BASIC ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF ACCESS ROADS, 33kV POWERLINES AND 132KV POWERLINE LOCATED NEAR NOUPOORT IN THE UMSOBOMVU LOCAL MUNICIPALITY, IN THE NORTHERN CAPE PROVINCE

Prepared for: Mooi Plaats (Pty) Ltd

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(Project Manager)

Stuart Heather-Clark
(Reviewer)

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agriculture, environmental affairs,
rural development and land reform

Department:
agriculture, environmental affairs,
rural development and land reform .
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LIST OF TABLES

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **07 April 2017**. 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 the application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

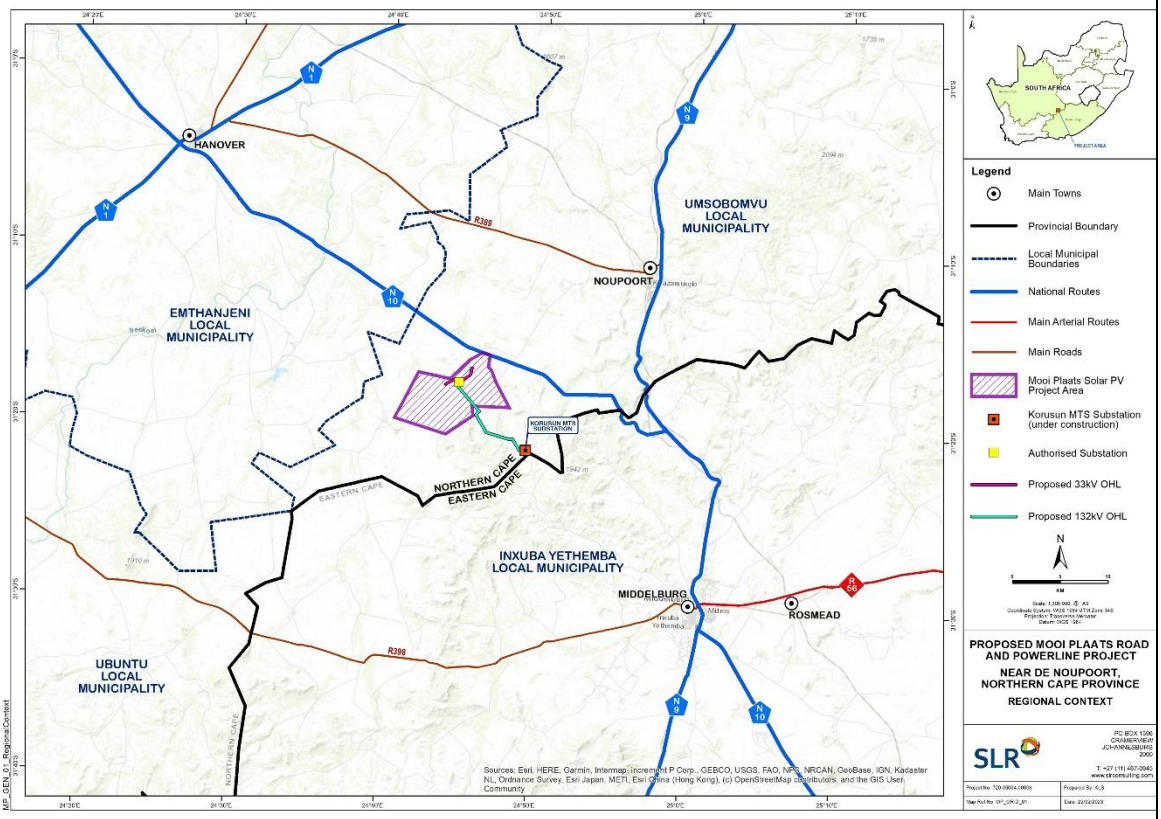
Has a specialist been consulted to assist with the completion of this section?	✓ **YES**	[redacted]

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

1. ACTIVITY DESCRIPTION

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

The proposed site is located approximately 23km south-west of the town of Noupoort, which falls within the Umsobomvu Local Municipality in the Pixley ka Seme District Municipality of the Northern Cape Province.



The proposed project will be located on the following properties / farm portions:

PROJECT NAME	EDF MOOI PLAATS POWERLINE & ROAD BA	
PROJECT COMPONENT	AFFECTED PROPERTIES	SG CODES
132 kV aboveground cable	• Portion 1 of Leuwe Kop No. 120	C03000000000012000001
	• Portion 4 of the Farm Uitzicht No. 3	C04800000000000300004
	• Portion 6 of the Farm Uitzicht No. 3	C04800000000000300006
	• Portion 8 of the Farm Uitzicht No. 3	C04800000000000300008
33 kV above ground cables	• Remainder of Farm Mooi Plaats No. 121	C03000000000012100000
	• Portion 1 of Leuwe Kop No. 120	C03000000000012000001
Internal Access Roads	• Portion 1 of Leuwe Kop No. 120	C03000000000012000001
	• Remainder of Farm Mooi Plaats No. 121	C03000000000012100000

The proposed project is required for the authorised 400 Megawatts (MW) Mooi Plaats Photovoltaic (PV) Solar Energy Facility (SEF) and its associated infrastructure, (authorised by way of EA dated 8 June 2022 with reference number: 14/12/16/3/3/2/1134 and 14/12/6/3/3/1/2132 respectively) in order to be bid in the Renewable Independent Power Producer Programme (REIPPP) / private opportunities which are aimed at bringing additional megawatts onto the country's electricity system through private sector investment in renewable energy.

In order to optimise the layout of the authorised 400 MW Mooi Plaats SEF and Grid infrastructure and ensure that the project remains suitable for development opportunities in the REIPPPP or for private agreements. Mooi Plaats proposes the **addition of supporting infrastructure for the Mooi Plaats SEF (14/12/16/3/3/2/1134) and Grid Connection (14/12/6/3/3/1/2132).**

The proposed 33kV above ground cables, 132 kV aboveground cable and internal access roads, hereafter referred to as "the proposed project", which forms this application and Basic Assessment (BA) process.
The proposed project requires several key components to facilitate the transmission and distribution of electricity at a large scale. This includes:

- Two (2) 33 kV above ground cables;
- One (1) 132kV overhead powerline;
- Three (3) Internal Access Roads.

The two (2) proposed 33kV above ground cables (approximately 2.3km and 1.7km in length respectively) are required to connect the authorized Mooi Plaats Solar PV to the authorized 33kV/132kV onsite collector substation. The 33kV above ground cables will be supported by monopole double circuit built to 88/132kV dimensions and will be up to a maximum of 28m in height. The corridor buffer width to be assessed is 100m- 50m on either side of the 33kV alignment.

Approximately 6.7km of the proposed 11.3km 132kV aboveground cable is situated within the approved 132kV corridor (14/12/6/3/3/1/2132). This 132kV aboveground cable will deviate approximately 4.6km south-east out of the approved powerline corridor to connect to the approved 132kV/400kV Korusun[1] Main Transmission Substation (MTS) (14/12/16/3/3/2/730/2 as amended and currently under construction). The design of the 132kV pylon towers to be used for this project will be a combination of single and double circuit Monopole pylons and Lattice pylons as required and will range between 24m-40m in height. The corridor buffer width to be assessed for the proposed 4.6km aboveground cable is 300m- 150m on either side of the 132kV alignment.
The corridors proposed to be assessed are to allow flexibility when routing the powerlines and roads within the corridor.

Three (3) Internal access roads (approximately 1.3km, 1.2km and 0.09km in length respectively) are required to access the Solar PV arrays. Each road will be approx. between 4m and 12m wide. The corridor buffer width to be assessed for the proposed roads is 300m- 150m on either side of the road alignment.

A summary of the key project components is detailed in the table below.

Component	**Details**
Powerlines	
Connection from the approved Solar PV to the approved onsite substation	
Powerline capacity:	Two (2) 33kV powerlines

[1] Formerly referred to as the Hydra D MTS.

Powerline length:	One (1) approximately 1.7km and One (1) approximately 2.3km		
Powerline corridors width	100 m (50 m on either side of centre line)		
Powerline servitude	32m		
Powerline co-ordinates	**33kV Powerline 1 (1.7km)**		
		Latitude	**Longitude**
	Start	S31° 17' 39.933"	E24° 43' 52.113"
	Middle	S31° 17' 26.517"	E24° 44' 19.675"
	End	S31° 17' 32.309"	E24° 44' 46.126"
	33kV Powerline 2 (2.3km)		
		Latitude	**Longitude**
	Start	S31° 16' 43.404"	E24° 45' 37.149"
	Middle	S31° 17' 13.282"	E24° 45' 17.968"
	End	S31° 17' 32.243"	E24° 44' 47.006"
Powerline pylons:	Monopole double circuit built to 88/132kV dimensions		
Powerline pylon height:	Maximum 28 m		
Powerlines			
Connection from the approved onsite substation to the approved Korusun MTS			
Powerline capacity:	One (1) 132kV powerline		
Powerline length:	Approximately 11.3km (4.6 km new and 6.7km within an approved corridor)		
Powerline corridors width	300 m (150 m on either side of centre line)		
Powerline servitude	32m		
Powerline co-ordinates	**132kV Powerline (11.3km)**		
		Latitude	**Longitude**
	Start	S31° 17' 32.571"	E24° 44' 43.027"
	Middle	S31° 19' 54.655"	E24° 46' 21.662"
	End	S31° 21' 21.246"	E24° 49' 9.274"
Powerline pylons:	Combination of single and double circuit Monopole pylons and Lattice pylons as required		
Powerline pylon height:	Maximum 40 m		
Roads			
Provide access to the approved solar PV			
Road Length	Approximately 1.3km, 1.2km and 0.09km in length respectively		
Road corridors width	300 m (150 m on either side of centre line)		
Road co-ordinates	**Road 1 (1.3km)**		
		Latitude	**Longitude**
	Start	S31° 18' 20.582"	E24° 43' 40.232"
	Middle	S31° 18' 36.778"	E24° 43' 45.381"
	End	S31° 18' 58.410"	E24° 43' 44.862"
	Road 2 (1.2km)		
		Latitude	**Longitude**
	Start	S31° 17' 24.692"	E24° 44' 28.587"
	Middle	S31° 17' 30.970"	E24° 44' 8.613"
	End	S31° 17' 40.211"	E24° 43' 48.797"
	Road 3 (0.09km)		
		Latitude	**Longitude**
	Start	S31° 18' 8.741"	E24° 45' 20.578"
	Middle	S31° 18' 9.641"	E24° 45' 21.865"
	End	S31° 18' 10.541"	E24° 45' 23.152"

In terms of the EIA Regulations various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require authorization from the Provincial Competent Authority (CA), namely the Northern Cape Department of Agriculture, Environmental Affairs, Land Reform and Rural Development, prior to the commencement thereof.

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

LISTED ACTIVITY AS DESCRIBED IN GN 327, 325 AND 324	DESCRIPTION OF PROJECT ACTIVITY
Listing Notice 1	
GN R.327 11 (i): The development of facilities or infrastructure for the transmission and distribution of electricity, (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kV or more.	The proposed project will require a 132kV above ground powerline.
GN R.327 19: The infilling or depositing of any material of more than 10 cubic metres into or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles, or rock of more than 10 cubic metres from a watercourse.	Although the development envelop of the development area has been designed to avoid the identified surface water features / watercourses as far as possible, some of the internal site roads, pylons, etc. to be constructed (as required) will need to traverse some of the identified surface water features / watercourses. Therefore, the proposed project may require the removal of soil in excess of $10m^3$ from a watercourse as a result of the construction of project infrastructure, as well as upgrades to existing roads and laying of underground cables within the project area.
GN R.327 24(ii): The development of a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The proposed project entails the construction of three (3) new internal roads to connect the approved solar PV arrays. A temporary road corridor up to 12m will be impacted during the construction phase. This will be rehabilitated after the completion of construction activities to allow for a permanent 8m wide road surface with side drains on one (1) or both sides where necessary.
GN R.327 28 (ii): Residential, mixed, retail, commercial, industrial, or institutional developments where such land was used for agriculture, game farming, equestrian purposes, or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.	The proposed project would be established on land previously used for agriculture and the total area required for the proposed development is in excess of 1 ha. The proposed project is considered to be a commercial / industrial development and will have a footprint that exceeds 1 ha.
Listing Notice 3	
GN R.324 4: The development of a road wider than 4 metres with a reserve less than 13,5 metres.	A temporary road corridor up to 12m will be impacted during the construction phase. This will be rehabilitated after the completion of construction activities to allow for a permanent

LISTED ACTIVITY AS DESCRIBED IN GN 327, 325 AND 324	DESCRIPTION OF PROJECT ACTIVITY
(g) (ii) (ee): Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	8m wide road surface with side drains on one (1) or both sides where necessary. In some areas, development of infrastructure will traverse CBA2. Although the Northern Cape CBAs have not been gazetted, the impact on these features will be assessed as part of the impact assessment process.
GN R.324 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (g) (ii): Within critical biodiversity areas identified in bioregional plans	In some areas, development of road and powerline infrastructure will traverse CBA2 and cumulatively require the clearance of more than 300m^2 of indigenous vegetation. Although the Northern Cape CBAs have not been gazetted, the impact on these features will be assessed as part of the impact assessment process.
GN R.324 14 (ii): The development of infrastructure or structures with a physical footprint of 10 square metres or more, where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse (g) (ii): Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Internal roads, and overhead power lines with a total physical footprint in excess of 10m^2 will be required within and adjacent to watercourses and will traverse CBAs in places. Although the Northern Cape CBAs have not been gazetted, the impact on these features will be assessed as part of the impact assessment process.
GN R.324 18: The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre (g) (ii) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Existing roads may require widening of up to 8m (up to 12m during construction) and/or lengthening by more than 1km, to accommodate the movement of heavy vehicles and cable trenching activities. This includes a number of watercourse crossing upgrades, on site. Most of the site in the Northern Cape constitutes indigenous vegetation.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

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, 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

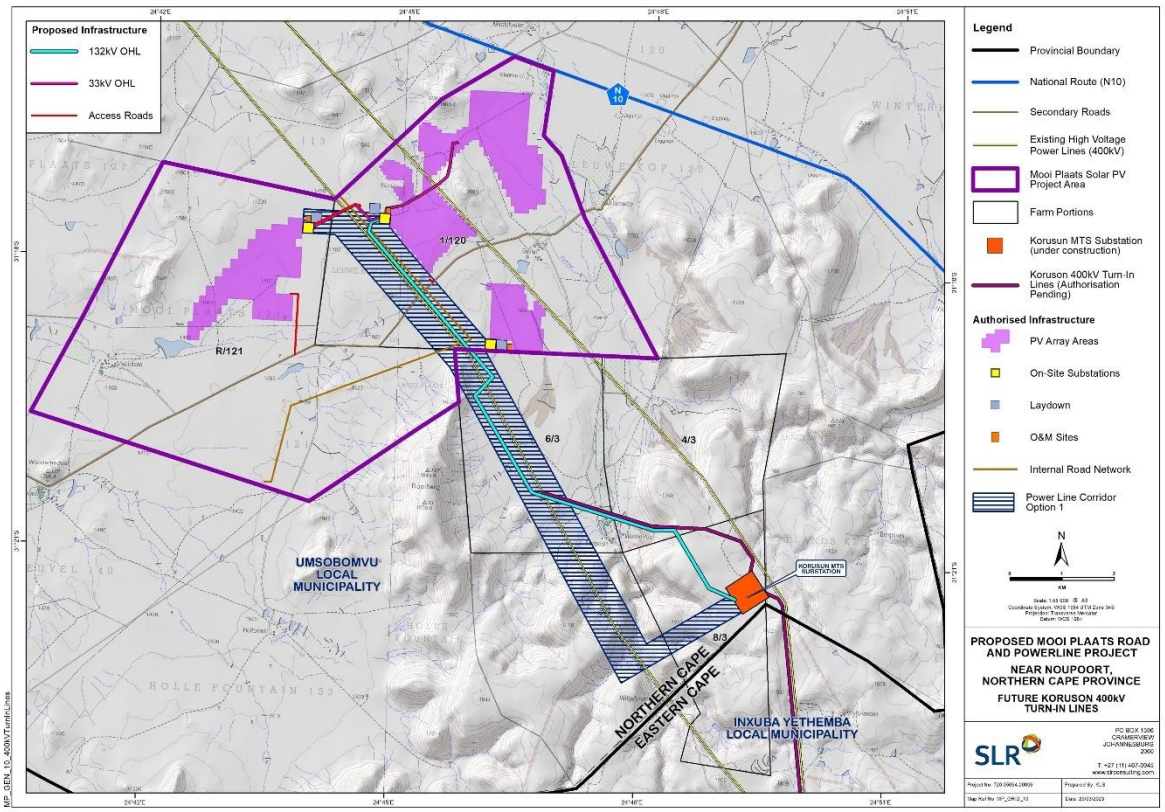
The location of the 33kV above ground cables, 132 kV aboveground cable and internal access roads have been determined based on identified sensitive and/or no-go areas identified during the application processes undertaken in 2019/2020 (Mooi Plaats SEF (14/12/16/3/3/2/1134) and Grid infrastructure (14/12/6/3/3/1/2132)) and the sensitive and/or no-go areas identified by specialists for this application process. The findings of the respective specialist studies were used to inform the location of the 33kV above ground cables, 132 kV aboveground cable and internal roads. All identified sensitive and/or no-go areas (including their respective buffers) will be avoided /mitigated accordingly, as required.

No site alternatives for this proposed road developments and 33kV above ground cables were considered, as the placement of the proposed roads and above ground cables are directly dependent on the location of the approved Mooi Plaats Solar PV Energy Facility (SEF) (14/12/16/3/3/2/1134) and are required to access the approved PV arrays and approved substations and operation and maintenance buildings (O&M).

Similarly, no site alternatives for this proposed 132kV overhead line (OHL) development were considered as the placement of 6.7km of the OHL is situated in the authorized OHL corridor (approved in application (14/12/16/3/3/2/1134), and the remaining 4.6km stretch has been designed to follow the routing proposed by the Umsobomvu 400kV Overhead Line Turn-In System Near Middleburg (Eastern Cape) And Noupoort (Northern Cape) DFFE Reference Number: 14/12/16/3/3/2/2170, which is currently with the DFFE for decision making, and both lines are intended to tie in to the 132kV/400kV Koruson MTS.

The need to follow the existing proposed 400kV route is to reduce potential negative effects on birds and the environment by concentrating the respective powerlines in adjacent construction / disturbance corridors.

The objective of this application is to alleviate current and future network constraints in the area. The powerline will assist in improving the voltage regulation in the area. If the project does not receive EA, then the existing electricity supply to the area as well as future economic development will be limited and compromised.



Alternative 1 (preferred alternative)
Description
The proposed site is located approximately 23 km south-west of the town of Noupoort, which falls within the Umsobomvu Local Municipality in the Pixley ka Seme District Municipality of the Northern Cape Province.

In the case of linear activities:

Components of Alternative 1 (preferred):	Latitude (S):	Longitude (E):
132 kV Powerline (11.3km)		
• Starting point of the activity	31° 17’ 32.571”	24° 44’ 43.027”
• Middle/Additional point of the activity	31° 19’ 54.655”	24° 46’ 21.662”
• End point of the activity	31° 21’ 21.246”	24° 49’ 9.274”
33kV Powerline 1 (1.7km)		
• Starting point of the activity	31° 17’ 39.933”	24° 43’ 52.113”

• Middle/Additional point of the activity	31° 17’ 26.517”	24° 44’ 19.675”
• End point of the activity	31° 17’ 32.309”	24° 44’ 46.126”
33kV Powerline 2 (2.3km)		
• Starting point of the activity	31° 16’ 43.404”	24° 45’ 37.149”
• Middle/Additional point of the activity	31° 17’ 13.282”	24° 45’ 17.968”
• End point of the activity	31° 17’ 32.243”	24° 44’ 47.006”
Access Road 1 (1.3km)		
• Starting point of the activity	31° 18’ 20.582”	24° 43’ 40.232”
• Middle/Additional point of the activity	31° 18’ 36.778”	24° 43’ 45.381”
• End point of the activity	31° 18’ 58.410”	24° 43’ 44.862”
Access Road 2 (1.2km)		
• Starting point of the activity	31° 17’ 24.692”	24° 44’ 28.587”
• Middle/Additional point of the activity	31° 17’ 30.970”	24° 44’ 8.613”
• End point of the activity	31° 17’ 40.211”	24° 43’ 48.797”
Access Road 3 (0.09km)		
• Starting point of the activity	31° 18' 8.741"	24° 45' 20.578"
• Middle/Additional point of the activity	31° 18' 9.641"	24° 45' 21.865"
• End point of the activity	31° 18' 10.541"	24° 45' 23.152"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.
Please note that the lengths of the proposed infrastructure is as follows:

- **132kV above ground line: 11.34km**
- **33kV above ground line: 4km**
- **Access Road 1: 1.31km**
- **Access Road 2: 1.19km**
- **Access Road 3: 0.09km**

As the lengths are greater than 500m (excluding Access Road 3 [0.09km]), coordinates taken every 250 meters along the route has been included in Appendix J.

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 of this form.

b) Lay-out alternatives

33kV Powerlines: The assessment of a 300 m grid connection corridor for the 132kV OHL, will provide sufficient extent for the placement of grid connection infrastructure, whilst avoiding sensitive environmental features identified as present within the corridor area.

132kV Powerlines: The assessment of a 100 m grid connection corridor for the 33kV aboveground lines, these corridors will provide sufficient extent for the placement of grid connection infrastructure, whilst avoiding sensitive environmental features identified as present within the corridor area.

Furthermore, Mooi Plaats will consider the use of either Monopole or Steel-Lattice Pylons for both the 33kV above ground cables and 132 kV transmission OHL associated with the proposed project.

The types of pylons to be used for the powerlines is dependent on the outcome of the detailed geotechnical and pegging surveys of the grid connection corridor which will be undertaken post the BA process, i.e., after a decision has been issued by the Competent Authority but prior to the commencement of the construction phase.

The pylons considered for the 33kV above ground cables will be up to 28m in height whereas the pylons considered for the 132kV OHL will be up to 40 m in height. The final heights are dependent on the topography of the study area and will meet the minimum height clearances from the ground as well as from surrounding infrastructure.

The environmental impacts associated with the Monopole and Steel-Lattice Pylons will be similar for the proposed project throughout the project lifecycle. The selection of the preferred design for the pylons will be subject to outcomes from detailed technical studies that will be undertaken post the BA process following the necessary agreements being concluded with ESKOM.

Roads: As the access roads are dependent on the location of the approved Mooi Plaats Solar PV Energy Facility (SEF) (14/12/16/3/3/2/1134) and proposed powerline, no layout alternatives has been considered in this application. However a buffer of 300m (150m on either side of the centre line) has been assessed to accommodate upgrades to the road and for the placement of stormwater infrastructure.

The powerline corridor and roads corridor, which form part of this application/BA process are being assessed to optimise the layout of the approved Mooi Plaats SEF (14/12/16/3/3/2/1134) and Grid infrastructure (14/12/6/3/3/1/2132) and ensure that the project remains suitable for development opportunities in the REIPPPP and for private offtake market.

Preferred Layout Alternative for the 33kV above ground cables, 132kV OHL and Access Roads

Component	Details		
Powerlines			
Connection from the approved Solar PV to the approved onsite substation			
Powerline capacity:	Two (2) 33kV powerlines		
Powerline length:	One (1) approximately 1.7km and One (1) approximately 2.3km		
Powerline corridors width	100 m (50 m on either side of centre line)		
Powerline servitude	32m		
Powerline co-ordinates (above ground cables)	33kV above ground cable 1 (1.7km)		
		Latitude	Longitude
	Start	S31° 17' 39.933"	E24° 43' 52.113"
	Middle	S31° 17' 26.517"	E24° 44' 19.675"
	End	S31° 17' 32.309"	E24° 44' 46.126"
	33kV above ground cable 2 (2.3km)		
		Latitude	Longitude

Component	Details		
	Start	S31° 16' 43.404"	E24° 45' 37.149"
	Middle	S31° 17' 13.282"	E24° 45' 17.968"
	End	S31° 17' 32.243"	E24° 44' 47.006"
Powerline pylons:	Monopole double circuit built to 88/132kV dimensions		
Powerline pylon height:	Maximum 28 m		
Powerlines			
Connection from the approved onsite substation to the approved Korusun MTS			
Powerline capacity:	One (1) 132kV Overhead powerline		
Powerline length:	Approximately 11.3km (4.6 km new and 6.7km within an approved corridor)		
Powerline corridors width	300 m (150 m on either side of centre line)		
Powerline servitude	32m		
Powerline co-ordinates (Overhead lines (OHL))	132kV Powerline (11.3km)		
		Latitude	Longitude
	Start	S31° 17' 32.571"	E24° 44' 43.027"
	Middle	S31° 19' 54.655"	E24° 46' 21.662"
	End	S31° 21' 21.246"	E24° 49' 9.274"
Powerline pylons:	Combination of single and double circuit Monopole pylons and Lattice pylons as required		
Powerline pylon height:	Maximum 40 m		
Roads			
Provide access to the approved solar PV			
Road Length	Approximately 1.3km, 1.2km and 0.09km in length respectively		
Road corridors width	300 m (150 m on either side of centre line)		
Road co-ordinates	Road 1 (1.3km)		
		Latitude	Longitude
	Start	S31° 18' 20.582"	E24° 43' 40.232"
	Middle	S31° 18' 36.778"	E24° 43' 45.381"
	End	S31° 18' 58.410"	E24° 43' 44.862"
	Road 2 (1.2km)		
		Latitude	Longitude
	Start	S31° 17' 24.692"	E24° 44' 28.587"
	Middle	S31° 17' 30.970"	E24° 44' 8.613"
	End	S31° 17' 40.211"	E24° 43' 48.797"
	Road 3 (0.09km)		
		Latitude	Longitude
	Start	S31° 18' 8.741"	E24° 45' 20.578"
	Middle	S31° 18' 9.641"	E24° 45' 21.865"
	End	S31° 18' 10.541"	E24° 45' 23.152"

c) Technology alternatives

Alternative 1 (preferred alternative)
No technology alternatives exist to date for the transmission of electricity from renewable energy sources to grid networks. Thus, no technology alternatives have been considered or assessed in this BAR.

Alternative 2
Gravel/ Tar roads
Alternative 3

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

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

e) No-go alternative

Environmental and heritage legislation requires the consideration of the 'no-go' option. The 'no-go' alternative means that the proposed project would not be able to connect the energy development in the area to the national grid. This alternative would result in no environmental impacts from the proposed project on the site or surrounding area. It provides the baseline against which other alternatives are compared. Implementing the 'no-go' option would entail no development. There would also be no socio-economic benefits related to an increase in energy generation of renewable energy sources.

The 'no-go' option would prevent the proposed project from contributing to the environmental, social and economic benefits associated with the development of renewable energy.

Below is a summary of the respective specialists' assessment of the No-Go Alterative: (Refer to Specialist Studies in Appendix D):

Specialist	No -Go
Agricultural:	There are no agricultural impacts of the no-go alternative, but the agricultural impacts of the development are very low, and so there is not a big difference between the agricultural impacts of the proposed development and those of the no-go option. The no-go option would prevent the associated renewable energy facility, which cannot operate without a grid connection or access roads, from contributing positive agricultural economic impacts to the farms as well as contributing to the environmental, social and economic benefits associated with the development of renewable energy in South Africa.
Aquatic:	No alternatives were assessed as the design process has passed through several iterations, taking cognisance of any No-Go and Very High sensitivity areas. However, with regard the No-Go, the status quo will remain, coupled to the continued impacts associated with agricultural practices.
Avifauna:	The No-Go option will result in no additional impacts on avifauna and will result in the ecological *status quo* being maintained, which will be to the advantage of avifauna. However, no fatal flaws were identified during the investigations.
Geotechnical	The project has been assessed against the 'no-go' alternative. The 'no-go' alternative is the option of not constructing the project, where the status quo of the current farming activities on the site would prevail.

Heritage	The 'No Go' alternative is essentially the option of not constructing the additional supporting infrastructure. The status quo of the area will remain the same however it is to be noted that surrounding renewable energy developments has already compromised the landscape within the study area.
Palaeontology	As the No-Go Alternative considers the option of 'do nothing' and maintaining the status quo, it will have a Neutral impact on the Palaeontological Heritage of the development.
Visual:	The 'No Go' alternative is essentially the option of not constructing the additional supporting infrastructure. The area would thus retain its visual character and sense of place and no visual impacts would be experienced by any locally occurring receptors.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:		Size of the activity:
Alternative A1[2] (preferred activity alternative)		m^2
Alternative A2 (if any)		m^2
Alternative A3 (if any)		m^2

or, for linear activities:

Alternative:	Length of the Activity:
132kV Overhead line	11.34km
33kV above ground cable	4.00km
Road 1	1.31km
Road 2	1.19km
Road 3	0.09km

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

Alternative:	Servitude Width:
132kV Overhead Line	32m
33kV Above Ground Line	32m
Road 1	8-12m
Road 2	8-12m
Road 3	8-12m

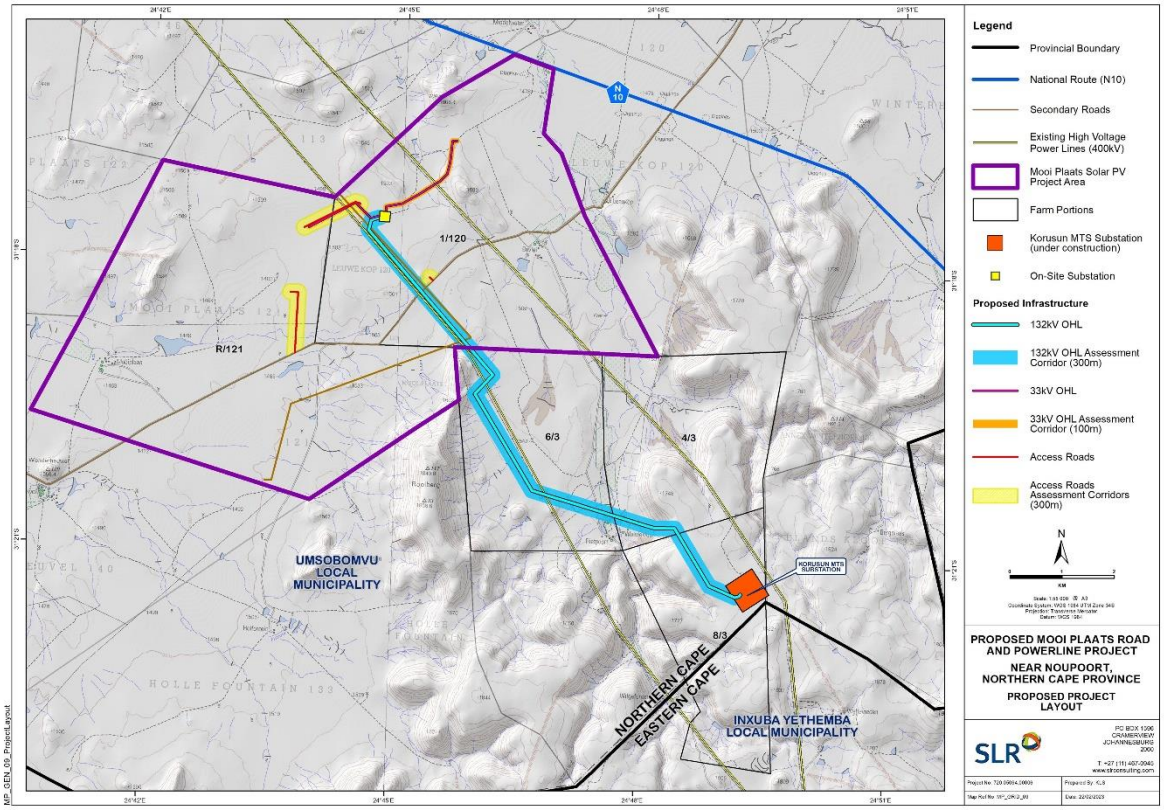
[2] "Alternative A.." refer to activity, process, technology or other alternatives.

4. SITE ACCESS

Does ready access to the site exist?	NO
If NO, what is the distance over which a new access road will be built	2.59km of access roads will be built to support the construction of the powerlines being applied for and the authorised Mooi Plaats Solar Facility. There are currently existing district roads which allow access to the proposed access Road 1 and Road 3.

Describe the type of access road planned:

The access roads (highlighted in yelow in the Figure below and found in Appendix A) being applied for will be gravel farm roads up to 12m wide during the construction phase and up to 8m wide during the operational phase. The roads will be used primarily by contractors during construction. During operation, the anticipated users are the landowners and the maintenance personnel for the Mooi Plaats Solar Facility.



5. LOCALITY MAP

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);

- all roads within a 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).

Locality Map can be found in Appendix A

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

Layout Map can be found in Appendix A

7. SENSITIVITY MAP

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

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

- critical biodiversity areas.

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

Sensitivity Map can be found in Appendix A

8. SITE PHOTOGRAPHS

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

Site photos have been included in Appendix B.

9. FACILITY ILLUSTRATION

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

N/A the detailed design is subject to Eskom approval of pylons to be used at specific chainages along the proposed powerlines. This will be provided to the Department prior to construction, however conceptual illustrations have been provided in Appendix C
The majority of roads is existing and will be upgraded to gravel. Designs will be provided to the Department prior to construction.

10. 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	
The properties on which the proposed infrastructure transverse are zoned for agricultural purposes. A portion (6.7km) of the 132kV OHL and the 33kV aboveground cables are within the authorised Mooi Plaats SEF buildable area footprint and approved 132kV OHL corridor respectively. The remaining portion (4.6km) is aligned with the authorised 400kV overhead line to minimize environmental disturbance in the area. The access roads will provide supplementary roads for the landowners.		

2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	✓ **YES**		
The Northern Cape Provincial Spatial Development Framework (2018) identified opportunities to include renewable energy production as a dominating infrastructure activity within the province. One of the core values of the SDF is to use existing resources. In this regard, it was stated that renewable sources of power (wind, solar, hydro, biomass etc.) were to comprise 25% of the province's energy generation capacity by 2020. In so far as the project supports the above objectives and planning principles, it would be considered favourably in the context of the Umsobomvu Local Municipality's IDP (2022-2027) which forms part of the Northern Cape SDF (2018).			
(b) Urban edge / Edge of Built environment for the area		NO	Please explain
The proposed development is outside the urban edge however will support the power supply and distribution to urban centers.			

(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?).	[redacted]	✓ **NO**

Considering the nature and location of the proposed development, there is a clear fit with international, national, provincial and local, at both district and municipal levels, policy and legislation. The IDP for the Pixley ka Seme District Municipality is aligned with the National Development Plan, which has identified various central development challenges.

The 2030 Agenda for Sustainable Development commits to promoting development in a balanced way—economically, socially and environmentally—in all countries of the world, leaving no one behind and paying special attention to those people who are poorest or most excluded. It contains 17 Sustainable Development Goals with associated targets to assess progress. The seventeen (17) goals, ranging from alleviating poverty and reducing inequality through job creation and economic growth, as well as ensuring access to affordable, reliable, sustainable and modern energy for all, are in many ways interrelated and cross-cutting in nature.

The proposed development is located within the Umsobomvu Local Municipality and greater Pixley ka Seme District Municipality. On a municipal level, wide support is evident across the affected municipalities. The Pixley ka Seme District Municipality's IDP recognises the potential of renewable energy initiatives. There were no fatal flaws or contraventions identified as all spheres of government prioritise the development of renewable energy (RE) projects.

In parallel to this, the Northern Cape Provincial Spatial Development Framework (2018) identified opportunities to include renewable energy production as a dominating infrastructure activity within the province. One of the core values of the SDF is to use existing resources. In this regard, it was stated that renewable sources of power (wind, solar, hydro, biomass etc.) were to comprise 25% of the province's energy generation capacity by 2020. The proposed project directly links to the Mooi Plaats SEF and therefore contributes to the distribution of energy generated from a renewable source. It is evident that the proposed development is aligned with the goals of the municipal IDPs in the study area.

(d) Approved Structure Plan of the Municipality	✓ **YES**		
The Pixley ka seme Integrated Development Plan (IDP) of 2022-2027 stipulates one of its core visions as being a "sustainably developed district for future generations." Considering the nature and location of the project, it is obviously aligned with international, national, provincial and local (both at district and municipal levels) policy and legislation. Moreover, the Pixley ka Seme IDP is aligned with the National Development Plan, which has identified various central development challenges to be addressed, one of which is the availability of electrical power. The Pixley ka Seme District Municipality's IDP recognises the potential of renewable energy initiatives emphasising the need for investment in renewable energy projects (solar, wind, hydro). The municipality's Spatial Development Plan (SDP) states that "*the Pixley ka Seme District area with its abundance of sunshine and vast tracts of available land has been attracting considerable interest from solar energy investors of late. The high solar index of the area, as indicated by the Solar Index Diagram, provides many opportunities in terms of the development of renewable energy. The growth and development context in the district has also changed radically since 2013 owing mainly to private and public investments in the area as a hub for renewable energy generation and astronomy, respectively*." The proposed project compliments the authorised Mooi Plaats SEF. Additionally, the project area is not located within near any settlements or tourist attraction that might be sensitive to the environmental effects of the proposed development. Although the project is located within relatively close proximity to small tracts of agricultural land, it is expected that these agricultural activities would be able to continue unaffected by the project.			
(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?)		NO	Please explain
There is currently no EMF for the area however the project is in line with the IDP and SDP. The Mooi Plaats Solar Facility project has been awarded Strategic Infrastructure Project (SIP) status and this associated application is therefore a priority project on a national level (See Appendix K).			
(f) Any other Plans (e.g. Guide Plan)	YES		
The Mooi Plaats Solar Facility project has been awarded Strategic Infrastructure Project (SIP) status and this associated application is therefore a priority project on a national level (See Appendix K)			

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)?	YES	
The Northern Cape Provincial Spatial Development Framework (2018) identified opportunities to include renewable energy production as a dominating infrastructure activity within the province. One of the core values of the SDF is to use existing resources. In this regard, it was stated that renewable sources of power (wind, solar, hydro, biomass etc.) were to comprise 25% of the province's energy generation capacity by 2020. In so far as the project supports the above objectives and planning principles, it would be considered favourably in the context of the Umsobomvu Local Municality's IDP (2022-2027) which forms part of the Northern Cape SDF (2018).		
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES	
The Mooi Plaats Solar Facility project has been awarded Strategic Infrastructure Project (SIP) status and this associated application is therefore a priority project on a national level. In a local context, The Northern Cape Provincial Spatial Development Framework (2018) identified opportunities to include renewable energy production as a dominating infrastructure activity within the province. One of the core values of the SDF is to use existing resources. In this regard, it was stated that renewable sources of power (wind, solar, hydro, biomass etc.) were to comprise 25% of the province's energy generation capacity by 2020. In so far as the project supports the above objectives and planning principles, it would be considered favourably in the context of the Umsobomvu Local Municality's IDP (2022-2027) which forms part of the Northern Cape SDF (2018).		
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	

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	Please explain
The access roads will primarily be used by landowners. The powerlines will not have any municipal implications (other than benefitting the municipality by increased distribution of power) as the agreements are directly with Eskom. This draft Basic Assessment Report will be distributed for public comment. Any comment received from the relevant Municipality will be included in the final BAR.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES		
The Mooi Plaats Solar Facility project has been awarded Strategic Infrastructure Project (SIP) status and this associated application is therefore a priority project on a national level (See Appendix K for SIP letter).			
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		Please explain
The proposed project forms supporting infrastructure to the authorised Mooi Plaats Solar Facility and associated grid connection (DFFE Refence numbers 14/12/16/3/3/2/1134 and 14/12/6/3/3/1/2132 respectively).			
9. Is the development the best practicable environmental option for this land/site?	YES		Please explain
The development is required to support the Mooi Plaats Solar Facility. The proposed areas are the only available options to meet the needs and desirability of the project. Specialist teams have investigated a corridor area to ensure sensitive environmental areas are identified and to reroute or mitigate accordingly within the assessed area. The alternative is the no-go option which has been previously discussed (See Section 2 of this BA).			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES		Please explain
The proposed benefits include the distribution of electricity to the population. The impact assessment section below details the positive and negative impacts of the proposed development. It is the opinion of the EAP that the benefits outweigh the potential negative impacts. This is further discussed in the Impact Assessment Section below.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO	Please explain
The Mooi Plaats Solar Facility has already been authorised. The proposed project provides additional infrastructure to this facility.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
Servitude agreements are in place between landowners and EDF.			

13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
The proposed project is outside the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES		
The project has been awarded SIP20a status. This form is outdated please refer to Appendix K for the SIP letter.			

15. What will the benefits be to society in general and to the local communities?	Please explain

The proposed project provides additional infrastructure to the Mooi Plaats Solar Facility. The benefits to society are therefore:

- Economic
  - Job creation and skills development
  - Socio-economic stimulation
  - Stable and dispatchable electricity into the national grid to alleviate load shedding

As per the Social Impact Assessment which was conducted for the Mooi Plaats SEF which is applicable to this project as the project is directly associated with the SEF: "*the negative social impacts associated with the proposed grid connection infrastructure are of low to moderate significance with most occurring over the short term construction phase. The project has a positive element which outweighs the negative in that it will contribute towards the supply of renewable energy into a grid system heavily reliant on coal-powered energy generation. In this sense the project forms part of a national effort to reduce South Africa's carbon emissions and thus carries with it a significant social benefit…"*

16. Any other need and desirability considerations related to the proposed activity?	Please explain

The DFFE (known then as the DEA) Guideline on Need and Desirability ([GN R891, 2017] addressed in the table below) notes that while addressing the growth of the national economy through the implementation of various national policies and strategies, it is also essential that these policies take cognisance of strategic concerns such as climate change, food security, as well as the sustainability in supply of natural resources and the status of South Africa's ecosystem services. Thus, the over-arching framework for considering the need and desirability of development in general is taken at the policy level, through the identification and promotion of activities / industries / developments required by civil society as a whole. The DFFE guideline further notes that at a project level (i.e., as part of a BA process), the need and desirability of the project should take into consideration the content of regional and local plans, frameworks and strategies. Taking the above into consideration, this section of the report aims to provide an overview of the need and desirability for the proposed Project, by highlighting how the proposed project is aligned with the strategic context of international, national, regional, and local development policy and planning, as well as broader societal needs (as appropriate).The proposed project provides additional infrastructure to the Mooi Plaats Solar Facility and is directly linked to the needs and desirability of the larger authorised development and also relates to the need and desirability of renewable energy on a local, district, provincial, national and international level.

This proposed development is viewed in a positive context due to the potential for employment creation within the local community. The proposed project, in conjunction with the Mooi Plaats Solar Facility, will address electricity constraints within both the local and district Municipalities by

generating, distributing and evacuation a continued realisable source of electricity and improved electrification and an increased supply to houses and businesses.

The IRP (2019) proposes a significant increase in renewables-based generation from wind and solar as well as gas-based generation capacity by 2030 and beyond, with no further new nuclear capacity being procured. Implementing the IRP could bring South Africa close to meeting the upper range of its 2030 Nationally Determined Contribution (NDC) target. The updated IRP 2019 recommends that 10.5% of the generation capacity should be from solar PV energy by 2030. The proposed project is directly linked to the Mooi Plaats SEF and the IRP.

Table 1: DFFE Needs and Desirability Guidelines and associated responses

Question	Response
1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area)?	
1.1. How were the following ecological integrity considerations taken into account?: 1.1.1. Threatened Ecosystems, 1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, 1.1.3. Critical Biodiversity Areas ('CBAs') and Ecological Support Areas ('ESAs'), 1.1.4. Conservation targets, 1.1.5. Ecological drivers of the ecosystem, 1.1.6. Environmental Management Framework, 1.1.7. Spatial Development Framework, and 1.1.8 Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	The environmental sensitivities present within the development area were assessed within the Avifaunal, Terrestrial Ecological and Aquatic Assessments undertaken as part of this BA process, including CBAs and ESAs. The specialists identified all ecological sensitive areas that would need to be avoided by the proposed development, as well as how to suitably develop within these areas so that the ecological integrity of the areas are maintained (refer to Appendix D). The mitigation hierarchy of avoidance, reduction and improved management were applied to inform the findings of the Specialist Assessments. The speciliats are all of the view that the proposed development should be authorised. An environmental sensitivity map based on the input obtained from the various specialist studies has been included in this DBAR.
1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The environmental sensitivities present within the development area were assessed within the Terrestrial Ecological Assessment undertaken as part of this BA process, including CBAs and ESAs. The mitigation hierarchy of avoidance, reduction and improved management were applied to inform the findings of the Terrestrial Ecology Impact Assessment. The Ecologist is of the view that the proposed development should be authorised.
1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided	Refer to Section D: Impact assessment.

altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	
1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether; what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Construction waste will be generated. Refer to Section D: Impact assessment and Appendix G: EMPR
1.5. How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	A Heritage Impact Assessment and Visual Impact Assessment was undertaken. Refer to Section D: Impact assessment and Appendix D: Specialist Studies.
1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	This proposed development requires water during the construction phase. Minimal water is required during the operational phase. At this stage, it is anticipated that water will be sourced from the local municipality. Should the local municipality not be able to ensure water supply, other local water sources (e.g. Boreholes) will be investigated. The necessary approvals from the Department of Water and Sanitation (DWS) will be applied for separately.
1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? 1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	The proposed development aims to assist in feeding the electricity generated by the associated authorised Mooi Plaats solar PV energy facility which harnesses solar energy for the generation of electricity, into the national grid. This proposed development assists in reducing the dependence on non-renewable sources, such as coal-fired power plants. The proposed development is however not located in any of the Central Strategic Transmission Corridors as defined and in terms of the procedures laid out in Government Notice No. 113.

1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources of the proposed development alternative?) 1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?	
1.8. How were a risk-averse and cautious approach applied in terms of ecological impacts? 1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? 1.8.2. What is the level of risk associated with the limits of current knowledge? 1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Refer to Appendix D: Specialist Studies. The precautionary approach has been adopted for this BA process (i.e. assuming the worst-case scenario will occur and then identifying ways to mitigate or manage these impacts). The assessment of cumulative impacts assumed that all proposed renewable energy developments within a 35km radius will be constructed. In reality, only a handful of proposed renewable energy developments would be constructed and therefore this approach is considered to be precautionary in nature.
1.9. How will the ecological impacts resulting from this development impact on people's environmental right in terms following?: 1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? 1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Please refer to Section D: Impact Assessment and Appendix D: Specialist Studies.
1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to Item 15 of this document.
1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?	Refer to item 2 above.
1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in	No alternatives were considered however a corridor was assessment. The alignments take into account sensitive areas as identified by the DFFE Screening Tool and specialist study results.

the selection of the 'best practicable environmental option' in terms of ecological considerations?	
1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Please refer to Section D: Impact Assessment and Appendix D: Specialist Studies.
2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
2.1.1. The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area.	Refer to item 2 above.
2.1.2. Spatial priorities and desired spatial patterns (e.g. need for integration of segregated communities, need to upgrade informal settlements, need for densification, etc.),	Not applicable. The proposed development is located within a rural area and the site is zoned for agricultural use.
2.1.3. Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	Refer to Section B and Section D.
2.1.4. Municipal Economic Development Strategy ('LED Strategy').	Temporary job creation will occur during the construction phase of the project contributing to the local economy.
2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? 2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	The proposed project supports the authorised Mooi Plaats facility and is therefore directly linked to the socio-economic benefits previously assessed.
2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	
2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long term? Will the impact be socially and economically sustainable in the short- and long-term?	
2.5. In terms of location, describe how the placement of the proposed development will:	
2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	
2.5.2. reduce the need for transport of people and goods,	Not applicable. This is a proposal for grid connection infrastructure to serve a renewable energy development.
2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	Not applicable. This is a proposal for grid connection infrastructure to serve a renewable energy development.

2.5.4. compliment other uses in the area,	The proposed project directly compliments the authorised Mooi Plaats SEF.
2.5.5. be in line with the planning for the area,	
2.5.6. for urban-related development, make use of underutilised land available with the urban edge,	Not applicable. The proposed development is located within a rural area and the proposed site is zoned for agricultural use.
2.5.7. optimise the use of existing resources and infrastructure,	The proposed development will connect to the authorised Mooi Plaats SEF, which will still be constructed. In addition, the proposed development will make use of existing site roads as far as possible. The proposed 132kV power line will also follow the same route as a proposed 400kV powerline, where possible.
2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	Not applicable. This is a proposal for grid connection infrastructure to serve a renewable energy development and is not related to bulk infrastructure expansion.
2.5.9. discourage 'urban sprawl' and contribute to compaction/densification,	Not applicable. The proposed development is located within a rural area and the proposed site is zoned for agricultural use.
2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	Not applicable. The proposed development is located within a rural area and the proposed site is zoned for agricultural use.
2.5.11. encourage environmentally sustainable land development practices and processes	Based on the findings of the assessments, the proposed development would not have a significant ('high') negative impact on the receiving environment, with the implementation of suitable mitigation measures and will therefore not go against sustainable land development practices and processes. In addition, the proposed development will be designed according to relevant national specifications and standards which are regarded as best practice in the renewable energy sector. In addition, the proposed development will be aligned with national planning priorities, despite not being located within any of the Central Strategic Transmission Corridors as defined and in terms of the procedures laid out in Government Notice No. 113.
2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	The 132kV alignment follows an authorised 400kV alignment to minimize impacts on the environment. Please refer to the alternatives section.
2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	The proposed project is directly linked to the authorised Mooi Plaats SEF and is therefore directly related to the socio-economic benefits previously addressed.
2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	Please refer to Section D: Impact Assessment and Appendix D: Specialist Studies.
2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	The proposed development is not located within any of the Central Strategic Transmission Corridors as defined and in terms of the procedures laid out in Government Notice No. 113.

	Please refer to Figure XXX which illustrates proposed and existing renewable energy facilities within a 30km radius.
2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	This draft Basic Assessment Report has been compiled based on available information. Any further assumptions and limitations are found in Appendix D: Specialist Studies.
2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	Please refer to Section D: Impact Assessment
2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	Please refer to Section D: Impact Assessment
2.7.2. Positive impacts. What measures were taken to enhance positive impacts?	
2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	
2.9. What measures were taken to pursue the selection of the 'best practicable environmental option' in terms of socio-economic considerations?	Please refer to the alternatives section.
2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the 'best practicable environmental option' to be selected, or is there a need for other alternatives to be considered?	Please refer to the alternatives section.
2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by	The proposed project is directly linked to the Mooi Plaats SEF which will provide renewable energy to the area.

categories of persons disadvantaged by unfair discrimination?	
2.12. What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Please refer to the EMPr.
2.13. What measures were taken to:	
2.13.1. ensure the participation of all interested and affected parties,	The activities which have been undertaken as part of the Public Participation Process (PPP) for the proposed development are outlined in Section C of this report. Various methods were employed to notify potential I&APs of the proposed development, namely through an advert in a local newspaper, site notices, notification letters, emails, SMS notifications and Background Information Documents (BIDs). This DBAR has been released for a 30-day review and commenting period to all the relevant Interested and/or Affected Parties (I&APs), Organs of State (OoS) / authorities and key stakeholders from 13 April 2023 to 17 May 2023. Electonic copies of the DBAR are available at a public venue (namely the Noupoort Public Library) and an electronic copy was also made available on SLR Consulting's website. All I&APs and key stakeholders / OoS / authorities, who are registered on the project database, were notified of the submission of the DBAR and the above-mentioned 30-day public review and comment period accordingly. All comments received will be responded to in a Comments and Response Report (C&RR) and included in the Fnal BAR. The BA process has taken cognisance of all interests, needs and values espoused by all I&APs, including occupiers. Opportunity for public participation was provided to all I&APs throughout the BA process in terms of the 2014 EIA Regulations, as amended. An EMPr has been developed to address health and safety concerns and is included in this BA report. An ECO will also be appointed to monitor compliance from an environmental perspective.
2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
2.13.3. ensure participation by vulnerable and disadvantaged persons,	
2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	
2.13.5. ensure openness and transparency, and access to information in terms of the process,	
2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge,	
2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was promoted.	
2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	
2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	
2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:	

2.16.1. the number of temporary versus permanent jobs that will be created, 2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area), 2.16.3. the distance from where labourers will have to travel, 2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), 2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	Local workforce will be sourced. The proposed development will greatly and positively impact on skills development. In a rural area such as this with a high unemployment rate, any new employment opportunities has a significant impact on the immediate and extended families of such new workers.
2.17. What measures were taken to ensure:	
2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment,	Legislation, policies and guidelines, which could apply to impacts of the proposed development on the environment, have been considered. The scope and content of this DBAR have been informed by applicable integrated environmental management legislation and policies. This has been outlined in section 11.
2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	The BA process has taken cognisance of all interests, needs and values espoused by all I&APs, including occupiers. Opportunity for public participation was provided to all I&APs throughout the BA process in terms of the 2014 EIA Regulations, as amended. All comments received will be responded to in a Comments and Response Report (C&RR) and included in the Fnal BAR.
2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The outcomes of this BA process and the associated conditions of the EA (should it be granted) will serve to address this question.
2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The mitigation measures proposed by the respective specialists have been included in the EMPr, where applicable.
2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	The EMPr which is included in the BA report must form part of the contractual agreement and be adhered to by both the contractors / workers and the applicant.
2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in	Please refer to the Alternatives section for an outline of the selection and suitability of this activity.

the selection of the best practicable environmental option in terms of socio-economic considerations?	
2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Please refer to Section D: Impact Assessment.

17. How does the project fit into the National Development Plan for 2030?	Please explain

Key points of the NDP are as follows:

- As per Chapter 5 *"The development of environmentally sustainable green products and services, including renewable energy technologies…"*
- "*At least 20 000MW of renewable energy should be contracted by 2030*."
- "*The development of environmentally sustainable green products and services, including renewable energy technologies, will contribute to the creation of jobs in niche markets where South Africa has or can develop a competitive advantage*."
- "*South Africa has significant renewable energy resources, particularly solar and wind. Efficient use of these natural resources is fundamental to achieving the shift away from coal-powered electricity towards the decarbonisation of the economy.*"

The project therefore fits into the National Development Plan for 2030 by supporting renewable energy development (Mooi Plaats SEF). Of the twelve (12) key focus areas of the NDP, the proposed project will contribute to (1) an economy which will create more jobs, (2) improving infrastructure, and (3) transition to a low carbon economy.

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

To give effect to the general objectives of Integrated Environmental Management (IEM), the potential impacts on the environment of listed or specified activities must be considered, investigated, assessed, and reported on to the competent authority. This is detailed in Section 11 below.

NEMA Section 23 requires the following general objectives:

(2) The general objective of integrated environmental management is to— a. Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;

b. Identify, predict and evaluate the actual and potential impact on the environment, socioeconomic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2;

c. Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;

d. Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;

e. Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and

f. Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.

These are achieved as follows:

a) Decision making based on the findings of the BAR process

b) Impacts have been identified, predicted and evaluated in terms of environmental, socioeconomic and cultural heritage environment. The risks, consequences and alternatives and options for mitigation have been evaluated.

c) This BAR process and the EMP ensure that the effects of the activities on the environment receive adequate consideration before actions are taken in connection with them.

d) There will have been adequate and appropriate opportunity for public participation that will lead to the decision being taken.

e) Environmental attributes have been considered in management and decision making.

f) The modes best suited to environmental management for this activity have been followed and recommended.

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

NEMA Section 2 requires:

(2) 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.

This has been achieved as follows:

The environmental management relating to the proposed 33kV above ground cables, 132kV overhead line and access roads has been set up to place the needs of people at the forefront of its concern while addressing the environmental issues concerning the construction of a new road. This approach is important to ensure that the project is not only sustainable but also benefits the community.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Table 2: List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
National Environmental Management Act 107 of 1998 (As Amended) (NEMA)	The NEMA is the overarching legislation which governs the BA process and environmental management in South Africa. Sections 24 and 44 of the NEMA make provision for the promulgation of regulations that identify activities which may not commence without an EA. Activities that may significantly affect the environment must be considered, investigated and assessed prior to implementation. Comprehensive lists of such activities were gazetted and the proposed development triggers activities from listing notices (namely GN R. 327 as published on 7 April 2017) gazetted on 7 April 2017 (Government Gazette 326) (the 'EIA Regulations'). Therefore, a BA process is required for the proposed development in terms of Section 21 to 24 of the 2014 EIA Regulations (as amended).	Department of Forestry, Fisheries and the Environment (DFFE)	1998
Environmental Impact Assessment (EIA) Guideline for Renewable Energy Projects, Notice 989 of 2015	The EIA Regulations 2014 (as amended) promulgated in terms of Chapter 5 of NEMA and published in Government Notice (GN) R982 (as amended by GN No. 326 of 7 April 2017) control certain listed activities. These activities are listed in GN R983 (Listing Notice 1; as amended by GN R327 of 7 April 2017), R984 (Listing Notice 2; as amended by GN R325 of 7 April 2017) and R985 (Listing Notice 3; as amended by GN R324 of 7 April 2017) and are prohibited until an Environmental Authorisation (EA) has been obtained from the Competent Authority. Such an EA, which may be granted subject to conditions, will only be considered once there has been compliance with GN R982 (as amended). The EIA Regulations set out the procedures and documentation that need to be complied with when applying for an EA. A BA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a Scoping and EIA (SEIA) process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2.	Northern Cape Department of Agriculture Land Reform and Rural Development	2014

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
	As the proposed project triggers activities listed in Listing Notice 1, it is necessary that a BA process is undertaken for the Department Environment and Nature Conservation (DENC) to consider the application in terms of NEMA.		
National Heritage Resources Act 1998	The National Heritage Resources Act, 1999 (No. 25 of 1999) (NHRA) provides for the identification, assessment, and management of the heritage resources of South Africa. Section 38(1) of the NHRA lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following: "(a) The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length; I Any development or other activity which will change the character of a site; (i) exceeding 5 000 m² in extent". The NHRA requires that a person who intends to undertake a listed activity notify the relevant provincial heritage authority at the earliest stages of initiating such a development. The relevant provincial heritage authority would then in turn, notify the person whether a Heritage Impact Assessment (HIA) should be submitted. However, according to Section 38(8) of the NHRA, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act (No. 73 of 1989) (now replaced by NEMA) or any other applicable legislation. The decision-making authority should, however, ensure that the heritage evaluation fulfils the requirements of the NHRA and take into account in its decision-making any comments and recommendations made by the relevant heritage resources authority.	South African Heritage Resources Agency (SAHRA)	1998
Conservation of Agricultural Resources Act, 1983 (No. 43 of 1983)	This Act provides for the control over the utilization of the natural agricultural resources of the country in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants. Section 5 of the Act prohibits the spread of weeds through the prohibition of their sale. GN R1084 (published under CARA) provides categories for the classification of the various weeds and invader plants, and restrictions where these species may occur. Regulation 15E of GN R1084 provides methods to be implemented for the control of weeds and invader species. CARA finds application throughout the project lifecycle of the proposed project. As a result, soil conservation and erosion prevention management and mitigation measures need to be implemented. Thus, a Weed Control and Management Plan must be developed and implemented for the duration of the project life cycle of the proposed project.	Department of Agriculture, Land Reform and Rural Development	1983

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended	The Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended provides for the subdivision of all agricultural land within the Republic thereby prohibiting certain activities from being undertaken without consent from relevant authority, the Minister of the Department of Agriculture, Land Reform and Rural Development. This Act finds relevance to the proposed project as any portion of land that is zoned for agriculture and will need to be leased for a period exceeding 10 years is regulated by the Act.	Department of Agriculture, Land Reform and Rural Development	1970
Municipal Systems Act, 2000 (Act No. 32 of 2000)	The Municipal Systems Act, 2000 (Act N. 32 of 2000) was promulgated for the administration of municipalities. The Act requires that the Constitution and other legislation, i.e., NEMA be incorporated into strategic plans at local government level. The Act regulates municipal service delivery and provides a comprehensive range of service delivery mechanisms through which municipalities may provide municipal services. The Act explains the process to be applied and the criteria to be considered in reviewing and selecting municipal service delivery mechanisms. The Act provides that each municipal council must adopt a single, inclusive, and strategic Integrated Development Plan (IDP) for the development of the municipality. At a municipal level, IDPs may require the implementation of renewable energy projects. As a result, Independent Power Producers (IPPs) should consult with the relevant structures of the municipality within which a development is located.	District Municipality and Local Municipality	2000
The Constitution of South Africa (No. 108 of 1996)	The Constitution of South Africa (No. 108 of 1996) provides environmental rights and includes implications for environmental management. Section 24 of the Constitution states that: *'Everyone has the right –* ▪ *To an environment that is not harmful to their health or well-being; and* ▪ *To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:* ○ *Prevent pollution and ecological degradation;* ○ *Promote conservation; and* ○ *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*' The Constitution is the overarching legislation for South Africa. Although it provides for certain rights and obligations, the NEMA has been promulgated in order to manage the various spheres of both the social and natural environment.	Minister for Justice and Constitutional Development.	1996

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
Energy White Paper, 1998	The 1998 White Paper on the Energy Policy of the Republic of South Africa is the primary policy document which guides all subsequent policies, strategies, and legislation within the energy sector. It provides specific policy statements on what government intends for the energy system as a whole and sets out five (5) key objectives. These objectives have subsequently formed the foundation and informed the development of energy policy in South Africa and still remain relevant. Various other energy policies have been developed and are in different stages of implementation. Some of the key policies developed following the 1998 White Paper on Energy Policy include: • The White Paper on Renewable Energy, 2003; • The National Energy Efficiency Strategy of the Republic of South Africa, 2008; and • The Integrated Resources Plan 2010.	Department of Energy	1998
Integrated Energy Plan, 2016	The development of a National Integrated Energy Plan (IEP) was envisaged in the White Paper on the Energy Policy of the Republic of South Africa of 1998, and in terms of the National Energy Act, 2008 (No. 34 of 2008) which places an obligation on the Minister of the DMRE to publish the IEP in the Government Gazette. The intention of the IEP is to provide a roadmap of the future of the energy landscape for South Africa which guides future energy infrastructure investments and policy development. The National Energy Act, 2008 (No. 34 of 2008) requires the IEP to have a planning horizon of no less than 20 years. The development of the IEP is therefore a continuous process at it needs to be reviewed periodically to consider changes in the macroeconomic environment, developments in new technologies and changes in national priorities and imperatives. As a fast-emerging economy, South Africa needs to balance the competing need for continued growth with its social needs and the protection of the natural environment. South Africa needs to grow its energy supply to support economic expansion and in so doing, alleviate supply bottlenecks and supply-demand deficits. In addition, it is essential that all citizens are provided with clean and modern forms of energy at an affordable price. From the myriad of factors which had to be considered and addressed during the Integrated Planning Process, eight (8) key objectives were identified: • Objective 1: Ensure security of supply; • Objective 2: Minimise the cost of energy; • Objective 3: Promote the creation of jobs and localisation; • Objective 4: Minimise negative environmental impacts from the energy sector; • Objective 5: Promote the conservation of water; • Objective 6: Diversify energy supply sources and primary sources of energy;	Department of Mineral Resources and Energy (DMRE)	2016

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
	• Objective 7: Promote energy efficiency in the economy; and • Objective 8: Increase access to modern energy.		
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA), as amended, aims to provide for the management and conservation of South Africa's biodiversity within the framework of NEMA, the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources. The Act places severe restrictions on activities that could have adverse effects on threatened or protected species. The purpose of the Act includes the following: (i) The management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; (ii) The protection of species and ecosystems that warrant national protection; and (iii) The sustainable use of indigenous resources and the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. The Act makes provision for the protection of threatened or protected ecosystems and species as well as provisions guarding against the introduction of alien and invasive species. The Act identifies restricted activities involving listed threatened, protected or alien species. These activities include picking parts of, or cutting, chopping off, uprooting, damaging, or destroying, any specimen of a listed threatened or protected species. As stipulated in Section 57 of the Act, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7. A permit will be required to engage in restricted activities for the proposed project in accordance with Section 88 of the Act.	Northern Cape Department of Agriculture Land Reform and Rural Development	2004

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES
If YES, what estimated quantity will be produced per month?	Unknown

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

There will be solid waste generated for the duration of the proposed project and will comprise of hazardous and non-hazardous waste components. During the construction phase of the proposed project, non-hazardous solid waste components will comprise spoil from construction-related activities, general domestic waste (i.e., wooden pallets, cardboards, etc.) and concrete.

Hazardous materials used on site during operations will include fuels, oils, lubricants and cleaning products. No waste is expected to be generated during the operation phase.

All solid wastes generated (hazardous and non- hazardous) will be disposed of at a licensed landfill site by means of contracting a suitably registered waste handling company. This will be the responsibility of the Engineering Procurement Construction (EPC) Contractor during the construction phase of the proposed project and will have overall oversight to verify that the collection, transport, handling, and disposal of these wastes is being undertaken in a suitable manner.

Waste during the decommissioning phase will be similar to that produced during the construction phase; this includes wooden and plastic packaging, cable off cuts, disused infrastructure, and domestic waste. All solid wastes generated will be disposed of at appropriately licensed landfill sites for general, and/or hazardous waste streams.

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

All solid wastes generated (hazardous and non- hazardous) will be disposed of at a licensed landfill site by means of contracting a suitably registered waste handling company. This will be the responsibility of the Engineering Procurement Construction (EPC) Contractor during the construction phase of the proposed project and will have overall oversight to verify that the collection, transport, handling, and disposal of these wastes is being undertaken in a suitable manner.

Will the activity produce solid waste during its operational phase?	NO
If YES, what estimated quantity will be produced per month?	0m^3

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	NO

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

Is the activity that is being applied for a solid waste handling or treatment facility?	NO

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

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	NO
If YES, what estimated quantity will be produced per month?	N/A
Will the activity produce any effluent that will be treated and/or disposed of on site?	NO

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?	NO

If YES, provide the particulars of the facility:

~~**Facility name:**~~			
~~**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:

All liquid wastes generated will be disposed of at a licensed facility by means of contracting a suitably registered waste handling company. This will be the responsibility of the Engineering Procurement Construction (EPC) Contractor during the construction phase of the proposed project and will have overall oversight to verify that the collection, transport, handling, and disposal of these wastes is being undertaken in a suitable manner.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	NO
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:

Temporary air emissions will occur during the construction phase due to the use of construction machinery and the clearing of vegetation which may result in wind-blown dust and fugitive dust emissions. Little to no emissions are anticipated during the operation phase through management of on-site vehicle speed and vegetation and soil landscaping.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?		NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority – Not applicable.

e) Generation of noise

Will the activity generate noise?	YES	
If YES, is it controlled by any legislation of any sphere of government?		NO

Describe the noise in terms of type and level:

The key temporary noise sources during the construction phase will be from the mobile machinery, vehicles, workers, and plant construction activities including high speed ramming using percussion hammers. Some construction activities may be required afterhours.

13. WATER USE

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

Municipal	~~Water board~~	~~Groundwater~~	~~River, stream, dam or lake~~	~~Other~~	~~The activity will not use water~~

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

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

The application for a Water Use License forms a separate process which is independent from the current Basic Assessment Process. The Competent Authority for the Water Use License Authorisation is the Department of Water and Sanitation. The Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform will be included as an Interested and Affected Party once the application for a Water Use License has been applied for.

14. ENERGY EFFICIENCY

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

No design measures have been taken to ensure that the activity is energy efficient as the activity provides additional infrastructure for the Mooi Plaats Solar facility promoting renewable energy in South Africa. Furthermore, no energy efficient technologies are available for the proposed project.

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- 132KV LINE

Important notes:

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

Section B Copy No. (e.g. A):	**A – 132kV above ground line**

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

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

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 District Municipality
Local Municipality	Umsobomvu Local Municipality
Ward Number(s)	Ward 1
Farm name and number	
Portion number	
SG Code	

Project Component	Affected Properties	SG Codes
132 kV ABOVE GROUND LINE	Portion 1 of Leuwe Kop No. 120	C03000000000012000001
	Portion 6 of the Farm Uitzicht No. 3	C04800000000000300006
	Portion 4 of the Farm Uitzicht No. 3	C04800000000000300007
	Portion 8 of the Farm Uitzicht No. 3	C04800000000000300008

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.

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 [redacted]

1. GRADIENT OF THE SITE

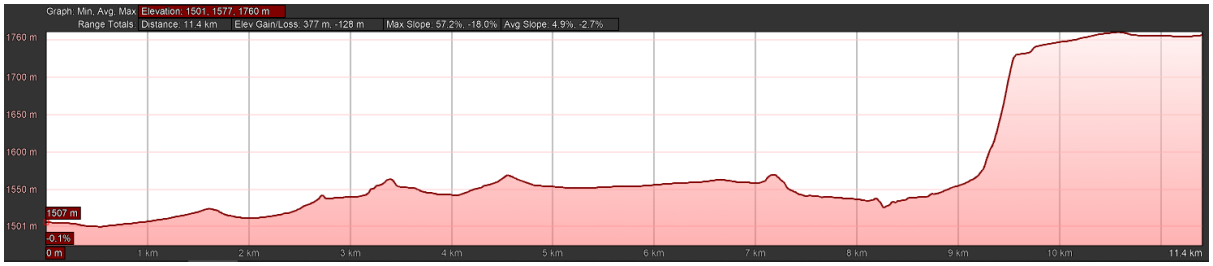
Please refer to Appendix B – Gradient Map

Indicate the general gradient of the site.

Alternative S1: 132kV Powerline

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

The proposed 132kV powerline transverses a multitude of gradients as listed above and depicted below. A map illustrating the change in gradient has also been provided in Appendix A.



2. LOCATION IN LANDSCAPE

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

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

1. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Preferred Alternatives	
Shallow water table (less than 1.5m deep)		NO
Dolomite, sinkhole or doline areas		NO
Seasonally wet soils (often close to water bodies)	YES	
Unstable rocky slopes or steep slopes with loose soil	YES	
Dispersive soils (soils that dissolve in water)	YES	

Soils with high clay content (clay fraction more than 40%)	YES	
Any other unstable soil or geological feature		NO
An area sensitive to erosion	YES	

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).

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	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.

5. SURFACE WATER

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

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

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

The study site is located within the Orange Water Management Area. More specifically, the study area is situated within the quaternary catchment D32C of the Drought Corridor Eco-region. In describing the observed aquatic ecosystems, using the hydrogeomorphic approach (Ollis *et al.,* 2013) the drainage areas and or watercourses have been subdivided as follows:

- Minor Watercourses
- Lowland valleys with riparian systems
- Lowland valleys with alluvial drainage areas
- Dams

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~~ [H]
~~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)~~

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

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

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

SECTION B: SITE/AREA/PROPERTY DESCRIPTION- 33KV LINE

Section B Copy No. (e.g. A):	**B – 33kV above ground line**

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

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

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 District Municipality
Local Municipality	Umsobomvu Local Municipality
Ward Number(s)	Ward 1
Farm name and number **Portion number** **SG Code**	

Project Component	Affected Properties	SG Codes
33 kV Above Ground cables	Remainder of Farm Mooi Plaats No. 121	C03000000000012100000
	Portion 1 of Leuwe Kop No. 120	C03000000000012000001

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.

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

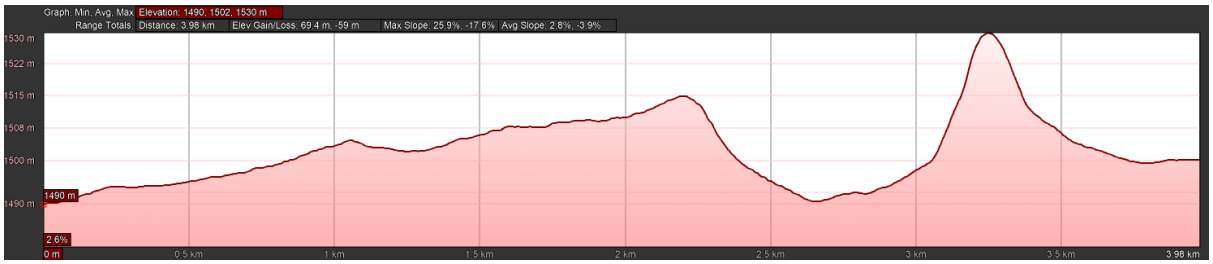
1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: 33kV Above Ground cable

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

The proposed 33kV powerline transverses a multitude of gradients as listed above and depicted below. A map illustrating the change in gradient has also been provided in Appendix A.



2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley	✓	2.7 Undulating plain / low hills	✓
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	✓	2.6 Plain		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?

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

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).

~~Natural veld - good condition~~[E]	Natural veld with scattered aliens[E]	~~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.

5. SURFACE WATER

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

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

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

The study site is located within the Orange Water Management Area. More specifically, the study area is situated within the quaternary catchment D32C of the Drought Corridor Eco-region. In describing the observed aquatic ecosystems, using the hydrogeomorphic approach (Ollis *et al.,* 2013) the drainage areas and or watercourses have been subdivided as follows:

- Minor Watercourses
- Lowland valleys with riparian systems
- Lowland valleys with alluvial drainage areas
- Dams

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~~ [H]
~~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)~~

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

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

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

SECTION B: SITE/AREA/PROPERTY DESCRIPTION- ACCESS ROADS 1-3

Section B Copy No. (e.g. A): **C- Access Road 1-3**

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

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

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 District Municipality
Local Municipality	Umsobomvu Local Municipality
Ward Number(s)	Ward 1
Farm name and number	
Portion number	
SG Code	

Project Component	Affected Properties	SG Codes
Internal Access Roads	Portion 1 of Leuwe Kop No. 120	C03000000000012000001
	Remainder of Farm Mooi Plaats No. 121	C03000000000012100000

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.

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

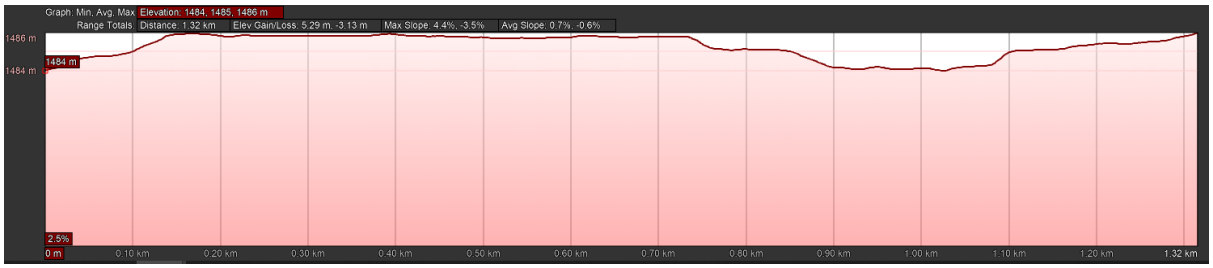
In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.	
Is a change of land-use or a consent use application required?	NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

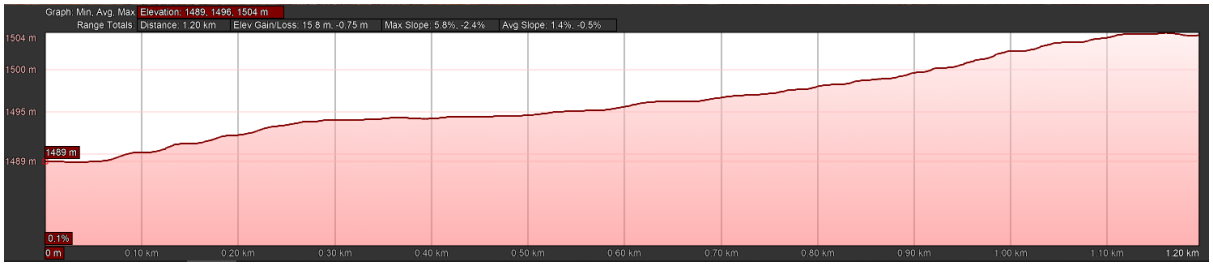
Alternative S1: Access Road 1

Flat	1:50 – 1:20



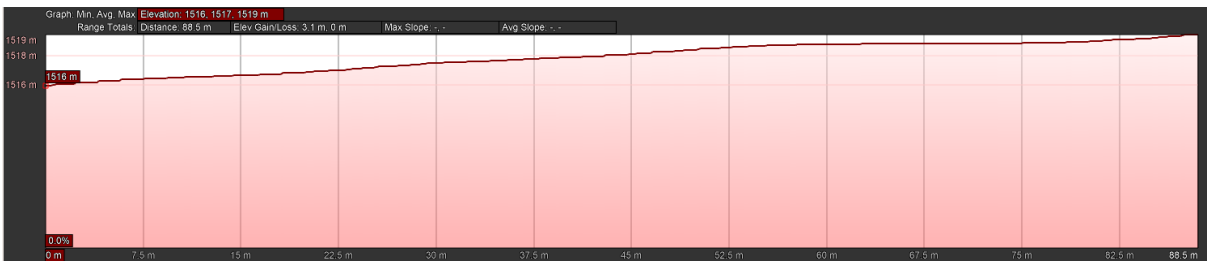
Alternative S2: Access Road 2

Flat	1:50 – 1:20



Alternative S3 (if any):

Flat



2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	✓
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	✓	2.6 Plain		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?

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

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).

~~Natural veld - good condition~~[E]	Natural veld with scattered aliens[E]	~~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.

5. SURFACE WATER

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

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

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

The study site is located within the Orange Water Management Area. More specifically, the study area is situated within the quaternary catchment D32C of the Drought Corridor Eco-region. In describing the observed aquatic ecosystems, using the hydrogeomorphic approach (Ollis *et al.,* 2013) the drainage areas and or watercourses have been subdivided as follows:

- Minor Watercourses
- Lowland valleys with riparian systems
- Lowland valleys with alluvial drainage areas
- Dams

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~~ [H]
~~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)~~

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

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

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 Heritage Impact Assessment has been conducted and has confirmed that there are no heritage features within 100m of the proposed grid alignment. Site sensitivity verification reports and associated specialist studies are found in Appendix D.

Will any building or structure older than 60 years be affected in any way?	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	NO

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

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:

As per the Umsobomvu Local Municipality IDP, 2022-2027: The 2020 unemployment rate is 36.6% which is an increase from the 32.3% rate in 2015. The high level of unemployment is viewed as a threat to the Municipality.

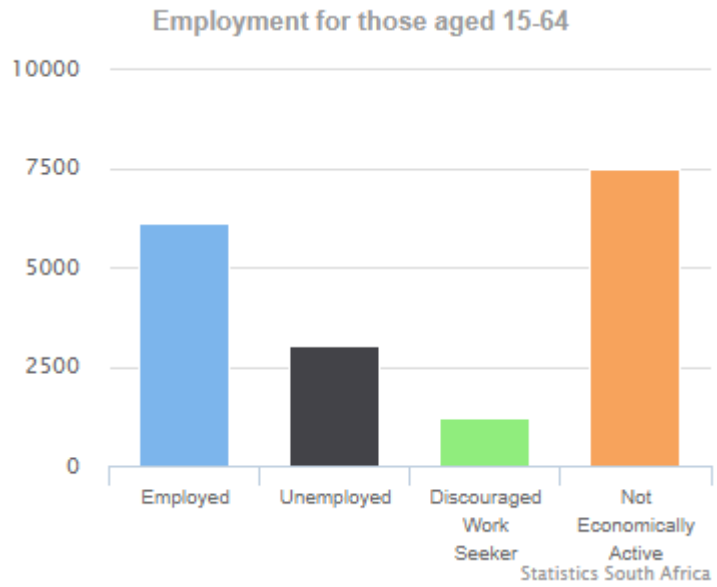


Figure 1: Employment levels in Umsobomvu Local Municipality (extracted from Stats SA[3])

Economic profile of local municipality:

As per the Umsobomvu Local Municipality IDP, 2022-2027:
Economic Sector Summary:
Economic activities are dominated by agriculture, community, social and personal services, finance, insurance, real estate and business services. The sectors have contributed 50% of the total economic output within the municipality.

Household income:
The 2020 Covid-19 pandemic had a negative impact on household income within the municipality where income decreased to 2017 levels.

Table 3:Household income extracted from Stats SA[4].

[3] Extracted from Local Municipality | Statistics South Africa (statssa.gov.za) – accessed 13/03/23
[4] Local Municipality | Statistics South Africa (statssa.gov.za) – accessed 13/03/23

Income	Percentage
None income	13,5%
R1 - R4,800	4,5%
R4,801 - R9,600	6,3%
R9,601 - R19,600	21,1%
R19,601 - R38,200	21,7%
R38,201 - R76,4000	14,5%
R76,401 - R153,800	9,8%
R153,801 - R307,600	5,4%
R307,601 - R614,400	2,3%
R614,001 - R1,228,800	0,6%
R1,228,801 - R2,457,600	0,2%
R2,457,601+	0,3%

Level of education:

As per the Umsobomvu Local Municipality IDP, 2022-2027:
The number of individuals with no schooling has increased in 2019 and 2020 however the levels are above 2010 rates. There is therefore an upward trend in schooling in recent years. The education levels have been extracted from the IDP and displayed in the table below:

Table 4: Umsobomvu Local Municipality Education Levels

Persons	2010	2015	2020
No schooling	4 075	3 409	3 520
Matric	3 171	4 201	4 892
Higher Education (certificate with Grade 12)	142	176	193
Functionally illiterate	12 357	12 039	12 434

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R2 Billion
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES

Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Construction : Approximately 200 jobs Operations: Approximately 25 jobs
What is the expected value of the employment opportunities during the development and construction phase?	Unable to provide this level of detail. This will be determined one the layout has been finalised and the project has been selected as a preferred bidder for private off-take opportunities
What percentage of this will accrue to previously disadvantaged individuals?	Up to 25%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Up to 25 permanent jobs
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

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)		Most of the northern site is within a CBA2 area. This is due to the vegetation in the area. The vegetation type within which the infrastructure is located is mostly Eastern Upper Karoo. On site, this consists of extensive plains interspersed with occasional outcrops of rocks and relatively low topographic diversity. Some parts of the site are also within Besemkaree Koppies Shrubland, which is also widespread, but includes hills, low mountains and some moderate to steep slopes.
				The drainage valley in the extreme north-eastern part of the study area (within the Mooi Plaats project area) is within an ESA.

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	95%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	5%	

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)	[redacted]	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	
	Least Threatened	YES	[redacted]	NO	[redacted] 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 infrastructure is located primarily within Eastern Upper Karoo, with a small part within Besemkaree Koppies Shrubland. The typical vegetation in most of the site is a dwarf karroid shrubland that currently has a relatively high cover of grasses (due to good recent rains). Common to dominant species include Pentzia incana, Eriocephalus ericoides, Chrysocoma ciliata, Felicia filifolia, Selago saxatilis, Phymaspermum parvifolium, Felicia muricata, Ruschia intricate, and the grasses, Aristida congesta, Eragrostis lehmanniana and Tragus koelerioides.

Please refer to Appendix D: Specialist Studies which include a Terrestrial Biodiversity and Aquatic Assessment.

SECTION C: PUBLIC PARTICIPATION

10. ADVERTISEMENT AND NOTICE

Publication name	Die Burger Wes- Adverts
Date published	27 March 2023

Simfonieorkes betower met Iste konsert in Senotaafsaal

SO VORDER WERK AAN INFRASTRUKTUUR

Angie gooi wal oor puttoilette

'Byna 2 500 sedert '18 verwyder'

Macron onder skoot oor sy 'duur horlosie'

Nog 'n boot met vlugtelinge sink

23 sterf ná tornado, hewige storms in VSA

Gesond!

21 April fokus ons op:

Kindergesondheid

Bemark jou produk / dienste in dié uitgawe.

ADVERTEER NOU

Afslag-besprekings sluit 31 Maart.

Site 1 notice position	Latitude	Longitude
	-31.262622°	24.768430°

Date placed	13 April 2023	
Picture to be added in Final BAR		
Site 2 notice position	**Latitude**	**Longitude**
	-31.272492°	24.802945°
Picture to be added in Final BAR		
Date placed	13 April 2023	
Site 3 notice position	**Latitude**	**Longitude**
	-31.1731698972417,	24.94073750164169
Date placed	13 April 2023	
Picture to be added in Final BAR		
Draft BA placed at Noupoort Public Library	**Address**	
	6 Shaw St, Noupoort	
Date placed	13 April 2023	
Picture to be added in Final BAR		
Draft BA placed on SLR Website	https://www.slrconsulting.com/en/public-documents https://slrpublicdocs.datafree.co/en/public-documents	
Date published	13 April 2023	

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

11. DETERMINATION OF APPROPRIATE MEASURES

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

Table 5: Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

TITLE, NAME AND SURNAME	AFFILIATION/ KEY STAKEHOLDER STATUS	CONTACT DETAILS (TEL NUMBER OR E-MAIL ADDRESS)
SP van der Walt	Noupoort Farmers Association (Northern Cape)	spvanderwalk@karoomail.co.za
Lizelle Stroh	Civil Aviation Authority (CAA)	StrohL@caa.co.za
Nanna Gouws	Roads (SANRAL/Public Works)	GouwsJ@nra.co.za
Samantha Ralson	BirdLife South Africa: Birds and Renewable Energy Manager	energy@birdlife.org.za
Lourens Leeuwner	Endangered Wildlife Trust: Wildlife & Energy Programme	lourensl@ewt.org.za
Major L.R Kenny	SANDF	dfacmiem@gmail.com
Natashia Romain	Department of Rural Development and Land Reform: Regional Land Claims Commission Northern Cape	natashia.romain@drdlr.gov.za
Nicole Abrahams	SANRAL Northern Cape	abrahamsn@nra.co.za
Jaco Roelofse	Department: Roads & Public Works - Northern Cape	roelofse.j@vodamail.co.za

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.

12. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Table 6: Summary of and responses to main issues raised by I&APs

Summary of main issues raised by I&APs	Summary of response from EAP
No issues have been raised to date. Issues raised will be responded to and included in the Comments and Responses Report which will be available in the Final Basic Assessment Report.	

13. 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.

No issues have been raised to date. Issues raised will be responded to and included in the Comments and Responses Report which will be available in the Final Basic Assessment Report.

14. AUTHORITY PARTICIPATION

Table 7: 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~~
[redacted]					

Name and Surname	Organisation	Email address
Organs of State: National		
Mohammad Essop	Department of Forestry, Fisheries and the Environment (DFFE)	MEssop@environment.gov.za

Name and Surname	Organisation	Email address
Mokgadi Mathekgana	Department of Energy	mokgadi.mathekgana@energy.gov.za
Eddie Leach	Eskom	eddie.leach@eskom.co.za
John Geeringh	Eskom: Renewable Energy	GeerinJH@eskom.co.za
Michelle Nicol	Eskom: Land & Rights Section	NicolM@eskom.co.za
Natasha Higgitt	South African Heritage Resources Agency (SAHRA)	nhiggett@sahra.org.za
Salaelo Matlhane	SKA	smatlhane@ska.ac.za
Organs of State: Provincial		
Abe Abrahams	Department of Water and Sanitation (Northern Cape)	Abe@dws.gov.za; AbrahamsA@dws.gov.za
Ntsundeni Ravhugoni	Department of Mineral Resources and Energy (Northern Cape)	Ntsundeni.Ravhugoni@dmre.gov.za
Brenda Monnapula	Department of Mineral Resources and Energy (Northern Cape)	Brenda.monnapula@dmre.gov.za
Sam Diokpala	Pixley District Municipality (Northern Cape)	diokpala.sam5@gmail.com
Timothy Ratha	Ngwao Boswa Kapa Bokoni is the Provincial Heritage Resources Authority of the Northern Cape Province	rtimothy@nbkb.org.za
Tsholo Makaudi	Department of Nature Conservation and Environmental Affairs (Northern Cape)	tmakaudi@ncpg.gov.za
Hennie Greeff	Pixley District Municipality: Senior Manager Infrastructure, Development & Housing	idh@pksdm.gov.za
Simphiwe Nkcithiso	Umsobomvu Local Municipality: Director: Technical Services	simphiwe@umsobomvumun.co.za
Amos Mpela	Umsobomvu Local Municipality: Municipal Manager	mpela@umsobomvumun.co.za
	Ward 1 councillor	

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.

PROOF THAT THE AUTHORITIES AND ORGANS OF STATE RECEIVED WRITTEN NOTIFICATION OF THE PROPOSED ACTIVITIES AS APPENDIX E4.

15. 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.

A LIST OF REGISTERED I&APS IS INCLUDED AS APPENDIX E5.
COPIES OF ANY CORRESPONDENCE AND MINUTES OF ANY MEETINGS HELD WILL BE INCLUDED IN APPENDIX E6 FOR FINAL BAR.

SECTION D: IMPACT ASSESSMENT

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

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

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

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

THE IMPACT ASSESSMENT METHODOLOGY HAS BEEN INCLUDED AS APPENDIX F. THE METHODOLOGY UTILISED IS IN LINE WITH THE LATEST NEMA REQUIREMENTS. PLEASE REFER TO APPENDIX D FOR COPIES OF THE SPECIALIST REPORTS.

1.1 AGRICULTURAL IMPACT ASSESSMENT:

An Agricultural Compliance statement was provided, and a summary of the report is detailed below:
The site sensitivity verification verifies those parts of the site that are identified as cropland as being of high agricultural sensitivity and the rest of the site as being of low to medium agricultural sensitivity due to climatic constraints on agricultural production potential. The identified high sensitivity cropland is an agricultural no-go for the access roads. The 132kV corridor crosses croplands towards its southern end, which is permitted but pylons must be located outside of or on the edges of the cropland, wherever possible, so that they prevent interference with crop production.

The agricultural impact of the proposed project is assessed as being of very low significance because there will be negligible reduction in future agricultural production potential as a result of it. This is because the amount of agricultural land loss is very small and the production potential of all lost land is severely limited. Minimal disturbance to the land during construction can be completely mitigated with standard, generic mitigation measures that are included in the Generic Environmental Management Programme (as developed by the DFFE) or that will be an inherent part of the road engineering on site.

1.2 AQUATIC IMPACT ASSESSMENT:

The following impacts have been identified in this Aquatic Specialist Assessment:
Construction & Decommissioning Phases

- Impact 1: Loss of aquatic species of special concern
- Impact 2: Damage or loss of riparian systems and disturbance of the waterbodies in the construction phase
- Impact 3: Potential impact on localised surface water quality

Operational phase

- Impact 4: Impact on aquatic systems through the possible increase in surface water runoff on form and function - Increase in sedimentation and erosion.

1.2.1 Construction & Decommissioning Phase Impacts

Table 8: Loss of aquatic species including any Species of Special Concern

Impact 1	Loss of aquatic species including any Species of Special Concern	
Issue	Potential loss of protected or listed aquatic species, however none were observed on site	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Very Low
Duration	Medium-term	Short-term
Extent	Local	Site
Consequence	Medium	Very Low
Probability	Conceivable	Unlikely/ improbable
Significance	Low -	Insignificant
Degree to which impact can be reversed	If any plants are encountered these can be relocated with a limited degree of success	
Degree to which impact may cause irreplaceable loss of resources	Low	
Degree to which impact can be mitigated	High -	
Mitigation actions		
The following measures are recommended:	The final tower and road alignments must form part of a walk down survey , to ensure all the observed High Sensitivity aquatic systems will be avoided, thus avoiding this impact	
Monitoring		
The following monitoring is recommended:	ECO / ESO during construction inspects the area on a regular basis (weekly) for any unique plants (mostly bulbs and succulents) that may appear during the growth seasons	

Table 9: Damage or loss of riparian systems and disturbance of waterbodies in the construction / decommissioning phase

Impact 2	Damage or loss of riparian systems and disturbance of waterbodies in the construction / decommissioning phase	
Issue	Construction & decommissioning could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site especially where new crossing are made or large hard engineered surfaces are placed within these systems (incl the proposed buffer) Loss can also include a functional loss, through change in vegetation type via alien encroachment for example	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Low
Duration	Long-term	Short-term
Extent	Local	Site
Consequence	Medium	Low
Probability	Probable	Conceivable
Significance	Medium -	Very Low -
Degree to which impact can be reversed	Yes with a significant amount of rehabilitation	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High	
Mitigation actions		
The following measures are recommended:	The final tower and road alignments must form part of a walk down survey , to ensure all the observed High Sensitivity aquatic systems will be avoided, thus avoiding this impact. Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc).. This will the avoid any secondary impacts that could affect downstream areas.	
Monitoring		
The following monitoring is recommended:	All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near the proposed crossings.	

Table 10: Potential impacts on localised surface water quality

Impact 3	Potential impacts on localised surface water quality
Issue	During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious

	wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the fuel storage facility must be given.	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Low
Duration	Long-term	Short-term
Extent	Local	Site
Consequence	Medium	Low
Probability	Probable	Conceivable
Significance	Medium -	Very Low -
Degree to which impact can be reversed	Yes with a significant amount of rehabilitation	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High	
Mitigation actions		
The following measures are recommended:	• All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely. • Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment). • Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel. • All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting. • Littering and contamination associated with construction activity must be avoided through effective construction camp management; • No stockpiling should take place within or near a water course • All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable	
Monitoring		
The following monitoring is recommended:	ESO monitors the site on a daily basis to ensure plant is in working order (minimise leaks), spills are prevented and if they do occur a quickly rectified.	

1.2.2 Operational Phase Impacts

Table 11: Changes to hydrological regimes that could also lead to sedimentation and erosion

Impact 4	Changes to hydrological regimes that could also lead to sedimentation and erosion	
Issue	Increase in hard surface areas, and roads that require stormwater management will increase through the concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.	
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Operation	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Medium
Duration	Long-term	Short-term
Extent	Site	Site
Consequence	Medium	Low
Probability	Probable	Conceivable
Significance	Medium -	Very Low -
Degree to which impact can be reversed	High with rehabilitation	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High	
Mitigation actions		
The following measures are recommended:	A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil.	
Monitoring		
The following monitoring is recommended:	This stormwater control systems must be inspected on an annual basis to ensure these are functional	

1.2.3 Cumulative Impacts

The cumulative impact assessed will therefore be the collective impact of the proposed roads and powerline application, along with the above-mentioned renewable energy applications for EA which are either approved or being proposed within a 30km radius of the proposed project site

Table 12: Loss of aquatic species including any Species of Special Concern

Impact 1	Loss of aquatic species including any Species of Special Concern
Issue	Potential loss of protected or listed aquatic species, however none were observed on site
Cumulative impacts	

Nature of cumulative impacts	The cumulative assessment considers the various proposed renewable projects that occur within a 30km radius of this site, where the author has either been involved in the assessment of most of these projects and or review of the past assessments as part of any required Water Use Licenses. The premise of all the reviewed or assessed projects has been the avoidance of impacts on the aquatic environment, which have been achieved by the various proposed layouts. The only remaining impacts will be the crossing of internal roads over minor watercourse / drainage lines for some of the longer grid connections for those projects.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Low -	Insignificant

Table 13: Damage or loss of riparian systems and disturbance of waterbodies in the construction / decommissioning phase

Impact 2	Damage or loss of riparian systems and disturbance of waterbodies in the construction / decommissioning phase	
Issue	Construction & decommissioning could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site especially where new crossing are made or large hard engineered surfaces are placed within these systems (incl the proposed buffer) Loss can also include a functional loss, through change in vegetation type via alien encroachment for example	
Cumulative impacts		
Nature of cumulative impacts	The cumulative assessment considers the various proposed renewable projects that occur within a 30km radius of this site, where the author has either been involved in the assessment of most of these projects and or review of the past assessments as part of any required Water Use Licenses. The premise of all the reviewed or assessed projects has been the avoidance of impacts on the aquatic environment, which have been achieved by the various proposed layouts. The only remaining impacts will be the crossing of internal roads over minor watercourse / drainage lines for some of the longer grid connections for those projects.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Very Low -

Table 14: Potential impacts on localised surface water quality

Impact 3	Potential impacts on localised surface water quality
Issue	During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to

	affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the fuel storage facility must be given.	
Cumulative impacts		
Nature of cumulative impacts	Although most of the projects are linear in fashion, while being spread over a wide area, most of the projects are located within the greater catchment. However spills and water quality issues remain localised due to the ephemeral nature of the aquatic systems	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Very Low -

Table 15: Changes to hydrological regimes that could also lead to sedimentation and erosion

Impact 4	Changes to hydrological regimes that could also lead to sedimentation and erosion	
Issue	Increase in hard surface areas, and roads that require stormwater management will increase through the concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.	
Cumulative impacts		
Nature of cumulative impacts	The cumulative assessment considers the various proposed renewable projects that occur within a 30km radius of this site, where the author has either been involved in the assessment of most of these projects and or review of the past assessments as part of any required Water Use Licenses. The premise of all the reviewed or assessed projects has been the avoidance of impacts on the aquatic environment, which have been achieved by the various proposed layouts. The only remaining impacts will be the crossing of internal roads over minor watercourse / drainage lines for some of the longer grid connections for those projects.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.3 AVIFAUNA IMPACT ASSESSMENT:

The following impacts have been identified in this Avifauna Specialist Assessment:

Construction Phase

- Displacement due to disturbance associated with the construction of the 33kV and 132kV powerlines.
- Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines.

Operational Phase

- Collisions with the 33kV and 132kV powerlines
- Electrocutions on the 33kV and 132kV powerlines.

Decommissioning Phase

- Displacement due to disturbance associated with the decommissioning of the 33kkV and 132kV powerlines.

Cumulative Impacts

- Displacement due to disturbance associated with the construction and decommissioning of the 33kV and 132kV powerlines.
- Displacement due to habitat transformation associated with the substation and 33kV and 132kV powerlines.
- Collisions with the 33kV and 132kV overhead powerlines.
- Electrocutions on the 33kV and 132kV powerlines.

Please refer to the EMPR for detailed mitigation measures and recommendations.

1.3.1 Construction Phase Impacts

Table 16: Displacement of priority species due to disturbance associated with construction of the 33kV and 132kV overhead powerlines

Issue	Displacement of priority species due to disturbance associated with construction of the 33kV and 132kV overhead powerlines	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Medium
Duration	Short-term	Short-term
Extent	Site	Site
Consequence	Low	Low
Probability	Probable	Possible / frequent

Significance	Low -	Very Low -
Degree to which impact can be reversed	The disturbance factor will be limited to the construction period, after which it will cease. The impact should therefore be reversed through natural processes in due course.	
Degree to which impact may cause irreplaceable loss of resources	It is very unlikely that the impact will result in the permanent loss of resources.	
Degree to which impact can be mitigated	Not much can be done to mitigate the impact, but the short duration of the impact will help to reduce significance of the impact.	
Mitigation actions		
• The following measures are recommended:	• A 1km no disturbance buffer must be implemented around the Verreaux's Eagle nesting site at 31°21'10.29"S, 24°47'57.93"E. The proposed 132kV line will follow a route parallel to the soon to be constructed Umsobomvu 400kV OHL. Placing two high voltage lines together is always preferable to splitting them and, in the process, creating two separate collision and disturbance impacts and further fragmentation of the habitat. Ideally both lines should have avoided the designated buffer zones, but construction of the 400kV OHL will soon commence and is therefore a fait accompli. The potential disturbance of the breeding pair of Verreaux's Eagles during the construction of the 132kV OHL (and 400kV OHL) is fortunately a short-term impact and the infringement on the 1km buffer zone is very slight and out of line of sight of the nest, which reduces the potential for displacement. • Construction activity should be restricted to the immediate footprint of the infrastructure. • Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species. Measures to control noise and dust should be applied according to current best practice in the industry. • Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.	
Monitoring		
The following monitoring is recommended:	None	

Table 17: Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines.

Issue	Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines.	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Low	Low
Duration	Long-term	Long-term
Extent	Site	Site

Consequence	Low	Low
Probability	Definite / Continuous	Probable
Significance	Low -	Low -
Degree to which impact can be reversed	The habitat transformation is for all practical purposes permanent.	
Degree to which impact may cause irreplaceable loss of resources	Due to the small footprint relative to the available habitat, the impact is unlikely to lead to irreplaceable loss of resources.	
Degree to which impact can be mitigated	Not much can be done to mitigate the inevitable loss of habitat.	
Mitigation actions		
The following measures are recommended:	• Vegetation clearance should be limited to what is absolutely necessary. • The mitigation measures proposed by the botanical specialist must be strictly enforced.	
Monitoring		
The following monitoring is recommended:	None	

1.3.2 Operational Phase Impact

Table 18: Mortality of priority species due to collisions with the 132kV powerline.

Issue	Mortality of priority species due to collisions with the 132kV powerline.	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Operation	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Medium
Duration	Long-term	Long-term
Extent	Local	Local
Consequence	Medium	Medium
Probability	Probable	Possible / frequent
Significance	Medium -	Low -
Degree to which impact can be reversed	The impact can be reversed to a certain extent through natural recruitment.	
Degree to which impact may cause irreplaceable loss of resources	It is expected that the collision impact will not cause irreplaceable loss of resources, if the line is mitigated, and due to the relative short length of lines.	
Degree to which impact can be mitigated	The impact can be mitigated to a certain extent through the marking of the powerline with anti-collision devices, but collisions will still occur, due to the fact that no effective mitigation for bustard collisions is currently available.	
Mitigation actions		

The following measures are recommended:	The bird flight diverters should be installed on both lines for their entire length, according to the applicable Eskom standard. These devices must be installed as soon as the conductors are strung.
Monitoring	
The following monitoring is recommended:	None

Table 19: Mortality of priority species due to electrocutions on the 33kV and 132kV OHLs

Issue	Mortality of priority species due to electrocutions on the 33kV and 132kV OHLs	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Operation	
Criteria	Without Mitigation	With Mitigation
Intensity	High	Low
Duration	Long-term	Long-term
Extent	Local	Local
Consequence	High	Medium
Probability	Probable	Probable
Significance	High -	Low -
Degree to which impact can be reversed	The impact can be reversed to a certain extent through natural recruitment.	
Degree to which impact may cause irreplaceable loss of resources	It is expected that the electrocution impact will not cause irreplaceable loss of resources and it can be virtually eliminated with mitigation.	
Degree to which impact can be mitigated	The impact could be well mitigated through the insulation of live components and a raptor friendly pole design.	
Mitigation actions		
The following measures are recommended:	• A raptor friendly pole design for the overhead sections of the 33kV lines and for the entire 132kV line should be used, to be signed off by the avifaunal specialist.	
Monitoring		
The following monitoring is recommended:	None	

1.3.3 Decommissioning Phase Impacts

Table 20: Displacement of priority species due to disturbance associated with decommissioning of the on-site substation, associated infrastructure and 33kV and 132kV overhead powerlines.

Issue	Displacement of priority species due to disturbance associated with decommissioning of the on-site substation, associated infrastructure and 33kV and 132kV overhead powerlines.
Type of Impact	Direct
Nature of Impact	Negative
Phases	Decommissioning

Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Medium
Duration	Short-term	Short-term
Extent	Site	Site
Consequence	Low	Low
Probability	Probable	Possible / frequent
Significance	Low -	Very Low -
Degree to which impact can be reversed	The disturbance factor will be limited to the decommissioning period, after which it will cease. The impact should therefore be reversed through natural processes in due course.	
Degree to which impact may cause irreplaceable loss of resources	It is very unlikely that the impact will result in the permanent loss of resources.	
Degree to which impact can be mitigated	Not much can be done to mitigate the impact, but the short duration of the impact will help to reduce significance of the impact.	
Mitigation actions		
The following measures are recommended:	• Decommissioning activity should be restricted to the immediate footprint of the infrastructure. • Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species. • Measures to control noise and dust should be applied according to current best practice in the industry. • Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.	
Monitoring		
The following monitoring is recommended:	None	

1.3.4 Cumulative Impacts

The only existing HV lines in the 30km radius around the Mooi Plaats project site are the 400 kV Hydra–Poseidon transmission lines 1 and 2, of which a approx. 60km and 61.5km, respectively, are contained within the 30km radius.

The sum total of the two existing 400 kV OHLs, the planned Mooi Plaats OHLs, and the approved Umsobomvu 400 kV OHL in the 30km radius amounts to approx. 147km, of which the proposed Mooi Plaats OHLs constitute a maximum of 15.4km. Based on the conservative assumption that the other 22 renewable energy projects will also have a minimum of 15km of OHLs each, this bring the potential sum total of OHLs within the 30km radius to 477km of OHLs, which would pose a significant collision risk to avifauna in the area.

The contribution of the Mooi Plaats Solar PV grid connection application / project to the cumulative impact of all the planned and existing HV lines is however **low at around 3%**.

Table 21: Displacement of priority species due to disturbance associated with construction of the 33kV and 132kV overhead powerlines

Issue	Displacement of priority species due to disturbance associated with construction of the 33kV and 132kV overhead powerlines
Cumulative impacts	

Nature of cumulative impacts	Displacement of priority species due to disturbance associated with construction of the grid connections will be a feature of all the proposed renewable energy projects within a 30km radius around the project. The South African Renewable Energy EIA Application Database (REEA) available at the time (namely "REEA_OR_2022_Q4") shows that there are 17 approved renewable energy developments situated within a 30km radius of the proposed Mooi Plaats project site.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 22: Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines..

Issue	Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines.	
Cumulative impacts		
Nature of cumulative impacts	Displacement of priority species due to habitat transformation associated with construction of the grid connections will be a feature of all the proposed renewable energy projects within a 30km radius around the project. The South African Renewable Energy EIA Application Database (REEA) available at the time (namely "REEA_OR_2022_Q4") shows that there are 17 approved renewable energy developments situated within a 30km radius of the proposed Mooi Plaats project site.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 23: Mortality of priority species due to collisions with the 132kV powerline.

Issue	Mortality of priority species due to collisions with the 132kV powerline.	
Cumulative impacts		
Nature of cumulative impacts	Collision mortality associated with grid connections will be a feature of all the proposed renewable energy projects within a 30km radius around the project. The South African Renewable Energy EIA Application Database (REEA) available at the time (namely "REEA_OR_2022_Q4") shows that there are 17 approved renewable energy developments situated within a 30km radius of the proposed Mooi Plaats project site.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	High -	Medium -

Table 24: Mortality of priority species due to electrocutions on the 33kV and 132kV OHLs

Issue	Mortality of priority species due to electrocutions on the 33kV and 132kV OHLs	
Cumulative impacts		
Nature of cumulative impacts	Electrocution mortality associated with the OHLs will be a feature of all the proposed renewable energy projects within a 30km radius around the project. The South African Renewable Energy EIA Application Database (REEA) available at the time (namely "REEA_OR_2022_Q4") shows that there are 17 approved renewable energy developments situated within a 30km radius of the proposed Mooi Plaats project site.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	High -	Low -

Table 25: Displacement of priority species due to disturbance associated with decommissioning of the on-site substation, associated infrastructure and 33kV and 132kV overhead powerlines.

Issue	Displacement of priority species due to disturbance associated with decommissioning of the on-site substation, associated infrastructure and 33kV and 132kV overhead powerlines.	
Cumulative impacts		
Nature of cumulative impacts	Displacement of priority species due to disturbance associated with decommissioning of the grid connections will be a feature of all the proposed renewable energy projects within a 30km radius around the project. The South African Renewable Energy EIA Application Database (REEA) available at the time (namely "REEA_OR_2021_Q4") shows that there are 17 approved renewable energy developments situated within a 30km radius of the proposed Mooi Plaats project site.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.4 HERITAGE IMPACT ASSESSMENT:

The following has been extracted from the Heritage Impact Assessment:

The Specialist did not identify Operation and Decommissioning phase impacts

Pre-Construction and Construction Phase

- Destruction or damage to previously unidentified archaeological resources and historical resources.
- During the construction phase, there is a possibility of an impact on the cultural landscape that includes the 'sense of place' of the study area.

1.4.1 Pre-construction and Construction Phase Impacts

Table 26: Destruction or damage to previously unidentified archaeological resources and historical resources.

Issue:	Destruction or damage to previously unidentified archaeological resources and historical resources.	
Phases: Pre-Construction and Construction		
Criteria	Without Mitigation	With Mitigation
Intensity	Low	Very Low
Duration	Permanent	Permanent
Extent	Local	Site
Consequence	Medium	Low
Probability	Conceivable	Improbable
Significance	Low -	Very Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	Irreversible impact.	
Degree to which impact may cause irreplaceable loss of resources	Heritage resources are irreplaceable. However, the implementation of a chance finds protocol will enable the monitoring and where required documentation of such resources.	
Degree to which impact can be avoided	High	
Degree to which impact can be mitigated	There is significant scope for mitigation as per the recommended mitigation measures below.	
Cumulative Impacts		
Nature of cumulative impacts	The extent that the addition of this project will have on the overall impact of developments in the region on heritage resources.	
Extent to which a cumulative impact may arise	Unlikely. However, until a regional detailed study is commissioned by SAHRA. No further mitigations measures can be proposed other than those already recommended for the site-specific mitigation of sites in this report.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 27: During the construction phase, there is a possibility of an impact on the cultural landscape that includes the 'sense of place' of the study area.

Issue:	During the construction phase, there is a possibility of an impact on the cultural landscape that includes the 'sense of place' of the study area.	
Phases: Pre-Construction and Construction		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate	Low
Duration	Long term	Long term
Extent	Local	Local
Consequence	High	High
Probability	Conceivable	Unlikely
Significance	Medium -	Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	High.	
Degree to which impact may cause irreplaceable loss of resources	The landscape will be impacted but its cultural component is limited. The presence of existing powerlines and surrounding renewable energy developments has already compromised the landscape.	
Degree to which impact can be avoided	High.	
Degree to which impact can be mitigated	There is scope for mitigation as per the recommended mitigation measures. Minor measures such as rehabilitation of disturbed areas post construction will slightly reduce the overall impact.	
Cumulative Impacts		
Nature of cumulative impacts	The extent that the addition of this project will have on the overall impact of developments in the region on the cultural landscape.	
Extent to which a cumulative impact may arise	Possible. However, until a regional detailed study is commissioned by SAHRA. No further mitigations measures can be proposed other than those already recommended for the site-specific mitigation of sites in this report.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.4.2 Cumulative Impacts

Table 28: Destruction or damage to previously unidentified archaeological resources and historical resources.

Issue:	Destruction or damage to previously unidentified archaeological resources and historical resources.	
Cumulative Impacts		
Nature of cumulative impacts	The extent that the addition of this project will have on the overall impact of developments in the region on heritage resources.	
Extent to which a cumulative impact may arise	Unlikely. However, until a regional detailed study is commissioned by SAHRA. No further mitigations measures can be proposed other than those already recommended for the site-specific mitigation of sites in this report.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 29: During the construction phase, there is a possibility of an impact on the cultural landscape that includes the 'sense of place' of the study area.

Issue:	During the construction phase, there is a possibility of an impact on the cultural landscape that includes the 'sense of place' of the study area.

Cumulative Impacts		
Nature of cumulative impacts	The extent that the addition of this project will have on the overall impact of developments in the region on the cultural landscape.	
Extent to which a cumulative impact may arise	Possible. However, until a regional detailed study is commissioned by SAHRA. No further mitigations measures can be proposed other than those already recommended for the site-specific mitigation of sites in this report.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.5 PALEONTOLOGICAL IMPACT ASSESSMENT:

The following tables highlight the impacts identified and associated mitigation measures:

The Specialist did not identify Operation and Decommissioning phase impacts

Construction Phase

- Destruction of fossil heritage
- Potential loss of Fossil Heritage

1.5.1 Construction Phase Impacts

Table 30: Destruction of fossil heritage

Issue	Destruction of fossil heritage. The excavations and site clearance of the powerline will involve extensive excavations into the superficial sediment cover as well as into the underlying bedrock. These excavations will change the existing topography and may destroy and seal-in fossils at or below the ground surface. These fossils will then no longer be available for research. According to the Geology of the project site there is a Very High possibility of finding fossils during construction.	
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	High	Low
Duration	Permanent	Permanent
Extent	Site	Site
Consequence	High	Very Low
Probability	Probable	Unlikely / improbable
Significance	High -	Low -
Degree to which impact can be reversed	Irreversible	
Degree to which impact may cause irreplaceable loss of resources	Irreplicable loss of fossil heritage	
Degree to which impact can be mitigated	Mitigation of the damage and destruction of fossil heritage within the planned footprint would entail the collection and describing of fossils. See Chance find Protocol	

Mitigation actions	
The following measures are recommended:	Chance Find Procedure
Monitoring	
The following monitoring is recommended:	N/A

Table 31: Potential loss of Fossil Heritage

Issue:	Potential loss of Fossil Heritage	
Description of Impact		
construction vehicles, equipment and construction material stockpiles will alter the natural character of the study area. Surface clearing during construction would expose bedrock and damage possible fossiliferous outcrops		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	High	Low
Duration	Long-term	Long-term
Extent	Site	Site
Consequence	Low	Very Low
Probability	Probable	Probable
Significance	Low -	Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	Impacts are completely reversible with cessation of construction activity.	
Degree to which impact may cause irreplaceable loss of resources	Marginal loss of visual resources without mitigation measures.	
Degree to which impact can be mitigated	There is significant scope for mitigation as per the recommended mitigation measures below.	
The following measures are recommended:	• Carefully plan to mimimise the construction period and avoid construction delays. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Maintain a neat construction site by removing rubble and waste materials regularly. • Position storage / stockpile areas in unobtrusive positions in the landscape, where possible. • Make use of existing gravel access roads where possible. • Limit the number of vehicles and trucks travelling to and from the construction site, where possible. • Unless there are water shortages, ensure that dust suppression techniques are implemented:	

	• on all access roads; • in all areas where vegetation clearing has taken place; • on all soil stockpiles.
The following monitoring is recommended:	• Ensure that visual management measures are monitored by an ECO. This will include monitoring activities associated with visual impacts such as the siting and management of soil stockpiles, screening and dust suppression. • Regular reporting to an environmental management team must also take place during the construction phase.

1.5.2 Cumulative Impacts

Table 32: Destruction of fossil heritage

Issue:	**Loss of Fossil Heritage**	
Description of Impact		
The excavations and site clearance of the powerline will involve extensive excavations into the superficial sediment cover as well as into the underlying bedrock. These excavations will change the existing topography and may destroy and seal-in fossils at or below the ground surface. These fossils will then no longer be available for research. According to the Geology of the project site there is a Very High possibility of finding fossils during construction.		
Nature of cumulative impacts	Solar Facilities surrounding the proposed development will have a Zero to High Palaeontological Sensitivity. However, it is important to note that the quality of preservation of these different sites will most probably vary and it is therefore difficult to allocate a Cumulative Sensitivity to the projects. If all the mitigation measures are carried out, a conservative estimate of the Cumulative impacts on fossil heritage will vary between Low and Medium.	
Rating of cumulative impacts	**Without Mitigation**	**With Mitigation**
	Medium -	Low -

1.6 VISUAL IMPACT ASSESSMENT:

Construction Phase

- Potential visual intrusion resulting from large construction vehicles and equipment;
- Potential visual effect of construction laydown areas and material stockpiles.
- Potential impacts of increased dust emissions from construction activities and related traffic;
- Potential visual scarring of the landscape as a result of site clearance and earthworks; and
- Potential visual pollution resulting from littering on the construction site

Operational Phase

- Potential alteration of the visual character of the area;
- Potential visual intrusion resulting from road and OHL infrastructure in a largely natural / pastoral setting; and
- Potential visual effect on surrounding farmsteads;

Decommissioning Phase

- Potential visual intrusion resulting from vehicles and equipment involved in the decommissioning process;
- Potential impacts of increased dust emissions from decommissioning activities and related traffic; and
- Potential visual intrusion of any remaining infrastructure on the site.

Cumulative Impacts

- Combined visual impacts from renewable energy development and associated grid connection infrastructure in the broader area could potentially alter the sense of place and visual character of the area; and
- Combined visual impacts from renewable energy development and associated grid connection infrastructure in the broader area could potentially exacerbate visual impacts on visual receptors.

1.6.1 Construction Phase Impacts

Table 33: Proposed Additional Access Roads and OHLs During Construction

Issue:	Potential visual impact on receptors in the study area • Large construction vehicles, equipment and construction material stockpiles will alter the character of the study area and expose visual receptors to impacts associated with construction. • Construction activities may be perceived as an unwelcome visual intrusion, particularly in undeveloped or pastoral settings. • Dust emissions and dust plumes from increased traffic on gravel roads serving the construction site may evoke negative sentiments from surrounding viewers. • Temporary stockpiling of soil during construction may alter the landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact

	• Surface disturbance during construction would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. • Potential visual pollution resulting from littering on the construction site	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Low
Duration	Short-term	Short-term
Extent	Local	Local
Consequence	Medium	Medium
Probability	Probable	Possible
Significance	Medium -	Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	Impacts are completely reversible with cessation of construction activity.	
Degree to which impact may cause irreplaceable loss of resources	Marginal loss of visual resources without mitigation measures.	
Degree to which impact can be mitigated	There is significant scope for mitigation as per the recommended mitigation measures below.	
The following measures are recommended:	• Carefully plan to mimimise the construction period and avoid construction delays. • Position laydown areas and related storage / stockpile areas in unobtrusive positions in the landscape, where possible. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Vegetation clearing should take place in a phased manner. • Make use of existing gravel access roads where possible. • Position storage / stockpile areas in unobtrusive positions in the landscape, where possible. • Make use of existing gravel access roads where possible. • Limit the number of vehicles and trucks travelling to and from the construction site, where possible. • Where possible, ensure that dust suppression techniques are implemented: o on all access roads; o in all areas where vegetation clearing has taken place; o on all soil stockpiles. • Maintain a neat construction site by removing litter, rubble and waste materials regularly.	
The following monitoring is recommended:	• Ensure that visual management measures are monitored by an ECO. This will include monitoring activities associated with visual impacts such as the siting and management of soil stockpiles, screening and dust suppression. • Regular reporting to an environmental management team must also take place during the construction phase.	
Nature of cumulative impacts	• Combined visual impacts from construction activity associated with renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and	

	• Combined visual impacts from construction activity associated with renewable energy and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.6.2 Operational Phase Impact

Table 34: Proposed Additional Access Roads and OHLs During Operation

Issue:	• Potential alteration of the visual character and sense of place • Potential visual impact on receptors in the study area • Access roads and OHLs may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. • The proposed roads and OHLs will alter the visual character of the surrounding area and expose potentially sensitive visual receptor locations to visual impacts. • Dust emissions and dust plumes from maintenance vehicles using the access roads may evoke negative sentiments from surrounding viewers.	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Operation	
Criteria	Without Mitigation	With Mitigation
Intensity	Low	Low
Duration	Long-term	Long-term
Extent	Local	Local
Consequence	Medium	Medium
Probability	Possible	Possible
Significance	Low -	Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	Impacts are partly reversible with decommissioning of infrastructure.	
Degree to which impact may cause irreplaceable loss of resources	Marginal loss of visual resources without mitigation measures.	
Degree to which impact can be mitigated	There is some scope for mitigation as per the recommended mitigation measures below.	
The following measures are recommended:	• As far as possible, limit the number of vehicles using the access roads. • Ensure that dust suppression techniques are implemented on all gravel access roads.	
The following monitoring is recommended:	• such as the control of signage and vehicles on access roads.	
Nature of cumulative impacts	• Combined visual impacts from operational renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and • Combined visual impacts from operational renewable energy and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	

Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Medium -

1.6.3 Decommissioning Phase Impacts

Table 35: Proposed Additional Access Roads and OHLs During Decommissioning

Issue:	• Potential alteration of the visual character and sense of place • Potential visual impact on receptors in the study area • Potential visual intrusion of any remaining infrastructure on the site. • Vehicles and equipment required for decommissioning will alter the natural character of the study area and expose visual receptors to visual impacts. • Decommissioning activities may be perceived as an unwelcome visual intrusion. • Dust emissions and dust plumes from increased traffic on gravel roads serving the decommissioning site may evoke negative sentiments from surrounding viewers. • Temporary stockpiling of soil during decommissioning may alter the landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact • Surface disturbance during decommissioning would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. • Potential visual pollution resulting from littering on the decommissioning site.	
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Decommissioning	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Low
Duration	Short-term	Short-term
Extent	Local	Local
Consequence	Medium	Medium
Probability	Probable	Possible
Significance	Medium -	Low -
Additional Assessment Criteria		
Degree to which impact can be reversed	Impacts are completely reversible with cessation of decommissioning activity.	
Degree to which impact may cause irreplaceable loss of resources	Marginal loss of visual resources without mitigation measures.	
Degree to which impact can be mitigated	There is significant scope for mitigation as per the recommended mitigation measures below.	
The following measures are recommended:	• All infrastructure that is not required for post-decommissioning use should be removed. • Carefully plan to mimimise the decommissioning period and avoid construction delays.	

	• Maintain a neat decommissioning site by removing rubble and waste materials regularly. • Where possible, ensure that dust suppression techniques are implemented on all gravel roads throughout the decommissioning phase; • All cleared areas should be rehabilitated as soon as possible.	
The following monitoring is recommended:	• Ensure that visual management measures are monitored by an ECO. This will include monitoring activities associated with visual impacts such as the siting and management of soil stockpiles, screening and dust suppression. • Regular reporting to an environmental management team must also take place during the construction phase.	
Nature of cumulative impacts	• Combined visual impacts from decommissioning activity associated with renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and • Combined visual impacts from decommissioning activity associated with renewable energy development and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.6.4 Cumulative Impacts

Table 36: Proposed Additional Access Roads and OHLs During Construction

Issue:	Potential visual impact on receptors in the study area • Large construction vehicles, equipment and construction material stockpiles will alter the character of the study area and expose visual receptors to impacts associated with construction. • Construction activities may be perceived as an unwelcome visual intrusion, particularly in undeveloped or pastoral settings. • Dust emissions and dust plumes from increased traffic on gravel roads serving the construction site may evoke negative sentiments from surrounding viewers. • Temporary stockpiling of soil during construction may alter the landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact • Surface disturbance during construction would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. • Potential visual pollution resulting from littering on the construction site	
Nature of cumulative impacts	• Combined visual impacts from construction activity associated with renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and • Combined visual impacts from construction activity associated with renewable energy and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	
	Without Mitigation	With Mitigation

Rating of cumulative impacts	Medium -	Low -

Table 37: Proposed Additional Access Roads and OHLs During Operation

Issue:	• Potential alteration of the visual character and sense of place • Potential visual impact on receptors in the study area • Access roads and OHLs may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. • The proposed roads and OHLs will alter the visual character of the surrounding area and expose potentially sensitive visual receptor locations to visual impacts. • Dust emissions and dust plumes from maintenance vehicles using the access roads may evoke negative sentiments from surrounding viewers.	
Nature of cumulative impacts	• Combined visual impacts from operational renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and • Combined visual impacts from operational renewable energy and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Medium -

Table 38: Proposed Additional Access Roads and OHLs During Decommissioning

Issue:	• Potential alteration of the visual character and sense of place • Potential visual impact on receptors in the study area • Potential visual intrusion of any remaining infrastructure on the site. • Vehicles and equipment required for decommissioning will alter the natural character of the study area and expose visual receptors to visual impacts. • Decommissioning activities may be perceived as an unwelcome visual intrusion. • Dust emissions and dust plumes from increased traffic on gravel roads serving the decommissioning site may evoke negative sentiments from surrounding viewers. • Temporary stockpiling of soil during decommissioning may alter the landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact • Surface disturbance during decommissioning would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. • Potential visual pollution resulting from littering on the decommissioning site.

Nature of cumulative impacts	• Combined visual impacts from decommissioning activity associated with renewable energy and associated infrastructure development in the broader area could further alter the sense of place and visual character of the area; and • Combined visual impacts from decommissioning activity associated with renewable energy development and associated infrastructure development in the broader area could potentially exacerbate visual impacts on visual receptors.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

1.7 GEOTECHNICAL IMPACT ASSESSMENT:

The impacts identified within the Geotechnical Assessment is as follows:

Construction Phase

- Ground disturbance during construction
- Soil erosion during construction

Operational Phase

- Soil erosion during operation

Decommissioning Phase

- Ground disturbance during decommissioning

1.7.1 Construction Phase Impacts

Table 39: Ground disturbance during construction

Issue	Ground disturbance during construction	
Description of Impact		
Ground disturbance during earthworks and civil works to construct access roads/tracks and excavations for the bases of pylons.		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	High	Low
Duration	Permanent	Permanent
Extent	Site	Site
Consequence	High	High
Probability	Definite / Continuous	Definite / Continuous
Significance	High -	Medium -
Degree to which impact can be reversed	The impact will not be reversed during the construction or operational phases, but, with the exception of cuttings and possibly embankments, the impact is fully reversible during decommissioning. The rehabilitation will be slow in this arid environment where indigenous vegetation is not extensively developed.	

Degree to which impact may cause irreplaceable loss of resources	Resources (the use of land) will be irreplaceable during the construction and operational phases, but fully retrievable after decommissioning. Farm owners might request that access roads are not decommissioned so that continued access around their farms is maintained.
Degree to which impact can be mitigated	The impact can be mitigated by adopting the measures described below.
Mitigation actions	
The following measures are recommended:	Careful route selection particularly through sensitive areas. Trafficking only on designated routes to minimise disturbance. Controlled disposal of excess excavated material.
Monitoring	
The following monitoring is recommended:	Weekly monitoring by Site Staff and ECO/ESO

Table 40: Soil erosion during construction

Issue	Soil erosion during construction	
Description of Impact		
Erosion due to clearing of vegetation and alteration of natural drainage		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Medium
Duration	Short-term	Short-term
Extent	Site	Site
Consequence	Low	Low
Probability	Probable	Possible / frequent
Significance	Medium -	Low -
Degree to which impact can be reversed	The impact can be mitigated but noting that loss of topsoil is irreversible in this environment in respect of the pylons and access roads even after the ground has been rehabilitated.	
Degree to which impact may cause irreplaceable loss of resources	Topsoil is very thinly developed or absent in this environment and therefore difficult to replace if extensive erosion occurs.	
Degree to which impact can be mitigated	The impact can be mitigated by adopting the measures described below.	
Mitigation actions		
The following measures are recommended:	Careful route selection. Avoidance of sensitive areas. Trafficking only on designated routes to minimise disturbance. Temporary construction of berms and culverts to direct water.	
Monitoring		
The following monitoring is recommended:	Weekly monitoring by Site Staff and ESO/ECO	

1.7.2 Operational Phase Impact

Table 41: Soil erosion during the operational phase

Issue	Soil erosion during the operational phase	
Description of Impact		
Increased erosion due to alteration of natural drainage		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Operation	
Criteria	Without Mitigation	With Mitigation
Intensity	Low	Very Low
Duration	Long-term	Long-term
Extent	Site	Site
Consequence	Low	Low
Probability	Conceivable	Possible / frequent
Significance	Low -	Low -
Degree to which impact can be reversed	The impact will not be reversed during the operational phase, but it can be mitigated as described below.	
Degree to which impact may cause irreplaceable loss of resources	This impact is unlikely to cause an irreplaceable loss of topsoil through erosion provided that basic drainage measures are provided to direct surface run-off.	
Degree to which impact can be mitigated	The impact can be mitigated by adopting the measures described below.	
Mitigation actions		
The following measures are recommended:	Maintenance and monitoring of drainage measures	
Monitoring		
The following monitoring is recommended:	Routine monitoring by Site Staff.	

1.7.3 Decommissioning Phase Impacts

Table 42: Ground disturbance during decommissioning phase

Issue	Ground disturbance during decommissioning	
Description of Impact		
Ground disturbance during decommissioning		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Decommissioning	
Criteria	Without Mitigation	With Mitigation
Intensity	Medium	Low
Duration	Very Short-term	Very Short-term
Extent	Site	Site
Consequence	Very Low	Very Low

Probability	Definite / Continuous	Definite / Continuous
Significance	Low -	Low -
Degree to which impact can be reversed	With the exception of cuttings and possibly embankments, the impact is fully reversible during decommissioning. The rehabilitation will be slow in this arid environment where indigenous vegetation is not extensively developed.	
Degree to which impact may cause irreplaceable loss of resources	Again, with the exception of cuttings and possibly embankments, the resources (the use of land) will be replaceable/retrievable after decommissioning. Farm owners might request that access roads are not decommissioned so that continued access around their farms is maintained.	
Degree to which impact can be mitigated	The impact can be mitigated by adopting the measures described below.	
Mitigation actions		
The following measures are recommended:	Trafficking only on designated routes to minimise disturbance. Controlled disposal of excess excavated material. Obtain specialist advice on re-seeding and re-vegetating.	
Monitoring		
The following monitoring is recommended:	Weekly monitoring by Site Staff and ESO/ECO	

Table 43: Soil erosion during decommissioning phase

Issue	Soil erosion during decommissioning	
Description of Impact		
Increased erosion due to alteration of natural drainage		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Decommissioning	
Criteria	Without Mitigation	With Mitigation
Intensity	Low	Very Low
Duration	Very Short-term	Long-term
Extent	Site	Site
Consequence	Very Low	Low
Probability	Conceivable	Possible / frequent
Significance	Low -	Low -
Degree to which impact can be reversed	The impact is reversible with the mitigation actions described below. Note that the farm owners might not require that the existing drainage measures and access road are not decommissioned so that continued access around their farms is maintained.	
Degree to which impact may cause irreplaceable loss of resources	This impact is unlikely to cause an irreplaceable loss of topsoil through erosion provided that basic drainage measures are provided to direct surface run-off.	
Degree to which impact can be mitigated	The impact can be fully mitigated by adopting the measures described below.	
Mitigation actions		
The following measures are recommended:	Temporary provision of berms. Returning the ground to its natural profile wherever possible and re-seeding and re-vegetating according to professional advice.	
Monitoring		

The following monitoring is recommended:	Routine weekly monitoring by Site Staff and Environmental Practitioners during the decommissioning phase and at four monthly intervals thereafter until final sign-off is achieved.

1.7.4 Cumulative Impacts

Table 44: Ground disturbance during construction

Issue	Ground disturbance during construction	
Description of Impact		
Ground disturbance during earthworks and civil works to construct access roads/tracks and excavations for the bases of pylons.		
Cumulative impacts		
Nature of cumulative impacts	Provided that the mitigation measures described above and the on-site monitoring are undertaken, the cumulative effect on the project is considered medium without mitigation and low with mitigation.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 45: Soil erosion during construction

Issue	Soil erosion during construction	
Description of Impact		
Erosion due to clearing of vegetation and alteration of natural drainage		
Cumulative impacts		
Nature of cumulative impacts	Provided that the mitigation measures described above and the on-site monitoring are undertaken, the cumulative effect on the project is considered medium without mitigation and low with mitigation.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Medium -	Low -

Table 46: Soil erosion during the operational phase

Issue	Soil erosion during the operational phase	
Description of Impact		
Increased erosion due to alteration of natural drainage		
Cumulative impacts		
Nature of cumulative impacts	Provided that the mitigation measures described above, and the on-site monitoring are undertaken, the cumulative effect on the project is considered low with and without mitigation.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Low -	Low -

Table 47: Ground disturbance during decommissioning phase

Issue	Ground disturbance during decommissioning
Description of Impact	
Ground disturbance during decommissioning	

Cumulative impacts		
Nature of cumulative impacts	Provided that the mitigation measures described above and the on-site monitoring are undertaken, the cumulative effect on the project is considered low with and without mitigation.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Low -	Low -

Table 48: Soil erosion during decommissioning phase

Issue	Soil erosion during decommissioning	
Description of Impact		
Increased erosion due to alteration of natural drainage		
Cumulative impacts		
Nature of cumulative impacts	Provided that the mitigation measures described above, and the on-site monitoring are undertaken, the cumulative effect on the project is considered low with and without mitigation.	
Rating of cumulative impacts	Without Mitigation	With Mitigation
	Low -	Low -

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.

Alternative A (preferred alternative)

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

Furthermore, it is the opinion of the EAP that based on the findings of the BA, that the proposed development should be granted an EA and allowed to proceed, provided all feasible and practical mitigation measures recommended by the various specialists are adhered to:

- All feasible and practical mitigation measures recommended by the various specialists must be incorporated into the Generic Environmental Management Programmes (EMPr) if it is not provided for, and implemented, where applicable;
- Where applicable, monitoring should be undertaken to evaluate the success of the mitigation measures recommended by the various specialists.
- The final layout must be submitted to the DFFE for approval prior to commencing with the activity.

Based on the results from the specialist studies, the following impacts are anticipated:

Specialist	Issue	Rating of cumulative impacts	
		Without Mitigation	With Mitigation
Aquatic	Loss of aquatic species including any Species of Special Concern	**Low -**	**Insignificant**

	Damage or loss of riparian systems and disturbance of waterbodies in the construction / decommissioning phase	**Medium -**	**Very Low -**
	Potential impacts on localises surface water quality	**Medium -**	**Very Low -**
	Changes to hydrological regimes that could also lead to sedimentation and erosion	**Medium -**	**Low -**
	Cumulative Impact	**Low -**	**Very Low -**
Avifauna	Displacement of priority species due to disturbance associated with construction of the 33kV and 132kV overhead powerlines	**Medium -**	**Low -**
	Displacement due to habitat transformation associated with the construction of the 33kV and 132kV powerlines.	**Medium -**	**Low -**
	Mortality of priority species due to collisions with the 132kV powerline.	**High -**	**Medium -**
	Mortality of priority species due to electrocutions on the 33kV and 132kV OHLs	**High -**	**Low -**
	Displacement of priority species due to disturbance associated with decommissioning of the on-site substation, associated infrastructure and 33kV and 132kV overhead powerlines.	**Medium -**	**Low -**
Biodiversity/ Terrestrial Ecology			
Heritage	Destruction or damage to previously unidentified archaeological resources and historical resources.	**Medium -**	**Low -**
	During the construction phase, there is a possibility of an impact on the cultural landscape that includes the ‘sense of place’ of the study area.	**Medium -**	**Low -**
Paleontological	Destruction of fossil heritage (Pre-construction)	**No Impacts**	**No Impacts**
	Destruction of fossil heritage (Construction)	**High -**	**Medium -**
	Destruction of fossil heritage (Operational)	**No Impacts**	**No Impacts**
Visual	Construction Phase: Potential alteration of the visual character and sense of place Potential visual impact on receptors in the study area	**Medium -**	**Low -**
	Operational Phase: Potential alteration of the visual character and sense of place	**Medium -**	**Medium -**

	Potential visual impact on receptors in the study area		
	Decomissoining Phase: Potential alteration of the visual character and sense of place Potential visual impact on receptors in the study area Potential visual intrusion of any remaining infrastructure on the site.	**Medium -**	**Low -**
Geotechnical	Ground disturbance during construction	**Medium -**	**Low -**
	Soil erosion during construction	**Medium -**	**Low -**
	Soil erosion during the operational phase	**Low**	**Low**
	Ground disturbance during decommissioning	**Low -**	**Low -**
	Soil erosion during decommissioning	**Low -**	**Low -**

SLR, as the EAP, is therefore of the view that:

- The site location and project description can be authorised based on the findings of the suite of specialist assessments;
- The proposed project has been identified as environmentally acceptable and will not result in significant impacts, provided that the recommended mitigation measures are implemented, and the placement of these sites avoids the identified sensitive and 'no-go' areas;
- A cumulative impact assessment of similar developments in the area was undertaken by the respective specialists. No fatal flaws have been identified. The proposed development should therefore proceed from a cumulative impact assessment perspective; and
- Through the implementation of mitigation measures, together with adequate compliance monitoring, auditing and enforcement thereof by the appointed Environmental Control Officer (ECO) as well as the competent authority, the potential detrimental impacts associated with the proposed development can be mitigated to acceptable levels.

It is trusted that the Draft BAR (this report) provides adequate information to the I&APs / stakeholders to provide input and for the competent authority to make an informed decision regarding the proposed development.

[redacted]

No-go alternative (compulsory)

Below is a summary of the respective specialists' assessment of the No-Go Alterative: (Refer to Specialist Studies in Appendix D):

Specialist	No -Go
Agricultural:	There are no agricultural impacts of the no-go alternative, but the agricultural impacts of the development are very low, and so there is not a big difference between the agricultural impacts of the proposed development and those of the

	no-go option. The no-go option would prevent the associated renewable energy facility, which cannot operate without a grid connection or access roads, from contributing positive agricultural economic impacts to the farms as well as contributing to the environmental, social and economic benefits associated with the development of renewable energy in South Africa.
Aquatic:	No alternatives were assessed as the design process has passed through several iterations, taking cognisance of any No-Go and Very High sensitivity areas. However, with regard the No-Go, the status quo will remain, coupled to the continued impacts associated with agricultural practices.
Avifauna:	The No-Go option will result in no additional impacts on avifauna and will result in the ecological *status quo* being maintained, which will be to the advantage of avifauna. However, no fatal flaws were during the investigations.
Geotechnical	The project has been assessed against the 'no-go' alternative. The 'no-go' alternative is the option of not constructing the project, where the status quo of the current farming activities on the site would prevail.
Heritage	The 'No Go' alternative is essentially the option of not constructing the additional supporting infrastructure. The status quo of the area will remain the same however it is to be noted that surrounding renewable energy developments has already compromised the landscape within the study area.
Palaeontology	As the No-Go Alternative considers the option of 'do nothing' and maintaining the status quo, it will have a Neutral impact on the Palaeontological Heritage of the development.
Visual:	The 'No Go' alternative is essentially the option of not constructing the additional supporting infrastructure. The area would thus retain its visual character and sense of place and no visual impacts would be experienced by any locally occurring receptors.

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

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).

N/A

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.

Agricultural requirements:

- The identified high sensitivity cropland is an agricultural no-go for the access roads. The 132kV corridor crosses croplands towards its southern end, which is permitted but pylons must be located outside of or on the edges of the cropland, wherever possible, so that they prevent interference with crop production.

Aquatic requirements:

- Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc). This will the avoid any secondary impacts that could affect downstream areas.
- All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely. Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).
  Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.
  All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp
- A that requires micro-siting. Littering and contamination associated with construction activity must be avoided through effective construction camp management;
  No stockpiling should take place within or near a water course
  All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable
- A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil.

Avifaunal requirements:

Construction phase

- Construction activity should be restricted to the immediate footprint of the infrastructure.
- A 1km all infrastructure exclusion zone around the Verreaux's Eagle nest at 31°21'10.29"S, 24°47'57.93"E must be implemented. A 1km no disturbance buffer must be implemented around the Verreaux's Eagle nesting site at 31°21'10.29"S, 24°47'57.93"E. The proposed 132kV line will follow a route parallel to the recently authorised and approved Umsobomvu 400kV OHPL. Placing two high voltage lines together is always preferable to splitting them and, in the process, creating two separate collision and disturbance impacts and further fragmentation of the habitat. Ideally both lines should have avoided the designated buffer zones, but construction of the 400kV will soon commence and is therefore a fait accompli. The potential disturbance of the breeding pair of Verreaux's Eagles during the construction of the 132kV OHL (and the 400kV OHL) is fortunately a short-term impact and the infringement on the 1km buffer zone is very slight and out of line of sight of the nest, which reduces the potential for displacement.
- Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species.

- Measures to control noise and dust should be applied according to current best practice in the industry.
- Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.

Operational phase

- Vegetation clearance should be limited to what is absolutely necessary.
- The mitigation measures proposed by the vegetation specialist must be strictly enforced.
- Bird flight diverters must be installed on both lines according to the applicable Eskom standard.
- The 33kV and 132kV pole designs must be signed off by the avifaunal specialist to ensure they pose no electrocution risk to avifauna.

De-commissioning phase

- Decommissioning activity should be restricted to the immediate footprint of the infrastructure as far as possible.
- Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species.
- Measures to control noise and dust should be applied according to current best practice in the industry.
- Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.

Geotechnical Requirements:

- Trafficking only on designated routes to minimise disturbance.
- Controlled disposal of excess excavated material.
- Temporary construction of berms and culverts to direct water and Maintenance and monitoring of drainage measures.
- Returning the ground to its natural profile wherever possible and re-seeding and re-vegetating according to professional advice.

Terrestrial Ecology Requirements:

- Limit impacts to as small an area as possible, preferably within the approved footprint areas.
- Rehabilitate disturbed areas according to a Rehabilitation Management Plan.
- Control secondary impacts associated with disturbance, primarily those linked to the establishment and spread of alien invasive plant species. These measures are required by law and should be included within an Alien Invasive Management Plan, including any monitoring requirements.

Heritage Requirements:

- During the construction phase, it is important to recognize any significant material being unearthed, making the correct judgment on which actions should be taken. It is recommended that the following chance find procedure should be implemented.
- A heritage practitioner / archaeologist should be appointed to develop a heritage induction program and conduct training for the ECO as well as team leaders in the identification of heritage resources and artefacts during the implementation of the EMPr.
- An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon in the event that any possible heritage resources or artefacts are identified.
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted.
- The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource.
- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the materials and data are recovered.
- Construction can commence as soon as the site has been cleared and signed off by the heritage practitioner / archaeologist.

Paleontological Requirements:

- Chance Find Procedure must be followed should sensitive features be identified:
- If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.
- The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Resources Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS coordinates.
- A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.

- Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.
- The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.
- In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.

Al proposed mitigation measures have been included in the EMPR (Appendix G).

Construction and implementation timeframes of the proposed MTS and associated infrastructure were not available to the EAP at the time of writing. As such it is it is requested that the EA for construction, if issued by the Competent Authority, be valid for a period of ten (10) years from the date of signature.

Is an EMPr attached? YES

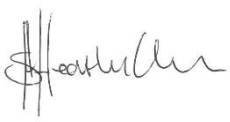
The EMPr must be attached as Appendix G.
Please note that there is a Generic EMPr for the 132kV powerline as per GNR 113. There is a separate EMPr for the roads and 33kV above ground cable.

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.
Stuart Heather Clarke

_____
NAME OF EAP



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SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

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: Municipal Comment

Appendix J: Coordinates

Appendix K: SIP Status Confirmation

Appendix L: DFFE Screening Tools