

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
FINAL BASIC ASSESSMENT REPORT

PROPOSED 132kV POWER LINE BETWEEN THE CUPRUM
SUBSTATION, BURCHELL SUBSTATION AND MOOIDRAAI
SUBSTATION, NORTHERN CAPE PROVINCE
DEA REF: 14/12/16/3/3/1/1186

FINAL BASIC ASSESSMENT REPORT
FOR AUTHORITY REVIEW

Prepared for:

Eskom Holdings SOC Limited
PO Box 222
Brackenfell
7560

Prepared by:

Σαβανναη Ενπιρονημενταλ Πτυ Λτδ

First Floor, Block 2
5 Woodlands Drive Office Park
Cnr Woodlands Drive &
Western Service Road,
Woodmead, Gauteng
P.O. Box 148, Sunninghill, 2157
Telephone: +27 (0)11 656 3237
Facsimile : +27 (0)86 684 0547
Email : info@savannahsa.com
www.savannahsa.com





environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

14/12/16/3/3/1/1186

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, 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, 2010 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 **1 August 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.

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PROJECT DETAILS

DEA Reference	:	14/12/16/3/3/1/1186
Title	:	Environmental Basic Assessment Process Final Basic Assessment Report: Proposed 132kV Power line between the Cuprum Substation, Burchell Substation and Moodraai Substation, Northern Cape Province
Authors	:	Savannah Environmental Jo-Anne Thomas Azrah Essop
Client	:	Eskom Holdings SOC Limited
Report Status	:	<u>Final</u> Basic Assessment Report for public review

When used as a reference this report should be cited as: Savannah Environmental (2014) Final Basic Assessment Report: Proposed construction a 132kV power line from the Cuprum Substation to Burchell Substation to Moodraai Substation in the Northern Cape Province.

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FINAL BASIC ASSESSMENT REPORT FOR REVIEW

This Final Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the proposed project. The report is available for public review at the following locations:

- » Ietznietz Herberg & Gastehuis
30 Azurite Street, Copperton
Prieska Ext 10
8940

- » Siyathemba Library
Stewart Street
Prieska
8940

- » www.savannahsa.com

SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Eskom Holdings SOC Limited (Eskom) has identified a need to upgrade the existing power line infrastructure between the Cuprum Substation (located near Copperton), Burchell Substation and Mooidraai Substation (located near Prieska) within the Siyathemba Local Municipality, in the Northern Cape.

The existing 132kV power line is more than 40 years old and is at risk of collapsing which would result in no supply of electricity to communities in the Prieska and Groblershoop areas. A new 132kV power line is required to be constructed between the Cuprum Substation, Burchell Substation and Mooidraai Substation in order to replace this existing power line. The existing power line will be decommissioned. The project considered within this Basic Assessment includes the construction of a new 132kV power line for approximately 95km between the Cuprum Substation, Burchell Substation and Mooidraai Substation, as well as the establishment of service roads, where required. A servitude of 36m will be required to be acquired for the power line.

Two alternatives are being considered - the preferred alternative being the construction of the new power line adjacent to the existing route, and two alternative routes between the Cuprum-Burchell and Burchell-Mooidraai alignments which involve a deviation along the R375 for each alternative route (Refer to Figure 1). A powerline corridor of 300 m in width has been considered in this environmental assessment for each alternative, within which the 36m wide servitude will be negotiated. The following properties will be affected by the construction of the proposed power line:

AREA	PROPERTY
Between Cuprum Substation to Burchell Substation	Vogelstruis Bult 104 (1/104) Nels Poortje 103 (7/103) Nels Poortje 103 (5/103) Bosjesmans Berg 67 (1/67) Bosjesmans Berg 67 (Re/67) Jackals Water 68 (1/68) Jackals Water 68 (Re/67) Prieskas Poort 51 (Re/51) Prieskas Poort 51 (5/51) Prieskas Poort 51 (11/51) Prieskas Poort 51 (1/51) Prieskas Poort 51 (2/51)
Between Burchell substation to Mooidraai Substation	Erf 1, Uitdraai 33 (15/33) Uitdraai 33 (3/33) Uitdraai 33 (5/33) Holsloot 47 (Re/47) Holsloot 47 (3/47)

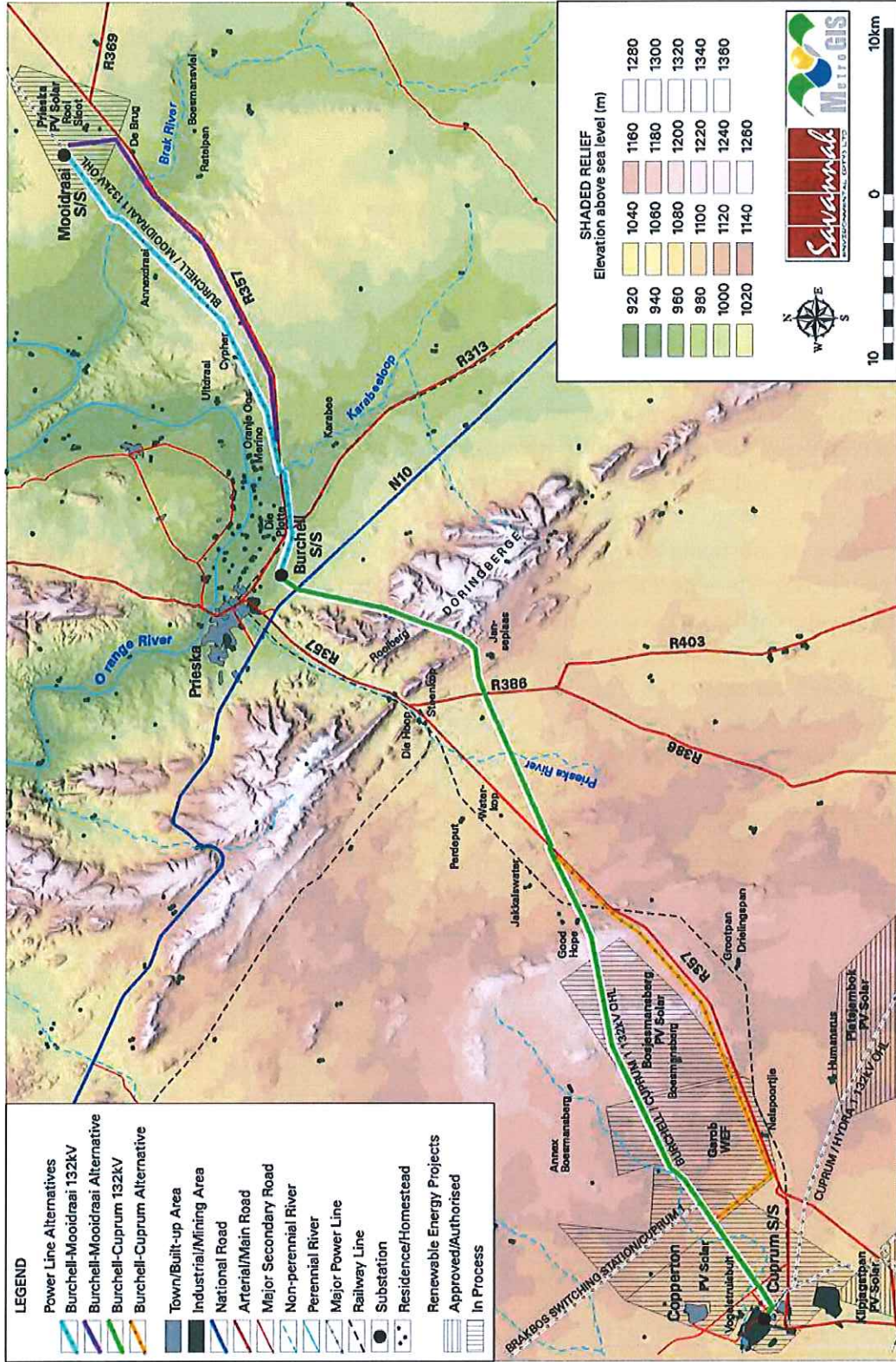


Figure 1: Locality map showing the development area for the proposed 132kV Cuprum-Burchell-Mooirdraai power line corridor

1.1. Requirements for a Basic Assessment Process

In terms of the Environmental Impact Assessment Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), authorisation is required from the National Department of Environmental Affairs (DEA), in consultation with the Northern Cape Department of Environment and Nature Conservation (DENC), for the establishment of the proposed facility. In terms of sections 24 and 24D of NEMA, as read with the Environmental Impact Assessment Regulations of GNR543; GNR544; GNR545; and GNR546, a Basic Assessment process is required for the proposed project.

The nature and extent of the proposed project are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner. The Basic Assessment process forms part of the feasibility studies for a proposed project and will inform the final design process. Comprehensive, independent environmental studies are required in accordance with the EIA Regulations to provide the competent authority with sufficient information in order to make an informed decision.

1.2. Details of Environmental Assessment Practitioner and Expertise to Conduct the Basic Assessment Process

Savannah Environmental was contracted by Eskom Holdings SOC Limited as the independent environmental assessment practitioners (EAP) to undertake the Basic Assessment process for the proposed power line. Neither Savannah Environmental, nor any of its specialist sub-consultants on this project are subsidiaries of, or are affiliated to Eskom Holdings SOC Limited. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consultancy which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation and transmission.

The EAPs from Savannah Environmental who are responsible for this project are:

- » *Jo-Anne Thomas*, the principle Environmental Assessment Practitioner (EAP) for this project, is a registered Professional Natural Scientist and holds a Master of Science degree. She has 16 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently responsible for the project management of EIAs for several renewable energy and power line projects across the country.
- » *Azrah Essop*, the principle author of this report, holds an Honours Bachelor of Science degree in Environmental Science and has two and a half years of experience in environmental management.
- » *Gabriele Wood*, the public participation consultant for this project, hold an Honours Bachelor degree in Anthropology and has 5 years of experience in Public Participation and Social consulting including professional execution of public participation consulting for a variety of projects as well as managing and coordinating public participation processes for Environmental Impact Assessments (EIA).

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and distribution projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous power line infrastructure projects across the country.

Curricula vitae for the Savannah Environmental project team are included in **Appendix H**.

SECTION A: ACTIVITY INFORMATION

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

YES x	NO
-------	----

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

All specialist declarations are attached in Appendix I.

1. Project Description

a) Describe the project associated with the listed activities applied for

OVERVIEW OF THE PROJECT

Eskom Holdings SOC Limited (Eskom) has identified a need to upgrade the existing power line infrastructure between the Cuprum Substation (located near Copperton), Burchell Substation and Mooidraai Substation (located near Prieska) within the Siyathemba Local Municipality, in the Northern Cape.

The existing 132kV power line is more than 40 years old and is at risk of collapsing which would result in no supply of electricity to people in the Prieska and Groblershoop areas. A new 132kV power line is required to be constructed between the Cuprum Substation, Burchell Substation and Mooidraai Substation in order to replace this existing power line. The existing power line will be decommissioned. The project considered within this Basic Assessment includes the construction of a new 132kV power line for approximately 95km between the Cuprum Substation, Burchell Substation and Mooidraai Substation, as well as the establishment of service roads, where required. A servitude of 36m will be required to be acquired for the power line.

Two alternatives are being considered - the preferred alternative being the construction of the new power line adjacent to the existing route, and two alternative routes between the Cuprum-Burchell and Burchell-Mooidraai alignments which involve a deviation along the R375 for each alternative route (Refer to Figure 1). A power line corridor 300 m in width has been considered in this environmental assessment for each alternative, within which the 36m servitude will be negotiated. The following provides a description of the power line alternatives being considered:

- » The Burchell-Mooidraai 132kV power line (**preferred alternative**) follows the existing Burchell-Mooidraai No.1 132kV power line from the Burchell Substation, south-east of Prieska, in a north-easterly direction to the Mooidraai Substation. This corridor traverses over the R313 arterial road and alongside the R357 arterial road for almost 6km before veering northwards. The total length of this corridor is approximately 30.5km.

- » The Burchell-Mooidraai 132kV power line **Alternative** traverses alongside the R357 arterial road for almost the entire length of its alignment, before veering north towards the Mooidraai Substation. The length of this corridor is approximately 24km, excluding the shared section with the previous alternative, which is approximately 8.3km (i.e. a total length of 32.3km).
- » The Burchell-Cuprum 132kV power line (**preferred alternative**) traverses adjacent to the existing Burchell-Cuprum No.1 132kV power line in a north-easterly direction between the Cuprum Substation and the Burchell Substation. This corridor crosses over the R357 and R386 arterial roads before traversing the Doringberge and the N10 national road and linking with the Burchell Substation. The total length of this corridor is approximately 58km.
- » The Burchell-Cuprum 132kV power line **Alternative** shares a section of the above alignment near the Cuprum Substation before veering south-east towards the R357 arterial road. This corridor follows this road for a distance of approximately 24km before joining with the existing Burchell-Cuprum No.1 132kV power line. It is parallel to this power line for the rest of the distance to the Burchell Substation. The length of this corridor is approximately 28km, excluding the shared sections with the previous alternative, which are approximately 7km and 26km respectively (i.e. a total length of 61km).

The following properties will be affected by the construction of the proposed power line regardless of which alternative is selected (See Appendix A2):

AREA	PROPERTY
Between Cuprum Substation to Burchell Substation	Vogelstruis Bult 104 (1/104) Nels Poortje 103 (7/103) Nels Poortje 103 (5/103) Bosjesmans Berg 67 (1/67) Bosjesmans Berg 67 (Re/67) Jackals Water 68 (1/68) Jackals Water 68(Re/67) Prieskas Poort 51 (Re/51) Prieskas Poort 51(5/51) Prieskas Poort 51(11/51) Prieskas Poort 51 (1/51) Prieskas Poort 51 (2/51)
Between Burchell substation to Mooidraai Substation	Erf 1, Uitdraai 33 (15/33) Uitdraai 33(3/33) Uitdraai 33 (5/33) Holsloot 47(Re/47) Holsloot 47 (3/47)

OVERVIEW OF THE STUDY AREA

The project site is located near Copperton (Cuprum Substations) and Prieska (Burchell and Mooidraai Substations) within the Siyathemba Local Municipality of the Northern Cape Province. The study area occurs on land that ranges in elevation from about 920m along the Orange River floodplain to approximately 1360m above sea level on top of the Doringberge. These mountains or tall hills are the most prominent topographical feature within a landscape consisting mainly of large open (slightly irregular) plains and low hills. The only towns or built-up areas within the study area are the towns of Copperton and Prieska.

The R357 arterial road traverses the study area from the south-west to the north-east. This road provides access to the Copperton copper mine and links this town with Prieska and the Mooidraai substation located further north. Other arterial roads include the R386, R403, R313 and R369. These roads are predominantly lower order gravel roads, primarily utilised as local access roads by farmers within the region.

Industrial type infrastructure in the study area includes mining in and around Copperton. A number of power lines are present in the area, including the Burchell-Cuprum No.1 (132kV) power line, the Cuprum-Hydra No.1 (132kV) and Burchell-Mooidraai No.1 (132kV) power lines. A railway line runs between Copperton and Prieska, roughly following the alignment of the R357.

ACTIVITIES ASSOCIATED WITH THE 132kV POWER LINE

Construction Phase

The activities associated with the construction of the 132kV power line will include site clearance and construction of access roads to facilitate access the site (where required).

Power lines are constructed in the following simplified sequence:

- Step 1: Determination of technically feasible route/s
- Step 2: EIA input into route selection
- Step 3: Negotiation of final route with affected landowners
- Step 4: Survey of the route
- Step 5: Determination of the conductor type
- Step 6: Selection of best-suited conductor, towers, insulators, foundations
- Step 7: Final design of line and placement of towers
- Step 8: Issuing of tenders, and award of contract to construction companies
- Step 9: Vegetation clearance and construction of access roads (where required)
- Step 10: Tower pegging
- Step 11: Construction of foundations

Step 12:	Assembly and erection of towers
Step 13:	Stringing of conductors
Step 14:	Rehabilitation of disturbed area and protection of erosion sensitive areas
Step 15:	Testing and commissioning

Construction of the proposed power line will take approximately 12 – 24 months to complete.

Operation Phase

The proposed power line and associated servitude and access roads will require routine maintenance work throughout the operation period. The site will be accessed using existing roads in the area as well as via access roads established during the construction phase.

Decommissioning Phase

The power line is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life, or if no longer required. Upon decommissioning, the power line would be disassembled and removed from site.

2. Listed Activities

- b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p>GN 544, 18 June 2010, Item 10 (i), The construction of facilities or infrastructure for the transmission and distribution of electricity (i) Outside urban areas or industrial complexes with a capacity of more than 33kV but less than 275kV</p>	<p>The construction of a 132kV power line between the Cuprum Substation, Burchell Substation, and Moidraai Substation which is approximately 95km in length.</p>
<p>GN 544, 18 June 2010, Item 11 (xi) The construction of (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>Construction of power line infrastructure or access roads within 32m of a watercourse.</p>

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN 544, 18 June 2010, Item 18 (i) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from (i) a watercourse	The construction of the facility and/or associated infrastructure will require the construction of access roads and the need for infilling or excavation of material from a watercourse.

3. 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 Regulation 22(2)(h) of GN R.543. 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.

A) Site Alternatives

Description	Lat (DDMMSS)	Long (DDMMSS)
Description	Lat (DDMMSS)	Long (DDMMSS)
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Corridor Alternatives:

Cuprum-Burchell

Alternative S1 (preferred) - Construction of a power line along the existing corridor:

	Latitude (S):	Longitude (E):
• Starting point of the activity	29 ° 57' 37.37"	22 ° 18' 05.59"
• Middle/Additional point of the activity	29 ° 50' 42.58"	22 ° 35' 32.93"
• End point of the activity	29 ° 41' 44.11"	22 ° 46' 09.24"

Alternative S2

	Latitude (S):	Longitude (E):
• Starting point of the activity	29 ° 55' 57.17"	22 ° 21' 44.22"
• Middle/Additional point of the activity	29 ° 55' 38.61"	22 ° 29' 54.32"
• End point of the activity	29 ° 50' 42.58"	22 ° 35' 32.93"

For route alternatives that are longer than 500m, please provide an addendum with coordinates taken every 250 meters along the route for each alternative alignment. See Appendix A1.

Burchell-Moodraai

Alternative S1 (preferred) - Construction of a power line along the existing corridor:

	Latitude (S):	Longitude (E):
• Starting point of the activity	29° 41 '44.11"	22° 46' 09.24"
• Middle/Additional point of the activity	29° 40 '49.77"	22° 53' 22.49"
• End point of the activity	29° 34 '38.04"	23° 01' 55.46"

Alternative S2

	Latitude (S):	Longitude (E):
• Starting point of the activity	29° 41 '31.15"	22° 51' 04.45"
• Middle/Additional point of the activity	29° 40 ' 02.62"	22° 56' 45.52"
• End point of the activity	29° 34 '38.04"	23° 01' 55.46"

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

B) Layout Alternatives

No layout alternatives have been assessed within this Basic Assessment as the placement of the power line towers and any associated access roads will be required to be in line with technical requirements as per Eskom's recommendations as well as with specific landowner requirements. This will be negotiated within the broader 300m corridor assessed within this BAR. This broader corridor also allows for the possible avoidance of environmentally sensitive areas identified through this Basic Assessment process.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

C) Technology Alternatives

The choice of technology will be determined by Eskom and does not significantly affect the environmental impact of the proposed development in any way. Single circuit (average maximum height of 21m) self-supporting monopole structures will be used for the proposed power line. The line must however be constructed according to Eskom's standards and may therefore require a mixture of tower structures. Facility illustrations are attached in Appendix C.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

D) Other Alternatives (e.g. scheduling, demand, input, scale and design alternatives)

No other alternatives are applicable.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

E) No-Go Alternative

This is the option of not constructing the 132kV power line within the corridor proposed. This option is assessed as the "no go alternative" in this Basic Assessment Report.

Paragraphs 3 – 13 below should be completed for each alternative.

4. Physical Size of the Activity

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

Alternative:

Alternative A1¹ (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the activity:

	m ²
	m ²
	m ²

or, for linear activities:

Alternative – Cuprum-Burchell

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Length of the activity:

	58km
	61km
	m

Alternative - Burchell-Moodraai

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Length of the activity:

	30.5km
	32.3km
	m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the site/servitude:

Servitude = 36 m (300m wide corridor assessed)

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

5. Site Access

Does ready access to the site exist?

YES x	NO
	m

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

Describe the type of access road planned:

Access to the project site will be from existing service roads along the existing power line and from existing farm roads in the area. The site will be accessed using existing roads in the area as well as via access roads established during the construction phase (where necessary).

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. 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 1km 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).

An A3 locality map is attached within **Appendix A.**

7. 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.

A layout/route plan is attached within **Appendix A**.

8. 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 DWA);
- 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.

A sensitivity map is attached within **Appendix A**.

9. 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.

Site photographs are attached within **Appendix B**.

10. 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.

Single circuit, self-supporting monopole structures with an average pole height of 21m will be used for these power lines. The line must however be constructed according to Eskom's standards and may therefore require a mixture of tower structures. A facility illustration is included within **Appendix C**.

11. Activity Motivation

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO x	Please explain
Although a servitude is in place for the existing power line, a new servitude will be required to be registered by Eskom for the proposed new power line.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES x	NO	Please explain
The Northern Cape Province Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. In this regard, the power line upgrade is in line with the PSDF as it seeks to ensure that electricity supply is stabilised for the area.			
(b) Urban edge / Edge of Built environment for the area	YES	NO x	Please explain
The site is located east of town of Prieska. The proposed site is located outside of the urban area. The project will therefore not compromise the urban edge.			
(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?).	YES x	NO	Please explain
The Pixley ka Seme District Municipality Integrated Development Plan (2011/2016) has identified Basic Service Delivery as a Key Performance Area; this will be achieved through facilitating access to electricity for each consumer within the Municipality. The IDP further recognises the urgent need to upgrade some of the existing electricity distribution networks due to their poor condition. This project will assist the DM to achieve its goal of increasing electricity capacity in the area.			

<p>The Siyathemba Local Municipality Integrated Development Plan for 2014-2015 identifies the upgrade of electrical networks i.e. substations and distribution lines, as a strategic priority. These networks need to be upgraded to ensure stability of electrical connections to surrounding households.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>	YES	NO x	Please explain
<p>No Structure plan has been developed for the Siyathemba Local Municipality. The Municipality has an Electricity Master Plan available which was developed in the early 2000s. The Municipality works according to this Plan to upgrade electricity infrastructure, as well as to develop new infrastructure.</p> <p>The Siyathemba Local Municipality Integrated Development Plan (IDP) for 2014-2015 identifies the upgrade of electrical networks i.e. substations and distribution lines, as a strategic priority. These networks need to be upgraded to ensure stability of electrical connections to surrounding households. The project will be in line with the IDP of the municipality.</p>			
<p>(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?)</p>	YES	NO x	Please explain
<p>The Siyathemba Local Municipality does not have an EMF.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	YES	NO x	Please explain
<p>An Environmental Implementation Plan (EIP) was compiled by the Northern Cape Province. In order to encourage cooperative governance across departments, NEMA calls for the development of a national and provincial Environmental Implementation Plans (EIPs) and Environmental management plans (EMPs). The EIP aims to ensure that land use decision-making is carried out using adequate available environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Programme is ensuring that all environmental issues are appropriately addressed. This is achieved for this project through this Basic Assessment process.</p>			
<p>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)?</p>	YES x	NO	Please explain
<p>The Pixley ka Seme District Municipality Integrated Development Plan (2011/2016) has identified Basic Service Delivery as a Key Performance Area; this will be achieved through facilitating access to electricity for each consumer within the Municipality. The IDP further recognises the urgent need to upgrade some of the existing electricity distribution networks due to their poor condition. This project will assist the DM to achieve its goal of increasing electricity capacity in the area.</p>			
<p>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.</p>	YES x	NO	Please explain

development is a national priority, but within a specific local context it could be inappropriate.)			
The existing 132kV power line is more than 40 years old and is at risk of collapsing which would result in no supply of electricity to communities in the Prieska and Groblershoop areas. A new 132kV power line is required to be constructed between the Cuprum Substation, Burchell Substation and Mooidraai Substation in order to replace this existing power line and ensure supply to the local areas.			
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)	YES x	NO	Please explain
The proposed development does not require the use of municipal basic services throughout the entire life cycle of the project. However, during construction, potable water, water for construction purposes and chemical toilets will be sourced from the local municipalities and/or service providers. Waste including waste water, effluent, solid waste and hazardous waste will be disposed at a licensed waste disposal site.			
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.)	YES	NO x	Please explain
Eskom is responsible for planning for the upgrading and maintenance of all electrical infrastructure for which they are responsible, based on an area's electrical requirements/demand. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any implications for the municipality but will assist them through continued electricity supply.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO x	Please explain
The proposed power line is required to replace the existing power line in the area in order to ensure ongoing electricity supply to the Prieska and Groblershoop areas.			
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.)	YES x	NO	Please explain
The technically preferred alternative for the proposed power line follows the existing 132kV power line between the Burchell, Cuprum and Mooidraai substations. Alternative corridors proposed follow existing roads in the area, thereby consolidating linear infrastructure.			
9. Is the development the best practicable environmental option for this land/site?	YES x	NO	Please explain
The existing power line infrastructure is under the risk of collapsing which would result in no supply of electricity to people in the Prieska and Groblershoop area. The replacement of this power line in the vicinity of the existing power line will reduce the impact on the broader area.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES x	NO	Please explain

No environmental fatal flaws have been identified to be associated with the project. The negative impacts for the project include:

- » Clearing of natural vegetation for the proposed footprint area, increasing the potential for soil erosion, deterioration of the biotic, abiotic and economic properties of soil, and the long-term loss of natural vegetation;
- » Possible destruction of stone artefact occurrences and scatters that are scattered over the extent of the farm portion the project.

These impacts are restricted to the site and can be managed and mitigated as outlined in the Section D, Appendix F: Impact Assessment and Environmental Management Programme.

Positive impacts of the proposed project include ensuring continued electricity supply to the Prieska and Groblershoop area, facilitating development in the larger area and supporting the objectives of the Local and District Municipality. The positive impacts extend beyond the boundary of the site.

Based on the above, it is considered reasonable that the benefits of the proposed development will outweigh the negative impacts.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO x	Please explain
The site is already impacted by electricity distribution infrastructure (i.e. the existing Cuprum, Burchell and Mooidraai substations and 132kV power lines).			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO x	Please explain
The proposed project will be taking place on private-owned land. Private landowners will be affected by the proposed project and will be compensated by Eskom for the power line servitude. These landowners have been consulted by the developer and the environmental team and are aware of the proposed project.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO x	Please explain
The project site is located near Copperton (Cuprum Substations) and Prieska (Burchell and Mooidraai Substations) within the Siyathemba Local Municipality of the Northern Cape Province. The only towns or built-up areas within the study area are the towns of Copperton and Prieska. The proposed site is located outside of the urban area. The project will therefore not compromise the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO x	Please explain
The replacement of the power line will not contribute to the SIPS.			
15. What will the benefits be to society in general and to the local communities?	Please explain		
The proposed project will ensure continued electricity supply to the Prieska and Groblershoop area, facilitating development in the larger area and supporting the objectives of the Local and District Municipality. Short term job opportunities may be created during the construction phase, which will help contribute toward poverty alleviation. Local economic benefits will be created through revenue generated as a result of the project. Ultimately this will lead to an increase in effective and efficient service delivery. The above measures are all in line with the Siyathemba IDP.			
16. Any other need and desirability considerations related to the	Please		

proposed activity?	explain
N/A	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>By 2030, the National Development Plan aims to ensure that all South Africans can attain a decent standard of living through the reduction of poverty, promotion of economic development and investment in the GDP. To achieve this, South Africa has aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. As such, one of the goals of the National Development Plan 2030 to improve the quality of public services through improving housing, electricity and sanitation services. This project will fit into this vision since it aims on stabilising electricity supply and thus improving service delivery to households in the area. Additionally, the proposed project will facilitate the connection of renewable energy facilities proposed for the greater area to the electricity grid.</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.	
<p>The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment Report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.</p>	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
<p>The principle of environmental management as set out in section of NEMA states that:</p> <ul style="list-style-type: none"> » Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably; » Development must be sustainable socially (people), environmentally (planet) and economically (prosperity);and » Sustainable development requires the consideration of all the relevant factors, <p>These principles of sustainable development is taken into account by including measures within the Environmental Management Programme (EMPr) to mitigate impacts that may occur thereby further reducing the environmental impacts. The EMPr would provide mitigation measures in terms of disturbance to ecosystems, loss of biodiversity, pollution and degradation to the environment, waste and stormwater management.</p>	

12. 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:

The following legislation and guidelines have informed the scope and content of this Basic Assessment Report:

- » National Environmental Management Act (Act No 107 of 1998)

- » EIA Regulations, published under Chapter 5 of the NEMA (GNR R545, GNR 546 in Government Gazette 33306 of 18 June 2010)
- » Guidelines published in terms of the NEMA EIA Regulations, in particular:
 - * Companion to the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations of 2010 (Draft Guideline; DEA, 2010)
 - * Public Participation in the EIA Process (DEA, 2010)

Several other Acts, standards, or guidelines have also informed the project process and the scope of issues addressed and assessed in the Basic Assessment. A review of legislative requirements applicable to the proposed project is provided in the table that follows.

Table 1: Legislation, policies and/or guidelines applicable to the project

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Environmental Management Act (Act No. 107 of 1998)	<p>National Legislation</p> <p>The Basic Assessment Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GN R543, R544 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>Department of Environmental Affairs (DEA) – competent authority</p> <p>Department of Environmental and Nature Conservation (DENC)-- commenting authority</p>	<p>The listed activities triggered by the proposed substation have been identified and assessed in the Basic Assessment Process being undertaken. This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.</p>
National Environmental Management Act (Act No. 107 of 1998)	<p>» A project proponent is required to consider a project holistically and to consider the cumulative effect of potential impacts.</p> <p>» In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment</p>	<p>» National Department of Environmental Affairs</p>	<p>» While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed project has found application in the EIA Phase.</p> <p>» The implementation of mitigation measures are included as part of the Draft EMP and will continue to apply throughout the life cycle</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>associated with a project is avoided, stopped or minimised.</p> <ul style="list-style-type: none"> » Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53) » A list of threatened and protected species has been published in terms of S56 (1) - Government Gazette 29657. » Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). » Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of 	<ul style="list-style-type: none"> » National Department of Environmental Affairs » NC DENC 	<p>of the project.</p> <ul style="list-style-type: none"> » As the applicant will not carry on any restricted activity in terms of S57, no permit is required to be obtained in this regard. » Specialist flora and fauna studies were undertaken as part of the EIA process as required by GNR 152. » A number of protected plant species are known to occur in the area. A permit will be required should any protected plant species on site be disturbed or destroyed as a result of the proposed development.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Forests Act (Act No. 84 of 1998)	<p>listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011).</p> <ul style="list-style-type: none"> » This Act also regulates alien and invader species. » According to this Act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister'. » GN 877 of 22 November 2013 provides a list of protected tree species. 	National Department of Agriculture, Forestry and Fisheries (DAFF)	Protected trees are present in the area, notably <i>Boscia albitrunca</i> . A permit is required to be obtained prior to construction should the project activities result in the destruction or disturbance of these trees.
Conservation of Agricultural Resources Act (Act No 43 of 1983)	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048). 	Department of Agriculture, Forestry and Fisheries	This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	<ul style="list-style-type: none"> » The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. » In terms of the regulations published in terms of this Act (GN 921 of November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities. » Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that <ul style="list-style-type: none"> (a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste; (b) Adequate measures are taken to prevent accidental spillage or leaking; (c) The waste cannot be blown away; (d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and (e) Pollution of the environment and harm to health are prevented. 	<ul style="list-style-type: none"> » National Department of Environmental Affairs (hazardous waste) » NC DENC (general waste) 	<ul style="list-style-type: none"> » In terms of GNR921, No waste license is required for the project » Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act, as detailed in this EMPr.
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	<ul style="list-style-type: none"> » S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas" » Declaration of controlled emitters (Part 3 	<ul style="list-style-type: none"> » National Department of Environmental Affairs » Local authority 	<ul style="list-style-type: none"> » While no permitting or licensing requirements arise from this legislation, this Act will find application during the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>National Water Act (Act No. 36 of 1998)</p>	<ul style="list-style-type: none"> » of Act) and controlled fuels (Part 4 of Act) with relevant emission standards » The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act. » Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan 		<p>construction phase of the project.</p> <ul style="list-style-type: none"> » The Air Emissions Authority (AEL) may require the compilation of a dust management plan.
<p>National Water Act (Act No. 36 of 1998)</p>	<ul style="list-style-type: none"> » Under S21 of the Act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation. » In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring. 	<ul style="list-style-type: none"> » National Department of Water Affairs » Northern Cape Department of Water Affairs 	<ul style="list-style-type: none"> » A number of wetlands and watercourses are present in the study area. » Requirements set by S19 will apply throughout the life cycle of the project.
<p>Environment Conservation Act (Act No. 73 of 1989)</p>	<ul style="list-style-type: none"> » National Noise Control Regulations (GN R154 dated 10 January 1992) 	<ul style="list-style-type: none"> » National Department of Environmental Affairs » Northern Cape Department of Environment and Nature Conservation » Local Authorities 	<p>There is no requirement for a noise permit in terms of the legislation.</p>
<p>National Heritage Resources Act (Act No. 25</p>	<ul style="list-style-type: none"> » S38 states that Heritage Impact Assessments (HIAs) are required for 	<ul style="list-style-type: none"> » South African Heritage Resources Agency 	<ul style="list-style-type: none"> » As per S38 an HIA has been undertaken as part of the EIA for

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
of 1999)	certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity which will change the character of a site exceeding 5 000 m ² in extent » The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m ² ; or the re-zoning of a site exceeding 10 000 m ² in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Stand-alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component. » Provides requirements for veld fire prevention through firebreaks and	Department of Agriculture, Forestry and Fisheries	the project. » A permit may be required should identified cultural/heritage sites on site be required to be disturbed or destroyed as a result of the proposed development. » If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately. The find must be reported to a heritage specialist so that systematic and professional investigation/ excavation can be undertaken.
National Veld and Forest Fire Act (Act 101 of 1998)	» Provides requirements for veld fire prevention through firebreaks and	Department of Agriculture, Forestry and Fisheries	While no permitting or licensing requirements arise from this

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>Hazardous Substances Act (Act No. 15 of 1973)</p>	<p>required measures for fire-fighting. Chapter 4 places a duty on landowners to prepare and maintain firebreaks, and Chapter 5 places a duty on all landowners to acquire equipment and have available personnel to fight fires.</p> <ul style="list-style-type: none"> » In terms of S21 the applicant would be obliged to burn firebreaks to ensure that should a veld fire occur on the property, that it does not spread to adjoining land. » In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. » In terms of Section 17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires. 	<p>Department of Health</p>	<p>legislation, this act will find application during the operational phase of the project in terms of fire prevention and management.</p>
	<ul style="list-style-type: none"> » This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for 		<ul style="list-style-type: none"> » It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. » The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force. 	<p>the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. » The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force. 		
Provincial Legislation			
<p>Northern Cape Nature Conservation Act, No. 9 of 2009</p> <ul style="list-style-type: none"> » This Act provides for: <ul style="list-style-type: none"> * The sustainable utilisation of wild animals, aquatic biota and plants. * Offences and penalties for contravention of the Act. * The appointment of nature conservators to implement the provisions of the Act. » The Act provides lists of protected species for the Province. 		<p>NC DENC</p>	<p>A number of protected plant species are known to occur in the area. A permit will be required should any protected plant or animal species on site be disturbed or destroyed as a result of the proposed development.</p>

13. Waste, Effluent, Emission and Noise Management

a) Solid waste management

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

YES x	NO
Unknown at this stage	

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

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

It is anticipated that construction waste will be comprised mainly of spoil material from cleaning activities as well as metal and cabling offcuts and as spoil material from foundation excavation. Non-recyclable waste will be removed from site by an appropriate contractor and will be transported to the nearest registered waste disposal facility for appropriate disposal.

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

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to the nearest registered waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?

YES	NO x
N/A	

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

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

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

It is expected that general waste will be disposed of at the Siyathemba municipal landfill site at Prieska, which is registered as a G:C:B- landfill site.

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

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?

YES	NO x
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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?

YES	NO x
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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.

b) Liquid effluent

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

YES	NO x
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If YES, what estimated quantity will be produced per month?

m³

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

YES	NO x
-----	----------------

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?

YES	NO x
-----	----------------

If YES, provide the particulars of the facility:

Facility name:	N/A		
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

Not applicable

c) Emissions into the atmosphere

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

YES	NO x
YES	NO x

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

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:

During the construction phase, it is expected that there will be short-term dust generation and emissions from vehicles and machinery. However the dust and emissions will have a medium- to short-term duration and have limited impact in terms of extent and severity. The extent of the impact will be restricted to the power line servitude and its immediate surroundings within approximately 500m of the site. Appropriate dust suppression measures will be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition to minimise possible exhaust emission.

d) Waste permit

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

YES	NO x
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES	NO x
YES	NO x

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

Describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the construction area and its immediate surroundings.

14. Water Use

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

Municipal x	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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During construction, water tanks will be sourced from the municipality.

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?

The requirement for a water use license will depend on whether any infrastructure is located within a watercourse or within 500m of a wetland. This will only be determined through the final design process.

litres	
YES	NO x

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

An application for a water use license will be submitted following final design, should this be required.

15. Energy Efficiency

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

Not applicable

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

Not applicable

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- 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):

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

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

YES	NO
x	

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

Property description/physical address:

Province	Northern Cape Province
District Municipality	Pixley ka Seme
Local Municipality	Siyathemba
Ward Number(s)	-
Farm name and number	See attached
Portion number	See attached
SG Code	See attached

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. **Attached in Appendix A.**

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

Agricultural

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.

Is a change of land-use or a consent use application required? YES **NO**

1. Gradient of the Site

Indicate the general gradient of the site.

All Alternatives:

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

Alternative S2 (if any):

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

Alternative S3 (if any):

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

2. Location in Landscape

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

All Alternatives:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	x	
2.2 Plateau		2.5 Open valley		2.8 Dune		
2.3 Side slope of hill/mountain		2.6 Plain		x		2.9 Seafront
2.10 At sea						

3. Groundwater, Soil and Geological Stability of the Site

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

	All alternatives		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO x	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO x	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO x	YES	NO	YES	NO

Unstable rocky slopes or steep slopes with loose soil	YES	NO x	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO x	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO x	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO x	YES	NO	YES	NO
An area sensitive to erosion	YES	NO x	YES	NO	YES	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.

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).

All Alternatives:

Natural veld - good condition ^E	Natural veld with scattered aliens^E x	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	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. **A consultant was consulted for this section, please see Appendix D4.**

5. Surface Water

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

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

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

The study area could be characterised as follows (see figure 1 below):

- Western half dominated by non- perennial watercourses, drainage lines and depressions associated with the Bastersput River catchment (D54D quaternary catchment) a tributary of the Hartebees River that flows into the Gariep (Orange River) near Kakamas.
- Central area dominated by upper foothill systems associated with the Prieskaaport River catchment (Quaternary catchment D72A);
- Eastern half with streams and rivers directly linked to the Gariep River such as the Brak and Karabeeloo River (Quaternary catchment D62J); and
- Farm Dams and/or old borrow pits

None of the alternative corridors impact directly on any identified wetland or their associated catchment.

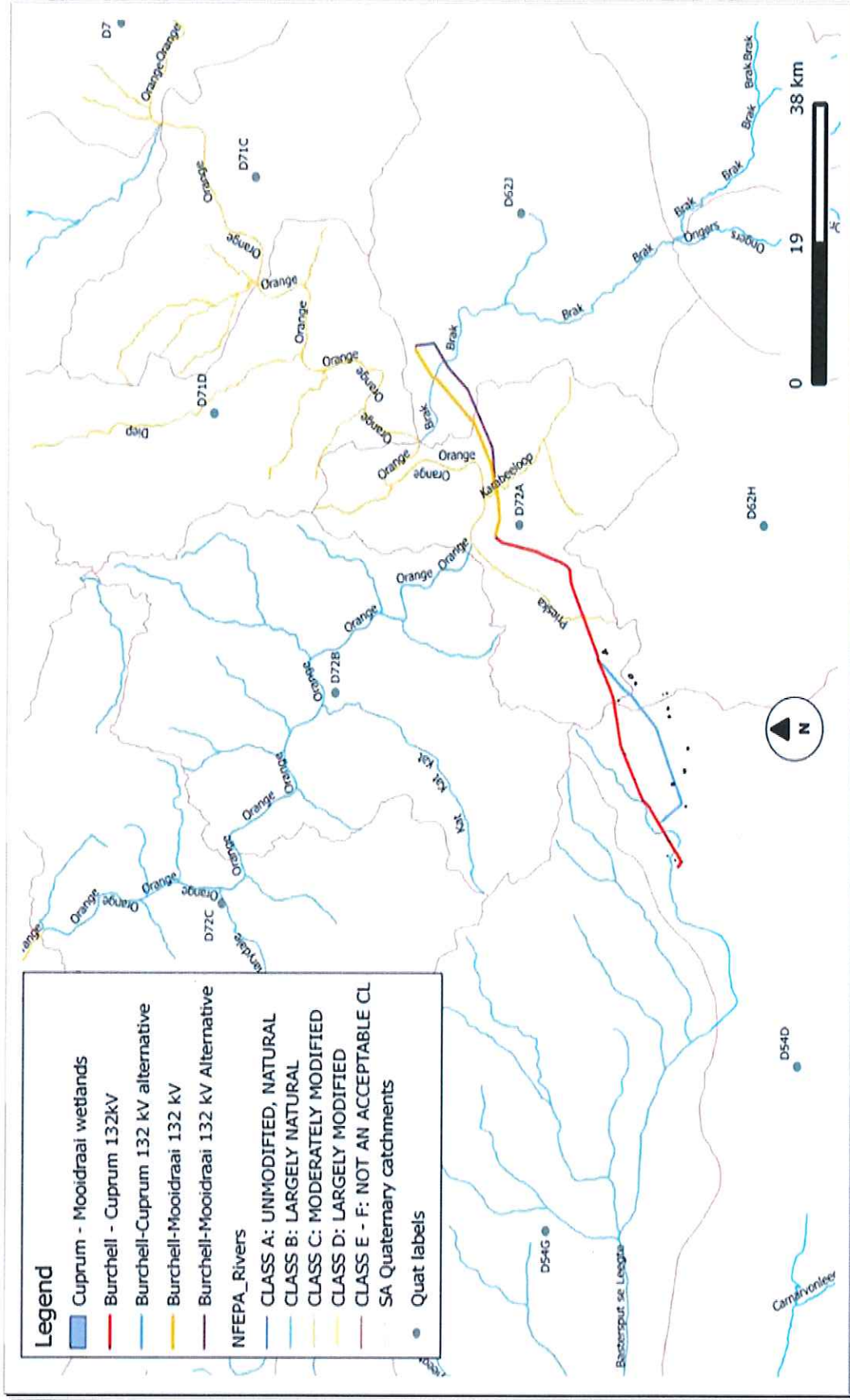


Figure 2: Map indicating quaternary catchments and main stem rivers within the study area (Aquatic Study)

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:

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

**Future land uses within the study area include a number of Photovoltaic (PV) solar energy facilities and wind energy facilities (Garob and Copperton WEF) near Copperton. Applications for these renewable energy facility developments and their associated grid integration infrastructure are in various stages of the Environmental Impact Assessment (EIA) process, with at least 6 (Bosjesmansberg PV Solar Facilities, Prieska PV Solar Facility (located at the Moodraai substation), Platsjambok PV facility, Klipgats PV facility the Garob Wind Energy Facility and the Copperton Wind Energy Facility) already approved/authorised. The Siyathemba Solar Park and the Moiblox Solar Energy Facility is according to available information (online Department of Environmental Affairs renewable energy applications database), still in the EIA process.*

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:

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:

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:

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

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

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

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:

YES x	NO
Uncertain	

A specialist was appointed to conduct a heritage impact assessment. During the survey, 11 sites were recorded consisting of Stone Age scatters and abandoned farmsteads and outbuildings, as well as a tree known as 'De Wet se Boom' forming part of the cultural landscape. A background scatter of Stone Age material was found to occur throughout the study area consisting of isolated and low density LSA and MSA artefacts.

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:

A background scatter of Stone Age material was found to occur throughout the study area consisting of isolated and low density LSA and MSA artefacts. The impacts to heritage resources by the proposed development were not considered to be highly significant and the impact on archaeological and historical sites could very easily be mitigated by micro adjustments to the tower footprints in order to preserve sites in-situ. From a cultural landscape and built environment perspective, several derelict buildings were recorded and a tree referred to as 'De Wet se Boom' within the 300 meter corridor was recorded. Any building affected by the power line will have to be assessed by a conservation architect and referred to Northern Cape Provincial Heritage Resources Authority (PHRA). It must be kept in mind that sites like these might require destruction permits before they can be demolished.

Will any building or structure older than 60 years be affected in any way?

YES	NO x
YES	NO x

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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

During the pre-construction phase, as part of the requirements of the environmental management programme, the heritage specialist will be required to do a final walk-over of the powerline route. Any adjustments to the alignment route in terms of heritage impacts can be confirmed by the specialist. Micro-adjustments to the tower footprints will enable heritage sites to be preserved in-situ. Where this is not possible, a permit will have to be obtained from SAHRA.

8. Socio-Economic Character

a) 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:

In 2011, 24.3% of the Siyathemba local Municipality was unemployed and regarded as not economically active. The total percentage of the unemployed group and those classified as economically inactive, indicates a high dependency ratio of 58.2% (Stats SA 2011 data). Agriculture/farming and commercial services play an important role in providing employment to the local community.

Economic profile of local municipality:

The Pixley Ka Seme District Municipality Integrated Development Plan 2011 identifies community services, tourism, agriculture and transport as the districts key strengths.

Agriculture (sheep, irrigation and stock farming) and electricity generation are the main activities which contribute to employment within the Municipality. The Pixley Ka Seme District Municipality Integrated Development Plan 2011-2016 acknowledges the strong history of agriculture (wool and stock farming) which has the potential to branch out into more lucrative ventures e.g. cashmere production, meat products.

Other sectors such as light industrial activities, game farming, mining and construction also play a role in the economy of this region, although their contribution may be minimal at times. This could be attributed to the low productivity in the area which is created by the shortage of skills.

Areas with opportunities for growth include manufacturing, agro-processing, mining and semi-precious stones etc.

The municipal area is characterised by low-income households, which has serious implications for the financial status of the municipality itself and its ability to implement development programmes. The low household income also has implications for the types of initiatives that would be feasible for the municipality to implement in terms of local market demand.

The average household size in Siyathemba Local municipality is 4.26 persons per household of which 51% is female.

The majority of the population currently live in small, dispersed settlements and have limited transport capacity to travel the significant distances between urban centres. As many of these households are also living in poverty, the lack of transport adds to the so-called "poverty trap".

Level of education:

A large portion of the population has some primary school education (48.5%) which indicates that most people are literate. However, most of the population does not have a matric certificate (7.5% have completed matric) and even less a tertiary qualification (0.5%). The low education levels in the Siyathemba Local Municipality could indicate that the area is challenged by shortage of skills which creates a high unemployment rate. Due to shortage of skills, most people in the Siyathemba Local Municipality have elementary jobs as these jobs require a low skill levels.

From the above, it is evident that there is a need for educational facilities, particularly post-matric training as well as accredited tertiary institutions that offer affordable and appropriate qualifications. A further need is to attract and retain qualified professionals in the municipality.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	+/- R 101 652 000.	
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown, especially with regards to maintenance, possible property damage and number of customers	
Will the activity contribute to service infrastructure?	YES	NO
Is the activity a public amenity?	YES	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Between 25 – 30 Individuals	
What is the expected value of the employment opportunities during the development and construction phase?	Unknown at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	100%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	none	
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	

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. 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.

- a) **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
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	No fine-scale conservation planning has been done in the district and as a result, no Critical Biodiversity Areas have been defined. In addition, the power line route does not fall within an area identified under the National Protected Areas Expansion Strategy, suggesting that the site does not fall within an area that has been identified as being important for biodiversity maintenance at a landscape scale.

- b) **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	%	-
Near Natural (includes areas with low to moderate level of alien invasive plants)	30%	The area is generally homogenous and there is an extensive amount of intact vegetation in the area.
Degraded (includes areas heavily invaded by alien plants)	%	-
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	70%	The preferred alternative follows the route of an existing power line. The area has already been transformed, with nearby railway lines and major roads.

c) 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						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	At danger of							
	vulnerable							
	Least Threatened	YES	NO	UNCLEAR	MPO	NPO	YES	NO

d) 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)

The study area is situated within the Karoo Region of the Northern Cape. The plant species encountered here have evolved to cope with the low amounts of moisture, even during the rainy season. The proposed power line traverses at least five vegetation types described by Mucina and Rutherford (2006), namely the Bushmanland Basin Shrubland; Bushmanland Arid Grassland; Upper Gariep Alluvial Vegetation; Lower Gariep Broken Veld and Northern Upper Karoo.

The majority of the Cuprum - Burchell line runs through Bushmanland Arid Grassland, with a small amount of Bushmanland Basin Shrubland towards the Cuprum substation and the rocky hills comprising Lower Gariep Broken Veld. The Burchell-Moodraai line is dominated by Northern Upper Karoo with small amounts of Upper Gariep Alluvial Vegetation around the major drainage lines. All of the affected vegetation types are listed as Least Threatened.

There are a number of nationally or provincially protected species present along the power line routes. The most common is the nationally protected tree species *Boscia albitrunca* which is particularly common in the rocky hills but occurs scattered on the plains across the majority of the routes as well. Although it was not observed during the current site visit *Harpagophytum procumbens* was previously observed along the existing power line route on sandy soils along the Burchell-Cuprum section of the route. This species is protected at the national and provincial level on account of its popularity as a medicinal plant. *Boscia albitrunca* is designated as a protected tree species in terms of the National Forest Act of 1998 and would require a permit before removal. This species is however widely distributed and the loss of some individuals from the power line route would not significantly impact this species. Species recorded along the route from Cuprum to Burchell and Burchell to Moodraai are all listed in the Biodiversity Report attached in Appendix D. The results indicate that there are some sensitive areas along the power line routes, in particular some rocky hills which are considered sensitive on account of the higher

diversity of fauna and flora in these areas and the greater abundance of species of conservation concern, as well as some drainage lines especially the Brak Rivier which is however heavily invaded by *Prosopis glandulosa*. In those areas heavily invaded by *Prosopis glandulosa* the power line could provide a positive impact if the alien species are controlled beneath the power line, as this would provide a corridor of relatively more intact and natural vegetation along the power line corridor.

Likely impacts that may be associated with the upgrading of the line include an impact on listed and protected plant species during construction, an impact on fauna largely during construction and an impact on avifauna largely during operation. All of the impacts assessed can however be reduced to a low level through mitigation and there are no impacts present which are likely to remain high or which represent a red-flag for the development. The major contributing factor to the low post-mitigation impact is the presence of the existing line as well as the low sensitivity of the majority of the receiving environment and the low footprint likely to be generated by the power line construction, which along most of the route can be restricted to the pylon foundations.

A drainage line across the route i.e. the Brak River is heavily invaded by *Prosopis glandulosa*. In those areas heavily invaded by *Prosopis glandulosa* the power line could provide a positive impact if the alien species are controlled beneath the power line, as this would provide a corridor of relatively more intact and natural vegetation along the power line corridor.

According to bird atlas projects previously recorded for the broader Cuprum area, a total of up to approximately 263 bird species could occur. This number includes 18 Red Data species of which 7 are Endangered, 7 are Near-threatened and 4 are Vulnerable. The Ludwig's Bustard *Neotis lugwii* was recorded in the area during avifaunal assessments and probably poses the most concern as it is a species which is extremely vulnerable to collision with overhead power lines. There are also various large raptors which occur in the area. Of particular importance to this power line development is the occurrence of the Verreaux's Eagle *Aquila verreauxii* nesting site which is situated closely to the Cuprum Burchell Alternative route. In order to mitigate this risk, it is recommended that the Cuprum Burchell Alternative route be avoided. Throughout the rest of the study area, the impact to habitats is deemed to be of low significance. Collision with overhead power lines for birds in the area is probably the most significant impact but can be adequately mitigated through the appropriate use of line markings and bird friendly pylon structures.

SECTION C: PUBLIC PARTICIPATION

1. Advertisements and Notice

Publication name	Gemsbok and Volksblad Newspapers	
Date published	Gemsbok: 01/10/2014 Volksblad: 26/09/2014	
Site notice position	Latitude	Longitude
1. Mooidraai Substation Site Notice	28°34'33.3"S	23° 01'57.6"E
2	29°39'18.3S	22°58'38.3"E
3. Burchell Substation	29°41'23.4"S	22°46'41.3"E
4	29°42'15.3"S	22°43'28.6"E
5	29°50'37.5"S	22°35'52.1"E
6	29°57'56.6"S	22°23'38.4"E
7. Cuprum Substation	29°57'11.3"S	22°18'59.4"E
Date placed	Site Notices: 25/09/2014 Gemsbok Advert: 3/10/2014 Volksblad Advert: 26/09/2014	

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

2. Determination of Appropriate Measures

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Affected and neighbouring landowners were consulted through one-on-one consultation sessions, written correspondence and via telephone. Focus group meetings were held on the 6th and 7th November to allow landowners and the local Siyathemba Municipality an opportunity to meet regarding the project and provide comments.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status
Attached as Appendix E5	

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.

3. Issues Raised By Interested And Affected Parties

Summary of main issues raised by I&APs	Summary of response from EAP
<p>Chris Bellingham of Juwi Renewable Energies for Garob Wind Farm (6 October 2014)</p> <ol style="list-style-type: none"> 1. Servitude must remain immediately adjacent to existing line, however the placement of the line somewhere in a 300m wide corridor will definitely create an issue as it will affect the placement of turbines that have already received environmental authorisation. 2. Therefore we ask that Eskom be aware of the authorised turbine positions and do not plan the line so as to interfere with their placement. 	<p>The issues of concern were passed onto Eskom, and their response is as follows:</p> <ol style="list-style-type: none"> 1. The corridor of 300m wide is only for the purposes of the EIA process. The power line servitude will only be 31m wide. The technically and environmentally preferred route is 31m south of the existing line. On this route no wind turbines are affected. 2. The industry standard is that all turbines need to be at least 1.5 times the blade tip height from any Eskom infrastructure. The new power line is only 31m south of the existing power line. It is therefore not likely that this 31m movement of the line will influence the turbine layout. However, if such a situation arises, mitigation measures will be explored by Eskom in the design process.
<p>Zuben Jessa of Plan 8 Infinite Energy for Copperton Wind Farm (7 October 2014):</p> <ol style="list-style-type: none"> 1. The corridor seems to be 600m wide (approximately 300m each side of the existing line). The proposed corridor overlaps 2 wind turbines (31 and 17) with 2 more being close to the proposed corridor (30 and 16). It is an industry standard to remain 1.5 x the blade tip height, in our case 225m from the line, since a broken blade could 	<p>The issues of concern were passed on to Eskom, and their responses are as follows:</p> <ol style="list-style-type: none"> 1. Regarding the concern of Plan 8 with regards to the 600m corridor affecting turbine layout (in particular turbine 31, 17, 30 and 16, Eskom and Savannah Environmental wish to clarify that the corridor is only considered for the purposes of the EIA. The servitude for the power line will only be 31m wide. The preferred

Summary of main issues raised by I&APs	Summary of response from EAP
<p>take down the line. In this case we have assumed that the line can be constructed at the edge of the proposed servitude.</p> <p>2. The alternative route for Cuprum – Burchell overlaps 4 of the turbines. It is suggested that the alternative be moved by 225m to accommodate the turbines (1.5 x blade tip height)</p>	<p>route from a technical and environmental perspective is 31m south of the existing power line. No turbines are within this area.</p> <p>2. In response to the query surrounding the alternate, Eskom wishes to clarify that the alternative route runs along the boundary of farms 104/1 and farm 103/7. The power line route therefore, avoids the turbines as the servitude is not 600m wide but only 31m wide.</p>
<p>Zuben Jessa of Plan 8 Infinite Energy for Copperton Wind Farm (22 October 2014):</p> <ol style="list-style-type: none"> 1. Why is a 300m wide corridor being registered if the servitude is only 31m 2. Will Eskom have the rights to locate infrastructure anywhere within the proposed 300m wide servitude 3. Our previous correspondence highlights the exclusion zone around turbines (1.5 x blade tip height which is 225m). Can Eskom confirm that this requirement will be met. 	
<p>Rene de Kock, SANRAL Western Region (21 October 2014):</p> <ol style="list-style-type: none"> 1. A wayleave form needs to be completed and returned to SANRAL with a cover letter 	<p>Has been passed on to Eskom for their attention. This will be submitted prior to commencement of construction</p>
<p>Mr B.K Markman; Northern Cape Department of Roads and Public Works (24 October 2014):</p> <p>Various provincial roads are located in the area which may be affected by the proposal and in terms of the Ribbon Development Act, Act 21 of 1940:</p> <ul style="list-style-type: none"> • No new buildings and/or structures should be constructed within a 95m corridor along the road measured from the centre line of the road, • No new access should be constructed or upgraded, and • No new power line or water line crossings should be constructed without the approval from the road authority. <p>The application letter for the construction of a power line should include at least the following drawings:</p> <ul style="list-style-type: none"> • Locality plan (Scale 1:50000); • Layout of the proposed power line route 	<p>The Northern Cape Department of Roads and Public Works requirements have been noted and forwarded to Eskom. Eskom will submit the required information in due course.</p>

Summary of main issues raised by I&APs	Summary of response from EAP
<p>and indicating the roads and nearest km marker (Scale 1:10000);</p> <ul style="list-style-type: none"> • Plan view indicating the road, fence, poles and power line (Scale 1:500); • Cross section of the road indicating the poles, power line and vertical clearance at the point of intersection (Scale 1:500 horizontal and 1:125 vertical); • Exact coordinates of each pole to be constructed (GPS coordinates); • Proposed pole structures to be used at intersection. 	
<p>Jacoline Mans, Department of Agriculture, Forestry and Fisheries (3 November 2014)</p> <p>1.1. The Directorate: Forestry Management (Other Regions) in the Department of Agriculture, Forestry and Fisheries (DAFF) is mainly concerned about the potential impact on protected tree species. See the National Forests Act, Act 84 of 1998 (NFA) as amended, section 12(1)(d) read with s15(1) and s62(2)(c). The most recent list of protected tree species was published in GN 877 of 22 November 2013. No protected tree may be damaged, disturbed, cut or destroyed without a valid Forest Act License.</p> <p>1.2. The DAFF is also responsible for the administration of the National Veld and Forest Fires Act, Act 101 of 1998 (NVFFA) as amended. Please take note of roles and responsibilities in terms of the NVFFA.</p> <p>2. <u>Comments On Draft Basic Assessment Report & Specialist Reports</u></p> <p>2.1. The draft basic assessment report (DBAR) stated that the existing power line will be decommissioned. This Department supports the recommendation that the new line be constructed on the footprint of the existing line that will be decommissioned in order to minimize environmental impacts.</p> <p>2.2. Pages 36 & 37 of the Archaeological Report pointed out that General De Wet's tree commonly referred to as "De Wet se Boom" is of great historical significance to the locals and must be preserved in situ. The DAFF supports this recommendation. De Wet se Boom is a large protected</p>	

Summary of main issues raised by I&APs	Summary of response from EAP
<p><i>Acacia erioloba</i> located at the remainder of Farm 51 (S29o 37" 03.9'; E23o 01" 21.4').</p> <p>2.3. The Ecological Impact Assessment stated that it is likely that some <i>Boscia albitrunca</i> will be lost as a result of the proposed power line construction. Kindly note that <i>B. albitrunca</i> seldom reaches heights that may interfere with safe electricity supply. All possible efforts should be made to minimize impacts on <i>B. albitrunca</i>. Where trees cannot be avoided, a license should be applied for and obtained prior to any disturbance.</p>	
<p>Dr Adrian Tiplady, SKA South Africa, (3 November 2014):</p> <ol style="list-style-type: none"> i. The nearest SKA station has been identified as SKA Station ID 1890, and it is located 20km from the proposed installation; ii. This infrastructure poses a low to medium risk of detrimental impact on the SKA; iii. In order to reduce any potential risk on the SKA, we advise that the lowest (in terms of height) transmission line support structure possible is used. Previous assessments conducted with ESKOM indicate that structure heights of between 12m and 18m are available. The SKA would prefer use of the 12m structure; iv. Any transmitters that are to be established, or have been established, at the site for the purposes of voice and data communication will be required to comply with the relevant AGA regulations concerning the restriction of use of the radio frequency spectrum that applies in the area concerned; v. The South African SKA Project Office would like to be kept informed of progress with this project, and reserves the right to further risk assessments at a later stage. <p>This technical advice is provided by the South African SKA Project Office on the basis of the protection requirements of the SKA in South Africa, and does not constitute legal</p>	

Summary of main issues raised by I&APs	Summary of response from EAP
<p>approval of the renewable energy projects in terms of the Astronomy Geographic Advantage Act, the Management Authority, and its regulations or declarations.</p>	
<p>Pieter Fourie, Nelspoortjie Landowner, (6 November 2014):</p> <ol style="list-style-type: none"> 1. Landowners need to be consulted when construction commences. We need to be informed of the details of the construction phase i.e. who the contractors are and what the grievance mechanisms and procedures are. 2. Will construction take place after working hours? 3. Construction activities must take place within Eskom's servitude. Landowners do not want their veld impacted on during the construction phase. 4. When will construction for this project commence 5. How long will the construction phase take? 6. Will Eskom construct the power line or will the project be put out for tender? 7. What type of structures will be used for the new power line? 8. Will the substations be upgraded? 9. The roads within Eskom's servitude must be upgraded and properly maintained. The current roads are in poor condition and get flooded and damaged when it rains. 	<ol style="list-style-type: none"> 1. Eskom will appoint a project coordinator and clerk of works who will be responsible for liaising with landowners during the construction period. 2. The Environmental Management Programme (EMPr), which forms part of the Draft Basic Assessment Report, provides details regarding the standard working hours. Farmers will be notified if there is a need to deviate from the standard working hours. 3. The contractor will be instructed to undertake construction activities within Eskom's servitude. 4. Eskom aims to construct the power line in 2015 or 2016. Funding for the project will be made available once an environmental authorisation is received. The upgrade of this power line is a priority and will be implemented earlier if possible. 5. The upgrade of the power line between the Cuprum Substation and Burchell Substation will take approximately a year and a half. The upgrade of the power line between the Burchell Substation and Moodraai Substation will take approximately one year. 6. The project will be put out for tender. A contractor will be appointed to construct the power line; however, Eskom will be responsible for the power line. 7. A steel monopole structure will be used. This structure will be 21 meters above ground level. 8. The substations will be upgraded to accommodate new feeder bays. 9. Comment noted. Eskom is responsible for ensuring that these roads are properly maintained.
<p>Johann Badenhorst; Siyathemba Local Municipality, (7 November 2014):</p> <ol style="list-style-type: none"> 1. According to the surveyor, the servitude will be extended along the southern part of the existing line. Will the existing servitude be retained? 	<ol style="list-style-type: none"> 1. The existing servitude will be retained. 2. The Environmental Management Programme (EMPr) will direct the construction team regarding the working areas that are to be contained within Eskom's servitude. The affected property owners will be consulted if a situation

Summary of main issues raised by I&APs	Summary of response from EAP
2. All construction activities must take place within the servitude. 3. Will bush clearing take place within the new servitude?	arises where construction would need to take place outside of the servitude area. 3. Bush clearing will take place within the new servitude. Permits will need to be applied for if protected tree species are to be removed. The relevant authority in this regard is the Department of Agriculture, Forestry and Fisheries (DAFF). <i>Boscia albitrunca</i> (Shepherd's tree) is a protected tree in this area which requires a permit from DAFF in order to be removed. Eskom, however, usually avoids removing or damaging these trees.

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.

Comments and responses have been compiled into a report attached as Appendix E3.

5. Authority Participation

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Attached in Appendix E5					

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.

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.

Due to the length of the power line (95km) it is not possible / reasonable to place adverts on every farm portion / farm boundaries. In addition, people may not necessarily be able to see the site notices on every farm portion as it is mostly located on agricultural land away from publically accessible areas. Therefore on-site notices have been placed on the properties located at the start, middle and end of the power line route. In addition, site notices have been placed in public places and suitable community notice boards within the towns of Prieska and Copperton.

An application for deviation from Regulation 54(2) (a) (i) of GN R. 543 relating to the public participation process was submitted on 19 September 2014 to the Department of Environmental Affairs requesting their written permission for the deviation. No response has been received as yet.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, 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.

1. Impacts That May Result From the Planning and Design, Construction, Operational, Decommissioning and Closure Phases

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.

Activity	Impact Summary	Significance	Proposed Mitigation
PLANNING AND DESIGN PHASE			
<i>Direct impacts:</i>			
Use of vehicles during field survey	Roads and vegetation damage	Medium (all alternatives)	Make use of existing access roads only
	Impacts on Bird habitats	Medium Alternatives	<ul style="list-style-type: none"> • Ensure that any sensitive habitats along the alignment are spanned by the line, i.e. ensuring that no towers are erected in sensitive areas. • The sensitive areas have been identified to be the drainage lines, and the vicinity of the Verreaux's Eagle nest. These areas should also be avoided as far as possible by vehicles and heavy machinery. • Care should be taken to minimise any unnecessary impact on the vegetation in these areas through activities such as storing materials, turning vehicles, labour camps and others. • Adhere to Eskom's guidelines and standards for the

Activity	Impact Summary	Significance	Proposed Mitigation
			<p>construction of bird friendly pole and pylon structures.</p> <ul style="list-style-type: none"> • It is recommended that a monopole structure be used with the standard Eskom Bird Perch installed on areas which are deemed sensitive in order to provide safe perching substrate for bird well clear of the dangerous hardware below. • Large eagles occur in the area, and anecdotal reports exist of vultures (probably White-backed Vulture) occasionally visiting the area. This means that the pole structure must be designed to accommodate these large birds. • The power line furthest from the Verreaux's Eagle nest site should be utilised to avoid disturbance of these birds. The 'Burchell Cuprum Alternative" route is fatally flawed and should not be pursued any further. • It is possible that one or more other sensitive bird species could be found breeding close to the alignment. The avifaunal walk through will determine this if the season is appropriate. • Case specific mitigation measures and management plans will then need to be drawn up by a suitably qualified ornithologist. • The high risk sections of this power line must be installed with suitable and Eskom approved anti bird collision line marking devices. • It is recommended that in order to identify the exact spans of line requiring marking, an avifaunal walk-through be done as part of the site specific environmental management plan for this project. • This exercise will identify the high risk sections of line, as well as considering other factors such as any breeding sensitive species on or close to site
Indirect impacts:			

Activity	Impact Summary	Significance	Proposed Mitigation
	None	N/A	N/A
Cumulative impacts:			
	None	N/A	N/A

Activity	Impact Summary	Significance	Proposed Mitigation
CONSTRUCTION PHASE			
Direct impacts:			
Site clearing for construction/ placement of: <ul style="list-style-type: none"> • Access roads; • Servitudes; • Foundations; • Underground cabling; • Steel framework • Towers 	Loss of vegetation, increase in runoff and erosion	Low (all alternatives)	<ul style="list-style-type: none"> • Vegetation clearing along the power line corridor should only be conducted where necessary and should not be cleared using herbicides or with a bulldozer. Vegetation can be cleared manually with bush cutters to 0.5m height where necessary. • Succulent species which do not burn such as <i>Euphorbia avasmontana</i> do not pose a fire danger and should be allowed to persist beneath the power line. Any staff or contractors used to clear the line should be educated in this regard. • No collection of plants or plant parts to be allowed by construction personnel. The ECO should provide environmental induction to all construction staff to ensure that they are aware of this and other environmental sensitivities at the site. • No fuel wood collection should be allowed on-site. • No fires allowed on-site. • It is recommended that the full servitude is not cleared within any of the aquatic areas shown in the aquatic report.
	Increase in sedimentation and erosion	Low (all alternatives)	<ul style="list-style-type: none"> • Clearing of vegetation should be kept to a minimum and any areas that were used as laydown or construction camps

Activity	Impact Summary	Significance	Proposed Mitigation
	<ul style="list-style-type: none"> Destruction of stone artefact occurrences and scatters. 	Low (all alternatives)	<p>areas must be rehabilitated.</p> <ul style="list-style-type: none"> The proposed development, including construction of the new 132 kV distribution line, new access roads and related infrastructure, is unlikely to have a significant impact on local fossil heritage. The paleontological sensitivity of the sedimentary rocks in the Cuprum to Burchell to Mooirdraai study area is LOW. The proposed development, including construction of the new 132 kV transmission line, new access roads and related infrastructure, is unlikely to have a significant impact on local fossil heritage In the case of any substantial fossil finds during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably <i>in situ</i> - and reported by the ECO as soon as possible to SAHRA
	<p>Impact on localised surface Site clearing for construction/ placement of:</p> <ul style="list-style-type: none"> Access roads; Servitudes; Foundations; Underground cabling; Steel framework Towers water quality 	Low (all alternatives)	<ul style="list-style-type: none"> Appropriate abatement facilities should be provided for construction workers during construction and on-site staff during the operation of the facility. Strict use and management of all hazardous materials used on site. Strict management of potential sources of pollution (e.g. litter, hydrocarbons from vehicles & machinery, cement during construction, etc.). Containment of all contaminated water by means of careful run-off management on the development site. Strict control over the behaviour of construction workers. Working protocols incorporating pollution control measures (including approved method statements by the contractor) should be clearly set out in the Construction Environmental Management Plan (CEMP) for the project and strictly

Activity	Impact Summary	Significance	Proposed Mitigation
	<ul style="list-style-type: none"> Construction on sensitive visual receptors in close proximity to the proposed power line. 	Low (Preferred Alternative between Cuprum-Burchell-Moodraai) Medium (Burchell - Moodraai Alternative) Medium (Cuprum - Burchell Alternative)	enforced. <ul style="list-style-type: none"> Minimise 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 good housekeeping practises on the site, and that rubble, litter, and disused construction materials are appropriately stored and disposed of regularly at licensed waste facilities. Reduce and control construction dust using approved dust suppression techniques as and when required. Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. Rehabilitate all disturbed areas immediately after the completion of construction works.
	Construction Impacts on Bird habitats	Medium (all alternatives)	<ul style="list-style-type: none"> Ensure that any sensitive habitats along the alignment are spanned by the line, i.e. ensuring that no towers are erected in these sensitive areas. The sensitive areas have so far been identified to be the drainage lines, and the vicinity of the Verreaux's Eagle nest. These areas should also be avoided as far as possible by vehicles and heavy machinery. Care should be taken to minimise any unnecessary impact on the vegetation in these areas through activities such as storing materials, turning vehicles, labour camps and others.
Indirect impacts: <ul style="list-style-type: none"> Reduction of indigenous species. Alien plants are likely to invade 		Low (all alternatives)	<ul style="list-style-type: none"> Some loss of vegetation is inevitable and cannot be avoided. The area is not highly sensitive and with mitigation, there will be very little residual impacts on the

Activity	Impact Summary	Significance	Proposed Mitigation
	the site as a result of the disturbance created during construction		terrestrial environment. <ul style="list-style-type: none"> • Care should be taken to minimise any unnecessary impact on the vegetation in these areas through activities such as storing materials, turning vehicles, labour camps and others. • Due to the disturbance at the site alien plant species could be a problem at the site and a long-term control plan will need to be implemented. • Regular monitoring for alien plants within the development footprint. • Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.
	<p>Cumulative impacts:</p> Impacts on vegetation Impacts on habitats Impact on birds Impact on fauna Visual Impacts	Low to High for all alternatives	The cumulative impacts of the construction of new electrical and energy infrastructure in this Copperton and Prieska area could be quite significant. There are a number of wind energy facilities and solar facilities proposed. All of these facilities, plus their grid connection power lines, will remove a significant amount of natural vegetation from the land surface in this wider area. Cumulative impacts on fauna during operation would be very low as interactions between fauna and power line infrastructure are unlikely and maintenance activities would be very infrequent. The construction of this power line, together with the existing power lines, railway line and the potential future renewable energy facilities, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.
Site clearing	for		<p>Direct impacts:</p>

Activity	Impact Summary	Significance	Proposed Mitigation
construction/placement of: • Access roads; • Servitudes; • Foundations; • Underground cabling; • Steel framework • Towers	<ul style="list-style-type: none"> Possible erosion of areas Possible contamination of downstream drainage lines due to oil or other spillage Irreplaceable loss of archaeological heritage resources.	Low (all alternatives) Low (all alternatives)	<ul style="list-style-type: none"> The potential for cumulative impacts is very low on account of the small development footprint of power line in relation to the intact nature of the surrounding landscape. Once the layout of the proposed power line has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development. Clearing is inevitable but must be kept to the footprint to minimise impacts.
Loss of riparian systems Cumulative impacts: Construction on sensitive visual receptors in close proximity to the proposed power line.	Loss of riparian systems Construction on sensitive visual receptors in close proximity to the proposed power line.	Low (all alternatives) Low (Preferred Alternative between Cuprum-Burchell-Mooibraai) Moderate (Burchell-Mooibraai Alternative) Moderate (Cuprum – Burchell Alternative)	<ul style="list-style-type: none"> The construction of this power line, together with the existing power lines, railway line and the potential future renewable energy facilities, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.
<ul style="list-style-type: none"> Storage and usage of hazardous chemicals; Storage of hazardous waste 	Direct impacts: <ul style="list-style-type: none"> Inappropriate storage of hazardous materials and/or waste may lead to leaching and ground water pollution 	Low (all alternatives)	<ul style="list-style-type: none"> Spill kits must be made available on-site for the clean-up of spills and leaks of contaminants. Corrective action must be undertaken immediately if a potential/actual leak or spill of a polluting substance

Activity	Impact Summary	Significance	Proposed Mitigation
	<ul style="list-style-type: none"> Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site 		<p>identified. This includes stopping the contaminant from further escaping, cleaning up the affected environment as much as practically possible and implementing preventive measures.</p> <ul style="list-style-type: none"> In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents. Spilled mixed cement must be cleaned up as soon as possible and disposed of at a suitably licensed waste disposal site. Any contaminated/polluted soil must be removed from the site and disposed of at a licensed hazardous waste disposal facility. Routine servicing and maintenance of vehicles must not take place on-site but within designated banded areas at the camp (except for emergencies). If repairs of vehicles must take place on site, an appropriate drip tray must be used to contain any fuel or oils leaks. All stored fuels to be maintained within a bund and on a sealed surface. Fuel storage areas must be inspected regularly to ensure bund stability, integrity, and function. Small construction machineries must be stored in an appropriately sealed area. The storage of flammable and combustible liquids such as oils must be in designated areas which are appropriately banded, and stored in compliance with Material Safety Data Sheets (MSDS) files. Drip trays must be placed under stationary machinery which have the potential to leak. Any storage and disposal permits/approvals which may

Activity	Impact Summary	Significance	Proposed Mitigation
			be required for chemicals and/or materials must be obtained, and the conditions attached to such permits and approvals compiled with. <ul style="list-style-type: none"> • Transport of all hazardous substances must be in accordance with the relevant legislation and regulations • Construction vehicles must be washed within designated areas • The sediment control and water quality structures used on-site must be monitored and maintained in an operational state at all times. Upon the completion of construction, the area must be cleared of all materials.
	<p>Indirect impacts: Spillage of contaminants will have a long-term residual effect on the natural resources, specifically to the soil and vegetation, and possibly the underground water depending on the quantum of the spillage.</p>	Low (All Alternatives)	<ul style="list-style-type: none"> • A spill log, in relation to the volume, nature, petrochemical or location, date, time and clean up action, and any hazardous spills, must be daily updated on site.
	<p>Cumulative impacts: Little with the necessary mitigation in place</p>	Negligible	N/A

Activity	Impact Summary	Significance	Proposed Mitigation
OPERATIONAL PHASE			
<ul style="list-style-type: none"> Maintenance of power line and access roads; Use of vehicle during maintenance. 	<p>Direct impacts: Loss of vegetation, loss of micro-habitat, increase in runoff and erosion, window of opportunity for the establishment of alien invasive species, absence of living soil crusts, altered topsoil characteristics with low moisture infiltration capacity and increased runoff during operation of power line.</p>	Medium	<ul style="list-style-type: none"> Restrict maintenance activities to designated access roads and power line servitude. Trampling of surrounding vegetation should be avoided as far as possible. Reinforce portions of existing access routes that are prone to erosion, create structures or low banks to drain the access roads rapidly during rainfall events, yet preventing erosion of the track and surrounding areas. Compile and implement an appropriate stormwater management plan.
<ul style="list-style-type: none"> Maintenance of power line; Use of vehicle during maintenance. 	Potential visual impact on the intrinsic value and sense of place of the area immediately surrounding the power line.	Low (Preferred Alternative between Cuprum-Burchell-Mooidraai) Medium (Burchell Mooidraai Alternative) Medium (Cuprum Burchell Alternative)	<ul style="list-style-type: none"> Maintain the general appearance of the servitude as a whole.
Indirect Impacts:			
Ecological degradation/loss of arable land and ecological integrity		Low	Re-establish vegetation where possible and in so doing increase habitat capabilities.

Activity	Impact Summary	Significance	Proposed Mitigation
	Cumulative impacts		
	None	N/A	N/A

DECOMMISSIONING AND CLOSURE PHASE			
<ul style="list-style-type: none"> Disassemble power line components according to regulatory requirements Disturbed areas will be rehabilitated 	<p>Direct Impacts</p> <p>The major social impacts associated with the decommissioning phase are linked to the loss of jobs, in addition, the social impacts associated with final decommissioned are likely to be limited due to the relatively small number of permanent employees affected.</p> <p>Indirect impacts</p> <p>n/a</p> <p>Cumulative impacts</p> <p>None</p>	Low	» Disassembled components will be reused, recycled, or disposed of in accordance with regulatory requirements.

Activity	Impact Summary	Significance	Proposed Mitigation
	NO GO ALTERNATIVE		
	This is the option of not constructing the proposed power line. This option will result in limited or no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no or low visual impact. However, this will result in the situation where the power supply to the local area will be compromised as the existing power line is nearing the end of its life. This is an undesirable option for the area and the local community as it will pose negative impacts in terms of power supply, and will impact on the economic development of the local community.		
	Direct impacts:		
	Impact on electricity supply to the local area, impacting on the local community and the economic	High	Implementation of the proposed project is a mitigation in this regard

Activity	Impact Summary	Significance	Proposed Mitigation
	development in the area		
	Indirect impacts:		
	N/A	N/A	N/A
	Cumulative impacts:		
	N/A	N/A	N/A

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

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.

This section provides a summary of the environmental assessment and conclusions drawn for the proposed power line. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

- » The main impacts on the **ecology** will occur during the construction phase of the proposed project. These impacts were assessed to have **low-high significance** and can be mitigated to acceptable levels as a result of the limited footprint of the permanent infrastructure associated with the power line. Activities that will result in impacts include:
 - * Impacts on vegetation and listed plant species
 - * Impacts on terrestrial fauna at the site due to operation of heavy machinery and the presence of construction personnel;
 - * Faunal impacts due to operation and maintenance activities;
 - * Avifaunal impacts due to the potential for collisions with the overhead power lines especially on priority species such as the Ludwig's Bustard and Verreaux's Eagle;
 - * Ecological degradation impacts associated with power line servitude maintenance activities.
 - * Site rehabilitation activities.
- » The main impacts on **surface water** systems will occur during the construction phase of the proposed project. These impacts were assessed to have **low significance**. The proposed alternative corridors will have a negligible impact on the aquatic environment. This is based on the assumption that no towers will be placed within any of the delineated systems or their buffers. Furthermore, no protected or species of special concern (fauna & flora) were recorded within the aquatic areas adjacent to the existing stream crossings that will be used. Therefore, the significance of the impacts assessed for the aquatic systems after mitigation would be low..
- » The main impacts on the **visual** environment will occur during the construction phase of the proposed project. These impacts were assessed to have **low - high**

significance. Activities that will result in impacts include:

- * Increase in vehicular and other activity levels during the construction phase;
- * The clearance of vegetation at the footprint of the construction lay-down yard, power line and infrastructure;

As the proposed power line will replace the existing 132kV power line the visual impact during operation will not change from the current situation.

» The main impacts on **heritage** sites will occur during the construction phase of the proposed project due to the potential disturbance or destruction of these sites. These impacts were assessed to have **medium-low significance**. Activities that will result in impacts include:

- * The clearance of vegetation at the footprint of the construction lay-down yard, power line and associated infrastructure;
- * Removal of topsoil from the footprint of the power line and excavation of foundations.

» The Cuprum Burchell Mooidraai 132 kV distribution line study area is generally of **Low to Very Low paleontological** sensitivity. There is a small likelihood of important mammalian remains (e.g. bones, teeth, horn cores) being preserved within older alluvial deposits in the region. There is no preference on paleontological grounds for the one or other of the alternative distribution line route options. Pending the discovery of significant new fossil remains, no further specialist paleontological studies or mitigation are recommended for this western sector of the 132 kV power line project

» The main impacts on **avifauna** due to the construction of the proposed power line are:

- * Disturbance of birds will be of medium to high significance, and mitigations have been proposed to avoid the sensitive areas.
- * Electrocution of birds will be of medium to high significance, but can be relatively easily mitigated by using a bird friendly pylon structure.
- * Collision of birds is probably the most significant impact that will affect birds, and several of the species likely to be affected are Red Listed. In order to mitigate this risk it will be necessary to mark high risk sections of the line with an appropriate line marking device on the earth wire in order to make it more visible to birds in flight. This is especially in the area of the Verreaux's Eagle Nest.

In terms of the above-mentioned conclusions established through the Basic Assessment investigation, there were areas of sensitivity identified along the power line corridor alternatives. These areas contain sensitive vegetation and a sensitive nest site and are shown in the environmental sensitivity Map (refer to Appendix A). Through implementation of the EMPr (Refer to Appendix G) impacts on sensitive areas

can be mitigated to acceptable levels.

Based on the findings of the studies undertaken, in terms of environmental constraints identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the establishment of the proposed power line and associated infrastructure. The power line corridor parallel to the existing power line (i.e. the technically preferred corridor) is nominated as the preferred alternative for implementation (as detailed in the table below).

The significance level of the majority of identified negative impacts can generally be reduced by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Therefore, it is recommended that the project should be authorised. However, a number of issues requiring mitigation have been highlighted. Environmental specifications for the management of these issues / impacts are detailed within the draft Environmental Management Programme (EMPr) included within **Appendix G**.

No-go alternative (compulsory)

This is the option of not constructing the proposed power line. This option will result in limited or no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no or low visual impact. However, this will result in the situation where the power supply to the local area will be compromised as the existing power line is nearing the end of its life. This is an undesirable option for the area and the local community as it will pose negative impacts in terms of power supply, and will impact on the economic development of the local community.

Comparison of Alternatives

Environmental Aspect	Cuprum to Burchell		Burchell to Moodraai	
	Technically preferred alternative	Alternative	Technically preferred alternative	Alternative
Ecology	<p>Preferred alternative -less intact vegetation would need to be removed; fauna and flora already acclimatised.</p> <p>Negligible impact on the environment.</p>	<p>Intact vegetation would have to be removed, flora and fauna will be disturbed.</p> <p>Negligible impact on the environment.</p>	<p>Preferred alternative -less intact vegetation would need to be removed; fauna and flora already acclimatised.</p> <p>Negligible impact on the environment.</p>	<p>Intact vegetation would have to be removed, flora and fauna will be disturbed</p> <p>Negligible impact on the environment.</p>
Aquatic Environment	<p>This option is the preferred alternative because</p> <ul style="list-style-type: none"> it is adjacent to an existing power line , it avoids the Verreaux's Eagle nest site birds in the area may be acclimatised to its presence in the landscape impact on the receiving environment is reduced existing access roads can be used thereby reducing habitat disturbance 	<p>The 'Cuprum Burchell Alternative' route is flawed due to the presence of a Verreaux's Eagle nest approximately 350 metres from the alignment. This alternative would definitely prove a collision risk to adults and juveniles. This is considered to be a no-go option</p>	<p>This option is the preferred alternative because</p> <ul style="list-style-type: none"> it is adjacent to an existing power line , it avoids the Verreaux's Eagle nest site birds in the area may be acclimatised to its presence in the landscape impact on the receiving environment is reduced existing access roads can be used thereby reducing habitat disturbance 	<p>This alternative is not favoured as it would create additional habitat disturbance to bird species.</p>
Heritage	<p>Impacts on heritage resources are not considered to be high and with the correct mitigation this alternative is acceptable.</p>	<p>Impacts on heritage resources are not considered to be high and with the correct mitigation this alternative is acceptable.</p>	<p>Impacts on heritage resources are not considered to be high and with the correct mitigation this alternative is acceptable.</p>	<p>Impacts on heritage resources are not considered to be high and with the correct mitigation this alternative is acceptable.</p>

Environmental Aspect	Cuprum to Burchell		Burchell to Mooibraai	
	Technically preferred alternative	Alternative	Technically preferred alternative	Alternative
Visual	Impacts along the existing route would be within acceptable limits due to the visual impact already existing. This option is the preferred alternative.	Deviations will spread the visual exposure over a larger area. This alternative is not preferred due to its high level of potential visual exposure along the R357.	Impacts along the existing route would be within acceptable limits due to the visual impact already existing. This option is the preferred alternative.	Deviations will spread the visual exposure over a larger area. This alternative is not preferred due to its high level of potential visual exposure along the R357.

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 <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
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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).

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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.

There are no environmental or social impacts of high significance that would prevent the establishment of the proposed 132kV Cuprum – Burchell - Mooidraai power line.

The construction of the proposed power line should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Design, Construction, and Decommissioning Phases:

- the preferred alternative following the existing Cuprum – Burchell - Mooidraai power line should be implemented.
- The Environmental Management Programme (EMPr) as contained within **Appendix G** of this report should form part of the contract with the Contractors appointed to construct and maintain the proposed power line, and will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.
- The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts.
- It will be necessary to mark high risk sections of the power line with an appropriate line marking device on the earth wire in order to make it more visible to birds in flight. These high risk sections of line must be identified by an avifaunal walk through on site once the route and exact tower positions are finalised. This walk

through exercise will also serve to identify any other sensitive avifaunal features such as breeding threatened species.

- During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
- An on-going monitoring programme should be established to detect and quantify any alien species.
- Erosion control measures should be implemented and could include run-off control and attenuation on slopes (sand bags, logs), silt fences, stormwater channels and catch-pits, shade nets, soil binding, geofabrics, hydroseeding or mulching over cleared areas.
- An appropriate stormwater management plan must be developed and implemented if applicable to the site.
- Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. If concentrations of archaeological heritage material and human remains are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken. In the event of fossils being uncovered during the construction phase, the EO should photograph and record the position of fossiliferous material.
- The Conservation Authorities of the Northern Cape must be contacted regarding any permit regulations that need to be followed regarding the removal of any protected species
- Permits must be obtained from the Conservation Authorities of the Northern Cape and DAFF prior to the removal of any protected plant or tree species.
- Develop emergency maintenance operational plan to deal with any event of contamination, pollution, or spillages.
- Attention should be given to the extension and improvement of the existing HIV/Aids awareness programmes.

Operational Phase:

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

- Development and implementation of an appropriate storm water management plan if applicable.
- On-going maintenance of the power line to minimise the potential for visual impacts.
- On-going monitoring and management of the site to detect and restrict the spread of alien plant species.

In the opinion of the Environmental Practitioner, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level. As such, it is recommended that the proposed construction of the power line and associated

infrastructure be authorised subject to compliance with the recommendations and mitigation measures proposed in this report.

Is an EMPr attached?

YES x

NO

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.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDICES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

