regards
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- This table will be populated and completed once the PPP has concluded.



### **3.4 COMMENTS AND RESPONSE REPORT**

The practitioner must record all comments received from I & APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

- **See Appendix E for all proof of comments received and responses provided in the Public Participation Process Report. Will be completed once the PPP has been concluded.**

### 3.5 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel number	Email
DEA - Competent Authority	Muhammad Essop	012 399 9406	MEssop@Environment.gov.za
DEA - Biodiversity and Conservation Directorate	Seoka Lekota	012 399 9573	slekota@environment.gov.za
DEA - Biodiversity and Conservation Directorate	Stanley Tshitwamulomoni	012 399 9573	StanleyT@environment.gov.za
DWS - Department of Water and Sanitation	Willem Grobler		groblerw@dws.gov.za
DWS - Department of Water and Sanitation	Carlo Schrader	0829083921	schrader@dwa.gov.za
DWS - Department of Water and Sanitation	Pius Lerotholi	051 405 9163	LerotholiP@dwa.gov.za
DAFF - Department of Agriculture, Forestry and Fisheries	Thami		NomathamsanqaG@daff.gov.za
DAFF - Department of Agriculture, Forestry and Fisheries	Jacoline Mans	082 808 2737	JacolineMa@daff.gov.za
DAFF – Registry	Hettie Buys		HettieB@daff.daff.gov.za
Directorate: Land Use and Soil Management, Department of Agriculture, Forestry and Fisheries	Anneliza Collett	123 197 508	AnnelizaC@daff.gov.za
DMR	Shawn Janneker	0832946256	Shawn.Janneker@dmr.gov.za
DESTEA - Commenting Authority	Michelle Sello	0827894619	sellom@detea.fs.gov.za
DESTEA - Commenting Authority	Grace Mkhosana	0789981560	mkhosana@detea.fs.gov.za
Mangaung Municipal Manager	Sibongile Mazibuko	051 405 8885	Sibongile.Mazibuko@mangaung.co.za
Mangaung Environmental Officer	Mpolokeng Kolobe	051 405 8577	mpolokeng.kolobe@mangaung.co.za
Ward Counsellor 44	Selme Pretorius	082 824 2047	selpret@gmail.com
Ward Counsellor 48	Johan Pretorius	072 226 0222	xgrafies@gmail.com
FS Department: Police, Roads and Transport	Mr. S. Msibi (HOD)	0514098579	HOD@freetrans.gov.za
FS Department: Police, Roads and Transport	C Booyse	0514098481	booysec@freetrans.gov.za
FS Department: Human Settlements	Mr Nthimotse Mokhesi (HOD)	0514054727	hodhs@fshs.gov.za
FS Department: Public Works	Mr. Maditse Wessels Seoke (HOD)	0514054092	hodoffice@fsworks.gov.za
FS Department: Social Development	Ms Matilda Gasela (HOD)	0514090619	hodpa@fssocdev.gov.za
FS Department: Sport, Arts, Culture and Recreation	Adv Tsoarelo Malakoane (HOD)	051 407 3522	hod@sacr.fs.gov.za
Free State Department of Agriculture and Rural Development	Jack Morton	(083) 302 0703	jack@fs.agric.za

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

- **See Appendix E for all proof of notification in the Public Participation Process Report. Will be completed once the PPP has been concluded.**

### 3.6 CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

- **See Appendix E for list of I & AP's as well as all proof in the Public Participation Process Report.**

## 4 SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 4.1 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

#### Methodology

The tables below indicate and explain the methodology and criteria used for the evaluation of the Environmental Risk Ratings as well as the calculation of the final Environmental Significance Ratings of the identified potential environmental impacts.

Each potential environmental impact is scored for each of the Evaluation Components as per table below.

Evaluation Component	Rating Scale and Description/criteria
MAGNITUDE of NEGATIVE IMPACT (at the indicated spatial scale)	<p><b>10 - Very high:</b> Bio-physical and/or social functions and/or processes might be <i>severely</i> altered.</p> <p><b>8 - High:</b> Bio-physical and/or social functions and/or processes might be <i>considerably</i> altered.</p> <p><b>6 - Medium:</b> Bio-physical and/or social functions and/or processes might be <i>notably</i> altered.</p> <p><b>4 - Low :</b> Bio-physical and/or social functions and/or processes might be <i>slightly</i> altered.</p> <p><b>2 - Very Low:</b> Bio-physical and/or social functions and/or processes might be <i>negligibly</i> altered.</p> <p><b>0 - Zero:</b> Bio-physical and/or social functions and/or processes will remain <i>unaltered</i>.</p>
MAGNITUDE of POSITIVE IMPACT (at the indicated spatial scale)	<p><b>10 - Very high (positive):</b> Bio-physical and/or social functions and/or processes might be <i>substantially</i> enhanced.</p> <p><b>8 - High (positive):</b> Bio-physical and/or social functions and/or processes might be <i>considerably</i> enhanced.</p> <p><b>6 - Medium (positive):</b> Bio-physical and/or social functions and/or processes might be <i>notably</i> enhanced.</p> <p><b>4 - Low (positive):</b> Bio-physical and/or social functions and/or processes might be <i>slightly</i> enhanced.</p> <p><b>2 - Very Low (positive):</b> Bio-physical and/or social functions and/or processes might be <i>negligibly</i> enhanced.</p> <p><b>0 - Zero (positive):</b> Bio-physical and/or social functions and/or processes will remain <i>unaltered</i>.</p>

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<b>DURATION</b>	<p><b>5 - Permanent</b></p> <p><b>4 - Long term:</b> Impact ceases after operational phase/life of the activity &gt; 60 years.</p> <p><b>3 - Medium term:</b> Impact might occur during the operational phase/life of the activity – 60 years.</p> <p><b>2 - Short term:</b> Impact might occur during the construction phase - &lt; 3 years.</p> <p><b>1 - Immediate</b></p>
<b>EXTENT</b> (or spatial scale/influence of impact)	<p><b>5 - International:</b> Beyond National boundaries.</p> <p><b>4 - National:</b> Beyond Provincial boundaries and within National boundaries.</p> <p><b>3 - Regional:</b> Beyond 5 km of the proposed development and within Provincial boundaries.</p> <p><b>2 - Local:</b> Within 5 km of the proposed development.</p> <p><b>1 - Site-specific:</b> On site or within 100 m of the site boundary.</p> <p><b>0 - None</b></p>
<b>IRREPLACEABLE</b> loss of resources	<p><b>5 – Definite</b> loss of irreplaceable resources.</p> <p><b>4 – High</b> potential for loss of irreplaceable resources.</p> <p><b>3 – Moderate</b> potential for loss of irreplaceable resources.</p> <p><b>2 – Low</b> potential for loss of irreplaceable resources.</p> <p><b>1 – Very low</b> potential for loss of irreplaceable resources.</p> <p><b>0 - None</b></p>
<b>REVERSIBILITY</b> of impact	<p><b>5 – Impact cannot</b> be reversed.</p> <p><b>4 – Low</b> potential that impact might be reversed.</p> <p><b>3 – Moderate</b> potential that impact might be reversed.</p> <p><b>2 – High</b> potential that impact might be reversed.</p> <p><b>1 – Impact will be</b> reversible.</p> <p><b>0 – No impact.</b></p>
<b>PROBABILITY</b> (of occurrence)	<p><b>5 - Definite:</b> &gt;95% chance of the potential impact occurring.</p> <p><b>4 - High probability:</b> 75% - 95% chance of the potential impact occurring.</p> <p><b>3 - Medium probability:</b> 25% - 75% chance of the potential impact occurring</p> <p><b>2 - Low probability:</b> 5% - 25% chance of the potential impact occurring.</p> <p><b>1 - Improbable:</b> &lt;5% chance of the potential impact occurring.</p>

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<b>CUMULATIVE</b> impacts	<p><b>High:</b> The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern.</p> <p><b>Medium:</b> The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern.</p> <p><b>Low:</b> The activity is localised and might have a negligible cumulative impact.</p> <p><b>None:</b> No cumulative impact on the environment.</p>
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Once the Environmental Risk Ratings have been evaluated for each potential environmental impact, the Significance Score of each potential environmental impact is calculated by using the following formula:

- **SS (Significance Score) = (magnitude + duration + extent + irreplaceable + reversibility) x probability.**

The maximum Significance Score value is 150.

The Significance Score is then used to rate the Environmental Significance of each potential environmental impact as per table below. The Environmental Significance rating process is completed for all identified potential environmental impacts both before and after implementation of the recommended mitigation measures.

Significance Score	Environmental Significance	Description/criteria
125 – 150	Very high (VH)	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
100 – 124	High (H)	An impact of high significance which could influence a decision about whether or not to proceed with the proposed project, regardless of available mitigation options.
75 – 99	Medium-high (MH)	If left unmanaged, an impact of medium-high significance could influence a decision about whether or not to proceed with a proposed project. Mitigation options should be relooked.
40 – 74	Medium (M)	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	Low (L)	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	Positive impact (+)	A positive impact is likely to result in a positive consequence/effect, and is likely to contribute to positive decisions about whether or not to proceed with the project.

4.1.1 Construction phase

Table 2: Environmental Risk and Significance Ratings

	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/transformation of vegetation of pre-existing transformed and disturbed cultivated lands and road servitudes within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (21)	-
Proposed mitigation:	<p>It is recommended that pylons, as far as practicably possible, be placed within such already transformed areas in order to minimise the impacts on remaining semi-natural and natural vegetation.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible.</p>	-
Cumulative impact post mitigation:	Low	-

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<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (18)	-
<b>Proposed project</b>		
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of vegetation of pre-existing transformed and disturbed cultivated lands and road servitudes within the sub-station footprints associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (40)	-
<b>Proposed mitigation:</b>	<p>The construction footprint of the sub-stations must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion should take place.</p> <p>Existing roads, farm tracks and service roads in close proximity to the proposed sub-station locations must be used as far as practicably possible.</p>	



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	The construction and subsequent operation of the sub-stations must be continually managed in terms of an adequate and approved Environmental Management Programme (EMPr).	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (24)	-
<b>Proposed project</b>		
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of semi-natural and natural vegetation within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type and the Winburg Grassy Shrubland (Gh 7) vegetation type</b>	
	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	Low
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (42)

<p><b>Proposed mitigation:</b></p>	<p>It is recommended that the amount of pylons to be placed within these natural areas be restricted and pylons rather be placed in transformed areas, as far as practicably possible. This must be done in order to minimise impacts on the habitat and ecological functionality of the natural areas.</p> <p>It is recommended that the Steel Monopole tower type be implemented in the natural areas as far as practicably possible due to its smaller physical surface footprint size and subsequent reduced impact on the vegetation.</p> <p>Pylon construction footprints must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised pylon footprint expansion should take place.</p> <p>Once the proposed transmission line layout designs have been finalised by the applicant, an ecological walkthrough of the final pylon footprint positions must be conducted in order to identify any potentially significant species individuals which would require relocation. These walkthrough and potential relocation activities must be completed prior to the commencement of and construction processes.</p> <p>No physical maintenance (removal or defoliation by means of cutting or burning) is allowed on the natural vegetation present inside the proposed</p>	<p>It is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type.</p>
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	<p>transmission line route servitude.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible.</p> <p>Significant care must be taken to ensure that no significant woody shrubs or trees are removed from the route corridor during the construction or operational/maintenance phase of the proposed project development. If any removal of woody shrubs or trees individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.</p> <p>It is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type.</p>	
<b>Cumulative impact post mitigation:</b>	Low	Low
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High,</b>	Low (28)	Low (22)

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or Very-High)		
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of natural vegetation within the sub-station footprints associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium-High (76)	-
<b>Proposed mitigation:</b>	<p>The construction footprint of the sub-stations must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion should take place.</p> <p>Once the sub-station designs have been finalised by the applicant, an ecological walkthrough of the final sub-station footprints must be conducted in order to identify any potentially significant species individuals which would require relocation. These walkthrough and potential relocation activities must be completed prior to the commencement of any</p>	

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	<p>construction processes.</p> <p>Existing roads, farm tracks and service roads in close proximity to the proposed sub-station locations must be used as far as practicably possible.</p> <p>The construction and subsequent operation of the sub-stations must be continually managed in terms of an adequate and approved Environmental Management Programme (EMPr).</p>	
<b>Cumulative impact post mitigation:</b>	Medium	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (72)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of a Critical Biodiversity Area associated with the transmission line route corridor</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	-

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<p><b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b></p>	<p>Medium-High (80)</p>	<p>-</p>
<p><b>Proposed mitigation:</b></p>	<p>It is recommended that the amount of pylons to be placed within the CBA be restricted, as far as practicably possible, in order to minimise impacts on the habitat and ecological functionality of the natural areas.</p> <p>It is instructed that only the Steel Monopole tower type be implemented in the CBA due to its smaller physical surface footprint size and subsequent reduced impact on the vegetation.</p> <p>Pylon construction footprints must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised pylon footprint expansion should take place.</p> <p>Pylon placement within any significant rocky outcrops of the Bloemfontein Karroid Shrubland (Gh 8) vegetation type to be prevented as far as practicably possible.</p> <p>No site camp footprint to be established within the CBA and the entire construction phase planning and layout which is to occur within the CBA to</p>	

firstly be reviewed and approved by a suitably qualified, registered and experienced ecologist in order to ensure minimal impact is achieved.

Once the proposed transmission line layout designs have been finalised by the applicant, an ecological walkthrough of the final pylon footprint positions within the CBA must be conducted in order to ensure that no Bloemfontein Karroid Shrubland (Gh 8) vegetation type rocky outcrops will be significantly impacted upon and to identify any potentially significant species individuals which would require relocation. These walkthrough and potential relocation activities must be completed prior to the commencement of and construction processes.

No physical maintenance (removal or defoliation by means of cutting or burning) is allowed on the natural vegetation present inside the proposed transmission line route servitude.

Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible. An existing CENTLEC 33 kV transmission line already runs through a portion of the CBA and the proposed transmission line will be developed directly adjacent to it. This could enable the utilisation of exiting service roads.

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	<p>Significant care must be taken to ensure that no significant woody shrubs or trees are removed from the route corridor during the construction or operational/maintenance phase of the proposed project development. If any removal of woody shrubs or trees individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.</p> <p>The noise impact and disturbance of wild animals and game must be adequately managed and kept to a minimum during construction.</p>	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (57)	-



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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Destruction/damage to Red Data Listed or protected species individuals associated with the transmission line route corridor and sub-station footprints	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (54)	-
Proposed mitigation:	<p>Pylon construction footprints must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised pylon footprint expansion should take place.</p> <p>Once the proposed transmission line layout designs have been finalised by the applicant, an ecological walkthrough of the final pylon footprint positions must be conducted in order to identify any potentially significant species individuals which would require relocation. These walkthrough and potential relocation activities must be completed prior to the commencement of any construction processes.</p> <p>The construction footprint of the sub-stations must be kept as small as</p>	-

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	<p>practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion should take place.</p> <p>Once the proposed sub-station designs have been finalised by the applicant, an ecological walkthrough of the final sub-station footprints must be conducted in order to identify any potentially significant species individuals which would require relocation. These walkthrough and potential relocation activities must be completed prior to the commencement of any construction processes.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible.</p>	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (36)	-

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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Surface material erosion	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (40)	-
Proposed mitigation:	Implement suitable erosion prevention measures at all construction footprints.  Areas around pylon footprints must be adequately rehabilitated to prevent significant erosion.	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (20)	-

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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Alien invasive species establishment	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (56)	-
Proposed mitigation:	<p>Implement suitable alien invasive species prevention measures at all construction footprints.</p> <p>Areas around pylon footprints must be adequately rehabilitated to prevent significant alien invasive species establishment.</p>	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Damage to or impeding of watercourses	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (60)	-
Proposed mitigation:	<p>Any impact on the vegetation and watercourse structures or impediment or diversion of flow must be completely avoided. Transmission line design and layout must therefore ensure the continued ecological functionality and unimpeded flow of the watercourse after construction completion.</p> <p>Care must be taken to ensure that no woody shrubs or trees are removed from the watercourse areas during the construction or operational/maintenance phase of the proposed project development. If any removal of woody shrubs or trees individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.</p>	-

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	<p>Adequate buffer areas to be implemented around identified watercourses.</p> <p>No access or construction routes or any physical footprint impacts are to be made within the recommended buffer areas without the prior inspection and approval by a suitably qualified, registered and experienced ecologist..</p> <p>No pylons to be constructed within the recommended buffer areas. If any pylon construction is required within the buffer areas, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the proposed footprint areas and provide recommendations on their management.</p> <p>Any areas around the watercourses potentially impacted by the construction of the transmission line must be to be adequately rehabilitated.</p>	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (38)	-

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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Avifaunal habitat destruction and displacement caused by sub-station development	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Low	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (32)	-
Proposed mitigation:	The footprint of all construction related activities should be restricted to designated areas and minimized wherever practically possible.	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (28)	-

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	Proposed project	No-Go Alternative
<b>Identified Environmental Impacts</b>	<b>Avifaunal disturbance and displacement caused by transmission line development</b>	
	Alternative 1	Alternative 2
<b>Cumulative impact prior to mitigation:</b>	Low	Low
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (24)	Low (24)
<b>Proposed mitigation:</b>	The footprint of all construction related activities should be restricted to designated areas and minimized wherever practically possible.	The footprint of all construction related activities should be restricted to designated areas and minimized wherever practically possible.
<b>Cumulative impact post mitigation:</b>	Low	Low
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (24)	Low (24)



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	Proposed project	No-Go Alternative
<b>Identified Environmental Impacts</b>	<b>Damage or destruction of archaeological and palaeontological heritage</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (27)	-
<b>Proposed mitigation:</b>	<p>Restrict all development work to the proposed project footprint as this was the area assessed during the site inspection.</p> <p>If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/John Gribble 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Itumeleng Masiteng/Mimi Seetelo 012 320 8490), must be alerted immediately. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted</p>	-

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	as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required.	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (18)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Potential visual impact on sensitive visual receptors, located within a 5km radii of the Harvard Powerline</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	High(100)	-
<b>Proposed mitigation:</b>	Minimise vegetation clearance to ensure that visual absorption capacity is not destroyed;	-

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	<p>A site layout plan must be submitted prior to construction to ensure infrastructure is placed in such a manner that minimum vegetation is cleared;</p> <p>Consolidate infrastructure as much as possible and make use of already disturbed areas rather than pristine sites, wherever possible;</p> <p>Lighting:</p> <ul style="list-style-type: none"><li>Make use of downward directional lighting fixtures;</li><li>Make use of minimum lumen or wattage in fixtures;</li><li>Make use of down-lighters, or shielded fixtures;</li><li>Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.</li></ul> <p>Construction Phase Mitigation:</p> <p>Ensure vegetation is not unnecessarily cleared or removed during the construction period;</p> <p>Reduce the construction period through careful logistical planning and productive implementation of resources;</p>	
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	<p>Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads;</p> <p>Ensure that rubble, litter, and disused construction materials are appropriately stored and then disposed regularly at licensed waste facilities;</p> <p>Reduce and control construction dust through the use of approved dust suppression techniques as and when required;</p> <p>Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting;</p> <p>Ensure that all areas are properly rehabilitated.</p>	
<p><b>Cumulative impact post mitigation:</b></p>	<p>Medium</p>	<p>-</p>
<p><b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b></p>	<p>Medium (54)</p>	<p>-</p>

4.1.1 Operational phase

Table 3: Environmental Risk and Significance Ratings

	Proposed project	No-Go Alternative
<b>Identified Environmental Impacts</b>	<b>Continued destruction/transformation of semi-natural and natural vegetation within the transmission line route corridor associated with the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type and the Winburg Grassy Shrubland (Gh 7) vegetation type</b>	
	Alternative 1	Alternative 2
<b>Cumulative impact prior to mitigation:</b>	Medium	Low
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (42)
<b>Proposed mitigation:</b>	<p>No physical maintenance (removal or defoliation by means of cutting or burning) is allowed on the natural vegetation present inside the proposed transmission line route servitude.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible.</p>	<p>It is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type.</p>

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	Significant care must be taken to ensure that no significant woody shrubs or trees are removed from the route corridor during the construction or operational/maintenance phase of the proposed project development. If any removal of woody shrubs or trees individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.	
<b>Cumulative impact post mitigation:</b>	Low	Low
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (28)	Low (22)
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Continued destruction/transformation of a Critical Biodiversity Area associated with the transmission line route corridor</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High,</b>	Medium-High (80)	-

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<b>or Very-High)</b>		
<b>Proposed mitigation:</b>	<p>No physical maintenance (removal or defoliation by means of cutting or burning) is allowed on the natural vegetation present inside the proposed transmission line route servitude.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible. An existing CENTLEC 33 kV transmission line already runs through a portion of the CBA and the proposed transmission line will be developed directly adjacent to it. This could enable the utilisation of exiting service roads.</p> <p>Significant care must be taken to ensure that no significant woody shrubs or trees are removed from the route corridor during the construction or operational/maintenance phase of the proposed project development. If any removal of woody shrubs or trees individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.</p>	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation</b>	Medium (57)	-

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<b>(Low, Medium, Medium-High, High, or Very-High)</b>		
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Continued destruction/damage to Red Data Listed or protected species individuals associated with the transmission line route corridor and sub-station footprints</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (54)	-
<b>Proposed mitigation:</b>	<p>No physical maintenance (removal or defoliation by means of cutting or burning) is allowed on the natural vegetation present inside the proposed transmission line route servitude.</p> <p>Existing roads, farm tracks and service roads of existing lines running in close proximity to the proposed transmission line route must be used as far as practicably possible.</p> <p>Significant care must be taken to ensure that no significant species</p>	



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	individuals are destroyed or damaged during the operational/maintenance phase of the proposed project development. If any removal of significant species individuals is required, a suitably qualified, registered and experienced ecologist must be assigned to firstly inspect the individuals and provide recommendations on their management or potential removal or the possibility of relocation.	
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (36)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Continued surface material erosion</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High,</b>	Medium (40)	-

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or Very-High)		
Proposed mitigation:	<p>Implement suitable erosion prevention measures at all construction footprints.</p> <p>Areas around pylon footprints must be adequately rehabilitated to prevent significant erosion.</p>	-
Cumulative impact post mitigation:	Low	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (20)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
Identified Environmental Impacts	Continued alien invasive species establishment	The proposed development will not take place and as such this impact will not occur
Cumulative impact prior to mitigation:	Medium	-
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High,	Medium (56)	-

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or Very-High)		
<b>Proposed mitigation:</b>	<p>Implement suitable alien invasive species prevention measures at all construction footprints.</p> <p>Areas around pylon footprints must be adequately rehabilitated to prevent significant alien invasive species establishment.</p>	-
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (28)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Continued damage to or impeding of watercourses</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High,</b>	Medium (60)	-

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<b>or Very-High)</b>		
<b>Proposed mitigation:</b>	<p>Any impact on the vegetation and watercourse structures or impediment or diversion of flow during management/maintenance processes must be completely avoided.</p> <p>No service roads are to be constructed through any watercourses or within the recommended buffer areas.</p>	-
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (38)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Avifaunal habitat destruction and displacement caused by sub-station development</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Cumulative impact prior to mitigation:</b>	Low	-
<b>Significance rating of impact prior to mitigation</b>	Low (32)	-

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<b>(Low, Medium, Medium-High, High, or Very-High)</b>		
<b>Proposed mitigation:</b>	Maintain and increase natural lit areas following the guidelines provided by Gaston et al. (2012);  Wherever possible, grazing or mechanical methods should be used instead of chemical alternatives to keep the vegetation in check where necessary.	-
<b>Cumulative impact post mitigation:</b>	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (28)	-
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Positive avifaunal impact caused by sub-station development</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Positive	-

<p><b>Proposed mitigation:</b></p>	<p>Avoid the use of lattice-type structures in order to minimize perching and nesting opportunities;</p> <p>Minimize standing water. This will make it more difficult for the swallow species to obtain mud for their nests. It will also help to minimize the risk of large congregations of birds near the substation.</p> <p>It is recommended that the new substations should be inspected for nesting activity at least once a month. This can be accomplished during routine maintenance activities.</p> <p>Observations at substations suggest that the only effective counter measure against small birds nesting in equipment is to remove the nesting material when it appears (Van Rooyen &amp; Ledger 1999). The same strategy is recommended for the new substation, but only if the nest belongs to one of the species indicated above, and if it interferes with the substation's operation and/or creates a fire risk. In cases where a species other than those indicated above are involved, permission should first be obtained from the local nature conservation authorities. If the surveys for nests are done regularly as recommended above (at least once a month), then it would help minimize the risk of eggs or nestlings being involved.</p>	<p>-</p>
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<b>Significance rating of impact after mitigation</b> (Low, Medium, Medium-High, High, or Very-High)	Positive	
	<b>Proposed project</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Avifaunal collision and electrocution caused by transmission line development</b>	
	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium
<b>Significance rating of impact prior to mitigation</b> (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	Medium-High (76)
<b>Proposed mitigation:</b>	<p>The proposed new power line should be of a horizontal design where conductors are all on the same height.</p> <p>In addition, bird flight diverters or other suitable devices should be fitted to the earth wires of power line sections crossing major drainage lines following the guidelines provided by Jenkins et al. (2010).</p>	<p>The proposed new power line should be of a horizontal design where conductors are all on the same height.</p> <p>In addition, bird flight diverters or other suitable devices should be fitted to the earth wires of power line sections crossing major</p>

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	<p>The Southern Alternative is preferred to the Northern Alternative.</p> <p>With regards to wetlands WL1 and WL2, reroute the proposed power line in a way that it does not approach them closer than 100 m.</p> <p>Electrocution risk is primarily a function of power line tower design and bird body size and behaviour (Guil et al. 2011; Lehman et al. 2007; Van Rooyen 2003). Since the best strategy for avoiding bird electrocution is to use low risk power line tower designs (Van Rooyen 2003), it is recommended that such designs must be used for the proposed project following available guidelines (e.g. Ferrer 2012; Guil et al. 2011; Van Rooyen 2003).</p>	<p>drainage lines following the guidelines provided by Jenkins et al. (2010).</p> <p>The Southern Alternative is preferred to the Northern Alternative.</p> <p>With regards to wetlands WL1 and WL2, reroute the proposed power line in a way that it does not approach them closer than 100 m.</p>
<b>Cumulative impact post mitigation:</b>	Low	Low
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (57)	Medium (57)



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	Proposed project	No-Go Alternative
Identified Environmental Impacts	Positive avifaunal impact caused by transmission line development	The proposed development will not take place and as such this impact will not occur
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive	-

## 4.2 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

### Heritage Impact Assessment

The powerline footprint traverses existing road reserves, degraded farmland and areas formerly disturbed by the residential developments. The associated distribution centre footprints are located on degraded farmland, areas formerly disturbed by the residential developments and relatively undisturbed patches of open veld. The Rayton, Lilyvale Hillandale and Bayswater farms north of Bloemfontein represent historically as well as archaeologically significant landscapes. The proposed route options however circumvent these areas, which also include the Seven Dams Conservancy and the Botanical Gardens.

A pedestrian survey revealed no evidence of in situ Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock art, graves or historically significant structures older than 60 years within the proposed footprints. It is advised that both options for the Hillandale loop-in represents low potential impact for underground finds because it largely traverses previously disturbed areas. As far as the archaeological heritage is concerned, the power line and distribution centre footprints are considered to be of low archaeological significance and are assigned a site rating of Generally Protected C. The proposed development may proceed with no further assessments required.

If, in the unlikely event that capped archaeological remains not observed are discovered during the construction phase of the project, it is recommended that the relevant heritage authority and a professional archaeologist are called in to investigate.

### Ecological Impact Assessment

More than half of the transmission line route corridor (approximately 20.6 km) and four of the sub-station footprints are situated in pre-existing transformed and disturbed areas with little to no natural vegetation remaining. These areas therefore don't play a significant role in the ecological functionality of

the natural surrounding ecosystem and vegetation and have a low conservation value. It is in the opinion of the specialist that the construction of the proposed transmission line and associated sub-stations in such transformed areas will therefore not pose any significant additional ecological impacts and the project should be allowed to continue.

Although the proposed transmission line route corridor crosses a number of watercourses and also traverses semi-natural and natural areas forming part of an endangered vegetation type as well as a Critical Biodiversity Area (CBA), the majority of the transmission line will have a small actual surface footprint impact on vegetation; impact will mainly be restricted to pylon construction footprints. The presence of an existing line has also slightly reduced the local pristineness in its immediate vicinity. The significance of the impact on the CBA will thereof be lower than it would have been if the line had to traverse another portion of the CBA on its own. The two remaining sub-stations will also be situated within natural areas but their impacts will be restricted to their physical surface footprints.

Although Alternative 1 will also be an acceptable route to follow due to the low level of the actual impacts on the natural vegetation, it is recommended that Alternative 2 for the proposed transmission line route corridor rather be followed in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type. It is also recommended that the Steel Monopole tower type be implemented rather than the Steel Lattice tower type as far as practicably possible due to its smaller physical surface footprint size and subsequent reduced impact on the vegetation.

Only one Red Data Listed species (*Boophone disticha*; Declining) and number of provincially protected species were identified within the proposed transmission line route corridor and associated sub-station footprints. The development of the transmission line and associated sub-stations will inevitably destroy or damage such individuals. The physical impacts relating to the transmission line will however be localised in extent and mainly restricted to the actual proposed pylon footprint areas. Although a Red Data Listed species was identified, the presence and distribution extent is low.

It is in the opinion of the specialist that all identified potential ecological impacts in such important areas can be suitably reduced to within acceptable levels and that the project should therefore be allowed to continue. The proposed project may however only continue if all recommended mitigations measures as per this ecological report are adequately implemented and managed for both the construction and

operational phases of the proposed project. All necessary authorisations and permits must also be obtained prior to any commencement.

### **Avifaunal Impact Assessment**

It is highly likely that the proposed new power line — representing a permanent collision hazard as it does — will cause the death of many birds over the course of its lifespan, regardless of the mitigation strategy followed. Most of the victims will likely include pigeons, doves, ducks or other species which are not currently of any particular conservation concern. However, two Red Data species are relatively common in the area and could potentially collide with the proposed power lines.

It is concluded that there are no fatal flaws with the proposed Harvard-Noordstad power line project. However, it is recommended that the mitigation strategies considered in the specialist report be implemented. Once the route is finalised and the exact position of the towers have been surveyed and pegged, the input of an avifauna specialist must be obtained in order to determine where anti-collision devices such as bird flight diverters must be installed as per the recommendations herein.

### **Visual Impact Assessment**

It is envisaged that the structures, will be highly visible from a two kilometre (2 km) radius especially for commuters and residence within this radius. The study area contains elevated areas and built up environments minimizing the visual impact to 5 km. Beyond the five kilometre buffer the proposed project will be visible from elevated areas such as koppies. It is anticipated that should the applicant decide to implement the recommended mitigation measures the overall visual impact of the Harvard Powerline will be moderate. The Visual Impact of Layout Alternative 1 and 2 is more or less the same; however, Alternative one is less visible within a two kilometre (2 km) radius. The Specialist would thus recommend that the Applicant construct Alternative 1.

### **No-go alternative**

The no-go alternative addresses the scenario of the status-quo remaining the same, with no development of the proposed transmission line and six sub-stations taking place. The no-go alternative would entail that the current land use does not change.

### **Advantages of the no-go alternative**

The potential negative environmental impacts associated with the proposed project and its alternatives will be avoided if the proposed project is not implemented. No potential disturbance or impacts will

occur on the identified CBA through which the transmission line will traverse or on avifauna. No significantly high rating impacts were however identified which could not be mitigated to within acceptable levels.

**Disadvantages of the no-go alternative**

Due to the rapid, continual growth in electricity demand over the last couple of years in the northern development areas of Bloemfontein, the existing 132 kV ring network has become increasingly under enormous pressure, especially during peak electricity demand periods. The demand is therefore continuously exceeding the possible supply from the current network. If the proposed project does not go ahead, the current electricity shortage within the Langenhovenpark and northern development areas of Bloemfontein will continue to increase in frequency and duration.

Existing and proposed future development and residential areas are in need of adequate, reliable electricity supply, which will be sufficiently provided by the proposed transmission line and sub-station development. The adequate distribution of generated electricity is crucial within the context of South Africa's current energy crisis. Electricity provision is also a basic human necessity and right which adds to the improvement of livelihood and quality of living.

If the proposed project does not go ahead, the local community will also forego the significant economic benefits which the project will have on the area such as immediate additional employment opportunities and revenue streams during the construction phase.

The no-go option would therefore not be preferable.

## 5 SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

Not applicable.
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If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

- |   |
|---|
| <ul style="list-style-type: none"> <li>All mitigation measures recommended by the various specialists as per Section D should be strictly implemented.</li> <li>The EMPr should be approved by the DEA prior to construction and its implementation should form part of the conditions of the Environmental Authorisation.</li> <li>An Environmental Control Officer (ECO) must be appointed by the applicant/developer to actively assist and undertake environmental compliance audits to ensure that the construction phase of the development is acceptably implemented in an environmentally responsible and sustainable manner in accordance with the recommendations of the EMPr. The ECO must also ensure compliance with the conditions of approval in the EA to be issued by the competent authority.</li> <li>Vegetation species removal permits need to be obtained prior to the commencement of construction from the relevant national or provincial department if required on site.</li> </ul> |
|---|

### Conclusion

After careful consideration of the findings and outcomes during the Basic Assessment process, Enviroworks is of the opinion that based on all information that was captured in this report; the proposed development will not lead to unacceptable impacts or fatal flaws and should be considered plausible in the framework of NEMA. It is indicated that the majority of the anticipated impacts are rated as low to medium while the impacts rated as medium-high (CBA destruction) and (avifaunal collision and electrocution) can be adequately addressed through the various mitigation measures and reduced to an acceptable level.

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Although Alternative 2 is recommended in terms of the Ecological and Avifaunal Impact Assessments in order to minimise the impact on remaining natural area of the endangered Bloemfontein Dry Grassland (Gh 5) vegetation type Alternative 1 is also ecologically acceptable and is also more acceptable from a social and visual impact point of view and will have the least significant negative effect on relevant landowners. Alternative 1 is therefore more acceptable and preferred by the majority of relevant landowners. Enviroworks therefore recommend that the preferred route layout Alternative 1 for the proposed transmission line be considered and approved.

A comprehensive Public Participation Process will be conducted to provide the public with the opportunity to comment on the draft Basic Assessment Report in order to provide all relevant parties with adequate time for consideration. All comments/feedback and recommendations received will be included in the final PPP Report in Appendix E to be submitted along with final Basic Assessment Report for decision making by the competent authority.

Is an EMPr attached?

YES	
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

**AJH Lamprecht**  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## **6 SECTION F: APPENDIXES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photo Report

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Public Participation Process

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Municipal Confirmation

Appendix J: Specialist's declaration of interest

Appendix K - I & AP registration

Appendix L – List of Coordinates



## 7 SECTION G: REFERENCES

Conservation of Agricultural Resources Act (Act 43 of 1983)

DEA. 2010. *Draft Guideline on the Need and Desirability in terms of the EIA Regulations of 2010*. Integrated Environmental Management Guideline Series 9, Government Notice 792 of 2012, Department of Environmental Affairs, Pretoria.

DEA&DP. 2013a. *Guideline on Need and Desirability, EIA Guideline and Information Document Series*. Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).

DEA&DP. 2013b. *Guideline on Alternatives, EIA Guideline and Information Document Series*. Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).

Electricity Regulation Act 2006 (Act 4 of 2006)

Free State Nature Conservation Ordinance (No 8 of 1969)

Free State Province Provincial Spatial Development Framework (FSPSDF) (March 2014)

Integrated Resource Plan for Electricity, 2010 - 2013

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

National Development Plan - 2030

National Environmental Management Act (Act 107 of 1998)

National Environmental Management Act (Act 107 of 1998); Environmental Impact Assessment Regulations, 2014

National Environmental Management: Biodiversity Act (Act 10 of 2004)

National Environmental Management: Waste Act (Act 59 of 2008)

National Forests Act (Act 84 of 1998)

National Heritage Resources Act (Act 25 of 1999)

National Infrastructure Plan, 2012

National Water Act (Act 36 of 1998)

Republic of South Africa. 1996. Constitution of South Africa (No 108. of 1996). [Online]. Available at: <http://www.info.gov.za/documents/constitution/1996/a108-96.pdf>. [Retrieved on September 2 2013]

Mangaung Metropolitan Municipality Integrated Development Plan 2014-2015

White Paper on Renewable Energy Policy in South Africa (2003)