

BASIC ASSESSMENT REPORT



destea

department of
economic, small business development,
tourism and environmental affairs
FREE STATE PROVINCE

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended 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 **13 February 2020**. 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 and **EAPASA registered** 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.

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13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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 the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

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

Bonsmara Solar PV (RF) (Pty) Ltd is proposing to develop one (1) new 33/132kV on-site substation and switching substation as well as one (1) new associated 132kV overhead power line for the proposed Bonsmara Solar PV Facility (SEF) (part of a separate EIA process / application: **DFFE Reference Number: 14/12/16/3/3/2/2228**) approximately 12km south-east of Kroonstad in the Mophaka Local Municipality and the Fezile Dabi District, in the Free State Province). The overall objective of the proposed development is to generate electricity by means of renewable energy technologies capturing solar energy to feed into the national grid. The grid connection and 33/132kV on-site substation and/or switching substation (this application) (**DESTEA Reference Number: To be allocated**) requires a separate Environmental Authorisation (EA), in order to allow the EA as well as the proposed infrastructure to be handed over to Eskom.

SiVEST Environmental Division has subsequently been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment (BA) process for the proposed construction of the Bonsmara on-site substation / switching substation and associated 132kV Power Line. The proposed development requires an Environmental Authorisation (EA) from the provincial authority (i.e. the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA)). The Environmental Assessment for the proposed development will be conducted in terms of the EIA Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the NEMA. In terms of these regulations, the proposed overhead power line and 33/132kV on-site substation / switching substation would be subject to a BA process in terms of the NEMA (as amended) and Appendix 1 of the EIA Regulations, 2014 (as amended). All relevant legislation and guidelines will be consulted during the BA process and will be complied with at all times.

The grid connection infrastructure which is part of this application is being proposed to feed the electricity generated by the Bonsmara SEF to the national grid. The proposed grid connection infrastructure will be handed over to Eskom once constructed (Eskom grid connection works). The substations will include an Eskom portion (switching station) and an Independent Power Producer (IPP) portion (facility substation), hence the facility substations have been included in the respective SEF EIAs as well as in the associated grid connection infrastructure BA to allow handover to Eskom. The current applicant will remain in control of the low voltage components (more specifically the 33kV yard) of the facility substation, while the high voltage components (i.e. 132kV components) of the facility substation will likely be ceded to Eskom shortly after the completion of construction.

The following properties will be affected by the power line corridor and substations:

- Portion 0 of Farm Scheveningen No. 636
- Portion 1 of Farm Scheveningen No. 636
- Portion 0 of Farm Oslaagte No. 2564

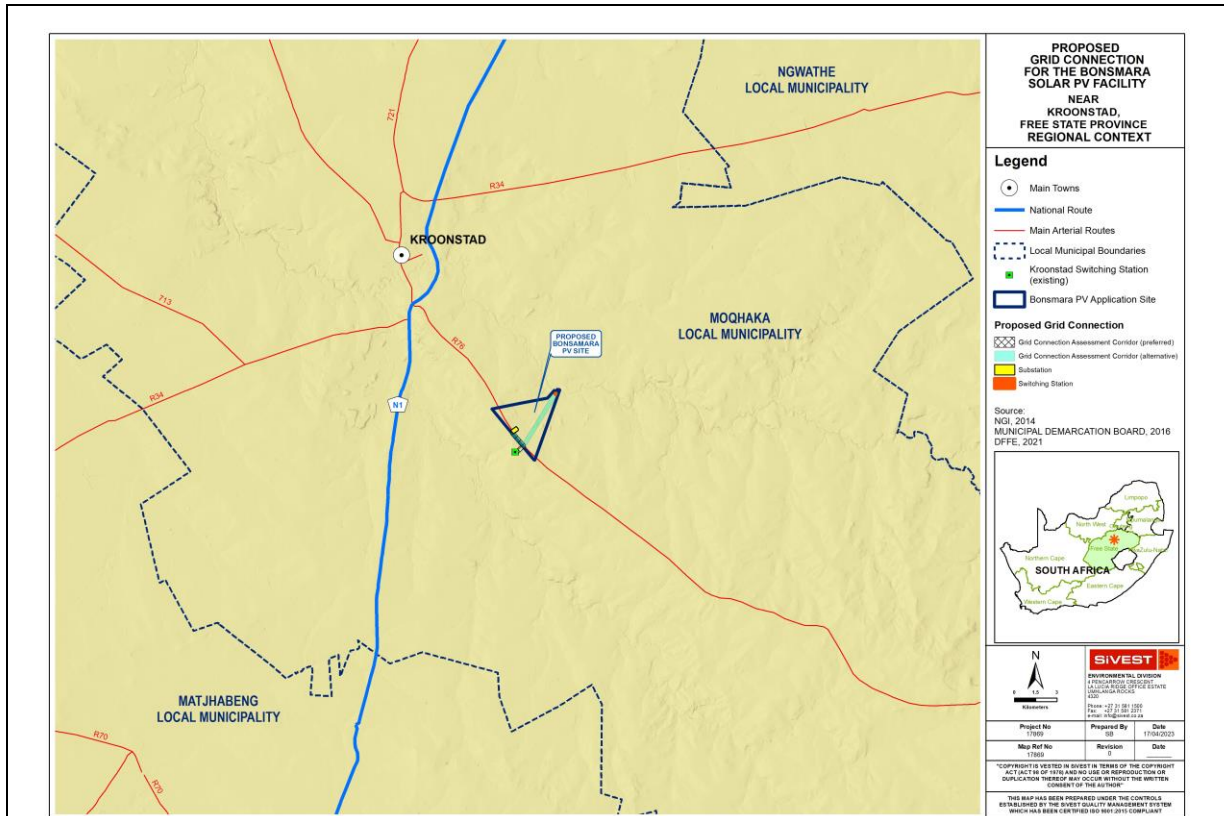


Figure 1: Bonsmara Regional Context

The proposed grid connection infrastructure to serve the Bonsmara SEF (part of separate application) will include the following components:

- One (1) new 33/132kV on-site facility substation and switching substation, occupying an area of up to approximately 1 ha and 0.3 ha respectively. The proposed substation will be a step-up substation and will include an Eskom portion and an IPP portion; and
- One (1) new 132kV overhead power line connecting the on-site substation to the switching substation, thereby feeding the electricity into the national grid. Power line towers being considered for this development include self-supporting suspension monopole or lattice structures for relatively straight sections of the line and angle strain towers where the route alignment bends to a significant degree. Maximum tower height is expected to be approximately 30m and the power line towers will be located 200-400m m apart. The servitude width of the proposed power line towers will be 31m (i.e. 15.5m on either side).

Details of the Alternatives Considered

Two power line route alternatives have been considered and assessed as part of the grid connection infrastructure application; however the applicant is requesting that both alternatives be approved with the understanding that only one will be constructed. The power line corridor route alignment alternatives are shown in **Figure 2**. The alternatives have been comparatively assessed by the respective specialists.

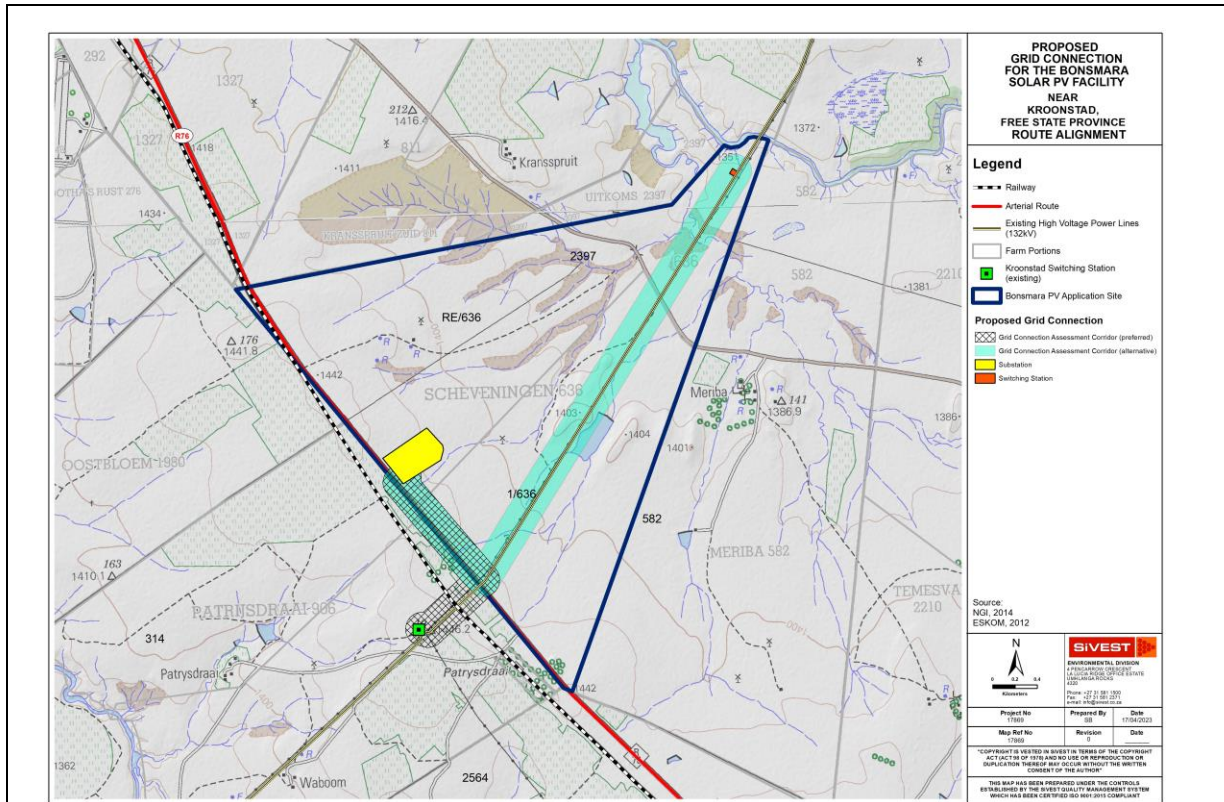


Figure 2: Power Line Corridor Route Alignment Alternatives

In order to feed into the Eskom grid, the 33 kV/132 kV on-site facility substation will have to be connected to an Eskom switching substation with available capacity and the necessary connection infrastructure. The two (2) power line corridor route alignment alternatives are described below.

Preferred Power Line Route (Alternative 1)

The preferred 132kV overhead power line route alignment would be to connect to the existing 132kV Kroonstad Switching Station which is situated to the south-west of the development area. The preferred power line route from the onsite substation to the to the existing 132kV Kroonstad Switching Station will have a length of 1.94km (1940m). The preferred power line follows a shorter route to a grid connection point as compared to Alternative 2 below.

Alternative Power Line Route (Alternative 2)

Alternatively, a loop-in loop-out configuration will be considered on the 132kV overhead power line that crosses through the site. This alternative will also entail the construction of a new switching station. The alternative power line route from the onsite substation to the to the new proposed Switching Station has a length of 5.52km (5520m).

Power line corridors are being assessed to allow flexibility when determining the final route alignment. As mentioned, the power line corridors which are being assessed are up to approximately 300m wide (150m on either side of power line) to allow for flexibility to route the power line within the assessed corridor. Based on the specialist assessments, a few potentially sensitive and/or 'no-go' areas have been identified within the application site. These areas were used to inform the development area for the substation within the application site as well as the routing of the power line corridors. The identified sensitive / 'no-go' areas were also used to perform a comparison of the route alternatives.

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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
<p>GN R. 327 (as amended) Item 11: The development of facilities or infrastructure for the transmission and distribution of electricity—</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</p>	<p>One (1) new on-site substation will be constructed as part of the proposed development. The proposed substation will be located outside urban areas and will have a capacity of 33/132kV. The substation will occupy a footprint of up to 1 ha.</p> <p>The proposed development will also involve the construction of one (1) overhead power line which will be located outside an urban area. The proposed power line will have a capacity of 132kV. The proposed power line will be located outside an urban area.</p> <p>One (1) new switching/collector substation of approximately 0.3 ha will need to be construction should the powerline alternative be constructed.</p>
<p>GN R. 327 (as amended) Item 12: The development of:</p> <p>ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs-</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	<p>The proposed development will entail the construction of an overhead power line. The power line will traverse some of the surface water features / watercourses identified and/or be located within 32m of some of the surface water features / watercourses identified.</p>
<p>GN R. 327 (as amended) Item 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;</p>	<p>Although the layout of the proposed development has been designed to avoid the identified surface water features / watercourses as far as possible, parts of the proposed overhead power line will need to traverse some of the identified surface water features / watercourses. In addition, during construction of the overhead power line, soil will need to be removed from some of the identified surface water features / watercourses.</p>
<p>GN R. 327 (as amended) Item 24: The development of a road -</p> <p>ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres.</p>	<p>Internal roads are required within the application site in order to provide access to the on-site substation. Roads are also required in order to access the proposed overhead power line. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.</p>
<p>GN R. 327 (as amended) Item 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.</p>	<p>The proposed development involves the construction of one (1) new on-site substation which will occupy an area of</p>

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	approximately 1 ha, and one (1) new switching station which will occupy an area of approximately 0.3ha. All vegetation on the substation sites will need to be cleared for construction.
<p>GN R. 327 (as amended) Item 28: 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:</p> <p>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</p>	<p>The proposed development site is currently zoned for agricultural land use, and the area to be developed will be larger than 1ha.</p> <p>It should be noted that according to the Agricultural Compliance Statement (Appendix D), the proposed power line corridor route alignment alternatives have an insignificant impact on agricultural land. This is because agriculture is not excluded from the land underneath a power line, and all agricultural activities can continue completely unhindered underneath a power line.</p>
<p>GN R. 327 (as amended) Item 48: The expansion of-</p> <p>(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more;</p> <p>where such expansion occurs—</p> <p>(a) within a watercourse; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p>	<p>The proposed project may entail the expansion (upgrading) of roads and other infrastructure by 100m² or more within a surface water feature / watercourse or within 32 m from the edge of a surface water feature / watercourse.</p>
<p>GN R. 327 Item 56: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre -</p> <p>(ii) where no reserve exists, where the existing road is wider than 8 metres –</p>	<p>Internal access roads will be required to access the substation and switching station. Existing roads will be used wherever possible, although new roads will be constructed where necessary. The existing access roads will need to be upgraded by widening them more than 6m, or by lengthening them by more than 1km.</p>
Listing Notice 3 (GN R. 324 as amended 7 April 2017)	
<p>GN R. 324 (as amended) Item 4: The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>b. Free State</p> <p>i. Outside Urban Areas:</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere.</p>	<p>The proposed project will require the development of roads wider than 4m with a reserve of less than 13.5m within the Free State Province, outside urban areas. The roads that require widening will be located within NPAES focus area and within 5km of the Erfdeel Private Nature Reserve.</p>
<p>GN R. 324 (as amended) Item 12: The clearance of an area of 300 square metres or more of indigenous vegetation.</p>	<p>The proposed development will entail clearance of more 300m² of indigenous vegetation within a watercourse/wetland or</p>

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<p><u>b. Free State</u> iv. Areas within a watercourse or wetland; or within 100 meters from the edge of a watercourse or wetland.</p>	<p>within 100m of a of watercourse/wetland.</p>
<p>GN R. 324 (as amended) Item 14: The development of –</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</p> <p>where such development occurs –</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p><u>b. Free State</u> i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas</p>	<p>The proposed development will entail the construction of an on-site substation and switching station as well as associated overhead power line and roads with a physical footprint of 10m² or more within a watercourse and/or within 32m of a watercourse within the Free State Province, outside urban areas. The construction will be located within an NPAES focus area, ESA and within 5km of the Erfdeel Private Nature Reserve. The proposed substation will occupy an area of up to approximately 1 ha, and the switching station will occupy an area of approximately 0.3ha.</p>
<p>GN R. 324 (as amended) Item 18: The widening of a road by more than 4 meters, or the lengthening of a road by more than 1 kilometer-</p> <p><u>b. Free State</u> i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas (hh) Areas within a watercourse or wetland; or within 100m from the edge of a watercourse or wetland.</p>	<p>Internal roads are required within the application site in order to provide access to the on-site substation and switching station. Roads are also required in order to access the proposed overhead power line. Existing site roads will be used wherever possible, although new site roads may need to be constructed where necessary.</p> <p>Existing internal roads will thus need to be upgraded as part of the proposed development (where required). Internal roads will be widened by more than 4m or lengthened by more than 1km.</p> <p>These roads located within the application site will occur within the Free State Province, outside urban areas. The upgrading of the roads will be located within the NPAES focus area, within 5km of the Erfdeel Private Nature Reserve and within a wetland/watercourse and/or within 100m from the edge of a watercourse/wetland.</p>
<p>GN R. 324 (as amended) Item 23: The expansion of –</p>	<p>The proposed development may entail the</p>

<p>(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs –</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>b. Free State</p> <p>i. Outside urban areas:</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(gg) Areas within 10 kilometers from national parks or world heritage sites or 5 kilometers from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas</p>	<p>development and expansion of roads by 10m² or more within a watercourses or within 32m from the edge of a watercourses within the Free State Province, outside urban areas. The development and expansion of roads will be located within the NPAES focus area, within 5km of the Erfdeel Private Nature Reserve.</p>
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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) of GN 326, Regulation 2014 as amended. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should

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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

Alternative 1: Preferred Power Line Route		
Description	Lat (DDMMSS)	Long (DDMMSS)
Main onsite substation	27°46'10.08"S	27°18'34.64"E
Existing switching station for preferred power line	27°47'0.23"S	27°18'33.48"E
Alternative 2: Alternative Power Line Route		
Description	Lat (DDMMSS)	Long (DDMMSS)
Main onsite substation	27°46'10.08"S	27°18'34.64"E
New switching station for alternative power line	27°44'49.92"S	27°20'21.06"E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative: **Latitude (S):** **Longitude (E):**

Alternative S1: Preferred Power Line Route

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

27°46'15.67"S	27°18'30.25"E
27°46'40.68"S	27°18'49.83"E
27°47'0.04"S	27°18'34.56"E

Alternative S2: Alternative Power Line Route

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

27°46'15.67"S	27°18'30.25"E
27°45'54.15"S	27°19'33.50"E
27°44'49.43"S	27°20'21.43"E

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

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.

As the route alternatives are longer than 500m, coordinates every 250 metres have 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

Alternative 1: Preferred Power Line Route		
Description	Lat (DDMMSS)	Long (DDMMSS)
The preferred power line route alignment would be to connect to the existing 132kV Kroonstad Switching Station which is situated to the south-west of the development area. The preferred power line route from the onsite substation to the to the existing 132kV Kroonstad Switching Station will have a length of 1.94km (1940m). The preferred power line follows a shorter route to a grid connection point as compared to Alternative 2.	Refer to co-ordinates provided under section 2a) Site alternatives above and in Appendix J .	
Alternative 2: Alternative Power Line Route		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternatively, a loop-in loop-out configuration can be considered on the 132kV overhead power line that crosses through the site. This alternative will also entail the construction of a new switching station. The alternative power line route from the onsite substation to the to the new proposed Switching Station has a length of 5.52km (5520m).	Refer to co-ordinates provided under section 2a) Site alternatives above and in Appendix J .	
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

Comparative Assessment of Alternatives

Please note that while preferred and alternative powerline options have been provided, the applicant is seeking approval for both powerline route alternatives as identified above with the understanding that only one will be constructed. The applicant has requested that both alternatives be approved as its not yet known which of the two solutions Eskom would prefer. A Cost Estimate Letter application has been submitted to Eskom and ideally, the solution that appears in this letter would be constructed.

The specialists have rated the powerline route options comparatively to determine the feasibility of both options. The outcome is as follows:

Key

PREFERRED	The alternative will result in a low impact / reduce the impact / result in a positive impact
FAVOURABLE	The impact will be relatively insignificant
LEAST PREFERRED	The alternative will result in a high impact / increase the impact
NO PREFERENCE	The alternative will result in equal impacts

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	Bonsmara Powerline Route Alternatives	
	Alternative 1 - Preferred Power Line Route	Alternative 2 - Alternative Power Line Route
Agricultural Assessment	No Preference Both alternatives are acceptable in terms of agricultural impact	No Preference Both alternatives are acceptable in terms of agricultural impact
Aquatic Assessment	Preferred This option will only require one short span over a delineated system	Favourable This option will need to span several areas of a watercourse, and could be selected but the final towers positions must be based on the recommendations of the aquatic specialist during the walk down
Avifaunal Assessment	Preferred Since this proposed option is located adjacent to existing infrastructure (such as main roads) where edge effects are already high and sensitivity for avifauna habitat is low, this is preferred.	Least Preferred This alternative transects the site and crosses/ lies adjacent to sensitive habitats. It is significantly more sensitive than Alternative 1.
Geotechnical Assessment	Preferred	Favourable
Heritage Assessment	Preferred	Least Preferred Alternative 2 is NOT preferred from a heritage perspective as it traverses an area that has been identified as having high levels of archaeological sensitivity, and it runs directly through Site KS6 (Grade IIIB).
Social Assessment	No Preference There is no preference on the grid options as no major significant impacts are anticipated.	No Preference There is no preference on the grid options as no major significant impacts are anticipated.
Biodiversity Assessment	Preferred Preferred option as terrestrial biodiversity impact will be less due to shorter length and avoiding traversing various sensitive habitats including hills, watercourses and riverine areas.	Favourable Longer length and presence of several more sensitive habitats including hills, watercourses and riverine habitat will result in a higher terrestrial biodiversity impact. These higher impacts would however not be considered fatal flaws to the alternative overhead powerline.
Visual Assessment	Preferred	Favourable

This alternative will result in altered sense of place and visual quality due to the powerline and pylons as well as light pollution from the substation.	This alternative will result in more impacts when compared to Powerline Alternative 2 (i.e. altered sense of place and visual quality due to the powerline and pylons, as well as light pollution from the substation and the switching station).
<p>The agricultural and social specialist had no preference to the choice of powerline alternative being put forward. The remainder of the specialists identified Alternative 1 as the preferred powerline option. This is as a result of the powerline being shorter and in a less sensitive area than alternative 2.</p> <p>The aquatic, geotechnical, biodiversity and visual specialist identified powerline alternative 2 to be favourable, and while alternative 1 is the preferred, the second alternative was not identified as fatally flawed and could still be considered for approval.</p> <p>The avifaunal and heritage specialist identified powerline alternative 2 to be the least preferred. The avifaunal specialist stated that powerline alternative 2 transects the site and crosses/ lies adjacent to sensitive habitats. The heritage specialist stated that powerline alternative 2 traverses an area that has been identified as having high levels of archaeological sensitivity, as it runs directly through Site KS6 (Grade IIIB). The heritage specialist did however identify that should the alternative grid powerline be approved; the alignment would have to be immediately adjacent to the existing powerline and a micro-siting exercise would have to take place for the pylon footings in order to ensure that significant heritage resources are not impacted.</p>	

c) Technology alternatives

No other activity / technology alternatives are being considered. Renewable energy development in South Africa is highly desirable from a social, environmental and development point of view. Based on the terrain, the climatic conditions and current land use being agricultural, it was determined that the proposed site would be best-suited for a SEF and associated substation and powerline, instead of any other type of renewable energy technology. There is also not enough rainfall in the area to justify a hydro-electric plant and in terms of wind energy, the climatic conditions show that there is not a suitable wind resource for a wind facility. As such, the only feasible technology alternative on this site is SEF with associated infrastructure and as such this is the only technology alternative being considered.

One (1) type of activity is therefore considered (namely 132kV overhead power line and on-site substation and/or switching substation) in order to feed the electricity / energy generated from a renewable source of energy, solar energy (namely, the Bonsmara SEF which is part of a separate EIA process), into the national electricity grid.

Alternative 1 (preferred alternative)
Alternative 2
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

The option of not implementing the activity, or the “no-go” alternative, has been investigated in the BA process. South Africa is under immense pressure to provide clean sources of electricity generating capacity in order to reduce the current electricity demand from aging and polluting coal-fired power stations. With the global focus on climate change, the government is under severe pressure to explore alternative energy sources in addition to coal-fired power stations. Although solar energy is not the only solution to solving the energy crisis in South Africa, not establishing the proposed SEF and associated infrastructure would be detrimental to the mandate that the government has set to promote the implementation of renewable energy. It is a suitable sustainable solution to the energy crisis and this project could contribute to addressing the problem. This project will thus aid in achieving South Africa’s goals in terms of sustainability, energy security, mitigating energy cost risks, local economic development and national job creation.

The ‘no-go’ alternative is the option of not undertaking the proposed grid connection infrastructure project. Hence, if the ‘no-go’ option is implemented, there would be no development. This alternative would result in no environmental impacts from the proposed project on the site or surrounding local area. It provides the baseline against which other alternatives are compared and will be considered throughout the BA process.

The following implications could occur if the no-go alternative is implemented (i.e., the proposed project does not proceed):

Agriculture - The no go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. The one identified potential such impact is that due to non-regular rainfall in the area, which is likely to be exacerbated by climate change, agriculture in the area will come under increased pressure in terms of economic viability.

The development offers an alternative income source to agriculture, however agriculture is not excluded from the land underneath a power line, and all agricultural activities can continue completely unhindered underneath a power lines. However, the no go option would prevent the proposed development from contributing positive agricultural impacts to the farm as well as contributing to the environmental, social and economic benefits associated with the development of renewable energy in South Africa.

Aquatic - Should the project not proceed, then current status quo with regard the environment would remain unchanged. Overall, the area is largely in a natural state. But present-day impacts do occur in localised areas and included the following:

- Increase in unpalatable species due to past grazing activities

- Erosion as a result of road crossings;
- Several farm dams; and
- Undersized culverts within present day road crossings.

Social - There is a high negative impact from a social perspective for the no-go alternative. The option of not proceeding with the project implies that all the potential benefits, such as clean, readily available and cheaper electricity, will not materialise. Moreover, the new investments that may see an improvement in the infrastructure, new job creation, skills transfer, and enhancement of the national grid with renewable energy sources would not materialize.

Visual - The No Go alternative entails no change to the status quo, in other words, no PV facility and / or 132 kV powerline. Should the application for the Bonsmara 100 MW PV Facility and associated infrastructure be refused the visual impacts will not be realised.

The no-go alternative is not currently the preferred alternative.

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:

Alternative A1: Preferred Power Line Route – size of onsite substation

Alternative A2: Alternative Power Line Route – site of onsite substation and new switching station

Alternative A3 (if any)

Size of the activity:

10 000 m ²
13 000 m ²
m ²

or, for linear activities:

Alternative:

Alternative A1: Preferred Power Line Route – length of preferred power line route

Alternative A2: Alternative Power Line Route – length of alternative power line route

Alternative A3 (if any)

Length of the activity:

1 940 m
5 520 m
m

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

Alternative:

Size/Length of the site/servitude:

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

Alternative A1: Preferred Power Line Route – *servitude width of preferred power line tower*

31m (15.5m on either side)

Alternative A2: Alternative Power Line Route – *servitude width of alternative power line tower*

31m (15.5m on either side)

Alternative A3 (if any)

m ²

4. SITE ACCESS

Does ready access to the site exist?

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

	m
--	---

Describe the type of access road planned:

The main access for the Bonsmara SEF is off the regional tarred R76 which lies adjacent to the site. Internal access roads will then be required to access the solar PV panels and substations/switching station. The site and internal roads will have a width of up to approximately 6 m and will consist of both new roads and roads that will be upgraded.

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

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.

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.

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**.

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.

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.

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?	NO	Please explain
<p>The proposed site is currently zoned as agriculture. The Agricultural Compliance Statement indicated that in order for South Africa to develop the renewable energy generation that it urgently needs, agriculturally zoned land will need to be used for renewable energy generation. It is far more preferable to incur a cumulative loss of agricultural land in a region such as the one being assessed, which has no crop production potential, and low grazing capacity, than to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy development elsewhere in the country.</p>		
2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)	YES	Please explain
<p>The Free State PSDF gives practical effect to sustainable development, which is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to sustainable economic development objectives of the Free State PSDF, through the generation of clean energy and creation of jobs and business opportunities.</p>		
(b) Urban edge / Edge of Built environment for the area	NO	Please explain
<p>The proposed construction of the Bonsmara On-site Substation / Switching Substation and associated 132kV Power Line is located outside of the urban edge.</p>		
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g., would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	Please explain
<p>The need for sustainable, clean energy supply, nationally, is also applicable in the Moqhaka municipal area. The Moqhaka Local Municipality IDP (2022-2027) notes that while 98% of households within the municipality have access to electricity, there is a need for the expansion of public lighting. The proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country. Furthermore, the roll out of solar energy in applicable municipal areas was identified as a key strategy to address KPA 1: Service Delivery and Infrastructure Development of the Moqhaka Local Municipality.</p>		
(d) Approved Structure Plan of the Municipality	NO	Please explain
Not applicable.		

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<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>		NO	Please explain
<p>The 2013 Moqhaka Local Municipality Environmental Management Framework report (most recent report) identifies the agricultural potential of farm portions that make up the development area as low arable, low cultivation with good grazing potential.</p> <p>In terms of sensitives, the site is located entirely within the Central Free State Grassland (having least concern conservation status). Development of a portion of the site will thus not significantly affect conservation targets for the affected vegetation unit(s).</p> <p>The terrestrial specialist confirmed that, due to having a low conservation status, the grassland habitat is deemed to have a moderate sensitivity status and would provide a suitable footprint for the proposed activity, bearing in mind watercourse and ecological process and connectivity buffers which have been incorporated into the design to incorporate an undeveloped network for connectivity purposes within the site and the surrounding landscape.</p> <p>The layout has, to a large degree, avoided any sensitive aquatic features and associated buffer areas, significantly reducing the potential overall impact and risk to aquatic resources on the study site. The aquatic specialist has stated that the only exception to development within the no-go areas is road crossings and transmission lines provided they adhere to the recommendations as contained in the EMPr and are suitably mitigated.</p> <p>The avifaunal specialist confirmed that overall, there are no reasons why an environmental authorisation shouldn't be granted provided the recommendations provided in the report are met. The overall low significance post-mitigation should be interpreted that the project risks are within acceptable levels.</p> <p>The municipality has been contacted to confirm whether the EMP has been adopted by the council. To date they are unable to advise if the EMF has been adopted by the competent authority.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>		YES	Please explain
<p>Refer to <i>Section 11: Applicable Legislation, Policies, and/or Guidelines</i> below.</p>			

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<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<p>YES</p>		<p>Please explain</p>
<p>The need for sustainable, clean energy supply, nationally, is also applicable in the Moqhaka municipal area. The Moqhaka Local Municipality IDP (2022-2027) notes that while 98% of households within the municipality have access to electricity, there is a need for the expansion of public lighting. The proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country. Furthermore, the roll out of solar energy in applicable municipal areas was identified as a key strategy to address KPA 1: Service Delivery and Infrastructure Development of the Moqhaka Local Municipality.</p>			
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g., development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES</p>		<p>Please explain</p>
<p>Due to the current electricity shortages and the increasing demand for energy at a national scale, the proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country. The proposed project will contribute to job opportunities.</p>			
<p>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.)</p>		<p>NO</p>	<p>Please explain</p>
<p>Service level agreements have not yet been obtained. The applicant will approach the municipality at a later state closer to bidding to get all the necessary confirmations.</p>			
<p>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.)</p>		<p>NO</p>	<p>Please explain</p>
<p>The construction of the Bonsmara On-site Substation / Switching Substation and associated 132kV Power Line is proposed by a private developer, Bonsmara Solar PV (RF) (Pty) Ltd and has therefore not been included in the infrastructure planning of the Moqhaka Local Municipality. It should be noted that the proposed development which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to the national grid, which, in turn, will add to the supply of electricity for communities within the Moqhaka Municipality as well as across the country, as a whole.</p>			
<p>The Moqhaka Local Municipality will be invited to provide comments on the Draft BA Report with regards to the proposed development.</p>			

<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>In 2010, South Africa had 44,157 MW of power generation capacity installed. Current forecasts indicate that by 2025, the expected growth in demand will require the current installed power generation capacity to be almost doubled to approximately 74,000 MW (SAWEA, 2010). This growing demand, fuelled by increasing economic growth and social development within Southern Africa, is placing increasing pressure on South Africa's existing power generation capacity. Coupled with this, is the growing awareness of environmental impact, climate change and the need for sustainable development. Despite the worldwide concern regarding Greenhouse Gas (GHG) emissions and climate change, South Africa continues to rely heavily on coal as its primary source of energy, while most of the countries renewable energy resources remain largely untapped (DME, 2003). There is therefore an increasing need to establish a new source of generating power in SA within the next decade.</p> <p>The use of renewable energy technologies, as one (1) of a mix of technologies needed to meet future energy consumption requirements is being investigated as part of Eskom's long-term strategic planning and research process. It must be remembered that solar energy is plentiful, renewable, widely distributed, clean and reduces GHG emissions when it displaces fossil-fuel derived from electricity. In this light, renewable solar energy can be seen as desirable.</p> <p>The REIPPP programme and the competitive nature of the bidding process has resulted in significant lowering of solar and wind tariff prices since 2011. Further projects will increase the competitive nature of the REIPPP program and further result in cost savings to South African consumers.</p>			
<p>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.)</p>	<p>YES</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>The proposed project site is required to support a solar energy facility (SEF). The site has been identified as a favourable location for a SEF. The selection of a potential site for the proposed solar PV energy facility included several key aspects, namely solar resource, climate, topography, environmental, grid connections and access to the site. As mentioned, the proposed project site has been identified through a pre-feasibility desktop analysis based on the estimation of the solar energy resource as well as other determining factors.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>The proposed project site is required to support a solar energy facility (SEF). The site has been identified as a favourable location for a SEF. It has been identified through a pre-feasibility desktop analysis based on the estimation of the solar energy resource as well as other determining factors. According to the Photovoltaic Power Potential map (2020 <i>The World Bank, Source: Global Solar Atlas 2.0, Solar resource data: Solargis</i>), the Free State has a very high solar potential when compared to other provinces. The project site is thus suitable for the establishment of the proposed solar PV energy facility. Based on an estimation of the solar energy resource as well as pre-feasibility studies conducted by the applicant, the site has been identified as optimal for the proposed development.</p> <p>The negative environmental impacts associated with the proposed development can be mitigated to acceptable levels.</p>			

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	Please explain
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The proposed project will assist in reducing South Africa’s overall environmental footprint from power generation (including externality costs), and thereby steer the country on a pathway towards sustainability. The proposed development will provide socio-economic benefits to the region it is situated in and will have a high commercial attractiveness. The negative environmental impacts associated with the proposed development can be mitigated to acceptable levels.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	Please explain
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The map below illustrates the existing and proposed renewable projects within 35km of the Bonsmara Solar Energy Facility and associated infrastructure development.

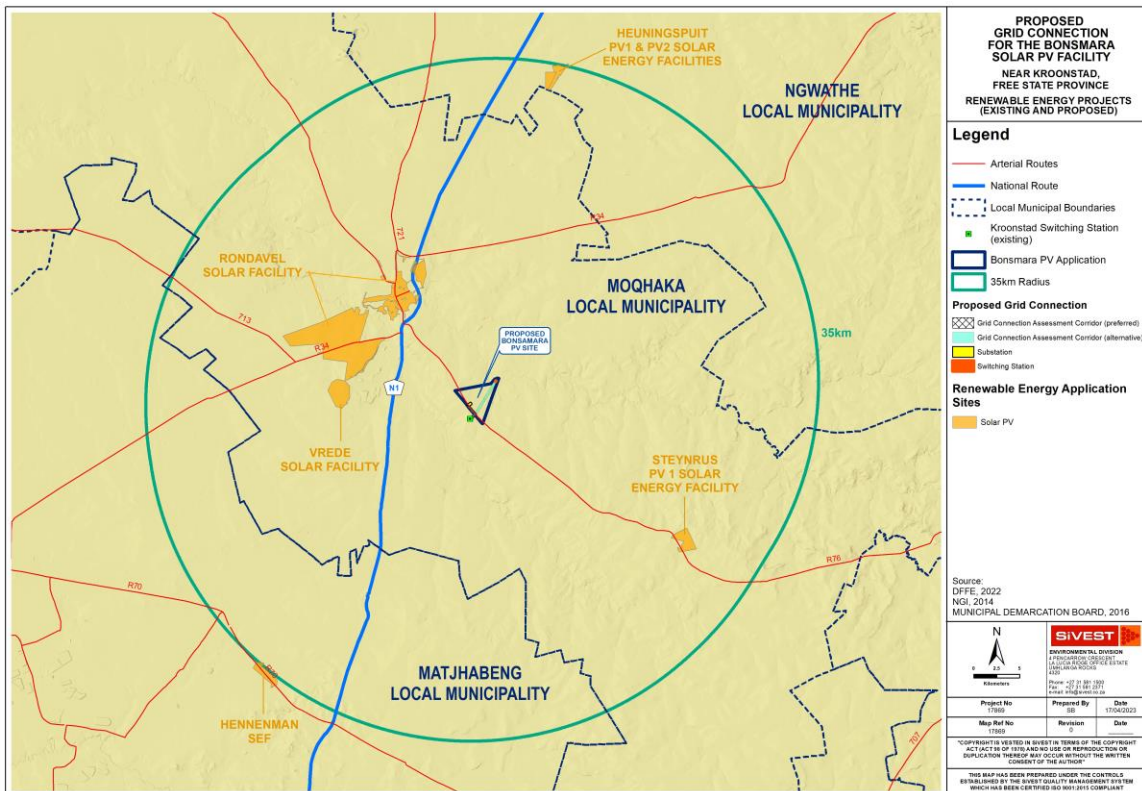


Figure 3: Proposed and existing renewable energy projects

12. Will any person’s rights be negatively affected by the proposed activity/ies?	NO	Please explain
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All affected landowners have been made aware of the proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process). No objections have been received to date.

13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?	NO	Please explain
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The proposed development falls outside of the urban edge.

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?		NO	Please explain
The proposed development does not contribute to any of the Strategic Integrated Projects (SIPs).			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p><u>Stimulate the economy</u></p> <p>A significant portion of the capital expenditure envisaged for the project will be spent on procurement of goods and services within South Africa and specifically within the Free State Province. If goods and services are procured locally (i.e. within South Africa), it increases the production of the respective industries. This has a positive impact on the national economy and economies of the municipalities where inputs are procured.</p> <p>The proposed development has the potential to stimulate the demand for other industries, among others construction services, engineering service, transport services, steel structures, cement and other aggregates, and electrical equipment. At the local level, increase in demand for accommodation, personal services, perishable and non-perishable goods is expected, which will stimulate the local economies of the towns and settlements, where labour will be procured from or where migrant workers will be temporarily located.</p> <p>Some of the local businesses could benefit from sub-contracting opportunities, if the construction companies appointed by the developer implement a local community procurement policy, and consumer expenditure of the construction crew. Furthermore, the demand for hospitality services (including accommodation and catering in the town of Kroonstad and other nearby towns) is expected to increase and provide for much-needed stimulus for the local economy.</p> <p><u>Job opportunities and household livelihoods</u></p> <p>Solar energy projects and associated infrastructure create both temporary and permanent job opportunities in South Africa for both skilled and unskilled workers. According to the Social Impact Assessment, the proposed development will create employment opportunities for both skilled and unskilled workers during the construction stage. If recruitment processes are efficiently managed, work opportunities can be localised as much as possible, with a trend visible in the industry that local people will be most ready to take up unskilled jobs, while employment requiring specialised skills tends to attract specialists from across the country. Business opportunities associated with the construction phase may also be open for local enterprises, especially in the supply of goods and services, such as food and other essential supplies.</p> <p>In addition to those benefitting from direct employment created at the project, various multiplier effects will assist in temporarily supporting existing jobs in the businesses offering services and goods that will be procured during construction activities. The increased temporary income earned by these businesses will, in turn, stimulate consumer spending, creating another round of multiplier effect, positively impacting on the employment situation in the area. There will be opportunities for skills development (refer below) and training.</p> <p><u>Skills development</u></p> <p>In addition to the job creation, there is valuable opportunities for skills enhancement/development/ training and knowledge transfer as quite often input from experts are required in this field. Therefore,</p>			

opportunities for guiding and training of local workers is created. A variation of skill sets is required ranging from semi-skilled construction workers to highly skilled engineers. The skill set of the majority of the municipality's residents comprises of low-skills, which means that with proper planning and recruitment strategies, many of the local unemployed residents could be hired as temporary construction workers on site provided they satisfy any other recruitment criteria.

Those employed will either develop new skills or enhance current skills. This insinuates that inexperienced workers will have the opportunity to attain and develop new skills, while experienced workers will further improve their existing skills. Albeit the employment is temporary, the skills attained will be of long-term benefit to employees. However, as any skills set it will need to be supported and practised on a regular basis to maintain its currency.

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

In support of the need to find solutions for the current electricity shortages, the increasing demand for energy, as well as the need to find more sustainable and environmentally friendly energy resources, South Africa has embarked on an infrastructure growth programme supported by various government initiatives. These include the National Development Plan (NDP), the Presidential Infrastructure Coordinating Commission (PICC), the DoE's IRP, the National Strategy for Sustainable Development, the National Climate Change Response White Paper, the Presidency of the Republic of South Africa's Medium-Term Framework, and the National Treasury's Carbon Tax Policy Paper.

The Government's commitment to growing the renewable energy industry in South Africa is also supported by the White Paper on Renewable Energy (2003) which sets out the Government's principals, goals and objectives for promoting and implementing renewable energy in South Africa. In order to achieve the long-term goal of achieving a sustainable renewable energy industry, the DoE has set a target of contributing 17,8GW of renewable energy to the final energy consumption by 2030. This target is to be produced mainly through, wind and solar; but also through biomass and small scale hydro (DME, 2003; IRP, 2010). Further renewable energy targets have been proposed within the latest IRP, which was gazetted in 2019.

The 2019 Integrated Resource Plan (2019) (IRP2019) was released on 18 October 2019 and includes the following capacity allocation:

- 1 500 MW of new coal power (noting that there will be decommissioning of coal capacity over the period);
- 2 500 MW of hydro power;
- 6 000 MW solar;
- 14 400 MW wind;
- 2 000 MW of storage;
- 3 000 MW from gas.

Site Suitability

The selection of a potential site for the proposed SEF and Grid connection included several key

aspects, namely solar resource, climate, topography, environmental, grid connections and access to the site. As mentioned, the proposed project site has been identified through a pre-feasibility desktop analysis based on the estimation of the solar energy resource as well as other determining factors.

Site Access

The main access route to the proposed Bonsmara SEF and associated infrastructure is the regional tarred road (R76) which runs adjacent to the proposed site. The site therefore has good access and is situated approximately 12km from the town of Kroonstad.

Topography

The site identified for the Bonsmara Grid is relatively flat, homogenous and north facing which is preferential for a solar facility in South Africa.

Environmental

The applicant conducted an extensive environmental screening/pre-feasibility process using various available desktop data and tools to determine the suitability of the site.

Furthermore, key environmental specialists were consulted with to identify any potential impacts/environmental constraints which may be associated with a proposed development at the onset of the project. An agricultural specialist, terrestrial ecologist and freshwater ecologist were appointed to undertake detailed pre-feasibility assessments which was used to determine the preliminary layout which has taken into account most of the environmental sensitivities from the onset. The National Department of Environmental Affairs (DEA) screening tool was also utilized to generate a site sensitivity report for the proposed project to guide the level of specialist input that would be required.

Land Availability

While the proposed project site is not located in an identified REDZs, the development of the proposed project is still considered to be important for South Africa as it will reduce the country's overall environmental footprint from power generation (including externality costs), and thereby steer the country on a pathway towards sustainability. The proposed development will provide socio-economic benefits to the region it is situated in and will have a high commercial attractiveness. In addition, the negative environmental impacts associated with the proposed development can be mitigated to acceptable levels.

In terms of the agricultural assessment, the land was assessed as being of insufficient land capability for viable and sustainable future crop production. The cropping potential of the site is limited by the shallow soils limited by dense clay and weathered bedrock in the subsoil. As such, it is not envisioned that farming activities will be negatively impacted by the proposed development.

Access to Grid

Grid connection suitability is the next fundamental element which drives the project location. The proposed project site has good grid connection potential and is in close proximity to a grid connection.

<p>17. How does the project fit into the National Development Plan for 2030?</p>	<p>Please explain</p>
<p>The National Development Plan (NDP), 2011 – 2030, aims to address parts of the South African triple development challenges of poverty and inequality by 2030. In order to achieve this, numerous enabling milestones and critical actions have been formulated. One (1) of the critical actions is the formulation and implementation of interventions that aim to ensure environmental sustainability and resilience to future shocks.</p> <p>The emphasis is on South African investment and assistance in the exploitation of various opportunities for low-carbon energy in the clean energy sources of Southern Africa (National Planning Commission, 2011).</p> <p>A more efficient and competitive infrastructure is envisaged, particularly infrastructure that facilitates economic activity and is conducive to growth and job creation. The plan identifies key services that need strengthening; namely commercial transport, energy, telecommunications and water, while ensuring their long-term affordability and sustainability. The National Planning Commission maintains that South Africa has missed a generation of capital investment in many infrastructure opportunities including electricity. Therefore, one (1) infrastructure investment priority is in the procurement of at least 20,000 MW of renewable energy-efficiency (National Planning Commission, 2011).</p>	
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>	
<p>The project has identified the environmental, socio-economic and heritage risks associated with the proposed developments and identified the impacts associated with the proposed activity. In line with the risks/impacts identified, mitigation measures have been recommended to mitigate the negative impacts associated with the proposed development. The developer has taken the sensitivities identified by the specialists and designed a layout that avoids all sensitivities as far as possible. Public participation is being conducted in terms of Regulation 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended.</p>	
<p>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</p>	
<p>The project has taken the principles of environmental management into account. All sensitivities identified by the specialist have been taken into account and avoided as far as possible. If avoidance was not possible, as is the case with the crossing of some watercourse with roads for example, mitigation measures have been provided by the specialist to reduce the impact as far as possible. The proposed development will not have a significant impact on the environment which has been outlined in the impact assessment undertaken by the specialists, with the majority of impacts being low. The proposed project will also serve and is supporting a renewable energy project.</p> <p>An Environmental Management Programme has been compiled and it is recommended that this plan be adhered to accordingly during Planning, Construction and Operational Phases. A full public participation process as prescribed in the legislation is being undertaken to ensure that all I&APs have a chance to be involved in the decision-making process, and to take into account the interest, needs and values of all involved.</p>	

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Constitution of the Republic of South Africa (Act 108 of 1996)	<p>The Constitution sets the legal context in which environmental law in South Africa occurs and was formulated. It has enhanced the status of the environment by virtue of the fact that an environmental right has been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management.</p> <p>Section 24 of the Constitution states that: <i>“Everyone has the right –</i></p> <ul style="list-style-type: none"> • <i>To an environment that is not harmful to their health or well-being; and</i> • <i>To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:</i> <ul style="list-style-type: none"> ○ <i>Prevent pollution and ecological degradation;</i> ○ <i>Promote conservation and</i> ○ <i>Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</i> 	Head of State of the Republic of South Africa	18 th December 1996
National Environmental Management Act, (Act 107 of 1998)	<p>NEMA is the overarching legislation which governs the BA process and environmental management in South Africa. Sections 24 and 44 of 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.</p> <p>According to Section 2(3) of NEMA <i>“development must be socially, environmentally and economically sustainable”</i>, which means the integration of these three factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.</p>	DFFE	27 th November 1998
2014 Environmental Impact Assessment (EIA) Regulations (as amended)	These Regulations identify lists of activities which have the potential to result in detrimental environmental impacts and thus require EA, subject to either “Basic Assessment” or “Scoping and Environmental Impact Assessment”. The Regulations prescribe the procedural and substantive	DFFE / FS DESTEA	8 th December 2014

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	<p>requirements for the undertaking of EIAs and the issue of EA's.</p> <p>The proposed project triggers listed activities under Listing Notice 1 and 3, and thus requires an EA subject to a Basic Assessment (BA) Process.</p>		
<p>Environmental Impact Assessment (EIA) Guideline for Renewable Energy Projects, DFFE Notice 989 of 2015</p>	<p>The purpose of this document is primarily to provide guidance on the environmental management legal framework applicable to renewable energy operations and all the role players in the sector. This guideline seeks to identify activities requiring authorisation prior to commencement of that activity and provide an interface between national EIA Regulations and other legislative requirements of various authorities.</p> <p>As the proposed development is for electricity distribution infrastructure (namely an onsite substation and power lines) which will serve the Bonsmara SEF (part of a separate EIA process), it is subject to the recommendations proposed in the guidelines.</p>	<p>DFFE</p>	<p>2015</p>
<p>National Water Act (Act 36 of 1998)</p>	<p>This Act provides a framework to protect water resources against over exploitation and to ensure that there is water for socio-economic and economic development, human needs and to meet the needs of the aquatic environment.</p> <p>Due to the possible encroachment into the wetland areas, the following Section 21 water uses in terms of the NWA may be triggered and require licensing: (c) impeding or diverting the flow of water in a watercourse; and (i) altering the bed, banks, course or characteristics of a watercourse</p> <p>In light of the above, there are a number of stipulations within the NWA that are relevant to the potential impacts on rivers, streams and wetlands that may be associated with the proposed development. An Aquatic / Freshwater Impact Assessment (Appendix D) has been conducted to explore how the proposed development may impact on identified water resources as protected by the Act. Should the proposed development require a General Authorisation (GA) or Water Use Licence (WUL), it will be determined and applied for separately prior to construction.</p>	<p>DWS</p>	<p>26th August 1998</p>
<p>National Heritage Resources Act 1999 (Act 25 of 1999)</p>	<p>This Act promotes good management of the heritage resources of South Africa which are deemed to have cultural significance and to enable and encourage communities to ensure that these resources are maintained for future generations.</p> <p>This Act requires investigation to determine the</p>	<p>SAHRA / FS Provincial Heritage Authority</p>	<p>28th April 1999</p>

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	<p>impact of heritage resources when developments exceed the thresholds listed in Section 38 (1) of the act. The proposed development will entail the (a) the construction of a power line exceeding 300m in length, (c) the development of grid connection infrastructure (substation) that will change the character of more than 0.5ha, and (d) the rezoning of a site that will exceed 1 ha.</p> <p>Within the scope of this project, Section 38 of the act states that, an assessment of potential heritage resources in the development area needs to be done. A Heritage Impact Assessment (HIA), Archaeological Impact Assessment (AIA), and Paleontological Impact Assessment (PIA) (Appendix D) have therefore been commissioned to explore how the proposed development may impact on heritage resources and potential cultural artefacts as protected by the act.</p>		
National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004, as amended)	<p>As the principal national act regulating biodiversity protection, NEM:BA is concerned with the management and conservation of biological diversity, as well as the use of indigenous biological resources in a sustainable manner.</p> <p>In terms of this Act, the developer has a responsibility to:</p> <ul style="list-style-type: none"> • Conserve endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations); • Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all development within the area is in line with ecological sustainable development and protection of biodiversity; and • Limit further loss of biodiversity and conserve endangered ecosystems <p>A Terrestrial Biodiversity Assessment (Appendix D) has been conducted to explore how the proposed development may impact on biodiversity as protected by the Act.</p> <p>In addition, all relevant conservation departments (such as the SANBI and DENC) will be invited to provide comments with regards to the proposed development.</p>	DFFE	7 th June 2004
National Environmental Management: Protected Areas Act,	<p>The overarching aim of NEM:PAA, is to provide for:</p> <ul style="list-style-type: none"> • the declaration and management of protected areas; • co-operative governance in the declaration and 	DFFE	18 th February 2004

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2003 (Act No.57 of 2003 as amended)	<p>management of protected areas</p> <ul style="list-style-type: none"> • effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity; • a representative network of protected areas on state land, private land and communal land; • promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas; • promote participation of local communities in the management of protected areas, where appropriate; and • the continued existence of South African National Parks. <p>The proposed project is located adjacent to the Erfdeel Private Nature Reserve which is identified as a protected area.</p>		
National Forest Act (NFA) (Act No. 84 of 1998)	<p>The National Forest Act (NFA) (Act No. 24 of 1998) was enacted to:</p> <ul style="list-style-type: none"> • Provide for the protection, management and utilisation of forests; • The protection of certain plant and animal life; • The regulation of trade in forest produce; and • The control and management of a national hiking way system and National Botanic Gardens. <p>The NFA is relevant to the proposed development as the removal and/or disturbance and/or clearance of indigenous vegetation will be required and a license in terms of the NFA may be required for this to be done.</p> <p>A Terrestrial Biodiversity Assessment (Appendix D) has been conducted to explore how the proposed development may impact on vegetation as protected by the Act.</p> <p>In addition, all relevant conservation departments (such as the SANBI and DENC) will be invited to provide comments with regards to the proposed development.</p>	DFFE	30 th October 1998
National Veld and Forest Fire Act (Act No. 101 of 1998)	<p>Provides requirements for veldfire prevention through firebreaks and required measures for firefighting. Chapter 4 of the Act places a duty on landowners to prepare and maintain firebreaks. Chapter 5 of the Act places a duty on all landowners to acquire equipment and have available personnel to fight fires.</p>	DFFE	19 th November 1998
Conservation of Agricultural Resources Act (CARA) (Act No. 43 of 1983)	<p>CARA controls the utilisation of natural agricultural resources in South Africa. The Act promotes the conservation of soil, water sources and vegetation as well as the combating weeds and invader plants. The Act requires the protection of land against soil erosion</p>	DALRRD	27 th April 1983

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	<p>and the prevention of water logging and salinization of soils by means of suitable soil conservation works to be constructed and maintained. The utilisation of marshes, water sponges and watercourses are also addressed.</p> <p>An Agricultural and Soils Site Verification (Appendix D) has been conducted to explore how the proposed development may impact on the agricultural production potential of the proposed site.</p>		
National Road Traffic Act (NRTA) (Act No. 93 of 1996, as amended)	<p>This act provides for all road traffic matters and is applied uniformly throughout South Africa. The Act enforces the necessity of registering and licensing motor vehicles. It also stipulates requirements regarding fitness of drivers and vehicles as well as making provision for the transportation of dangerous goods.</p> <p>All the requirements stipulated in the NRTA will need to be complied with during the construction and operational phases of the proposed development.</p>	DOT	22 nd November 1996
Civil Aviation Act (CAA) (Act No. 13 of 2009)	<p>This act controls and regulates aviation within South Africa. It gives effect to various conventions related to aircraft offences, civil aviation safety and security, and provides for additional measures directed at more effective control of the safety and security of aircrafts, airports and matters connected thereto.</p> <p>Although the Act is not directly relevant to the proposed development, it should be considered as the establishment of electricity distribution infrastructure (such as a substation and power lines) may impact on aviation and air traffic safety, if located directly within aircraft flight paths.</p>	South African Civil Aviation Authority	27 th May 2009
Astronomy Geographic Advantage Act (Act No. 21 of 2007)	<p>This act provides for:</p> <ul style="list-style-type: none"> • The preservation and protection of areas that are uniquely suited for optical and radio astronomy; and • Intergovernmental cooperation and public consultation on matters concerning nationally significant astronomy advantage areas and matters connected therewith. <p>Under Section 22(1) of the Act, the Minister has the authority to protect the radio frequency spectrum for astronomy observations within a core or central astronomy advantage area. As such, the Minister may under section 23(1) of the Act, declare that no person may undertake certain activities within a core or central Astronomy Advantage Area (AAA).</p> <p>Even though the proposed development falls outside the respective AAAs, the relevant authorities,</p>	DoSI	17 th June 2008

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	including the Square Kilometre Array (SKA) and South African Large Telescope (SALT), will be consulted throughout the BA process.		
National Energy Act (Act No. 34 of 2008)	This act has, as one (1) of its key objectives, the promotion of diversity of supply of energy and its sources. From this standpoint, the Act directly references the importance of the renewable energy (RE) sector, with a mention of the solar energy sector included. The aim is to ensure that the South African economy is able to grow and develop, fast-tracking poverty alleviation, through the availability of a sustainable, diverse energy mix. Moreover, the goal is to provide for the increased generation and consumption of RE.	DMRE	24 th November 2008
Electricity Regulation Act (Act No. 4 of 2006)	In 2011, the electricity regulation on new generation capacity was published under Section 35(4) of the Electricity Regulation Act (ERA) (Act No. 4 of 2006). These regulations apply to the procurement of new generation capacity by organs of state. The Act establishes a National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licenses and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated.	DMRE / NERSA	5 th July 2006
Protection of Public Information Act (Act No. 4 of 2013)	The act promotes “the protection of personal information processed by public and private bodies; to introduce certain conditions so as to establish minimum requirements for the processing of personal information; to provide for the establishment of an Information Regulator to exercise certain powers and to perform certain duties and functions in terms of this Act and the Promotion of Access to Information Act, 2000 (PAIA); to provide for the issuing of codes of conduct; to provide for the rights of persons regarding unsolicited electronic communications and automated decision making; to regulate the flow of personal information across the borders of the Republic; and to provide for matters connected therewith”.	SAIR	26 th November 2013
Renewable Energy Development Zones and Strategic Transmission Corridors	The Strategic Environmental Assessment (SEA) for Wind and Solar PV Energy in South Africa (CSIR, 2015) originally identified eight (8) formally gazetted Renewable Energy Development Zones (REDZs) that are of strategic importance for large-scale wind and solar PV development in terms of Strategic Integrated Project 8: Green Energy in Support of the South African Economy, as well as associated strategic		

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	<p>transmission corridors, including the rollout of its supporting transmission and distribution infrastructure, in terms of Strategic Integrated Project 10: Electricity Transmission and Distribution. In addition to the eight (8) formally gazetted REDZs mentioned above, the Phase 2 SEA for Wind and Solar Photovoltaic Energy in South Africa (2019) identified three (3) additional REDZs (namely REDZ 9, REDZ 10 and REDZ 11) that are of strategic importance for large scale wind and solar photovoltaic energy development.</p> <p>It should be noted that the proposed project is not located within a REDZ and will be subject to a BA process in terms of the NEMA, as amended, and the EIA Regulations, 2014 (as amended).</p>		
White Paper Renewable Energy (2003)	<p>This is a 'policy that envisages a range of measures to bring about integration of renewable energies into the mainstream energy economy.'</p> <p>Since the White Paper was gazetted, South Africa's primary and secondary energy requirements have remained heavily fossil-fuel dependent, both in terms of indigenous coal production and use, as well as the use of imported oil resources. Alongside this, the projected electricity demand of the country has led the National utility Eskom, to embark upon an intensive build programme to secure South Africa's longer-term energy needs, together with an adequate reserve margin.</p>	DMRE	14 th May 2004
National Development Plan (NDP) (2011 – 2030)	<p>The NDP aims to address parts of the South African triple development challenges of poverty and inequality by 2030. In order to achieve this, numerous enabling milestones and critical actions have been formulated. One (1) of the critical actions is the formulation and implementation of interventions that aim to ensure environmental sustainability and resilience to future shocks. The emphasis is on South African investment and assistance in the exploitation of various opportunities for low-carbon energy in the clean energy sources of Southern Africa.</p> <p>The NPC maintains that South Africa has missed a generation of capital investment in many infrastructure opportunities including electricity. Therefore, one (1) infrastructure investment priority is in the procurement of at least 20,000 MW of renewable energy-efficiency.</p>	National Planning Commission / Department of the Presidency	2030
Free State Provincial Growth and Development Strategy (FSDS) (2005 - 2014)	<p>Based on the social and economic development challenges of the province, the strategy identifies a few primary objectives, including stimulating economic development and developing and enhancing the infrastructure for economic growth and social development, poverty alleviation through</p>	Free State Province	2005 - 2014

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	<p>human and social development, ensuring a safe and secure environment for all, and the promotion of effective and efficient governance and administration.</p> <p>The development of the energy and infrastructure development supports the overall objective of stimulating economic development and infrastructure investment towards growth and social development, by contributing to the energy mix, supply and infrastructure of the province. The development of the facility will also contribute to the alleviation of poverty through the creation of direct and indirect employment opportunities.</p>		
Free State Provincial Spatial Development Framework (PSDF) - Executive Summary (Inception Report)	<p>The PSDF gives practical effect to sustainable development, which is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.</p> <p>The proposed development is for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), thus will contribute to sustainable economic development objectives of the Free State PSDF, through the generation of clean energy and creation of jobs and business opportunities.</p>	Free State Province	
Free State Green Economy Strategy (2014)	<p>The objective of this strategy was to develop a green economy strategy to assist the province to, inter alia, improve environmental quality and economic growth, and to develop green industries and energy efficiency within the province. The proposed development is for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), thus will contribute to the aim of energy efficiency and green industry while promoting economic growth and is therefore consistent with this strategy.</p>	Free State Province	2014
Free State Investment Prospectus (2019)	<p>The prospectus states that opportunities are opening up in the province for the energy sector, including renewable energy. The development of a Solar Farm in the Moqhaka LM is seen as a driver of growth along the banks of the Orange River. Considering future opportunities available for the development of renewable energy facilities (including solar PV facilities), the development of the electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), is in-line with the Investment Prospectus of the Province.</p>	Free State Province	2019
Integrated Development Plan	<p>The need for sustainable, clean energy supply, nationally, is also applicable in the Moqhaka</p>	Moqhaka Local Municipality	2022 - 2027

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(IDP) of the Mqohaka Local Municipality (2022-2027)	municipal area. The Mqohaka LM IDP (2022-2027) notes that while 98% of households within the municipality have access to electricity, there is a need for the expansion of public lighting. The electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process) will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country.		
<p>Other legislation that is relevant to the proposed development is provided below:</p> <ul style="list-style-type: none"> • White Paper on the Energy Policy of the Republic of South Africa (1998) • Occupational Health and Safety Act (Act No. 85 of 1993) [OHSA]; • Environment Conservation Act (Act 73 of 1989) [ECA] • Road Safety Act (Act No. 93 of 1996) [RSA]; • National Environmental Management: Air Quality Act (Act No. 39 of 2004) [NEM:AQA]; • National Environmental Management: Waste Act (Act No. 59 of 2008, as amended) [NEM;WA]; • Development Facilitation Act (Act No. 67 of 1995) [DFA]; • Promotion of Access to Information Act, (Act No. 2 of 2000); [PAIA] • The Hazardous Substances Act (Act No. 15 of 1973) [HSA]; • Water Services Act (Act No. 108 of 1998) [WSA]; • Municipal Systems Act (Act No. 32 of 2000) [MSA]; • Subdivision of Agricultural Land Act, 70 of 1970, and • Mineral and Petroleum Resource Development Act (Act No. 28 of 2002, as amended) [MPRDA]. 			

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

YES

Unknown at this stage

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

Measures pertaining to solid waste management during the construction phase will be included into the Environmental Management Programme (EMPr) (**Appendix G**) for this project. Some of solid waste disposal measures during the construction phase are provided below:

- Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided.
- A suitably positioned and clearly demarcated waste collection site must be identified and provided.
- The waste collection site must be maintained in a clean and orderly manner.
- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal.
- Bins must be emptied regularly.

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

Solid and general waste produced onsite during construction must be disposed of at registered waste disposal sites / recycling company. Certificates of safe disposal for general / solid waste must be maintained.

Will the activity produce solid waste during its operational phase?
If YES, what estimated quantity will be produced per month?

NO

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

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

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

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

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

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?

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:

E-mail:

Cell:

Fax:

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

c) Emissions into the atmosphere

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

NO

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

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:

It is anticipated that emissions into the atmosphere will be generated through the following construction-related activities of the project:

- Dust emission from site preparation activities
- Emissions from construction vehicles and machinery

Measures pertaining to the management of dust and vehicle / machinery emissions have been included into the Environmental Management Programme (EMPr) (**Appendix G**) for this project. Measures include the following:

- All reasonable measures must be taken to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO.
- Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.
- Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.
- During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.
- Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind.
- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO.
- Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas.
- Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks.
- For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.

d) Waste permit

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

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

e) Generation of noise

Will the activity generate noise?

YES	
	NO

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

Describe the noise in terms of type and level:

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It is anticipated that noise will be generated through the following construction-related activities of the project:

- Blasting activities (if any).
- Operation of construction machinery.

Measures pertaining to the management of noise have been included into the Environmental Management Programme (EMPr) (**Appendix G**) for this project. Measures include the following:

- The Contractor must keep noise level within acceptable limits, restrict the use of sound amplification equipment for communication and emergency only.
- All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained.
- Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers.
- Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff.
- Operating hours as determined by the environmental authorisation must be adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.

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

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

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

Unknown at this stage	
YES	

The applicant is aware of the need to apply for a Water Use License. This will be submitted at a later stage of project development once Eskom has confirmed the preferred connection.

14. ENERGY EFFICIENCY

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

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n/a

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

n/a

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

3. Has a specialist been consulted to assist with the completion of this section? YES NO
 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	Free State Province
District Municipality	Fezile Dabi District Municipality
Local Municipality	Moqhaka Local Municipality
Ward Number(s)	2
Farm name and number	Portion 0 of Farm Scheveningen No. 636 Portion 1 of Farm Scheveningen No. 636 Portion 0 of Farm Oslaagte No. 2564
Portion number	Portion 0 Portion 1 Portion 0
SG Code	C03600000000063600000 F02000000000063600001 F02000000000256400000

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:

Agriculture

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

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

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1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: Preferred Power Line Route

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2: Alternative Power Line Route

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (**Preferred power line route alignment (Alternative 1)**):

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

Indicate the landform(s) that best describes the site (**Alternative power line route alignment (Alternative 2)**):

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO	YES	YES NO
Dolomite, sinkhole or doline areas	NO	NO	YES NO
Seasonally wet soils (often close to water bodies)	NO	YES	YES NO

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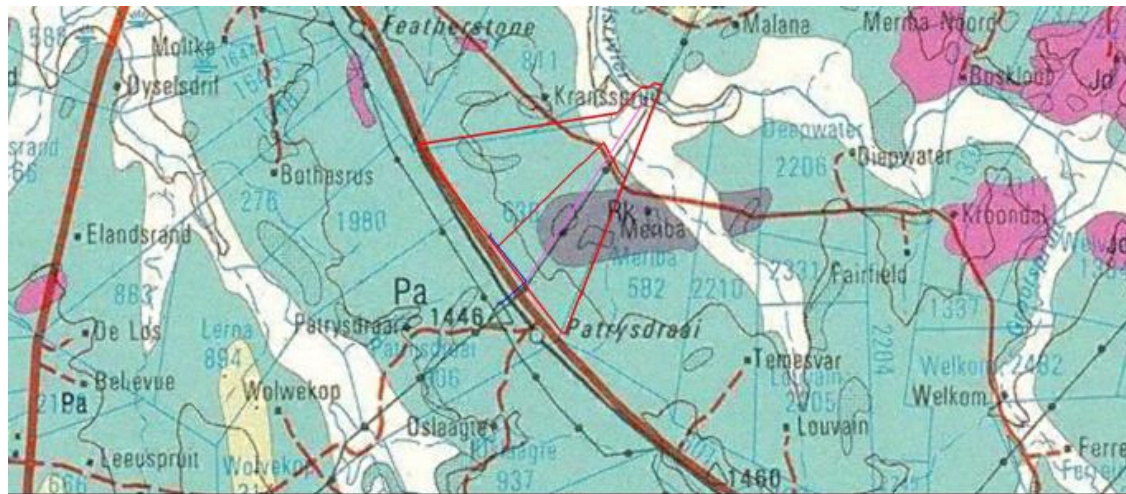
Unstable rocky slopes or steep slopes with loose soil
 Dispersive soils (soils that dissolve in water)
 Soils with high clay content (clay fraction more than 40%)
 Any other unstable soil or geological feature
 An area sensitive to erosion

	NO		NO	YES	NO
	NO		NO	YES	NO
	NO		NO	YES	NO
	NO		NO	YES	NO
	NO	YES		YES	NO

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

A desktop Geotechnical Specialist Study was undertaken by Gage Consulting (report dated March 2023) and is attached as **Appendix D**.

From the Geotechnical Assessment, the assessment area is underlain by rock units of the Karoo Supergroup and Klipriviersberg Group. The topography over the assessment area is generally flat and undulating terrain sloping between 2° to 4°. Minor portions of the site have slope angles up to 10° adjacent to small ridges. The site is underlain by alternating sandstone, mudstone and siltstone of Adelaide Subgroup, Beaufort Group, Karoo Supergroup. A portion of the eastern section of the site is underlain by porphyritic lava, amygdale-free and amygdaloidal lava of the Klipriviersberg Group forming part of the Ventersdorp Supergroup (**Figure 4**).



Symbol	Age	Sedimentary and Volcanic Rocks			Intrusive Rocks	Geological Unit Type
		Supergroup	Group	Formation		
	Quaternary	N/A				Alluvium
Jd	Jurassic	-	-	-	Dykes / Sills	Dolerite
Pa	Permian	Karoo	Beaufort	Adelaide	-	Sandstone, mudstone, siltstone
Rk	Randian	Ventersdorp	Klipriviersberg	-	-	Porphyritic lava

Figure 4: Regional geology of the site

The assessment area is considered suitable for the proposed development of electricity distribution infrastructure (namely an onsite substation and power lines) which will serve the Bonsmara SEF (part of a separate EIA process), from a geotechnical viewpoint, provided that standard engineering design and construction measures are implemented to mitigate the identified geotechnical constraints. The anticipated geotechnical constraints and mitigation measures are summarised in **Table 1** below.

Table 1: Summary of geotechnical conditions / constraints

Ground Unit	Shallow Geology	Geotechnical Conditions / Constraints	Impacts on Engineering Design and Construction
I	Bedrock covered by transported material	<ul style="list-style-type: none"> Sandy transported soil on surface Locally occurring, variably cemented ferricrete at depths between 0.50 m to 2.00 m BGL Residual soils sandy to clayey depending on underlying bedrock Possible, localised, low to medium expansive potential soil material at depth Localised shallow subsurface water seepage 	<ul style="list-style-type: none"> Generally good founding conditions for structures at shallow depths Minor earth works required at founding level Conventional shallow foundations suitable Conventional subgrade preparation for roads Variable excavation conditions Pre-drilled holes, filled with G5 material required for ground mount PV system
II	Steep slopes (Talus on foot slopes)	<ul style="list-style-type: none"> Mass earthworks on gradients greater than 1:10 Potentially unstable slopes 	<ul style="list-style-type: none"> Terracing and slope stabilisation required
III	Outcropping / shallow bedrock	<ul style="list-style-type: none"> Hard excavation conditions 	<ul style="list-style-type: none"> Heavy plant machinery / pneumatic methods / required for excavations (pole planting earthworks / trenching / foundations) Good founding conditions for structures Overbreak is anticipated during trenching
IV	Alluvium	<ul style="list-style-type: none"> Loose sandy soils Potentially collapsible soils Moderate soil cover Moderate bedrock depth Increased erosion potential Deep erosion gullies and rills 	<ul style="list-style-type: none"> Deeper spread footings (found below alluvial sands) Soft excavation conditions becoming intermediate with depth Unstable trench sidewalls – shoring/battering required Erodible soils Surface drainage measures required to minimise risk of flooding and erosion
V	Borrow Pits	<ul style="list-style-type: none"> Existing borrow excavations 	<ul style="list-style-type: none"> Rehabilitation required

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Figure 5: Geotechnical desktop zonation for the preferred power line route alignment (Alternative 1)

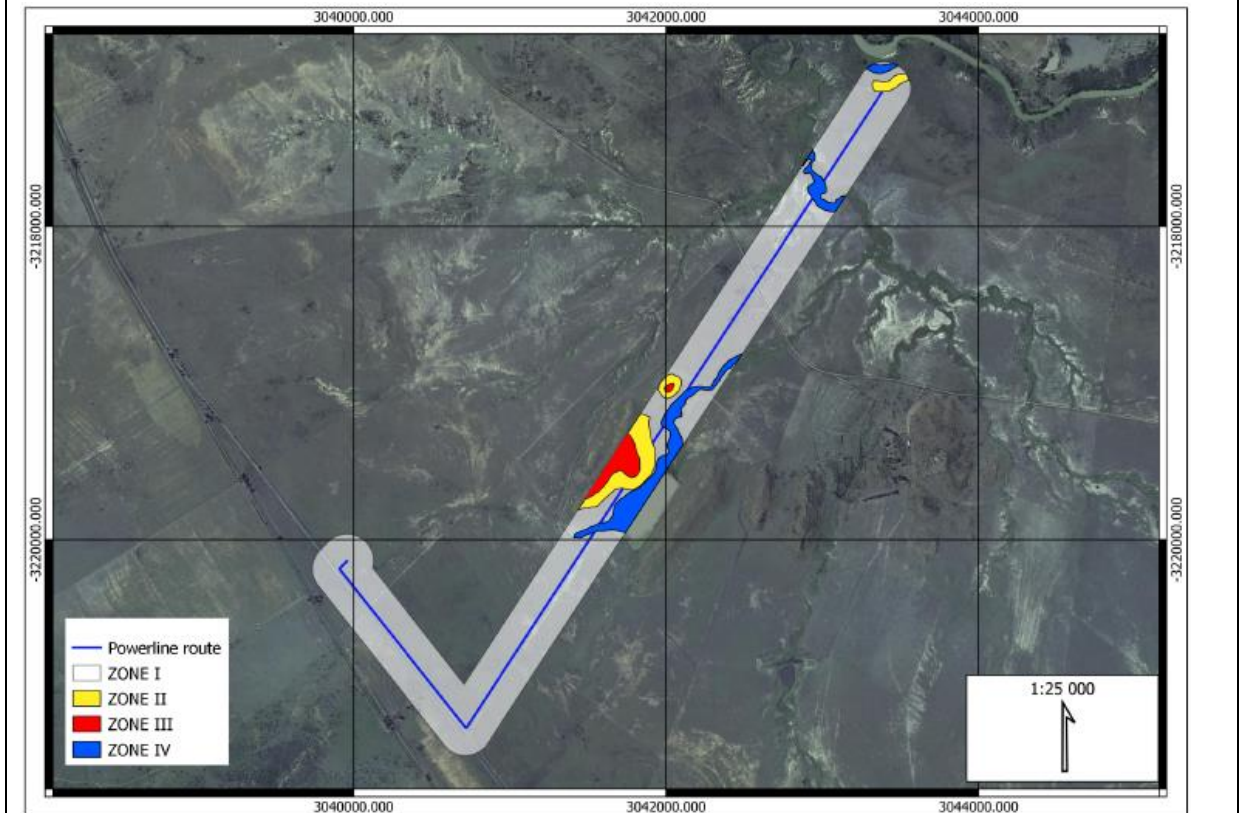


Figure 6: Geotechnical desktop zonation for the alternative power line route alignment (Alternative 2)

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No geologically or geotechnically sensitive areas were identified within powerline corridor option 1 (preferred route alternative), however powerline corridor option 2 (alternative route) transverse across multiple drainage streams, a dam, ridges, as well as shallow bedrock.

Powerline Corridor option 1 (preferred alternative) is considered marginally more suitable for development from a geotechnical perspective. The reasons being, it is shorter in length and transverse across dry land, resulting in less geotechnical constraints, compared to corridor option 2. Corridor option 1 (alternative route) will have less environmental impact. However, other factors are likely to be more critical in determining the preferred powerline corridor. Therefore, from a geotechnical perspective, preference is given to corridor option 1 (preferred route alternative) compared to corridor option 2 (alternative route).

No geologically or geotechnically sensitive areas were identified that would render the proposed Corridor Option 1 or Option 2 unsuitable for development, provided that standard engineering design and construction measures are implemented to mitigate the identified geotechnical constraints.

4. GROUND COVER

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.

A Terrestrial Biodiversity Specialist has been appointed, please refer to Section 9: Biodiversity for more information. The full Terrestrial Biodiversity Report is included in **Appendix D**.

5. SURFACE WATER

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

Proposed substation and preferred power line route:

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

Proposed substation and alternative power line route:

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

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

AQUATIC / FRESHWATER ASSESSMENT

An Aquatic Ecological Study was undertaken by EnviroSci (report dated October 2022), and is attached as **Appendix D**.

The study area contains four (4) key aquatic habitats that were observed and mapped and then rated based on their sensitivity to the proposed development.

- Mainstem river (Valsrivier) with riparian vegetation (Plate 1)
- Ephemeral watercourse some with seepage but most with head-cuts and or erosion channels (Plate 2 & 3)
- Depression wetland (ca. 1.4 km from the closest PV Panel Area)
- Artificial dams

The features listed above, drain the study area in a westerly region, forming part of the C60D Quinary Catchment, as these systems form part of the headwaters of the Valsrivier (Vals River), which flows beyond the site. A small portion of the PV panel area and grid (substation) falls within the C60F catchment of the Blomspruit, a tributary of the Vals River, however no watercourses associated with this catchment would be affected (situated on the catchment divide).

During the field work, the site was then groundtruthed as well as compared to 1: 50 000 topocadastral surveys mapping data and that which was observed on site. A baseline map was then refined using the September 2022 survey data (**Figure 7**).

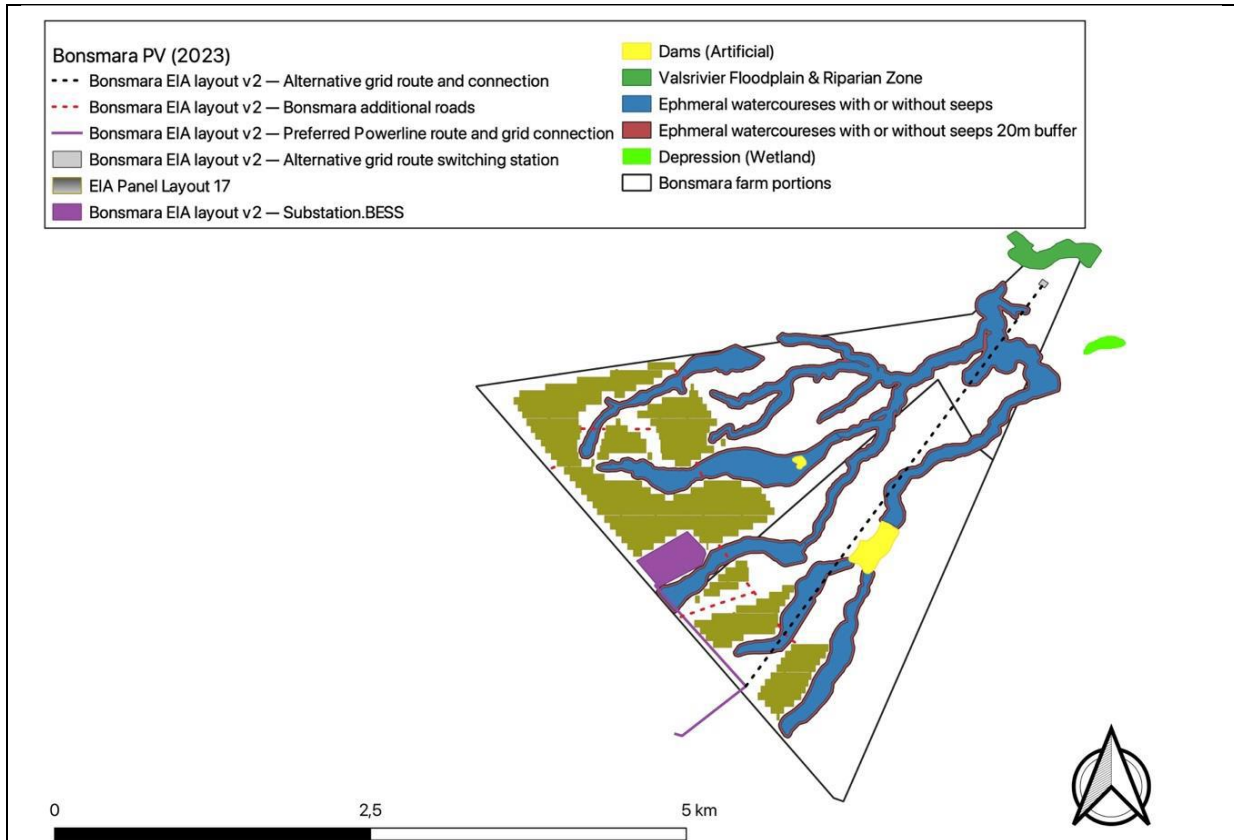


Figure 7: Waterbodies delineated in the assessment area

Present Ecological State and conservation importance

The Present Ecological State (PES) of a river, watercourse or wetland represents the extent to which it has changed from the reference or near pristine condition (Category A) towards a highly impacted system where there has been an extensive loss of natural habit and biota, as well as ecosystem functioning (Category E).

All of the systems assessed by DWS (2014) on a Sub quaternary level within the study area were rated as PES = D (SQ2473) or Largely Modified. While these were also rated as High in terms of Ecological Sensitivity and High in terms of Ecological Importance respectively.

The trajectory of change for both wetlands is negative. The continuation of the current activities within the catchment, without improved management, will result in a slow decline in aquatic habitat integrity. The recommended management objective is to improve the wetland present ecological state.

Ecosystem Services and Functional Importance

A WET-Ecoservices (Version 2) field-based assessment was undertaken to assess the ecosystem services supplied by the two wetlands (Kotze et al. 2020). The assessment showed that the wetlands are highly important for the provisioning services such as water supply and agricultural uses. However, the wetlands scored poorly for the other ecosystem services assessed due to their degraded ecological state (D category for PES).

Although there is high demand for the potential regulating and supporting ecosystem services, the biodiversity provisioning services provided are severely restricted due to channel incision and lateral habitat loss. The ongoing disturbances are resulting in the degradation of any remaining habitat. The

biodiversity of the wetland is ubiquitous and no longer sensitive to flow and habitat modifications.

Aquatic Buffer Zone

An aquatic impact buffer zone is defined as a zone of vegetated land designed and managed so that sediment and pollutant transport carried from source areas via diffuse surface runoff is reduced to acceptable levels (Macfarlane and Bredin 2016). Aquatic buffer zones are designed to act as barriers between human activities and sensitive water resources in order to protect them from adverse negative impacts. Based on available information for the site, the buffer model recommends a 20m buffer zone between wetland habitat and the activities.

Sensitivity Categories

Using the baseline description and field data while considering the current disturbances and site characteristics, the features in **Figure 8** were identified, then categorized into one of a number of pre-determined sensitivity categories (**Table 2**) to provide, protect and/or guide the layout planning and design processes.

Table 2: Species and habitat sensitivity rating definitions

Sensitivity Rating	Description
Very High (No Go)	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation is not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Not sensitive (uncatergorised)	Minimisation mitigation – development activities of medium to high impact are acceptable and restoration activities may not be required.

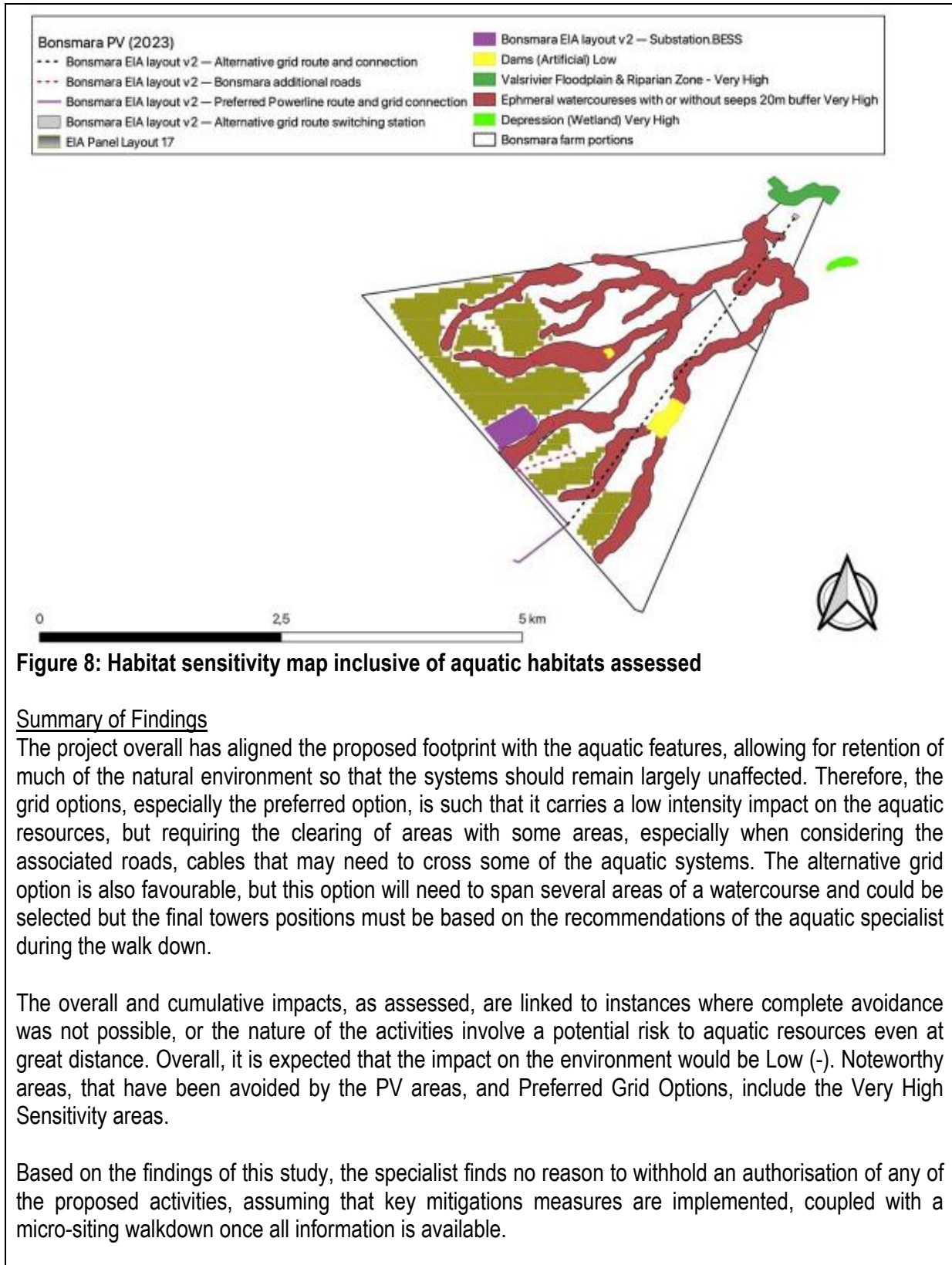


Figure 8: Habitat sensitivity map inclusive of aquatic habitats assessed

Summary of Findings

The project overall has aligned the proposed footprint with the aquatic features, allowing for retention of much of the natural environment so that the systems should remain largely unaffected. Therefore, the grid options, especially the preferred option, is such that it carries a low intensity impact on the aquatic resources, but requiring the clearing of areas with some areas, especially when considering the associated roads, cables that may need to cross some of the aquatic systems. The alternative grid option is also favourable, but this option will need to span several areas of a watercourse and could be selected but the final towers positions must be based on the recommendations of the aquatic specialist during the walk down.

The overall and cumulative impacts, as assessed, are linked to instances where complete avoidance was not possible, or the nature of the activities involve a potential risk to aquatic resources even at great distance. Overall, it is expected that the impact on the environment would be Low (-). Noteworthy areas, that have been avoided by the PV areas, and Preferred Grid Options, include the Very High Sensitivity areas.

Based on the findings of this study, the specialist finds no reason to withhold an authorisation of any of the proposed activities, assuming that key mitigations measures are implemented, coupled with a micro-siting walkdown once all information is available.

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:

Proposed substation and preferred power line route:

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 will this impact / be impacted upon by the proposed activity? Specify and explain:

The proposed grid power line route (preferred route) runs adjacent to Road R76 in a south easterly direction until it reaches the existing 132 kV power line, whereafter it runs adjacent to the existing power line in a south westerly direction, crossing the road and railway line to reach the Kroonstad switching station. Road R76 is currently being widened as part of the road upgrade and as a result, the gridline route may need to be offset further from the existing road to ensure that an adequate servitude remains. As the grid power line will cross both the road and railway line, wayleaves are required from both authorities to establish the new grid power line servitude over the existing infrastructure.

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



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



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Proposed substation and alternative power line route:

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 will this impact / be impacted upon by the proposed activity? Specify and explain:

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

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

AGRICULTURE

An Agricultural Compliance Statement was undertaken for the proposed grid connection infrastructure and Bonsmara SEF (part of a separate application) by Johan Lanz (report dated March 2023), and is attached as **Appendix D**.

It is important to note that the power lines have a very different level of agricultural impact than the SEF (part of a separate EIA application) because agriculture is not excluded from the land underneath a power line, and all agricultural activities can continue completely unhindered underneath a power line. The power line corridor is not therefore considered to be part of the agricultural footprint, in keeping with NEMA's agricultural protocol. The agricultural impact of a power line is insignificant in this environment, regardless of its route and design and the agricultural potential of the land it crosses.

Power lines require the registration of a servitude for each farm portion crossed. In terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA), the registration of a power line servitude requires written consent of the Minister unless either of the following two conditions apply:

- if the servitude width does not exceed 15 metres; and
- if Eskom is the applicant for the servitude.

If one or both conditions apply, then no agricultural consent is required. The second condition is likely to apply, even if another entity gets Environmental Authorisation for and constructs the power line, but then hands it over to Eskom for its operation. Eskom is currently exempt from agricultural consent for power line servitudes.

Site Sensitivity Verification

The agricultural sensitivity, as identified by the screening tool, is confirmed by this assessment. The motivation for confirming the sensitivity is that the site is not under crop production, and that the climate and terrain are suitable for agricultural crop production, but the soils are limited to shallow soils on underlying dense clay or weathered rock. The site is therefore of insufficient land capability for viable and sustainable crop production, which is befitting for medium agricultural sensitivity.

This site sensitivity verification verifies the entire site as being of medium agricultural sensitivity with a land capability value of 6. The land capability value is in keeping with the soil limitations that make the site unsuitable for crop production.

Impact Identification and Conclusion

The overhead power lines have insignificant agricultural impact in this environment, regardless of their route and design and the agricultural potential of the land they traverse. This is because the direct, permanent, physical footprint of a power line, that has any potential to interfere with agriculture is insignificantly small. There is therefore no reduction in future agricultural production potential underneath a power line.

Due to the negligible impact of the overhead power lines, there will be no material difference between the agricultural impact of the two proposed alternatives. Both alternatives are acceptable alternatives. Both alternatives are acceptable in terms of agricultural impact.

The protocol requires confirmation, in the case of a linear activity, that the land can be returned to the current state within two years of completion of the construction phase. It is hereby confirmed that the

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land under the overhead power line can be returned to the current state of agricultural production potential within two years of construction, with the obvious disclaimer that the pylons will continue to be present for the duration of the operational lifetime of the power line.

The impact of the proposed development on the agricultural production capability of the site is assessed as being acceptable. Therefore, from an agricultural impact point of view, it is recommended that the development be approved.

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

Proposed substation and preferred power line route:

Critical Biodiversity Area (as per provincial conservation plan)		NO
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

Proposed substation and alternative power line route:

Critical Biodiversity Area (as per provincial conservation plan)		NO
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**.

The site boundary sits **adjacent** to the Erfdeel Private Nature Reserve, there is no prescribed buffer area however the project is located within 5 km of a protected area - map included in **Appendix A**.

A map of the project infrastructure located within areas of the National Protected Area Expansion Strategy Focus Area (NPAES) is included in **Appendix A**. The Directorate: Protected Areas Planning and Management Effectiveness Department has been consulted with and responded as follows: "Noted, the project does not fall within a protected area. Should any aspects of the project change, the Department will be notified accordingly". Further consultation will be undertaken during the Public Participation Process.

VISUAL ASSESSMENT

A Visual Impact Assessment was undertaken by SRK Consulting (report dated March 2023), and is attached as **Appendix D**.

Visual Character

Visual character is descriptive and non-evaluative, which implies that it is based on defined attributes that are neither positive nor negative. It refers to the overall experience and impression of the landscape, such as natural or transformed.

A change in visual character cannot be described as having positive or negative attributes until the viewer's response to that change has been taken into consideration. The probable change caused by the project is assessed against the existing degree of change caused by previous development.

The basis for the visual character is provided by the topography, vegetation and land use of the area, which is a predominantly rural environment characterised by the undulating, vegetated landscape, albeit with pockets of settlements and regional and national roads routed through the surrounding area. The rolling expanse of vegetated landscape surrounding the site evokes a rural, undeveloped environment. The project area can therefore be defined as a modified rural landscape as it is mostly rural but settlements, powerlines and roads and railway are visible in the landscape.

Visual Quality

The visual quality of the area can be experienced through rolling views of the gentle hills in the landscape, especially from and across the site. The study area is defined by the fabric of the agricultural grazing activity taking place in the area. The naturally undulating landscape is intermittently interrupted by powerlines and railway lines which detract from the visual quality of the surrounding area. The streams, rivers and dams in the area add to the somewhat unspectacular visual quality.

Visual Receptors

Visual receptors have been identified based on surrounding land uses, including the residential and recreational areas. The Serfontein Dam, Bossiespruit Shooting Range and Military Base and Kroonstad Airport were identified within ~10 km from the site. However, the viewshed, topographical map and site verification, indicate that receptors at these locations will not have a view of the proposed facility and therefore are not considered to be visual receptors, nor considered further in this VIA.

Sense of Place

The region has scenic value in terms of its undulating natural landscape and the views over large portions of agricultural land. The natural landscape and rustic character contrast with the anthropogenic influence in the region, viz. urban development, albeit, some 12 km away. The sense of place of the surrounding area is strongly influenced by the surrounding land use, which can generally be described as a rural agricultural area. The sense of place is not particularly distinct from the rest of the wider region and is not overly memorable.

The relationship of receptors in the study area to place may be predominantly biographical and dependent. A family, for example, whose has farmed in this area for a few generations will have a biographical and dependent attachment to the area.

Analysis of the Magnitude of the Visual Impact

Visual Exposure

Visual exposure is determined by the zone of visual influence or viewshed. The viewshed is the topographically defined area that includes all the major observation sites from which the project could

be visible; it is a function of topography and the dimensions of the project only, but not the location of the visual receptors. The viewshed analysis assumes maximum visibility of the project in an environment stripped bare of vegetation and structures. The viewshed indicates the visibility of the project, accounting for the decrease in visibility as distance from the project increases (**Figure 9**).

The visual exposure of the two powerline alternatives is likely to differ as Powerline Alternative 1 extends south-westward for 2 km and crosses the R76. Powerline Alternative 2, however, is twice as long (~5.5 km) and routed away from the R76 across the property, and towards the Unnamed Gravel Road. Furthermore, existing powerlines within close proximity to the proposed powerline routes are expected to have inured receptors to powerlines within the landscape.

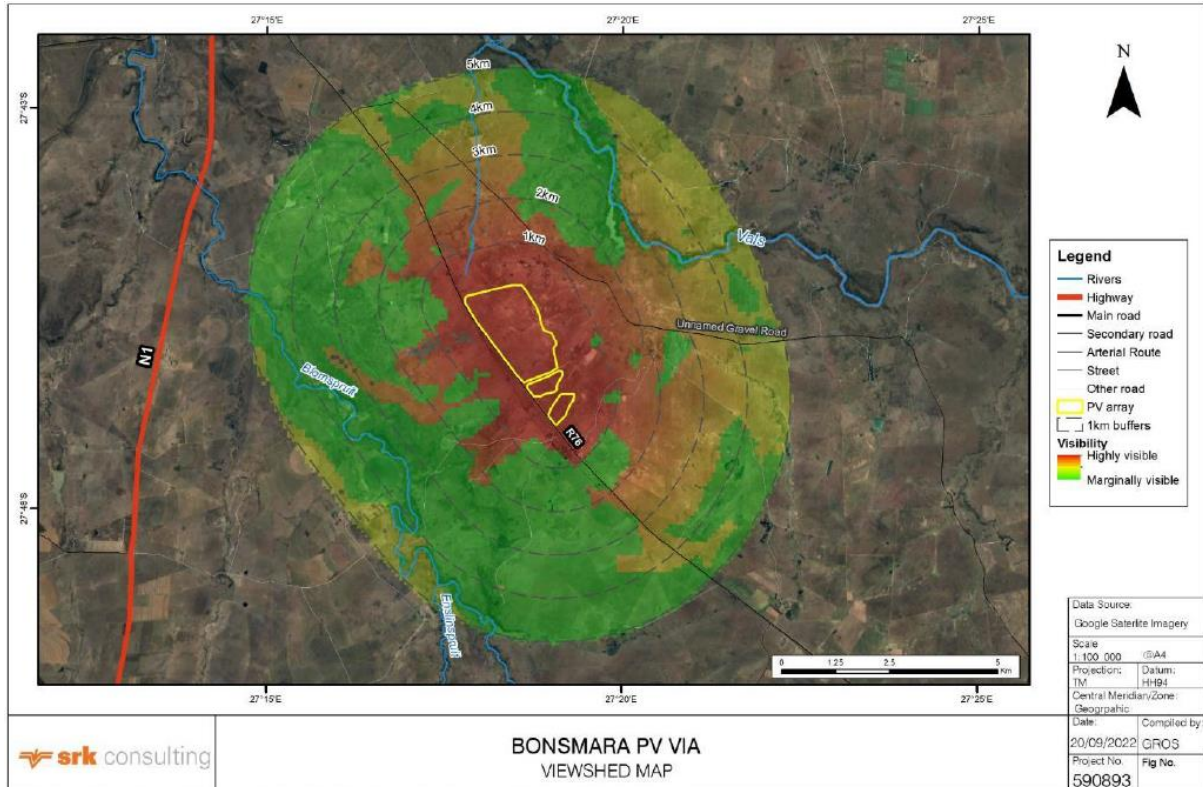


Figure 9: Viewshed

Visual Absorption Capacity

The VAC is the potential for an area to conceal and assimilate the proposed project. Generally rural areas have a lower VAC, however the VAC of the project area is marginally increased by undulating topography and - to a far more limited extent - by grassland (veld) and small clusters of trees, providing screening to the project.

Vegetation is not able to provide screening to infrastructure such as the substation and pylons (associated with the powerline). The undulating topography will marginally absorb the associated infrastructure. The study area has a moderate VAC for the proposed powerline.

Sensitivity of the Visual Receptors

Receptors are important insofar as they inform visual sensitivity. The sensitivity of the visual receptors potentially affected by the visual impact of the project is considered to be moderate due to the distance from farmsteads, and proximity to roads and rail infrastructure. It is anticipated that the visual

receptors will be more sensitive to the PV array, on-site substation and BESS than the proposed powerline due to the (familiarity with) existing powerlines in the landscape.

Viewing Distance and Visibility

The distance of a viewer from an object is an important determinant of the magnitude of the visual impact. This is because the visual impact of an object diminishes / attenuates as the distance between the viewer and the object increases.

A number of viewpoints were selected to indicate locations from where receptors may (or may not) view the project. The viewpoints are shown in **Figure 10** and listed in **Table 3**. The visibility of the project can be summarised as follows:

- The project will be highly visible in the foreground to motorists travelling to the west of the site (VP 3);
- The project is visible to motorists, railway passengers and residents of farmsteads to the east and west of the site (VP 4, VP 8, VP 9, VP 10);
- The project will be only marginally visible due to distance and / or screening by vegetation to residents located- and motorists travelling- to the north, east and south of the site (VP 2, VP 7, VP 11);
- The project will not be visible to surrounding residents and motorists over 3 km from the site largely due to intervening topography screening the site (VP 1, VP 5, VP 6, VP 12).

Overall, the visibility of the project is moderate due to the number of receptors in the foreground and middleground, albeit transient and temporary receptors.

Table 3: Visibility from Viewpoints

Viewpoint #	Location	Co-ordinates	Direction of view	Potential Receptors	Visibility
VP 1	Dennehof Farm	27° 49' 25.79"S 27° 22' 8.58"E	Looking north-west	Farmsteads on Dennehof Farm and motorists on R76.	Not Visible The site is visible from the farmstead and R76 due the undulating topography.
VP 2	R76 south	27° 47' 50.49"S 27° 19' 55.40"E	Looking north	Motorists on R76.	Marginally Visible The site is screened by tall, mature trees, limiting visibility of the site in the background from this VP.
VP 3	R76 Bonsmara	27° 46' 52.61"S 27° 18' 57.81"E	Looking north-east	Motorists on R76.	Highly Visible The site is visible to motorists in the foreground.
VP 4	Patrijsdraai Farm	27° 47' 7.95"S 27° 18' 59.98"E	Looking north-east	Residents of farms to the west of the R76, e.g. Patrijsdraai and individuals travelling on the railway.	Visible The site is visible to motorists travelling to and from the farmsteads to the west and receptors travelling by train. The project will not be visible to the residents to the west of the site as they are located at a lower elevation than the site.
VP 5	Farmstead 1	27° 45' 22.08"S 27° 15' 57.63"E	Looking south-east	Residents of Farmstead.	Not Visible The site is not visible to the residents of this farmstead as it is located at a lower elevation than the site.
VP 6	Lan Crest	27° 44' 57.43"S 27° 15' 53.72"E	Looking south- east	Residents of Lan Crest and motorists.	Not Visible The site is not visible to the residents or motorists as the farmstead and road are located at a lower elevation than the site
VP 7	Farmstead 2	27° 43' 25.46"S 27° 17' 26.58"E	Looking south	Motorists travelling on the gravel road and	Marginally Visible The site is marginally visible to the

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				residents of the farmstead in close proximity to VP 7.	farmstead in the background due to distance.
VP 8	Unnamed Gravel Road	27° 44' 36.89"S 27° 18' 47.25"E	Looking south	Motorists on unnamed gravel road.	Visible The site is visible to the motorists in the middle and background.
VP 9	Unnamed Gravel Road	27° 45' 4.81"S 27° 19' 25.68"E	Looking south-west	Motorists on unnamed gravel road	Visible The site is visible to the motorists in the middle- and background.
VP 10	Unnamed Gravel Road	27° 45' 16.95"S 27° 19' 50.77"E	Looking west	Motorists on unnamed gravel road.	Visible The site is visible to the motorists in the middle- and background.
VP 11	Farmstead 3	27° 45' 43.29"S 27° 20' 27.21"E	Looking west	Residents of the farmstead and motorists on unnamed gravel road.	Marginally Visible The site will be marginally visible to the motorists in the background.
VP 12	Farmstead 4	27° 43' 23.84"S 27° 20' 7.01"E	Looking south-west	Residents of farmstead and motorists.	Not Visible The site is not visible to the farmstead and motorists due to screening provided by the topography.

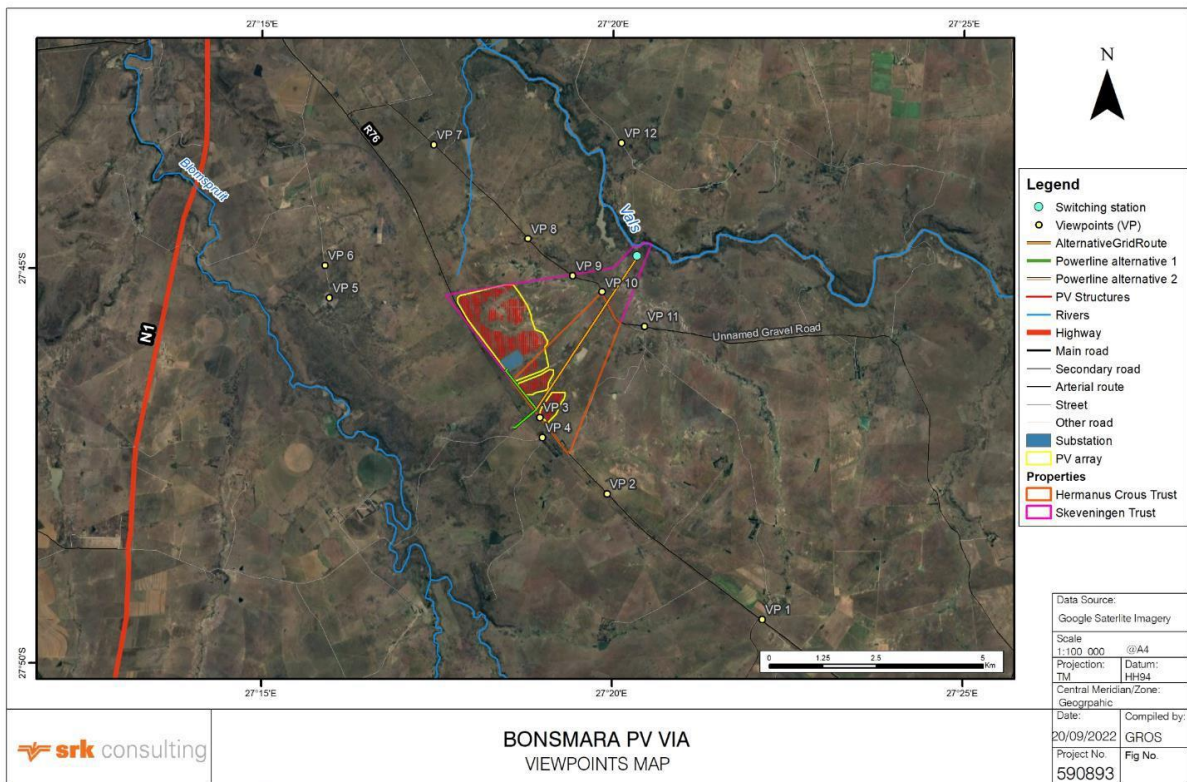


Figure 10: Viewpoints

Compatibility and Landscape Integrity

Landscape (or townscape) integrity refers to the compatibility of the development / visual intrusion with the existing landscape. The on-site substation and proposed 132 kV powerline will be moderately consistent and congruent with the use, texture, size and form of existing infrastructure and land use surrounding the site. The project is deemed to have low integrity with the surrounding landscape.

Magnitude of Overall Visual Impact

Table 4 provides a summary of the criteria, a descriptor summarising the status of the criteria and

projected impact magnitude ratings.

Table 4: Magnitude of overall visual impact

Criteria	Rating	Comments
Visual Exposure (Viewshed)	Moderate	The project area will highly visible from the few elevated areas to the north-east, east and south-east of the site. The site will not be visible to the few of the isolated farmsteads surrounding the site. Motorists on the R76 will have a view of the site when travelling adjacent to the south-western boundary of the site, however beyond this portion of the R76 motorists will have limited visibility.
Visual Absorption Capacity	Low (PV facility) and Moderate (Powerline)	The VAC of the area is marginally increased by the undulating topography, and - to a far more limited extent – by the grassland (veld) and small clusters of trees, providing screening to the project. The low vertical profile of the PV panels is anticipated to increase the screening potential of the vegetation and topography. However, the vegetation is not able to provide screening to the associated infrastructure such as the substation and pylons. The undulating topography will marginally absorb the associated infrastructure.
Viewer Sensitivity (Receptors)	Moderate	Due to the distance of the project from farmsteads (moderately sensitive receptors) and the proximity to roads and rail infrastructure, viewer sensitivity is considered moderate. It is anticipated that the visual receptors will be more sensitive to the PV array, on-site substation and BESS than the proposed powerline due to their (familiarity with) existing powerlines in the landscape.
Viewing Distance and Visibility	Moderate	A number of receptors in the foreground and middleground are affected.
Landscape Integrity	Low	The on-site substation and proposed 132 kV powerline will be moderately consistent and congruent with the use, texture, size and form of existing infrastructure and land use surrounding the site.

Comparative Assessment of Alternatives

The powerline alternatives have been comparatively assessed in the table below.

Table 5: Comparative assessment of alternatives

Alternative	Preference	Reasons (incl. potential issues)
POWERLINE ROUTE ALTERNATIVES		
Powerline Alternative 1	Preferred Alternative	This alternative will result in altered sense of place and visual quality due to the powerline and pylons as well as light pollution from the substation.
Powerline Alternative 2	Favourable	This alternative will result in more impacts when compared to Powerline Alternative 2 (i.e. altered sense of place and visual quality due to the powerline and pylons, as well as light pollution from the substation and the switching station).

Both powerline alternatives are acceptable from a visual perspective. Powerline Alternative 1 is considered the preferred alternative, in comparison to Powerline Alternative 2, as no additional light pollution from the switching substation associated with Powerline Alternative 2 will be realised.

7. CULTURAL/HISTORICAL FEATURES

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

YES

CULTURAL / HISTORICAL ENVIRONMENT

A Heritage Impact Assessment was undertaken by CTS Heritage (report dated February 2023), attached as **Appendix D**.

The north-western portion of the Bonsmara SEF and associated proposed grid infrastructure footprint has camps that have been used historically for agricultural purposes. In some areas where cattle have aggregated for watering and feeding, the landscape is more heavily modified (trampled) which has impacted the archaeological potential of these areas substantially. As a result of such disturbance, in these localities little of the original natural landscape - in terms of vegetation, geology and probably also archaeology - is visible today.

Cultural Landscape

According to the VIA completed for this project, “the basis for the visual character is provided by the topography, vegetation and land use of the area, which is a predominantly rural environment characterised by the undulating, vegetated landscape, albeit with pockets of settlements and regional and national roads routed through the surrounding area. The rolling expanse of vegetated landscape surrounding the site evokes a rural, undeveloped environment. The project area can therefore be defined as a modified rural landscape as it is mostly rural, but settlements, power lines and roads and railway are visible in the landscape.

The visual quality of the area can be experienced through rolling views of the gentle hills in the landscape, especially from and across the site. The study area is defined by the fabric of the agricultural grazing activity taking place in the area. The naturally undulating landscape is intermittently interrupted by power lines and railway lines which detract from the visual quality of the surrounding area. The streams, rivers and dams in the area add to the somewhat unspectacular visual quality.

The region has scenic value in terms of its undulating natural landscape and the views over large portions of agricultural land. The natural landscape and rustic character contrast with the anthropogenic influence in the region, viz. urban development, albeit, some 12 km away. The sense of place of the surrounding area is strongly influenced by the surrounding land use, which can generally be described as a rural agricultural area.

No elements of high cultural landscape value have been identified within close proximity to the area proposed for development. While dominated by agricultural activities, the naturally undulating landscape is intermittently interrupted by power lines and railway lines which detract from the visual quality of the surrounding area.

Archaeology

Field assessment documented a number of stone artefact scatters in both primary and secondary

contexts, located at lithic raw-material sources, in eroded river terraces and dongas, and in deflated open landscape settings. These sites suggest the area may have been traversed by Stone Age groups potentially through Pleistocene periods in both the Middle Stone Age and the later Early Stone Age. Holocene archaeology was largely not documented. The presence of substantial unworked artefact-quality raw-materials in the project area as well as relatively abundant standing water (including sedimentary evidence for active drainages in the past) were the resources that likely attracted groups there, and resulted in them leaving behavioural traces in the form of stone artefacts.

Field assessment of the footprint for the proposed development for the Bonsmara PV facility and associated grid infrastructure documented several stone artefact scatters in secondary contexts and also potential for archaeological material in primary - or close to primary - context that needs to be avoided (KS6, KS7 and KS8). The koppies surrounding the modern pan in the south-eastern portion of the area should, in general, be completely avoided (**Figure 11**). The stone artefacts at KS2, KS3, KS4 and KS5 are ex-situ and occur in deflated contexts, whereas the denser Early Stone Age and Middle Stone Age occupations of the koppies and associated pan margins (KS6, KS7 and KS8) need to be avoided.

Table 6: Heritage resources known to be located with the development area

Site No.	Description	Density	Co-ordinates		Grading	Mitigation
KS1	Historical stone structures	NA	-27.76014296337	27.3097089584	IIIC	NA
KS2	Isolated Middle Stone Age core	-1-2/m2	-27.7530999854	27.31901396065	IIIC	NA
KS3	Middle Pleistocene scatter with MSA and ESA artefacts	-3-6/m2	-27.7530060242	27.3192510008	IIIC	50m Buffer
KS4	Middle Pleistocene scatter with MSA blade production and bifacial tools	-3-6/m2	-27.75347499176	27.3203409835	IIIC	50m Buffer
KS5	Isolated Middle Stone Age core	-3-6/m2	-27.76228697039	27.32221199199	IIIC	NA
KS6	Dense ESA scatter. Very extensive with clear sub-surface deposit	-4-8/m2	-27.76886701583	27.3229549638	IIIB	100m Buffer
KS7	ESA MSA site with partially submerged artefacts. Very extensive with clear sub-surface deposit	-3-6/m2	-27.76768399402	27.3294500168	IIIB	100m Buffer
KS8	ESA site with large flake blanks. Very extensive with clear sub-surface deposit.	-3-6/m2	-27.76499197818	27.3222829867	IIIB	100m Buffer

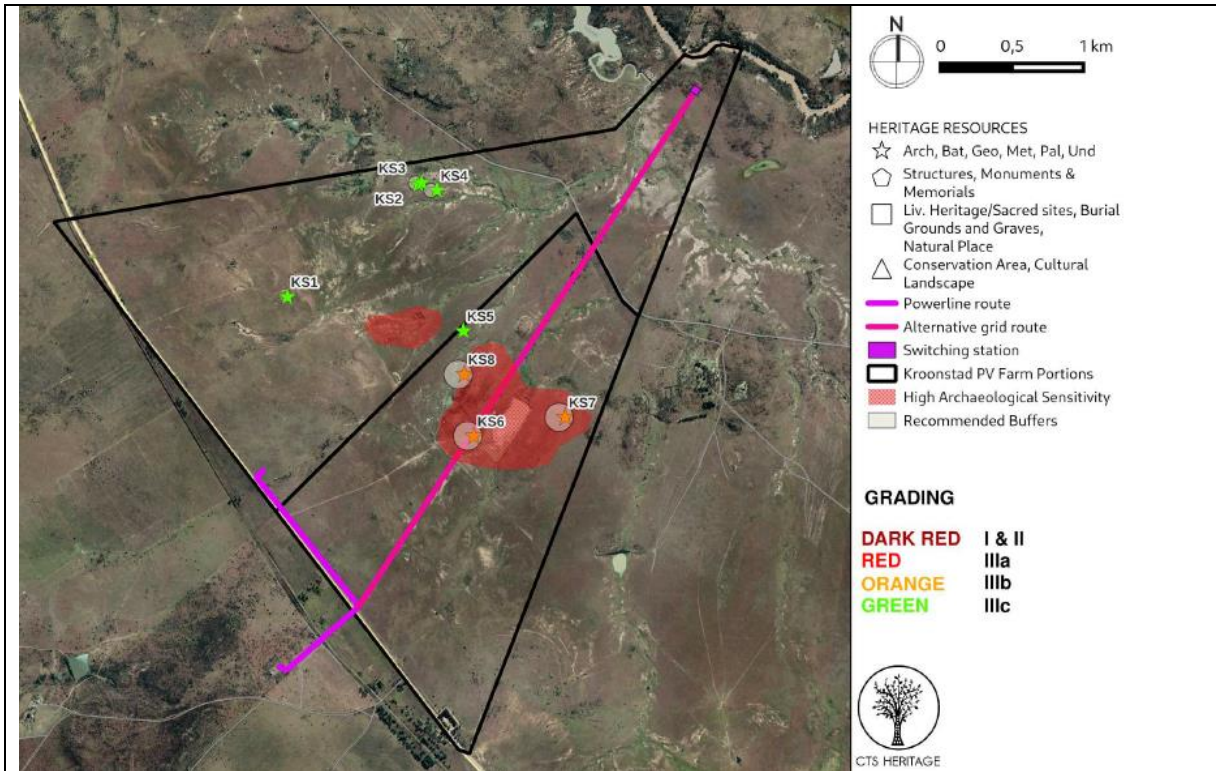


Figure 11: Heritage resources identified during the archaeological and palaeontological field assessments with recommended mitigation measures relative to the proposed development footprint

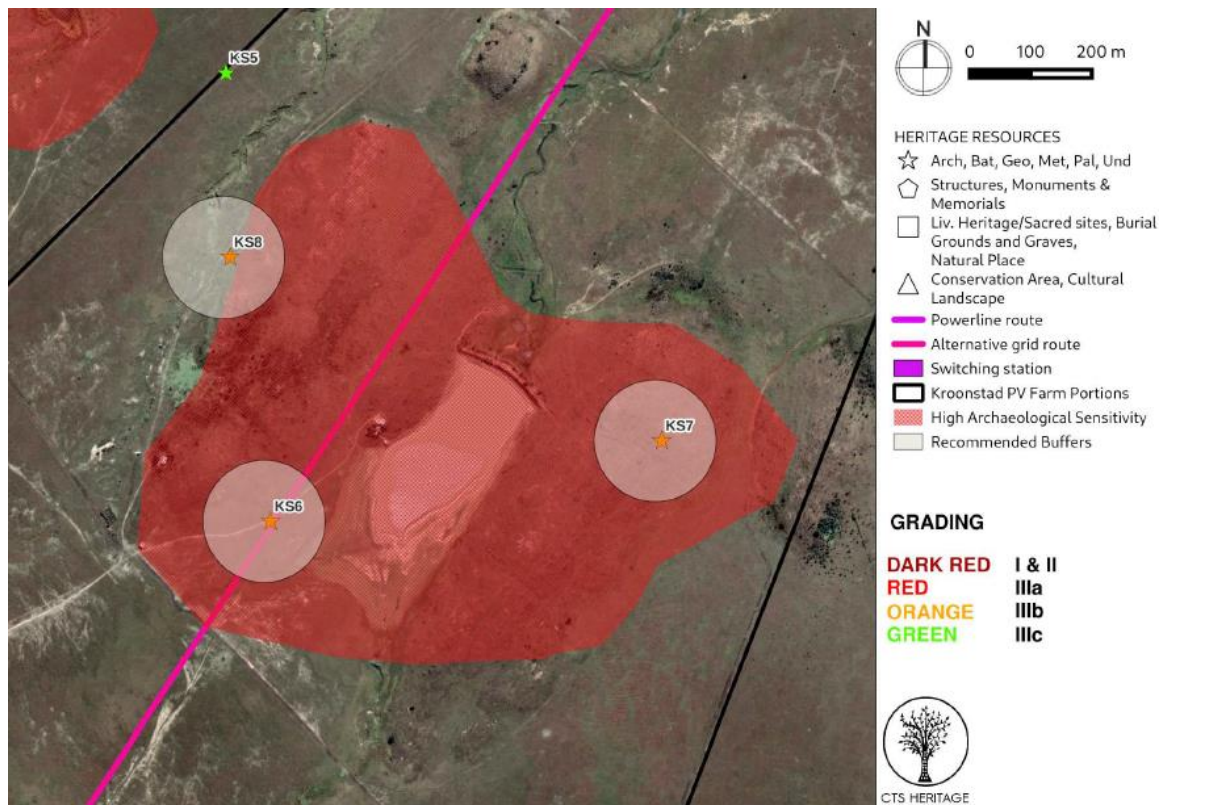


Figure 12: Heritage resources identified during the archaeological and palaeontological field assessments with recommended mitigation measures

No impacts to heritage resources are anticipated if the preferred power line alignment is implemented. However, the alternative alignment runs through an area that has been identified as having high levels of heritage sensitivity (**Figure 11**). Sites KS6, KS7 and KS8 are graded IIIB for their greater scientific value associated with their sub-surface and, likely in-situ, deposits. It is recommended that none of these sites be impacted by the development through the implementation of a 100m no-development buffer around these sites (**Figure 12**). Furthermore, areas of higher archaeological sensitivity have been identified around the koppies and the pan located within the broader development area. It is recommended that no development takes place within this identified area, including the proposed grid alignment.

The alternative grid power line is NOT preferred from a heritage perspective as it traverses an area that has been identified as having high levels of archaeological sensitivity, and it runs directly through Site KS6 (Grade IIIB). Should the alternative grid powerline be approved, the alignment would have to be immediately adjacent to the existing powerline and a micro-siting exercise would have to take place for the pylon footings in order to ensure that significant heritage resources are not impacted.

Palaeontology

The proposed development is underlain by Quaternary alluvium, the Adelaide Subgroup of the Beaufort Group (Karoo Supergroup) as well as the Klipriviersberg Group of the Ventersdorp Supergroup. According to the PalaeoMap of the SAHRIS, the Palaeontological Sensitivity of Quaternary sediments is Moderate, that of the Adelaide Subgroup is Very High while that of the Klipriviersberg Group is Low (blue) (Almond and Pether, 2009; Almond et al., 2013). Updated Geology (Council of Geosciences) indicates that the proposed development is mainly underlain by alluvium, colluvium, eluvium, gravel; the Balfour Formation of the Adelaide Subgroup and the Klipriviersberg Group of the Ventersdorp Supergroup.

No fossiliferous outcrop was detected in the proposed development area. However, loose, fragmented and weathered tree fossils and well-preserved trace fossils were detected. The latter was probably brought in from nearby areas and placed near the homestead (now in ruins). However, the apparent rarity of well-preserved fossil heritage in the proposed development footprint suggests that the impact of the development will be of a Low significance in palaeontological terms. It is therefore considered that the proposed development will not lead to damaging impacts on the palaeontological resources of the area. The construction of the development may thus be permitted in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.

No significant fossils were identified during the field analysis. This is mostly due to the soil cover and lack of outcrop in the area.

No impacts to palaeontological resources are anticipated, however it is recommended that, due to the high palaeontological sensitivity of the development area, the Chance Fossil Finds procedure as attached to the Heritage Impact Assessment Report, is implemented for the duration of construction activities.

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:



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

YES NO

BASIC ASSESSMENT REPORT

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.

No permit applications are required at this stage, however should it be identified that a permit is required, the necessary permit will be obtained prior to construction.

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.

The Socio-Economic Assessment for the proposed Bonsmara SEF and associated grid infrastructure was undertaken by Synergy Global Consulting (report dated February 2023), and is attached as **Appendix D**.

Level of unemployment:

According to the Socio-Economic Assessment, 18% and 19% of the population are unemployed within the Moqhaka Local Municipality and Fezile Dabi District Municipality, respectively.

Economic profile of local municipality:

In terms of the socio-economic profile, the employment status of the district and local municipalities where the proposed Bonsmara SEF will be located is represented below.

Table 7: Employment status in the Fezile Dabi DM and Moqhaka LM

Employment Status	Fezile Dabi DM	Moqhaka LM
Employed	37%	34%
Unemployed	19%	18%
Discouraged Job Seeker	4%	4%
Not Economically Employed	40%	44%

A high percentage of the population within the Fezile Dabi DM is not employed, a trend reflected in Moqhaka Local Municipality.

The need for sustainable, clean energy supply, nationally, is also applicable in the Moqhaka municipal area. The Moqhaka LM IDP (2022-2027) notes that while 98% of households within the municipality have access to electricity, there is a need for the expansion of public lighting. The proposed development for electricity distribution infrastructure (namely the onsite substation and power line) which will serve the Bonsmara SEF (part of a separate EIA Process), will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country.

Level of education:

In terms of level of the education profile, the matriculation completion rate and grade nine completion rates for the district and local municipalities are shown in the table below.

Table 8: Education profile of the Fezile Dabi DM and Moqhaka LM

Educational Attainment	Fezile Dabi DM	Moqhaka LM
Completed ninth grade or higher	68.5%	68%
Completed matric	38.9%	38%

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R80 million
What is the expected yearly income that will be generated by or as a result of the activity?	R100 million
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?	Approximately 200
What is the expected value of the employment opportunities during the development and construction phase?	Approximately R 1 200 000.00
What percentage of this will accrue to previously disadvantaged individuals?	40%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Approximately 50
What is the expected current value of the employment opportunities during the first 10 years?	Unknown at this stage
What percentage of this will accrue to previously disadvantaged individuals?	40%

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.

BASIC ASSESSMENT REPORT

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	<p>The Free State Conservation Plan (2016) designates the following CBA categories, based on national standards:</p> <ul style="list-style-type: none"> • Protected Areas • Critical Biodiversity Area 1 & Critical Biodiversity Area 2 • Ecological Support Area 1 & Ecological Support Area 2 • Other & Degraded <p>The site falls predominantly within an ESA 1 designated area, with patches of ESA 2. Two key ESA designated corridors are represented by the regional planning designations, the first to the north and east of the site, following the Valsrivier and the second to the south along the Blomspruit River. The site falls across a portion of designated ESA that serves to connect these two corridors, thus the site will serve as an integral part in the connectivity of these corridors. Land use guidelines indicate that while ESA sites are not essential for meeting biodiversity targets, they play an important role both in delivering ecosystem services as well as supporting ecological functioning and connectivity. Some habitat loss is generally acceptable within these areas; however, ecological functioning and connectivity should not be compromised. Any development of the site should thus make allowances for ecological connectivity as a minimum, which has been achieved through maintain corridors.</p>

b) **Indicate and describe the habitat condition on site**

Alternative 1 - Preferred Power Line Route

Habitat Condition	Percentage of habitat condition class (adding up	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).

BASIC ASSESSMENT REPORT

	to 100%)	
Natural	0 %	
Near Natural (includes areas with low to moderate level of alien invasive plants)	75 %	Near natural vegetation with low to moderate degradation due to historical and ongoing grazing.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	25 %	Old lands present as well as existing substation.

Alternative 2 - Alternative Power Line Route

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	0 %	
Near Natural (includes areas with low to moderate level of alien invasive plants)	100 %	Near natural vegetation with low to moderate degradation due to historical and ongoing grazing. Some erosion present along banks of watercourses due to grazing and livestock trampling.
Degraded (includes areas heavily invaded by alien plants)	0 %	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0 %	

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	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats,	Estuary	Coastline
	Endangered			
	Vulnerable			

BASIC ASSESSMENT REPORT

Terrestrial Ecosystems		Aquatic Ecosystems			
Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Least Threatened	seeps pans, and artificial wetlands)			
		YES		NO	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)

TERRESTRIAL ECOLOGICAL ASSESSMENT

A Terrestrial Biodiversity Study was undertaken by Jamie Pote (report dated October 2022), attached as **Appendix D**.

Systematic Planning Frameworks

Vegetation Type

The site is located entirely within Central Free State Grassland (currently having a Least Concern conservation status) (**Figure 13**). Elements of Vaal-Vet Sandy Grassland (Endangered), Eastern Free State Sandy Grassland (Least Concern), and Winburg Grassy Shrubland (Least Concern) may be present on slopes and rocky hills or mesas, which will be assessed further during the assessment process. Highveld Alluvial Vegetation elements may be represented in alluvial or wetland areas.

Project : Bonsmara Solar PV Facility
Layout - Vegetation and Status (National)

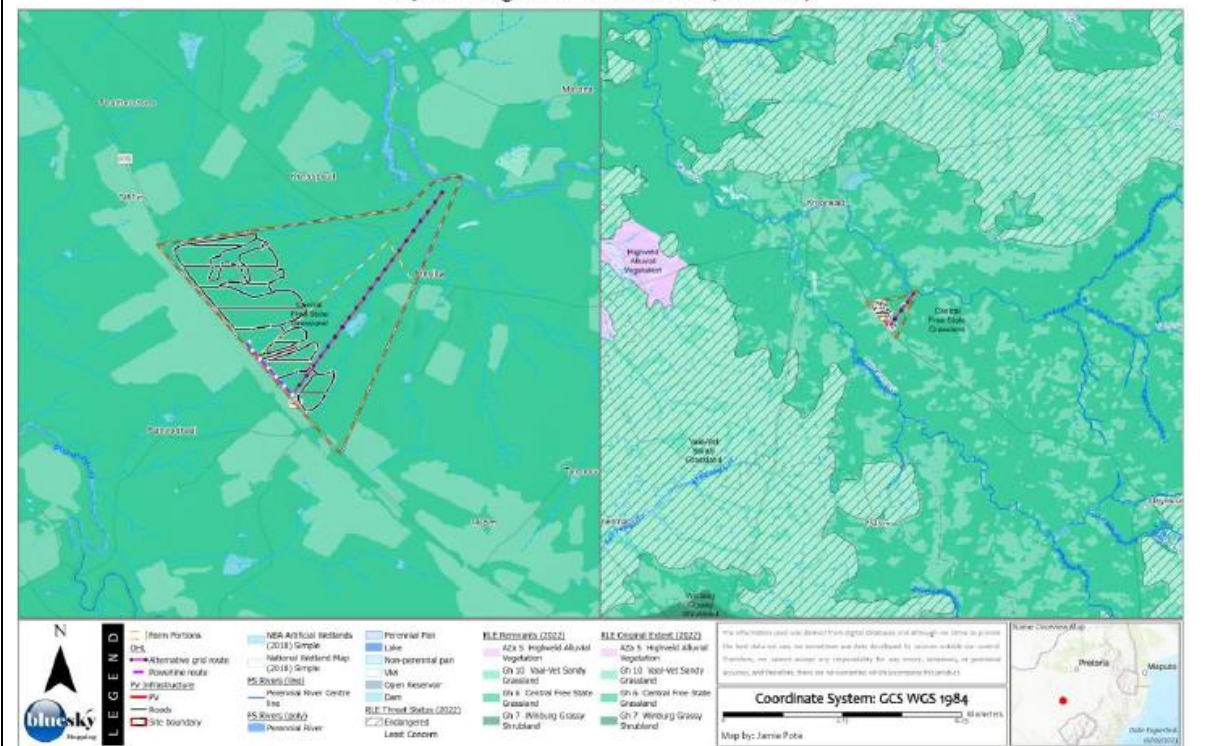


Figure 13: Vegetation and Status (National)

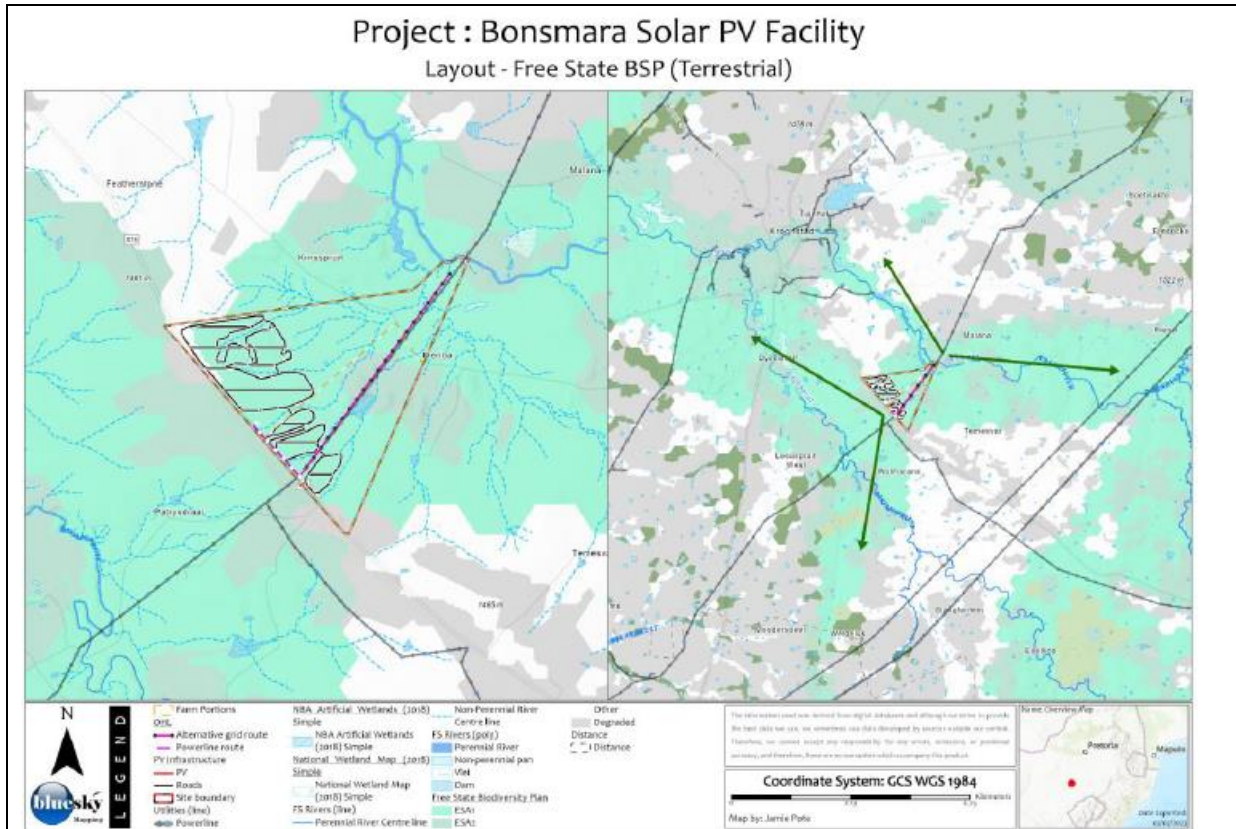
The project area is generally characterised by Central Free State Grassland undulating plains supporting short grassland, in natural condition dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. Dwarf karoo bushes establish in severely degraded clayey bottomlands. Overgrazed and trampled low-lying areas with heavy clayey soils are prone to *Acacia karoo* encroachment. Pockets of Vaal-Vet Sandy Grassland also occur as a Plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall. The Highveld Alluvial Vegetation generally has flat topography supporting riparian thickets mostly dominated by *Acacia karoo*, accompanied by seasonally flooded grasslands and disturbed herblands often dominated by alien plants.

As is evident from land-use coverages, the broader area surrounding the site is somewhat fragmented because of agriculture related land-use, including agriculture and urbanisation to the north. The specific site is relatively unmodified. Some erosion along watercourses and surrounding drainage lines is evident from aerial photographs supported by initial site observations, which could be indicative of historical overgrazing.

Free State Biodiversity Plan (2016)

The site falls predominantly within an ESA 1 designated area, with patches of ESA 2, Other Natural Areas, and Degraded Areas (**Figure 14**). Two key ESA designated corridors are delineated, the first to the north and east of the site, following the Valsrivier and the second to the south along the Blomspruit River. The site falls across a portion of designated ESA that serves to connect these two corridors, thus the site will serve as an integral part in the connectivity of these corridors.

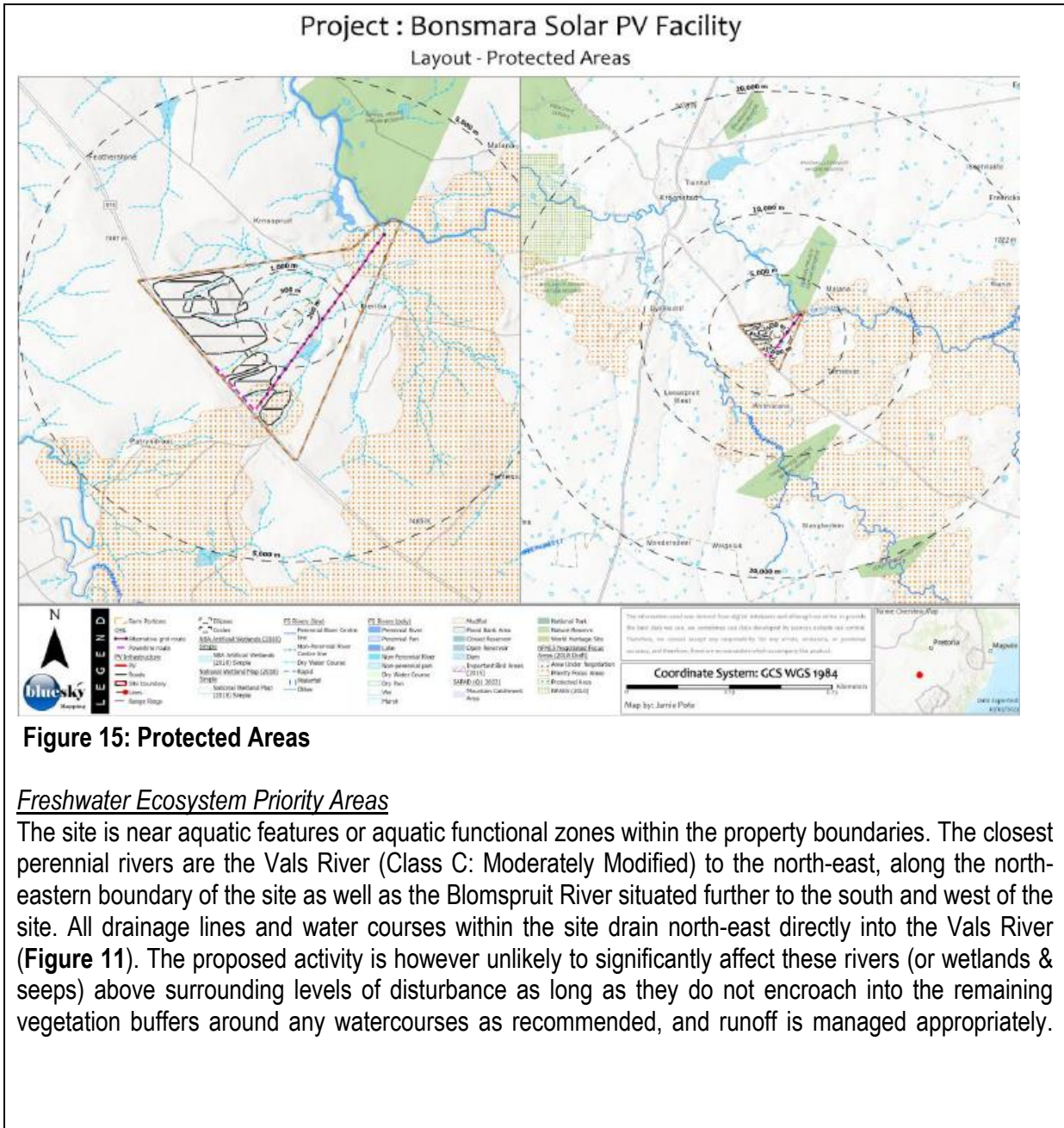
The purpose of ecological corridors is to provide intact pathways for long-term biological movement. They also support the natural movement of species between populations to ensure population viability. Landscape corridors are aligned with areas that have maximum amounts of remaining natural habitat. Local corridors are fine-scale corridors that contribute to connectivity.



Protected Areas

No National Parks are situated within 10 km of the site (**Figure 15**) and a single Private Nature Reserve is situated within 5 km of the site, the Erfdeel Private Nature Reserve which abuts the north-eastern boundary of the site.

Several other Private Nature Reserves are situated within the 5 km to 50 km range from the site. A portion of the site, on the southern boundary overlaps with designated NPAES. The next nearest NPAES is over 15 km to the north-west as well as several designated areas in the broader 20 – 50 km area (all designated as Freestate Highveld Grassland Focus Areas). The site is situated to the south-west of the nature reserve. No national protected areas, nor any ecological processes associated with them are likely to be affected by the proposed activity.



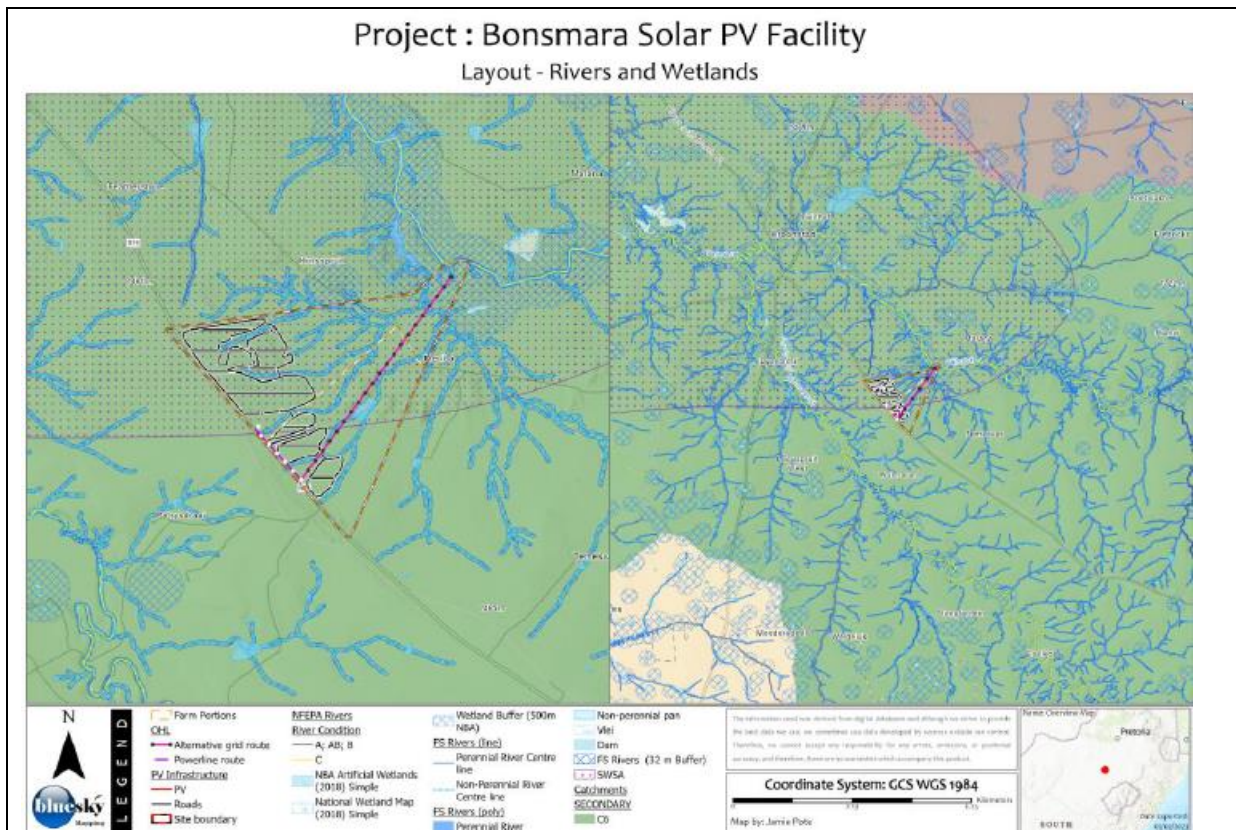


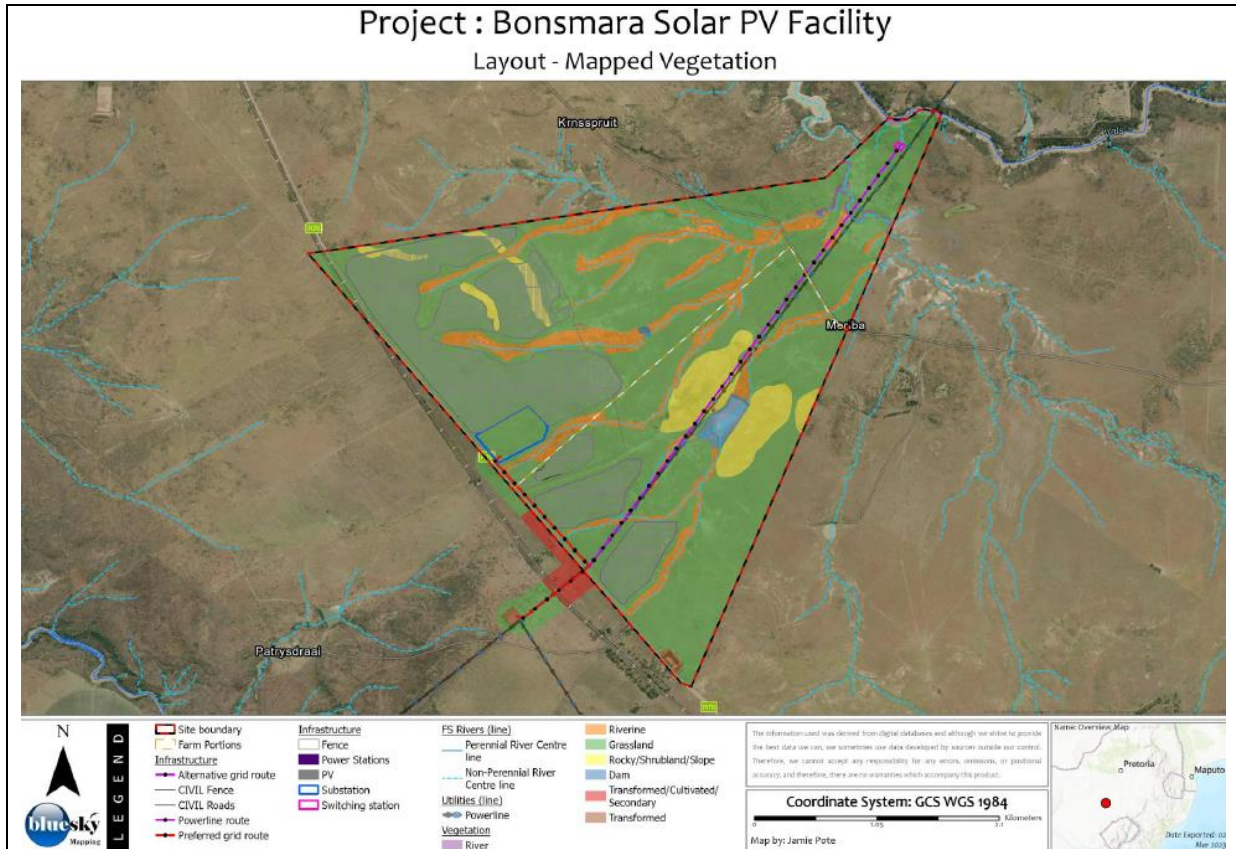
Figure 16: Rivers and Wetlands

Baseline Biodiversity Description

While largely grass dominated and typical of the Central Free State Grassland unit, a notable herbaceous and forbs component is evident, often patchy with several geophytes also noted, although not abundant. The broader area has low to moderate levels of transformation, primarily agriculture with small watercourses and occasional rocky hills interrupting the largely continuous grassland cover. Site verification confirms that the vegetation of the site is clearly grassland dominated, with a notable herbaceous component and the occasional tree. Watercourse sources (seeps) have a more developed tree component, mostly scattered *Vachellia* (*Acacia*) *karoo*, and does have Highveld Alluvial Vegetation elements present in riverine areas surrounding the watercourses as well as surrounding the Vals River.

The site is largely natural to near natural with some areas clearly showing indicators of degradation as well as localised erosion, mostly surrounding the incised watercourses within deep sandy alluvia, having a deep sandy substrate.

Grassland vegetation is comprised primarily of grasses including *Aristida adscensionis*, *Aristida congesta*, *Cynodon dactylon*, *Eragrostis chloromelas*, *Eragrostis curvula*, *Eragrostis plana*, *Panicum coloratum*, *Setaria sphacelata*, *Themeda triandra* and *Tragus koelerioides*. Low shrubs and herbs include *Felicia muricata*, *Anthospermum rigidum*, *Helichrysum dregeanum*, *Berkheya onopordifolia*, *Chamaesyce inaequilatera*, *Conyza pinnata*, *Hermannia depressa* and *Hibiscus pusillus*. Geophytic and Succulent species include *Oxalis depressa*, *Raphionacme dyeri* and *Tripteris aghillana*. Pockets of trees, having a bushveld appearance are also present, which are partly indicative of degradation, presence of rockier habitat and/or along watercourses or possible seep areas on upper watercourses. Typical tree species include *Vachellia karoo*, *Searsia dentata*, *Diospyros lycioides* and *Searsia rigida*.



Flora

Several endemic and range restricted species are known from the surrounding area. None are likely to be present. Note, there is a residual very-low possibility that these species could be present, and cannot be discounted without extensive seasonal sampling, which is generally outside the scope of such an assessment, unless a specific risk is identified. Due to the localised nature of the impact, as well as the level of degradation of the site, the risk of a species suffering any significant loss is low.

Fauna

The habitats and microhabitats present on the project site are not unique and although highly fragmented, are widespread in the broader area, hence the local impact associated with the footprint would be of low significance if mitigation measures are adhered to.

Mammals – The National Environmental Screening Tool identifies *Hydrictis maculicollis* (Spotted-necked Otter) as possibly occurring in the area. Preferred habitat for Spotted Necked Otter is standing or permanent water. No permanent standing water sources likely to contain fish are present within or in close proximity to the site and all watercourses and drainage lines have been designated no go areas.

Reptiles – Reptiles such a lizards, snakes and tortoises may be present. National Environmental Screening Tool identifies Sensitive Species 15, as possibly occurring in the area. No Sensitive Species 15 or evidence of the species was seen across the broader site and specifically the project footprint during the site survey (spring 2022 and summer 2023). Consultation with the landowner supports this observation and confirms that known localities are generally to the east and south of the project area.

Site Sensitivity

The site sensitivity can be summarised as follows:

- Low sensitivity areas include all significantly disturbed vegetation, cultivated lands and other transformed land. All transformed areas including hardened surfaces, and dwelling have a low sensitivity.
- Moderate sensitivity sites include secondary vegetation identified in the vicinity of the activity. Moderate sensitivity habitat consists of all-natural grassland vegetation, having a Least Concern conservation status as well as being designated as ESA but not having an elevated CBA designation.
- High sensitivity areas include intact habitat having an elevated conservation status, providing critical habitat for species of conservation concern or overall elevated sensitivity where risks must be managed appropriately. High sensitivity habitat consists of man-made dams, rocky hills, that is less common in the surrounding landscape is present.
- Very High sensitivity terrestrial areas include habitat deemed to be critical habitat. Very high sensitivity habitat includes riverine and riparian habitat along watercourses, wetlands, and includes eroded areas adjacent to watercourses, which would be deemed sensitive to disturbance.
- No-go areas would include populations of threatened or protected species or areas providing critical ecological processes. Riverine areas would be considered no go areas, other than for strategic linear crossings including roads, power lines and other such infrastructure.

Project : Bonsmara Solar PV Facility
Layout - Vegetation & Sensitivity

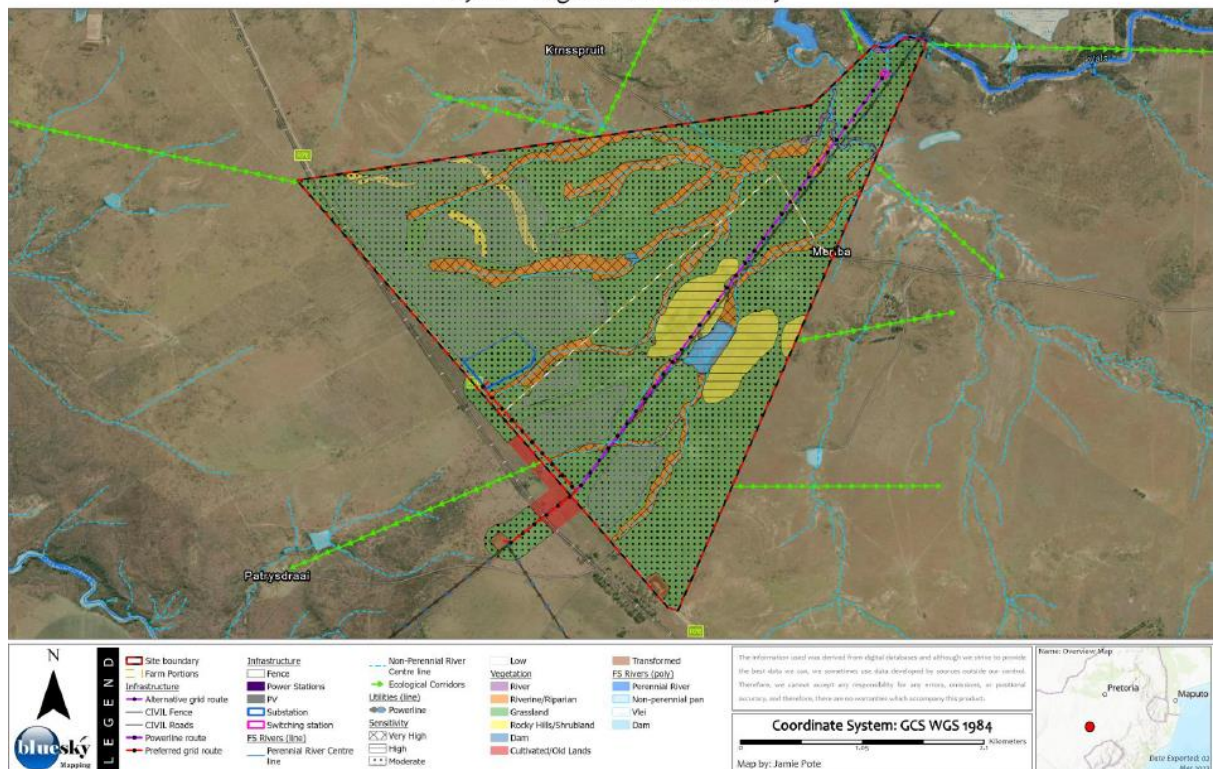


Figure 18: Overall Site Sensitivity

Comparative Assessment of Alternatives

Two alternatives for the Grid Connection are provided below.

Table 9: Comparative assessment of powerline route / grid alternatives

GRID CONNECTION ALTERNATIVES		
Grid Option 1 (Preferred)	Preferred	Preferred option as terrestrial biodiversity impact will be less due to shorter length and avoiding traversing various sensitive habitats including hills, watercourses and riverine areas.
Grid Option 2	Favourable	Longer length and presence of several more sensitive habitats including hills, watercourses and riverine habitat will result in a higher terrestrial biodiversity impact. These higher impacts would not be considered fatal flaws to the alternative overhead powerline.

Summary of Findings and Recommendations

The vegetation unit present, Central Free State Grassland, has a Least Concern status, indicating that less than 40% has been transformed regionally and there will likely be minimal loss or disruptions to ecological functioning. Elements of Vaal-Vet Sandy Grassland (Endangered), Eastern Free State Sandy Grassland (Least Concern), and Winburg Grassy Shrubland (Least Concern) may be present on slopes and rocky hills or mesas, which will be assessed further during the assessment process, while Highveld Alluvial Vegetation elements may occur around alluvial or wetland areas. Development of a portion of the site will thus not significantly affect conservation targets for the affected vegetation unit(s), as significantly more than 24 % (i.e. the conservation target) is retained.

The site is near several aquatic features or aquatic functional zones that traverse the property. The closest perennial rivers are the Vals River (Class C: Moderately Modified) to the north-east, along the north-eastern boundary of the site as well as the Blomspruit River situated further to the south and west of the site. All drainage lines and water courses within the site drain north-east directly into the Valsrivier. The proposed activity is however unlikely to significantly affect these rivers (or wetlands & seeps) above surrounding levels of disturbance as long as they do not encroach into the remaining vegetation buffers around any watercourses and runoff is managed appropriately. Any aquatic, riverine or riparian habitat has been excluded from the site layout other than strategically sited linear activities such as access roads and power lines.

The site falls predominantly within an ESA 1 designated area, with patches of ESA 2, Other Natural Areas and Degraded Areas. Two key ESA designated corridors are represented by the regional planning designations, the first to the north and east of the site, following the Valsrivier and the second to the south along the Blomspruit River. The site falls across a portion of designated ESA that serves to connect these two corridors, thus the site will serve as an integral part in the connectivity of these corridors. Some habitat loss is generally acceptable within these areas; however, ecological functioning and connectivity should not be compromised. Any development of the site should thus make allowances for ecological connectivity as a minimum, which has been achieved through maintain corridors.

No National Parks are situated within 10 km of the site and a single Private Nature Reserve is situated within 5 km of the site, the Erfdeel Private Nature Reserve which abuts the north-eastern boundary of the site.

Some rocky areas are present, in particular a series of small hills situated surrounding the dam on Portion 1 of Farm Scheveningen 636.

No flora species of conservation concern with an elevated conservation status are flagged. Site survey determined that several Free State Nature Conservation Ordinance species are present, for which permits will be required. All of these species are generally widespread and not under threat.

Two faunal species of conservation concern were flagged in the Screening. The Spotted Necked Otter is unlikely to be affected were it to be present, as its preferred habitat (standing water and adjacent riparian vegetation) is outside of the project footprint. Sensitive Species 15 could potentially be present but site sampling did not locate this species nor any evidence thereof within the project footprint. This correlates with known records which indicate the species is generally more prevalent to the east and south of the site. Should any be located during construction, relocation would be feasible.

Due to having a low conservation status, the grassland habitat is deemed to have a moderate sensitivity status and would provide a suitable footprint for the proposed activity, bearing in mind watercourse and ecological process and connectivity buffers which have been incorporated into the design to incorporate an undeveloped network for connectivity purposes within the site and the surrounding landscape, due to ESA designation.

Recommendations

- Natural vegetation does not have an elevated conservation status and is not designated a Critical Biodiversity Area status but rather an Ecological Support Area. This does not preclude for further development, as long as ecological connectivity and processes are accommodated, and further assessment will identify most suitable areas that would minimise biodiversity loss. As a minimum, the conservation target of the vegetation unit (24%) should be retained across the site as well as a contiguous network with the site and the surrounding landscape as a corridor or series of viable ecological corridors, which is significantly exceeded.
- Watercourses, Riverine (Riparian) & Wetland areas, dams and rivers as well as rocky hills are not suitable and have been excluded from any development footprint other than for strategic infrastructure requirements including the grid connection power lines.

AVIFAUNA ASSESSMENT

An Avifauna Assessment was undertaken by Enviro Insight (report dated March 2023) and is attached as **Appendix D**.

Description of the Major Bird Habitats

The overall habitat delineation as expressed in **Figure 19** below is more complex than the habitats described below. However, for the purposes of avifaunal monitoring, the monitoring can be confined to the below-described habitat types which will encompass all delineated habitats below.

Open Grassland interspersed within Woodland

The open grassland supports a mix of grassland, wetland and drought-tolerant grass species such as *Themeda triandra*, *Sporobolus sp.*, *Setaria sp.*, *Cynodon sp.*, *Aristida sp.*, *Eragrostis sp.*, *Digitaria sp.*, and *Heteropogon sp.* with various trees such as *Grewia sp.*, *Ziziphus sp.*, *Searsia sp.*, *Grewia sp.*, and *Senegalia sp.* interspersing the grassland habitats in low densities. The vegetation type is the most dominant type for the proposed project. Due to the vegetation type being the only habitat for the proposed study area, it is of medium sensitivity. This type of vegetation also supports many priority avifauna species expected within the study area such as large terrestrial bird species (Northern Black Korhaan), raptor species such as Black-winged Kite, Pale Chanting Goshawk and Black-chested Snake Eagle, as well as the highest likelihood for Secretary bird.

Isolated Small Rocky Ridges ‘Koppies’

The small rocky ridges found in and around the study area differs in size and height, but do not form extensive ridge systems and often form near isolated small “koppies” as is typical of the habitat type. There are some relatively higher undulations to the south of the proposed project footprint. Although, no nests were found within the “koppies”, this vegetation type is of high sensitivity as it supports great habitat for different fauna and flora species found within the study area. These areas also support scattered large thorn bushes which could be ideal nesting habitat for raptor species such as Secretary bird. Although no nests were found, it is important to protect these areas.

Waterbodies

All the waterbodies found within the study area are man-made and mostly fill up after heavy rains. The main artificial waterbody impoundment situated within the study area is relatively large and has wisely been buffered from the infrastructure footprint. The smaller dams and water holes observed within the study area did not support any waterbirds although large densities of small birds such as swifts congregated around some habitats still containing water from the excellent rains in 2022. Congregations around these habitats were primarily due to nesting habitat and a lack of standing water throughout the region during the survey period (providing a localised attractant). All waterbodies were observed during the wet season as well, so that the bird activity can be compared to the initial survey.

Drainage Lines

The drainage lines throughout the Project Area of Influence (PAOI) were primarily herbaceous and dry with some structural differences to the surrounding Open Grasslands. As expected, these habitats provided significantly different survey results during the wet season, with greater potential for the presence of priority species. Occasionally and in some localised locations, standing water still persisted within these habitats during the drier season.

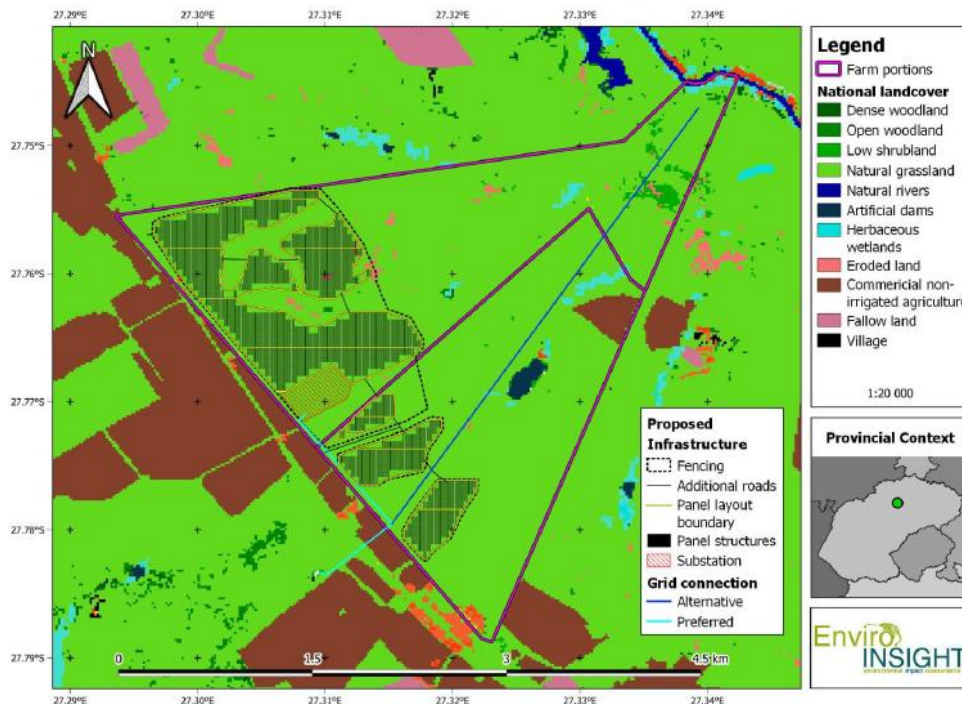


Figure 19: Habitat Delineation of the project footprint

Critical Biodiversity Areas (CBAs) of the Free State

A map of the study in relation to the 2016 Free State CBA’s is presented in **Figure 20**, indicating that

the study area is located mainly in ESA1 with a small portion in Other natural areas. This was supported by the field verification although this does not discount the habitats of higher sensitivity such as the Drainage Lines and Waterbodies.

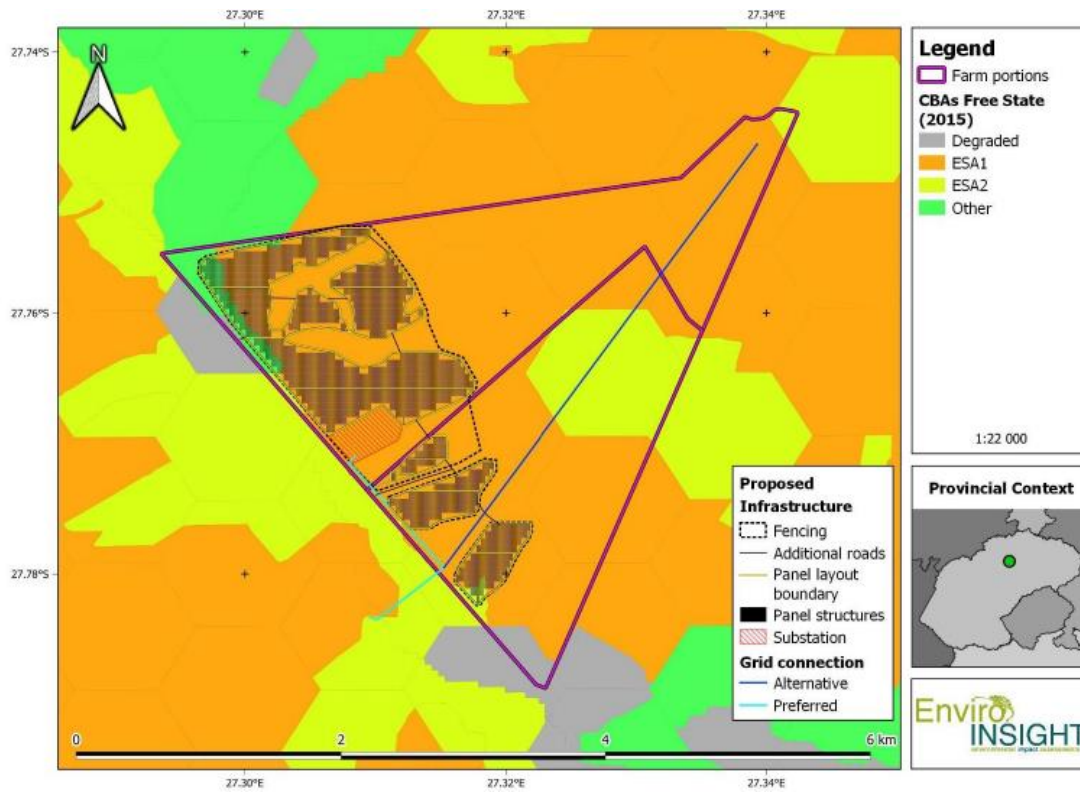


Figure 20: Critical Biodiversity Area within the development footprint

Important Bird and Biodiversity Areas

The proposed powerline alternatives does not occur within an area of influence of any Important Bird and Biodiversity Area (IBA) with both the Willem Pretorius and Rooiberge Riemland reserves being situated more than 50 km and 75 km away, respectively.

Expected and Observed Avifauna

A relatively high diversity of 161 bird species for the area have been recorded within the 16 SABAP pentads in which the study area is situated. During the September 2022 site visit, a total of 79 species were recorded with an additional 37 species recorded during the January optimal wet season, totalling a total of 116.

The observed avian species richness is considered moderate for an area of this size in the South African context. However, the wet season results were highly significant given the highly significant abundance increase in observed avifauna which was representative of an abundance of food and breeding resources. However, even in optimal conditions, the number of priority species and SCC was low.

Many of the birds observed are generally considered to be common, widespread and adaptable species which were observed within their expected habitats. No nests, but multiple raptor species were recorded within the project footprint. The Combined Project Area was confirmed to support few residents and/or breeding populations of SCC as per the results. Generally, small passerine flight activity was high to moderate and flight paths mainly low, short and local with very few higher-flying

commuting individuals observed. However, observations of medium to larger species, including large flocks of commuting waterfowl, were observed, especially towards the northern river system and the drainage line habitats, as were ground congregations of species such as Northern Black Korhaan. Abundances of power line collision-prone species such as Ludwig's Bustard and Kori Bustard were low.

Focal Sites

The drainage line system throughout the project study area contained a relatively high density (and higher diversity) of passerines, korhaans and other priority species. The existing power lines were also surveyed, with notable high densities of smaller raptor species including Black-winged Kites and Amur Falcons (wet season) activity.

Nest Survey

Nest sites were searched for during the surveys which included windmills, trees, pylons, bridges and masts, representing most potential roost and nesting sites for raptors. Water bodies were potential roost and nesting sites for multiple species. No significant breeding habitat was recorded during the surveys. Secretary birds are considered a predicted resident and to be breeding on or near site, although no nests were located.

Sensitivity

The study area mostly consists of Open Grassland with some drainage line habitats found in parts of the proposed project footprint. The Grassland (including woodland permeations) and Koppie vegetation provides potential nesting habitat for bird species such as small Raptors, Larks, Pipits, Cisticola's and Korhaan and possibly including hunting/foraging habitat for species such as Lanner Falcon, Secretary bird and other larger raptors. The woodland and ridge areas found within the site consist of succulents and some large thorn bushes which might provide possible nesting and foraging habitat for species such as Chats and Prinia's, including sensitivity species such as the Secretary bird.

The site visit in September 2022 took place during the late dry season, which means the habitat conditions were at their least optimal. When conditions are sub-optimal, avifaunal assemblages will carry out small scale migrations to more ecologically productive habitats (such as permanent water courses) and return after the post rain green flush. Even the large artificial impoundment showed almost no significant bird activity, with expected species such as ducks, geese, stilts, stints, and plovers all but absent. However, the January 2023 Summer wet-season showed that within the drainage lines and impoundment areas, as well as the general grassland habitats, migratory patterns during summer and higher rainfall provided optimal foraging habitat for sensitive species with a possibility to occur on site such as Bustards, Storks, Waders, and a plethora of other priority species not observed during the two surveys. Accordingly, all watercourses are mapped as sensitive and buffered at 50m with side of the edge of the habitat delineation (**Figure 21**).

There is an existing substation running along the southern border of the southern section of the study area. The associated power line did not have any signs of priority bird species nests but could lead to possible nesting in the future for species such as Martial Eagle. The species abundance would be at its highest during and after the rainy season, as food resources increase more birds will fly in, including water associated bird species which will mostly be found at the larger dam north of the power line study area.

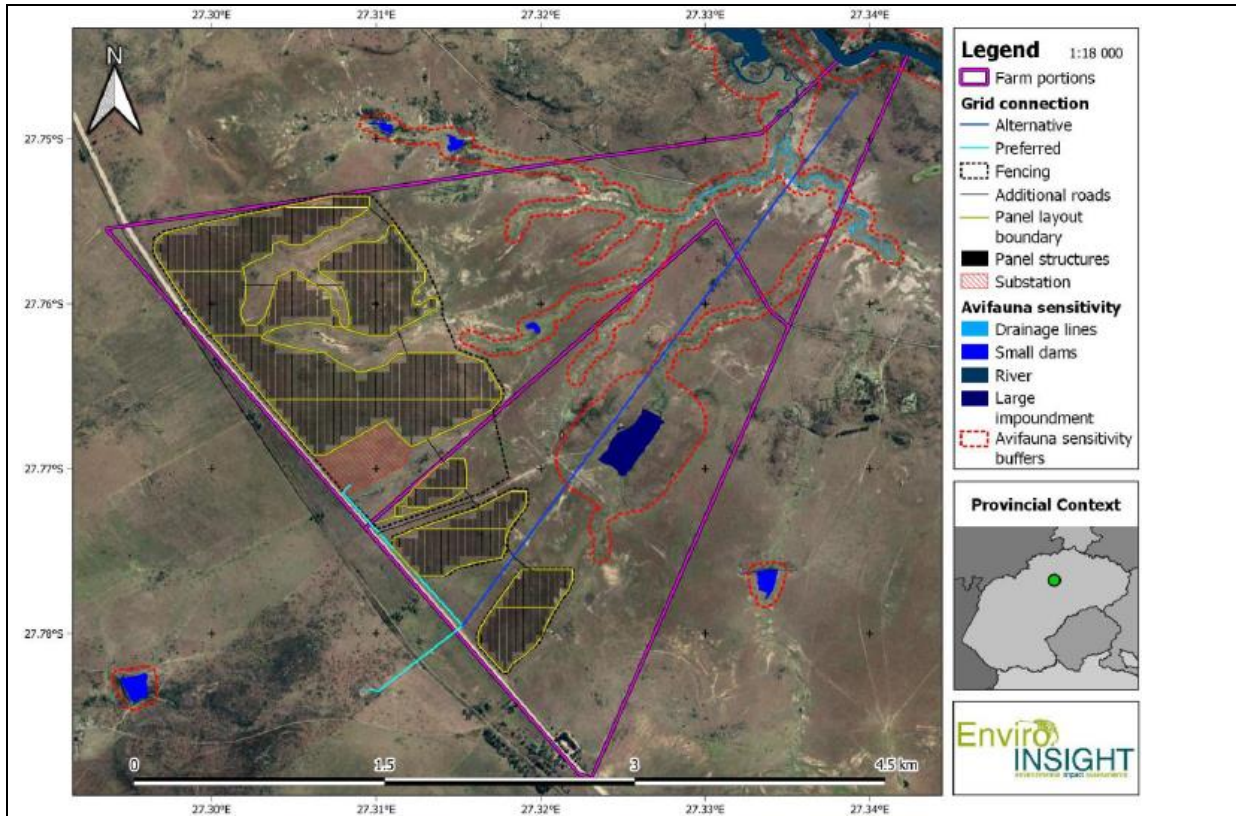


Figure 21: Avifauna Sensitivity

The respective alternatives for the proposed development were comparatively assessed in the table below.

Table 10: Comparative assessment of the preferred (Alternative 1) and alternative (Alternative 2) power line route

Alternative	Preference	Reasons (incl. potential issues)
GRID LINES ALTERNATIVES		
Grid Line Alternative 1	Preferred	Since this proposed option is located adjacent to existing infrastructure (such as main roads) where edge effects are already high and sensitivity for avifauna habitat is low, this is preferred.
Grid Line Alternative 2	Least Favourable	This alternative transects the site and crosses/ lies adjacent to sensitive habitats. It is significantly more sensitive than Alternative 1.

Conclusion

The study area is situated within the Central Free State Grassland vegetation type. The study area is not anticipated to support breeding populations of several large terrestrial bird species such as cranes, bustards and Red-Listed korhaans and large raptor species in sufficiently large densities or within breeding habitat that may be considered highly significant. However, given the size of the area, the proximity to a very large wetland impoundment and the large amount of herbaceous drainage line habitat within the project footprint, final conclusions were subjected to a wet season verification under a Regime 2 survey. Thus, in order to confirm that the study area is of low sensitivity in terms of conservation of these type of bird species, a January 2023 survey was conducted as per the aforementioned methods.

The wet season results were highly significant given the highly significant density increase in observed avifauna which was representative of an abundance of food and breeding resources. However, even in

optimal conditions, the diversity of priority species was low and the abundance number of priority species and SCC was moderate.

A total of 56 priority species has the possibility of occurring within and around the study area, although only ten (10) Red Listed species have been identified as present or highly likely and most are of moderate likelihood to occur within the project footprint and most will be irregular foraging visitors and not resident. Two red listed species were recorded, namely Double-banded Courser and African Marsh Harrier (EN).

The proposed solar project and supporting Grid infrastructure has the potential to be of low to medium sensitivity from an avifaunal point of view. Some of the priority bird species are not habitat bound to the area for nesting and/or foraging purposes and is therefore important to focus on the some of the most significant cumulative impacts for the proposed solar project.

The study area is not surrounded with existing renewable energy developments, both wind and solar developments, although a number are proposed which could have the possibility of cumulative impacts at the proposed site. Sensitive bird species found within the study area included Northern Black Korhaan, Amur Falcon, African Marsh Harrier (recorded far outside the buffer area), Double Banded Courser and Secretary bird (expected but not observed). No nests of sensitive species were observed or identified within the project footprint.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Vrystaat Kroon	
Date published	12 May 2023	
Site notice position	Latitude	Longitude
Moqhaka Local Municipality	27°39'48.85"S	27°14'22.14"E
Museum Sarel Cilliers (Public Library)	27°39'51.35"S	27°14'18.71"E
Kroonstad Town Reitz Street (opposite Midas)	27°39'38.29"S	27°14'18.70"E
Along R76 (Near Kosmos Tuinornamente)	27°41'24.08"S	27°14'46.45"E
Along R76 (Boeta Gate)	27°46'26.14"S	27°18'35.94"E
Along R76 (Near the construction camp of road upgrade)	27°47'10.35"S	27°19'14.23"E
Date placed:	19 October 2022	

Include proof of the placement of the relevant advertisements and notices in **Appendix E1** – Appendix E1 = Proof of site notices, Appendix E2 = Proof of advertisement (*To be included in the Final BAR*).

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 326.

STEPS TAKEN TO NOTIFY KEY STAKEHOLDERS AND POTENTIAL I&APS

Notification of BA process to be undertaken:

- Issuing of the notifications and initial landowner consultation (to be circulated to all I&APs as part of the Draft Basic Assessment Report (proof to be included in Final Basic Assessment Report).
- Placement of site notices in English and Afrikaans (as per regulations) were placed along the entrance road to the application site and around the site itself on 19 October 2022 (proof included in the Basic Assessment Report).
- Notification letters to be sent via E-mail or sms (if cellphone number / email is available, it is assuming the I&AP have an email or cellphone).
- Public notification of the BA process will be advised in a local newspaper (namely Vrystaat Kroon), as required according to Regulation 41(2) (c) of the EIA Regulations (2014), as amended (Proof to be included in the Final Basic Assessment Report).

Availability of the report for review:

- The draft Basic Assessment report will be available for public review from the 12th of May 2023 until the 12th of June 2023.
- Report will be available on SiVESTs website for download.
- Electronic copies will be made available to parties via a secure digital link that will be emailed upon request for the documentation.
- CDs / Flash drive to be posted, only if requested.
- The Draft Basic Assessment Report will be located and available for review at the following locations:
 - Moqhaka Local Municipality – Hill Street, Kroonstad, Free State Province, South Africa

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 326

*The list of key stakeholders identified for this project is attached as **Appendix E3**.*

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E4** – *To be included in the Final BAR.*

This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;

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- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

To be completed once the Public Comment Period has been completed for this application.

Summary of main issues raised by I&APs	Summary of response from EAP

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as **Appendix E5**.

A Comments and Response report will be drafted once the 30-day comment period has been undertaken and included in the Final BAR.
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5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

*The list of key stakeholders identified for this project is attached as **Appendix E3**.*

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

Include proof that the Authorities and Organs of State received written notification of the proposed activities as **Appendix E4** – *To be included in the Final BAR.*

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

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

A list of registered I&APs must be included as **Appendix E3**.

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

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended 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.

Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
CONSTRUCTION				
Impacts to Biophysical Systems				
Aquatic / Freshwater				
Loss of aquatic species of special concern during the construction or decommissioning of the grid options	Low	Low	Low	Low
Damage or loss of riparian systems, ephemeral watercourses and wetland systems in the construction or decommissioning of the grid options	Medium	Low	Medium	Low
Potential impact on localised surface water quality (construction materials and fuel storage facilities) during the construction and decommissioning phases	Medium	Low	Medium	Low
Terrestrial Ecology				
Vegetation - Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	Low	Low	Low	Low
Flora Species - Loss of flora species of special concern during pre-construction site clearing activities. Numerous species of special concern are potentially present within the affected area, which could be destroyed during site preparation	Low	Low	Low	Low
Alien Invasive Species - Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.	Low	Low	Low	Low
Erosion - Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	Low	Low	Low	Low
Ecological Processes - Disturbances to ecological processes. Activity may result in disturbances to ecological processes.	Low	Low	Low	Low
Aquatic and Riparian processes - Aquatic and Riparian processes. Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion. Impact of changes to water quality. Loss of riparian vegetation / aquatic habitat. Loss of species of special concern.	Low	Low	Low	Low
Faunal Habitat - Loss of Faunal Habitat: Activity will result in the loss of habitat for	Low	Low	Low	Low

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Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
faunal species.				
Faunal Processes - Disruptions to faunal processes Including barriers to movement and gene dispersal.	Low	Low	Low	Low
Faunal Species - Loss of faunal SSC due to construction activities: Activities associated with bush clearing and ploughing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	Low	Low	Low	Low
Agricultural – compliance statement – none identified				
Avifaunal				
Habitat loss (including foraging and breeding) and fragmentation due to displacement (avoidance of disturbance) as a result of infrastructure installation (Grid related infrastructure such as powerlines and pylons) and associated dust effects. Habitat loss has the tendency to not only destroy existing habitat but also displace bird species from natural habitat. This specifically has a greater impact on bird species restricted to a specific habitat and its requirements.	Medium	Low	Medium	Low
The destruction or disturbance of bird roosts during the construction phase	Low	Low	Low	Low
Disturbance (including of roosting and nesting SCC) due to noise such as, machinery movements and maintenance operations during the construction phase the proposed Grid Connection Infrastructure causing loss of offspring for a generation.	Low	Low	Low	Low
Geotech				
Ground disturbance during access road construction, foundation earthworks, platform earthworks	Low	Low	Low	Low
Increased erosion due to vegetation clearing, alteration of natural drainage	Low	Low	Low	Low
Impacts to Socio-Economic Component				
Social				
Noise Impact - Noise at the site and the construction vehicles ferrying the panels and building materials	Low	Low	Low	Low
Impacts on biodiversity - Habitat loss	Medium	Low	Medium	Low
Loss of agricultural land - Is a function of the size of the area of land that is impacted and the production potential, of that impacted land.	Medium	Low	Medium	Low
Cultural heritage impacts - If the proposed project located near sacred areas, cultural practices will be affected. Recent archaeological field assessment conducted for other solar PV facilities located approximately 10km from the proposed development area identified some cultural remains but with varied value and preservation. It is likely that similar heritage resources may be present within this development area. (CTS Heritage, 2022).	Medium	Low	Medium	Low
Graves - Identification of human remains indicating a former burial place or the simple existence of a known cemetery during construction.	Medium	Low	Medium	Low
Road and traffic hazards - Heavy construction vehicles on poor roads will cause potholes to form, and accidents will rise.	Medium	Low	Medium	Low
Social impacts: job creation - Creation of jobs and local economic opportunities	Medium	Low	Medium	Low
Heritage				
Impacts to archaeological heritage resources - Construction activities that take place near to archaeological resources may result in their destruction.	Medium	Low	High	Low
Impacts to palaeontological resources - Construction activities that take place near to palaeontological resources may result in their destruction.	Medium	Low	Medium	Low
Impacts to the cultural landscape - Construction activities that take place near to cultural landscape elements may result in their destruction.	Medium	Low	Medium	Low
Visual				
Altered Sense of Place and Visual Intrusion caused by Construction Activities	Medium	Low	Medium	Low

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Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
OPERATIONAL				
Impacts to Biophysical Systems				
Aquatic / Freshwater				
Impact on aquatic systems through the possible increase in surface water runoff on form and function during the operational phase from any of the access tracks, although none should cross the delineated systems	Medium	Low	Medium	Low
Terrestrial Ecology				
Alien Invasive Species - Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.	Low	Low	Low	Low
Erosion - Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	Low	Low	Low	Low
Ecological Processes - Disturbances to ecological processes. Activity may result in disturbances to ecological processes.	Low	Low	Low	Low
Aquatic and Riparian processes - Aquatic and Riparian processes. Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion. Impact of changes to water quality. Loss of riparian vegetation / aquatic habitat. Loss of species of special concern.	Low	Low	Low	Low
Faunal Processes - Disruptions to faunal processes Including barriers to movement and gene dispersal.	Low	Low	Low	Low
Agricultural - compliance statement – none identified				
Avifauna				
Bird mortalities during the operational phase due to, collisions with infrastructure.	Medium	Low	Medium	Low
Disruption of bird migratory pathways during the operational phase	Medium	Low	Medium	Low
The attraction of some novel bird species due to the development of a solar farm with associated infrastructure such as perches, nest and shade opportunities may cause both damage to the infrastructure through acidic defecation by certain species but also draw birds closer to infrastructure and cause significant direct mortality risks.	Low	Low	Low	Low
Geotech				
Soil Erosion - Increased erosion due to alteration of natural drainage	Low	Low	Low	Low
Impacts to Socio-Economic Component				
Social				
Impacts on water resources - There is no need for water for electricity generation.	Medium	Low	Medium	Low
Cultural Heritage - Location of operations near cultural sites may disrupt cultural practices.	Medium	Low	Medium	Low
Job creation for construction workers. - Increased employment providing skills development and local economic empowerment	Medium	Medium	Medium	Medium
Heritage				
Operational activities that take place near to archaeological resources may result in their destruction	Medium	Low	Medium	Low
Operational activities that take place near to palaeontological resources may result in their destruction	Medium	Low	Medium	Low
Operational activities that take place near to cultural landscape elements may result in their destruction	Medium	Low	Medium	Low

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Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Visual				
Altered Sense of Place and Visual Intrusion caused by the Powerline	Medium	Low	Medium	Low
Altered Visual Quality caused by Light Pollution from the Substation at Night	Medium	Low	Medium	Low
DECOMMISSIONING				
Impacts to Biophysical Systems				
Aquatic / Freshwater				
Loss of aquatic species of special concern during the construction or decommissioning of the grid options	Low	Low	Low	Low
Damage or loss of riparian systems, ephemeral watercourses and wetland systems in the construction or decommissioning of the grid options	Medium	Low	Medium	Low
Potential impact on localised surface water quality (construction materials and fuel storage facilities) during the construction and decommissioning phases	Medium	Low	Medium	Low
Terrestrial Ecology				
Vegetation - Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	Low	Low	Low	Low
Alien Invasive Species - Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established	Low	Low	Low	Low
Erosion - Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	Low	Low	Low	Low
Ecological Processes - Disturbances to ecological processes. Activity may result in disturbances to ecological processes.	Low	Low	Low	Low
Aquatic and Riparian processes - Aquatic and Riparian processes. Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion. Impact of changes to water quality. Loss of riparian vegetation / aquatic habitat. Loss of species of special concern.	Low	Low	Low	Low
Faunal Habitat - Loss of Faunal Habitat: Activity will result in the loss of habitat for faunal species.	Low	Low	Low	Low
Faunal Processes - Disruptions to faunal processes Including barriers to movement and gene dispersal.	Low	Low	Low	Low
Agricultural – none identified				
Avifaunal				
Disruption of bird migratory pathways during the decommissioning phase of the grid.	Medium	Low	Medium	Low
Geotech				
Ground disturbance during access road construction, foundation earthworks, platform earthworks	Low	Low	Low	Low
Increased erosion due to vegetation clearing, alteration of natural drainage	Low	Low	Low	Low
Impacts to Socio-Economic Component				
Social				
The aesthetic value of the land is lost - Land scarification will occur during the decommissioning of the solar plants.	Medium	Low	Medium	Low
Socio-economic impacts - Job losses	High	Medium	High	Medium

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Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Heritage				
Decommissioning activities that take place near to Archaeological resources may result in their destruction	Medium	Low	Medium	Low
Decommissioning activities that take place near to Palaeontological resources may result in their destruction	Medium	Low	Medium	Low
Decommissioning activities that take place near to cultural landscape elements may result in their destruction	Medium	Low	Medium	Low
Visual				
Altered Sense of Place caused by the Decommissioning Activities	Medium	Low	Medium	Low
CUMULATIVE				
Impacts to Biophysical Systems				
Aquatic / Freshwater				
Cumulative Impact of various proposed projects and associated grid lines on the natural environment	Low	Low	Low	Low
Terrestrial Ecology				
Vegetation - Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	Low	Low	Low	Low
Flora Species - Loss of flora species of special concern during pre-construction site clearing activities. Numerous species of special concern are potentially present within the affected area, which could be destroyed during site preparation.	Low	Low	Low	Low
Alien Invasive Species - Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.	Low	Low	Low	Low
Erosion - Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	Low	Low	Low	Low
Ecological Processes - Disturbances to ecological processes. Activity may result in disturbances to ecological processes.	Low	Low	Low	Low
Aquatic and Riparian processes - Aquatic and Riparian processes. Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion. Impact of changes to water quality. Loss of riparian vegetation / aquatic habitat. Loss of species of special concern.	Low	Low	Low	Low
Faunal Habitat - Loss of Faunal Habitat: Activity will result in the loss of habitat for faunal species.	Low	Low	Low	Low
Faunal Processes - Disruptions to faunal processes including barriers to movement and gene dispersal.	Low	Low	Low	Low
Faunal Species - Loss of faunal SSC due to construction activities: Activities associated with bush clearing and ploughing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	Low	Low	Low	Low
Agricultural – compliance statement - none identified				
Avifauna				
Increased collision related mortalities due to increased powerlines	High	Medium	High	Medium
Geotech – none identified				

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Impact Summary	Grid Option 1		Grid Option 2	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Impacts to Socio-Economic Component				
Social				
Visual Impacts - There are several substations and powerlines in the area, already affecting the visual quality and sense of place in this modified rural landscape.	High	Low	High	Low
Heritage				
Cumulative destruction of significant archaeological heritage	Medium	Low	Medium	Low
Cumulative destruction of significant palaeontological heritage	Medium	Low	Medium	Low
Cumulative impact to the cultural landscape	Medium	Low	Medium	Low
Visual				
Altered Sense of Place caused by the Grid Connection	Medium	Low	Medium	Low

A complete impact assessment in terms of Regulation 19(3) of GN 326 must be included as **Appendix F**.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Bonsmara Solar PV (RF) (Pty) Ltd is proposing to develop one (1) new 33/132kV on-site substation and switching substation as well as one (1) new associated 132kV overhead power line for the proposed Bonsmara Solar PV Facility. The grid connection infrastructure which is part of this application is being proposed to feed the electricity generated by the Bonsmara SEF (part of a separate EIA process) to the national grid.

The specialist assessments were conducted to address the potential impacts relating to the proposed development in order to ascertain the level of each identified impact, as well as mitigation measures which may be required. The Map below illustrates the sensitivities associated with the preferred and alternative grid connection power line route.

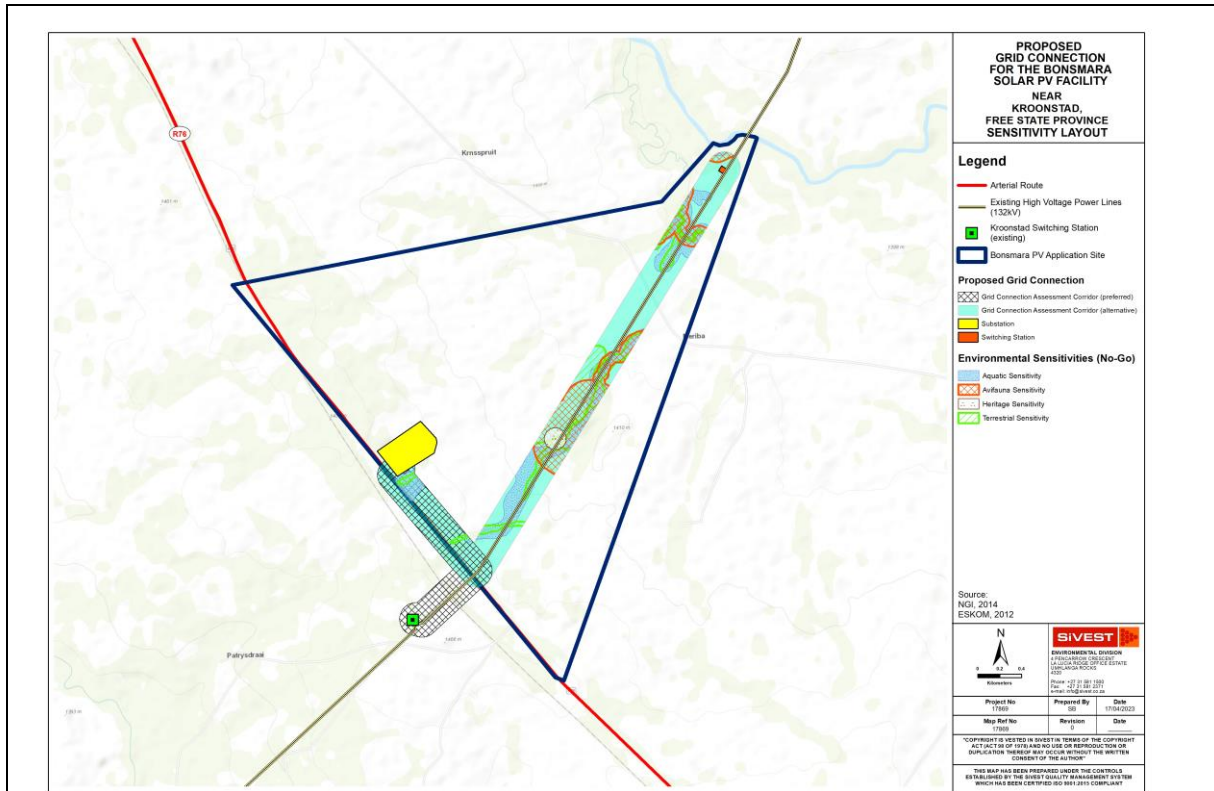


Figure 22: Sensitivity Layout

The following specialist studies have been undertaken for the proposed development and is attached as **Appendix D**:

- Aquatic/Freshwater Impact Assessment
- Agriculture and Soils Impact Assessment
- Avifaunal Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Desktop Geotechnical Investigation
- Social Impact Assessment
- Heritage Impact Assessment (including Palaeontology, Archaeology and Cultural)
- Visual Impact Assessment

The aquatic assessment (**Appendix D**) concluded that the PV site and grid options, especially the preferred option, is such that it carries a low intensity impact on the aquatic resources. The alternative grid option is also favorable, but this option will need to span several areas of a watercourse and could be selected but the final towers positions must be based on the recommendations of the aquatic specialist during the walk down. Overall, it is expected that the impact on the environment would be Low (-). The specialist finds no reason to withhold an authorisation of any of the proposed activities, assuming that key mitigations measures are implemented, coupled with a micrositing walkdown once all information is available.

The agricultural assessment (**Appendix D**) concluded that proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. Agriculture is not excluded from the land underneath a power line, and all agricultural activities can continue completely

unhindered underneath a powerline. The development is an opportunity for a renewable energy facility to be integrated with agricultural production in a way that provides benefits to agriculture and leads to little loss of future agricultural production potential.

The avifaunal assessment (**Appendix D**) indicated that the proposed solar project and supporting grid infrastructure has the potential to be of low to medium sensitivity from an avifaunal point of view. The specialist concluded that there is reason why an Environmental Authorisation (EA) should not be granted, provided that the necessary mitigation measures are implemented.

The geotechnical assessment (**Appendix D**) concluded that the power line corridor option 1 (alternative 1) is considered marginally more suitable for development from a geotechnical perspective. The reasons being, it is shorter in length and transverse across dry land, resulting in less geotechnical constraints, compared to corridor option 2 (alternative 2). Corridor option 1 will have less environmental impact. However no geologically or geotechnically sensitive areas were identified that would render either Corridor Options unsuitable for development, provided that standard engineering design and construction measures are implemented to mitigate the identified geotechnical constraints.

The heritage assessment (**Appendix D**) concluded that the preferred grid alignment (option 1) does not impact on this sensitive area however the alternative grid alignment (option 2) runs directly through this area. As such, the powerline alternative route 1 is preferred from a heritage perspective. No impacts to palaeontological resources are anticipated, however it is recommended that, due to the high palaeontological sensitivity of the development area, the Chance Fossil Finds procedure is implemented for the duration of construction activities. Should the alternative grid powerline be approved, the alignment would have to be immediately adjacent to the existing powerline and a micro-siting exercise would have to take place for the pylon footings to ensure that significant heritage resources are not impacted.

The terrestrial biodiversity assessment (**Appendix D**) concluded that due to having a low conservation status, the grassland habitat is deemed to have a moderate sensitivity status and would provide a suitable footprint for the proposed activity, bearing in mind watercourse and ecological process and connectivity buffers which have been incorporated into the design to incorporate an undeveloped network for connectivity purposes within the site and the surrounding landscape. All impacts are deemed to be medium before and low after mitigation.

The social impact assessment (**Appendix D**) concluded that the proposed development can be authorised considering that solar energy is environmentally friendly and thus contributes to climate change mitigation, with minimal negative impacts limited to silicon component manufacturing and cleaning of the silicon wafer. However, South Africa imports already manufactured components, thus reducing the pollution borne during manufacturing. Moreover, solar energy provides an alternative, cheaper, and cleaner source of energy that is not dependent on coal. Once installed, it is cost-effective and readily available given the abundance of sunshine in South Africa. The proposed development will also have wider societal benefits by generating additional income and employment. In addition, the proposed development will contribute to the country's urgent need for reliable energy generation given Eskom's crippling blackouts. Moreover, the area being rural, solar PV's impact on agricultural viability is minimal compared to energy sources such as coal which has more of an impact on agricultural land use. All these positive impacts render the Bonsmara SEF and associated grid infrastructure beneficial to local communities and the country.

The visual assessment (refer to **Appendix D**) concluded that, based on the assessment and the assumption that the mitigation measures will be implemented, the specialist is of the opinion that the visual impacts of the project are acceptable, and, from a visual perspective, there is no reason not to authorise the project. Both powerline alternatives are acceptable from a visual perspective. Powerline Alternative 1 is considered the preferred alternative, in comparison to Powerline Alternative 2, as no additional light pollution from the switching substation associated with Powerline Alternative 2 will be realised.

In terms of the impact assessment undertaken for both powerline alternatives, all impacts identified are low negative post-mitigation except for the cumulative impacts of increased collisions related to mortalities due to increased powerlines on avifauna, which is rated as having a medium negative impact post mitigation. It must be noted however that there is already a powerline that traverses the site and the powerline alternative 2, if approved, would be constructed adjacent to the existing powerline. The only other medium negative impact was identified by the social specialist with regards to job losses during decommissioning.

Conversely, positive impacts were identified by the social specialist should the development be approved as there would be an increase in employment, skills development as well as local economic empowerment.

While powerline/grid alternative 2 will result in higher impacts than the preferred alternative, none of the options are fatally flawed. The increased impacts associated with powerline/grid option 2 can be mitigated by constructing the powerline as close to the existing powerline as possible, spanning sensitive habitats as well as undertaking walk-downs prior to construction in order to ensure that significant environments/resources are not impacted.

As stated earlier, the applicant is requesting that both options be approved, on condition that only one powerline/grid connection is constructed. The applicant has requested that both alternatives be approved as its not yet known which of the two solutions Eskom would prefer. A Cost Estimate Letter application has been submitted to Eskom and ideally, the solution that appears in this letter would be constructed.

Alternative B

Alternative C

No-go alternative (compulsory)

The option of not implementing the activity, or the “no-go” alternative, has been investigated.

The ‘no-go’ alternative is the option of not undertaking the proposed grid connection infrastructure project. Hence, if the ‘no-go’ option is implemented, there would be no development as there would be no way in which to evacuate power. South Africa is under immense pressure to provide clean sources of electricity generating capacity in order to reduce the current electricity demand from aging and polluting coal-fired power stations. With the global focus on climate change, the government is under severe pressure to explore alternative energy sources in addition to coal-fired power stations. Although solar energy is not the only solution to solving the energy crisis in South Africa, not establishing the proposed SEF and associated infrastructure would be detrimental to the mandate that the government has set to promote the implementation of renewable energy. It is a suitable sustainable solution to the energy crisis and this project could contribute to addressing the problem. This project will thus aid in achieving South Africa’s goals in terms of sustainability, energy security, mitigating energy cost risks, local economic development and national job creation.

The ‘no-go’ alternative would result in no environmental impacts from the proposed project on the site or surrounding local area. It provides the baseline against which other alternatives are compared and will be considered throughout the BA process.

The following implications could occur if the no-go alternative is implemented (i.e. the proposed project does not proceed):

Agriculture - The no go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. The one identified potential such impact is that due to non-regular rainfall in the area, which is likely to be exacerbated by climate change, agriculture in the area will come under increased pressure in terms of economic viability.

The development offers an alternative income source to agriculture, but it restricts agricultural use of the site. However, the no go option would prevent the proposed development from contributing positive agricultural impacts to the farm as well as contributing to the environmental, social and economic benefits associated with the development of renewable energy in South Africa.

Aquatic - Should the project not proceed, then current status quo with regard the environment would remain unchanged. Overall, the area is largely in a natural state. But present day impacts do occur in localised areas and included the following:

- Increase in unpalatable species due to past grazing activities
- Erosion as a result of road crossings;
- Several farm dams; and
- Undersized culverts within present day road crossings.

Social - There is a high negative impact from a social perspective for the no-go alternative. The option of not proceeding with the project implies that all the potential benefits, such as clean, readily available and cheaper electricity, will not materialise. Moreover, the new investments that may see an improvement in the infrastructure, new job creation, skills transfer, and enhancement of the national grid with renewable energy sources would not materialize.

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Visual - The No Go alternative entails no change to the status quo, in other words, no PV facility and / or 132 kV powerline. Should the application for the Bonsmara 100 MW PV Facility and associated infrastructure be refused the visual impacts will not be realised.

The no- go alternative is not currently the preferred alternative.

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).

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.

Taking into account the potential negative and significant positive impacts that the proposed development could have on the biophysical and social environment, it is the opinion of the EAP that the proposed development should be authorised subject to the following conditions of authorisation:

- All of the mitigation measures identified in this BA Report must be made conditions of the authorisation.
- It is important that all of the listed mitigation measures are costed for in the construction phase financial planning and budget so that the contractor and/or developer cannot give financial budget constraints as reasons for non-compliance.
- All feasible and practical mitigation measures recommended by the various specialists must be incorporated into the Final Environmental Management Programme (EMPr) and implemented, where applicable;
- Where applicable, monitoring should be undertaken to evaluate the success of the mitigation measures recommended by the various specialists; and
- The final layout should be submitted to the Competent Authority for approval prior to commencing with the activity.
- The activity-specific construction EMPr must be adhered to.
- An independent Environmental Control Officer (ECO) must be appointed by the applicant to monitor the implementation of the construction EMP. The ECO should undertake regular site inspections and compile an environmental audit report.
- From a heritage perspective, should alternative 2 be constructed, the alignment must be immediately adjacent to the existing powerline and a micro-siting exercise would have to take place for the pylon footings in order to ensure that significant heritage resources are not impacted.

Is an EMPr attached?

YES

The EMPr must be attached as **Appendix G**.

In accordance with Appendix 4 of the EIA Regulations, 2014 (as amended), a draft EMPr has been included within the DBAR. The draft EMPr includes the impact management measures formulated by the various specialists and the recording of the proposed impact management outcomes for the development have also been included in the draft EMPr (**Appendix G**).

The draft EMPr provides suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored. The relevant management plans have also been incorporated into the draft EMPr (where required), which will assist

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in this regard.


The draft EMPr will need to be finalized once specialist walk downs have been undertaken prior to construction.

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**.

____Michelle Guy_____
NAME OF EAP



SIGNATURE OF EAP

____10 May 2023_____
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: Specialist's declaration of interest

Appendix J: Additional Information