PROJECT NAME:
THE PROPOSED 10MWAC GROOTFONTEIN AGROVOLTAIC SOLAR ENERGY FACILITY NEAR CALA WITHIN THE SAKHISIZWE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE.

REPORT TITLE:
DRAFT BASIC ASSESSMENT REPORT

DEDEAT REFERENCE: EC138/CH/LN1/M/26-13

DWS REF: WU51623

DATE: 03 NOVEMBER 2026

PREPARED BY:
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DATE	July – October 2026	July – October 2026	November 2026

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT,
ENVIRONMENTAL AFFAIRS & TOURISM

BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:	
NEAS Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, 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. This report is current as of 4 May 2026. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
2. 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.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. 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.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority **unless indicated otherwise by the Department**.
7. No faxed or e-mailed reports will be accepted **unless indicated otherwise by the Department**.
8. The report must be compiled by an independent environmental assessment practitioner (EAP). The EAP must satisfy conditions 11 below.
9. 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.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11.1 The Environmental Assessment Practitioner (EAP) must be registered in terms of S24H Regulations with the Registration Authority EAPASA as from 8 August 2022.

11.2. S24H (14) states that "only a person registered as an Environmental Assessment practitioner may perform tasks in connection with an application for an environmental authorisation contemplated in

(a)Chapter 5 of the Act read with the Environmental impact Assessment Regulations.

(b)Section 24G of the Act

(c) Chapter 5 of the National Environmental Management Waste Act 2008 (Act No 59 of 2008) read with the Environmental Impact Assessment Regulations

11.3. Tasks in regulation 14 may only be conducted by an EAP that is registered

11.4. Regulations 20 of S24H indicates the offences and penalties as indicated below:

"*20. Offences and penalties*

(1) A person is guilty of an offence if that person-

(a) contravenes regulation 14 of the Regulations; or

(b) pretends to be a registered environmental assessment practitioner or registered candidate environmental assessment practitioner.

(2) A person convicted of an offence in terms of subregulation (1) is liable to the penalties contemplated in section 49B(3) of the Act.". Section 49B(3) of the Act states:

"A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment.".

SECTION A: ACTIVITY INFORMATION

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

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

1. Introduction

1.1 Project Location and Description

Abantu Environmental Services (Pty) Ltd has been appointed by Ilinge Energy Automation (Pty) Ltd, to apply for an environmental Authorisation (EA) by way of a Basic Assessment process for the proposed Grootfontein Agrovoltaic Solar energy facility within the Sakhisizwe Local Municipality in the Eastern Cape.

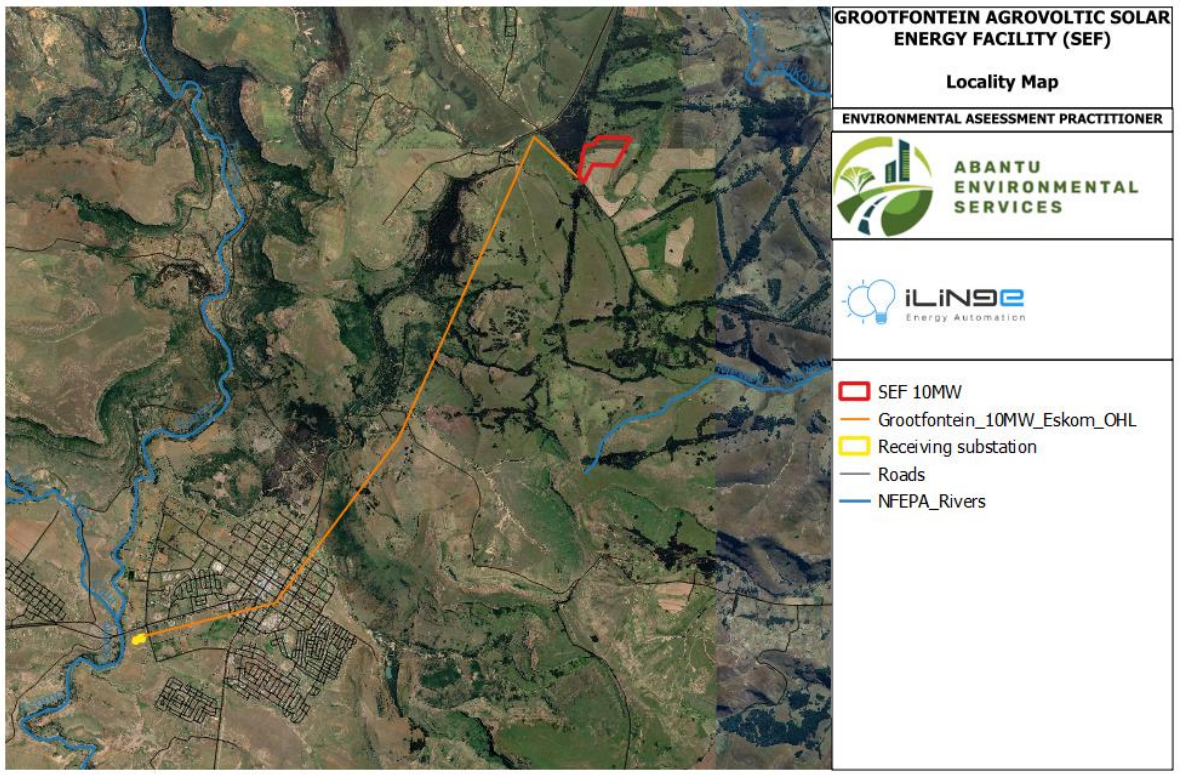


Figure 1. Locality map of the proposed development.

iLinge Energy Automation (Pty) Ltd proposes the development of the Grootfontein Agrovoltaic Solar Energy Facility (SEF) is a grid-connected photovoltaic (PV) power plant designed to generate up to 10 MWac of clean electricity at the point of injection into the Eskom distribution network. The project incorporates an agrovoltaic design philosophy, allowing for compatible agricultural activities beneath and between the PV array rows. The development will consist of the following key components;

Infrastructure Element	Description

SEF	
PV Array Field	11.85 MWdc enclosed within the blue boundary polygon. Single-axis horizontal E-W tracker configuration.
Total Number of Modules	17 793 units
Tracker Type	Single-axis, horizontal East-West axis tracking
Tracker Tilt Range	-/+ 55° from horizontal
Total Module Area	**55 271 m² (5.53 hectares development footprint)**
Total Cell Area	51 788 m²
Associated infrastructure	
O&M Building	Located at the southern edge of the array field, adjacent to the IPP Switching Station. Houses inverter control, SCADA, and maintenance facilities.
IPP Switching Station	On-site IPP-owned 22 kV switching station providing grid isolation, protection and metering for the SEF.
Eskom Macangceni SS	Eskom 22 kV switching station located at the site access road. Point of Common Coupling (PCC) for the project.
Internal Access Road	**Gravel internal access road (5 m wide) circling the site for maintenance vehicle access and security patrol.**
Agrovoltaic Buffer Zone	Clearance maintained between rows to allow compatible agricultural activities (grazing, low crops).

The following civil and structural works are associated with the Grootfontein SEF:

- Site clearing and grading limited to access roads and building pads to minimise land disturbance
- Driven or screw-pile foundations for single-axis tracker structures (no concrete excavations required for array structure)
- Concrete strip or pad foundations for the O&M building and IPP Switching Station
- Gravel internal access road (5 m wide) encircling the site perimeter for maintenance and security access
- Cable trench excavation for underground 22 kV MV cable route from array to IPP SS
- Stormwater drainage channels at site perimeter and access road interfaces
- Security perimeter fencing (2.4 m palisade or electrified game fence) with access control gate



Figure 2: Grootfontein SEF Site Layout - 11.85 MWdc / 10 MWdc (Source: iLinge Energy Automation, 2026)

Figure 3. Grootfontein SEF Site Layout - 11.85MWdc / 10MWac (Source: iLinge Energy Automation, 2026).

2. Biophysical Environment

2.1 Climate

Sakhisizwe Local Municipality experiences a temperate interior climate that is strongly influenced by its location within the foothills of the Drakensberg Mountains and its varying topography. The municipality lies at elevations ranging from approximately 750 m to 2 600 m above sea level, resulting in climatic variation across the area. Higher-lying areas generally experience cooler temperatures and greater rainfall than the lower-lying western regions (Sakhisizwe Local Municipality, 2024).

The municipality experiences warm, wet summers and cold, dry winters, which are characteristic of the summer rainfall region of the Eastern Cape. Approximately 70 to 80% of the annual rainfall occurs during the summer months, mainly in the form of high-intensity convective thunderstorms that are occasionally accompanied by hail. Winter rainfall contributes only 20 to 30% of the annual total, with snowfall occurring periodically in the higher elevation areas during the winter months (Sakhisizwe Local Municipality, 2024). Rainfall distribution varies considerably across the municipality due to differences in altitude and topography. The higher eastern areas receive approximately 700–800 mm of rainfall annually, while the drier western areas receive between 200 mm and 300 mm per year.

2.2 Topography and hydrology

The proposed development area is located on gently undulating agricultural terrain. Elevations range from approximately 1 502 m to 1 508 m above mean sea level. The land gradually rises from the western portion of the site to a broad, gently rounded crest near the centre, before gradually sloping downward towards the eastern boundary. No steep slopes, ridges, or deeply incised drainage features are evident within the site.

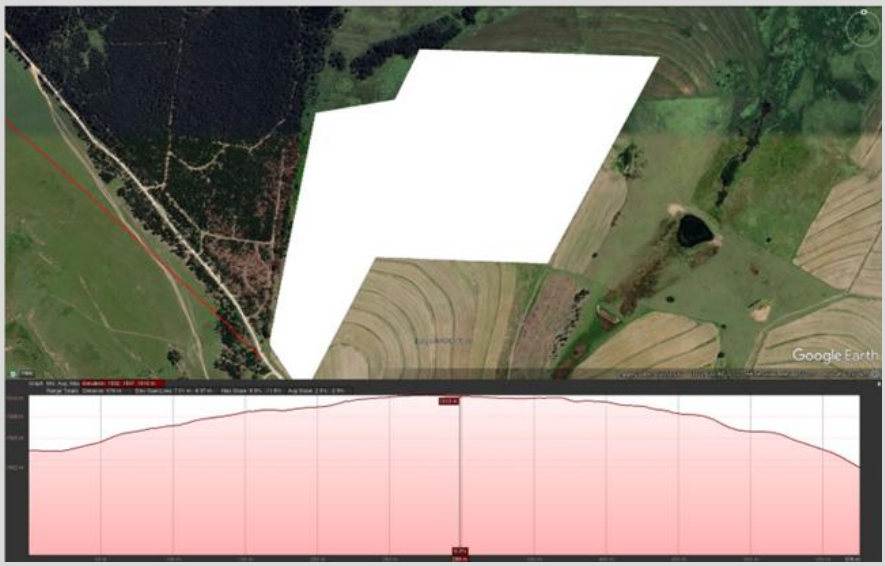


Figure 4. Topography at the proposed development site from East to West.

2.3 Soils and Geology

The geology of the study area is predominantly underlain by mudstones and sandstones of the Tarkastad Subgroup and the Molteno Formation of the Karoo Supergroup, with intrusive Jurassic-age dolerite bodies also occurring throughout the area (Mucina & Rutherford, 2006). Soils derived from this sedimentary parent material are well drained, exceed 800 mm in depth and have a clay content ranging from 15% to 55%. These soils are predominantly represented by the Hutton, Clovelly, Griffin and Oatsdale soil forms. In areas underlain by dolerite, the dominant soil forms include the Balmoral, Shortlands and Vimy soil forms, which are generally characterised by higher clay contents and greater inherent fertility than soils developed on sedimentary parent material (Soil Classification Working Group, 2018).

The study area is primarily associated with the Ac and Fa land types (Land Type Survey Staff, 2006). The Ac land type typically occurs on gently undulating plains and low hills where deep, well-drained apedal soils dominate. These soils have moderate to high agricultural potential and support extensive grassland vegetation, although productivity varies according to rainfall and management practices. The Fa land type is associated with terrain influenced by dolerite intrusions and comprises moderately deep to deep clay-rich soils with relatively high natural fertility. These land types also occur on gently sloping to undulating landscapes and support grazing and cultivated agriculture where climatic conditions are favourable. Variations in parent material, soil depth and clay content across the Ac and Fa land types influence drainage characteristics, vegetation composition, erosion susceptibility and overall land capability within the study area.

2.4 Vegetation

According to SANBI (Vegetation Map, updated in 2024) the site is located in Drakensberg Foothill Moist Grassland and the Tsomo grassland which form part of the Grassland biome (**Figure 5**). This vegetation also falls within the Sub-Escarpment Grassland Bioregion. The Drakensberg Foothill Moist vegetation type occurs around KwaZulu Natal and Eastern Cape provinces on gently undulating plains and foothills, while the Tsomo grassland occurs in the Queenstown basin in towns such as Tsomo, Cala and

Engcobo. The vegetation is characterised by species-rich, mesic grassland dominated by perennial grasses, including Themeda triandra, Tristachya leucothrix, Eragrostis curvula and Heteropogon contortus. Forb diversity is typically high, particularly in areas that have experienced limited agricultural transformation. Woody vegetation is generally sparse and largely confined to drainage lines, rocky outcrops and sheltered slopes, where scattered shrubs and small trees may occur (Mucina & Rutherford, 2006; SANBI, 2018). The vegetation develops on moderately deep to deep, well-drained soils derived primarily from sandstone, mudstone and dolerite geology (Mucina & Rutherford, 2006).

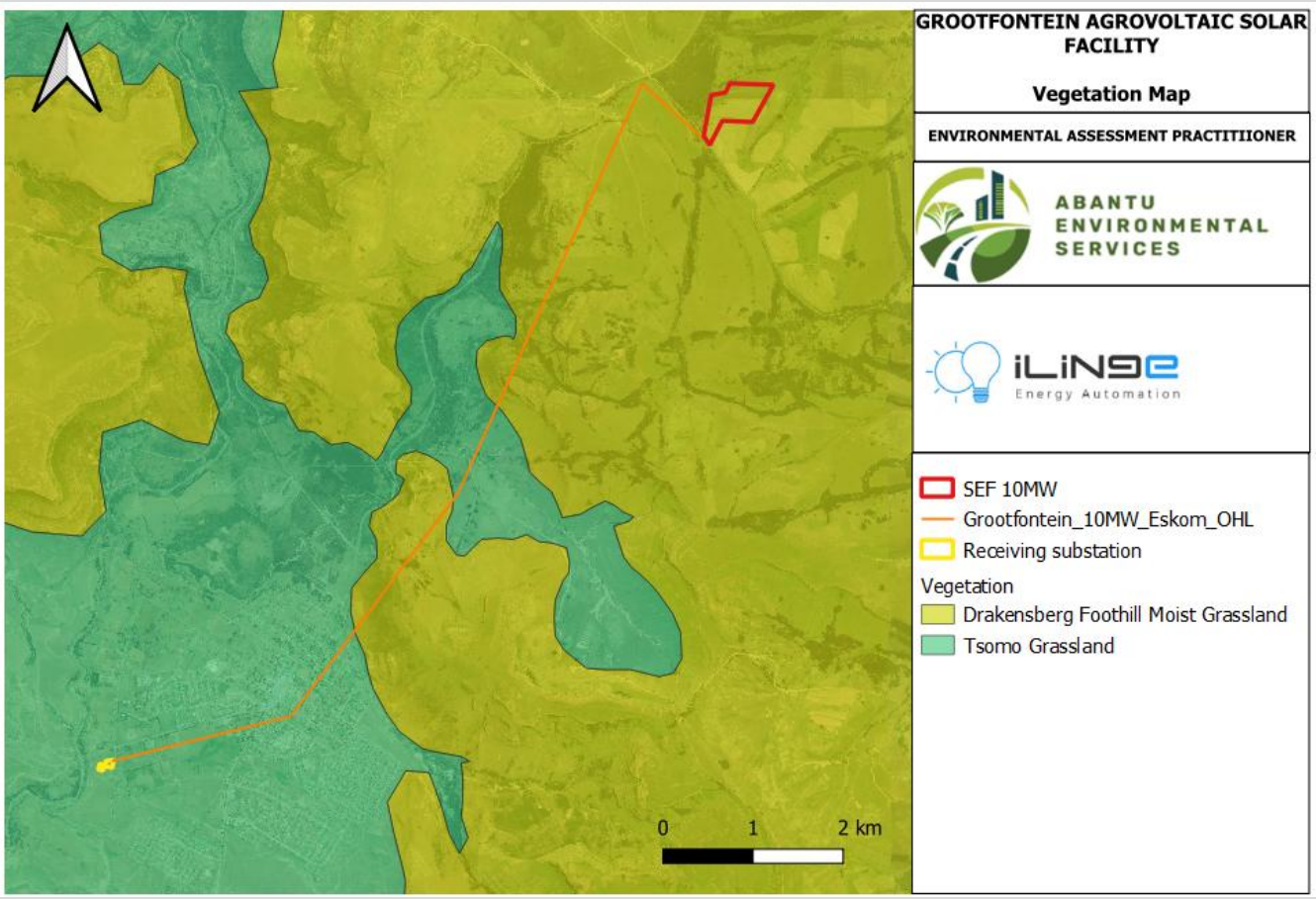


Figure 5. Vegetation map of the development site.

Significant portions of the Drakensberg Foothill Moist Grassland have been transformed through cultivation, commercial forestry and livestock grazing, resulting in fragmentation and habitat loss. It is classified as Least Threatened with a conservation target of 23%. Only 2-3% of the vegetation is statutorily conserved in the uKhahlamba Drakensberg Park, Ntsikeni Wildlife Reserve as well as in the Karkloof, Mount Currie,Coleford, Fort Nottingham, Impendle, Ngeli, and Umgeni Vlei Nature Reserves. It is also threatened by alien woody species such as Black wattle (Acacia dealbata) (**Figure 5B**) and Solanum mauritianum.

The Tsomo grassland is classified as Vulnerable (Mucina and Rutheford, 2006) with a conservation target of 23%. None of the vegetation is statutorily conserved, only 1% of the vegetation is conserved in private reserves. According to Mucina and Rutheford (2006) 27% of the vegetation has been transformed for cultivation and by dense concentrations of rural settlements. It is further threatened by the increased occurrence of alien Schkuhria pinnata and Tagetes minuta and high rates of erosion.





A

Figure 6. Vegetation conditions on site with dense Black wattle stands around the SEF. A - the crops grown on site. B - the Black wattle around the SEF.

2.5 Plant Species Sensitivity

According to the Screening Report, the plant sensitivity of the development sites is Medium (**Figure 7**) and identifies the following sensitive species as potentially occurring within the site, these are outlined in **Table 1**. Although there are sensitive species identified on vegetation within the site has been significantly transformed as a result of ongoing agricultural activities, as illustrated in **Figure 5**. Consequently, the remaining indigenous vegetation is in a state of secondary succession, characterised by reduced biodiversity sensitivity compared to intact natural vegetation. The ecological sensitivity of the site is further reduced by the presence of dense stands of the invasive alien species, black wattle (*Acacia mearnsii*), which surrounds the site. The encroachment of this invasive species suppresses indigenous vegetation regeneration, alters habitat structure and contributes to a further decline in local biodiversity value.

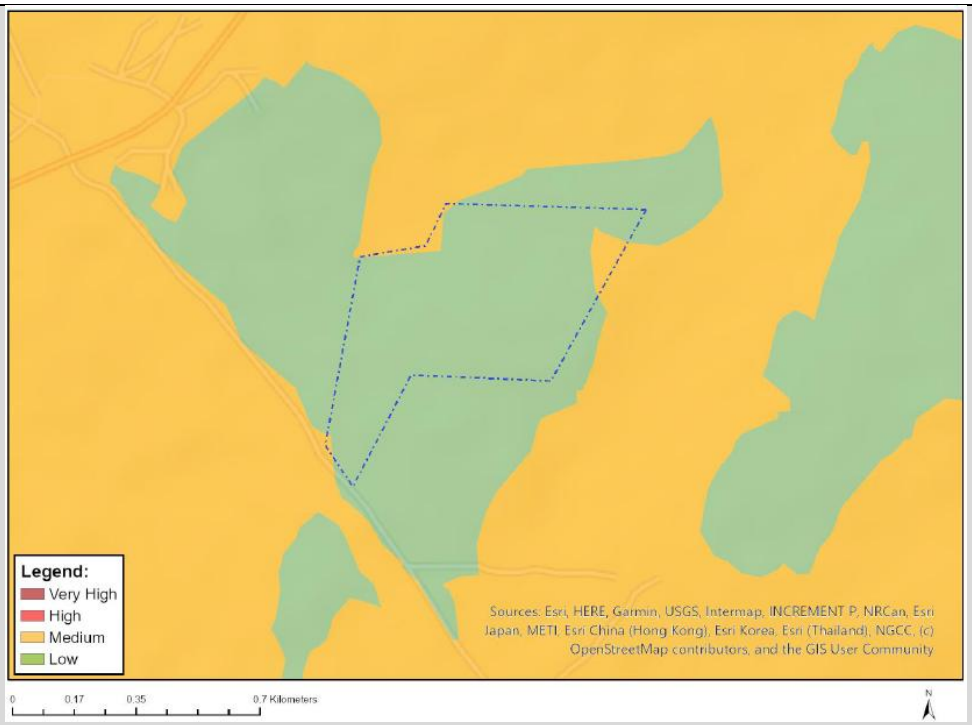


Figure 7. Terrestrial plant species sensitivity of the SEF.

Table 1. Sensitive Species identified by the NSTR.

Sensitivity	Features	Occurrence Likelihood
Medium	Sensitive species 1144	Unlikely

2.6 Terrestrial Biodiversity Sensitivity

According to the Screening Report, the terrestrial biodiversity sensitivity is Very High for both the SEF and the overhead powerline (**Figure 8**). The SEF falls within an Ecological Support Area (ESA 2) and the OHPL crosses over a Critical Biodiversity Area 1 and 2, as well as an ESA 2 as per the Eastern Cape Biodiversity Conservation Plan (ECBCP), 2019.

The proposed solar photovoltaic facility incorporates an agrovoltaic design, whereby agricultural activities will continue beneath and between the solar panel arrays. The site is already utilised for agricultural production and has consequently undergone significant anthropogenic transformation, resulting in the modification of the original vegetation and a reduction in ecological integrity. **The continuation of agricultural land use beneath the solar panels is expected to maintain the existing land use character and limit the scale of transformation. As a result, the terrestrial biodiversity sensitivity of the development footprint is considered to be Low.**



Figure 8. Terrestrial Biodiversity sensitivity identified by the NSTR.

2.7 Animal Terrestrial Biodiversity

The animal sensitivity of the SEF (**Figure 8**) was identified as Medium due to the potential presence of the following animal species:

- *Mammalia-Hydrictis maculicollis*
- *Mammalia-Mystromys albicaudatus*

The proposed SEF is proposed on existing agricultural field. The receiving environment is unlikely to devoid of suitable habitat for the species. Aquatic species may be prevalent in watercourses/rivers, however, the proposed development poses no impacts to these habitats.

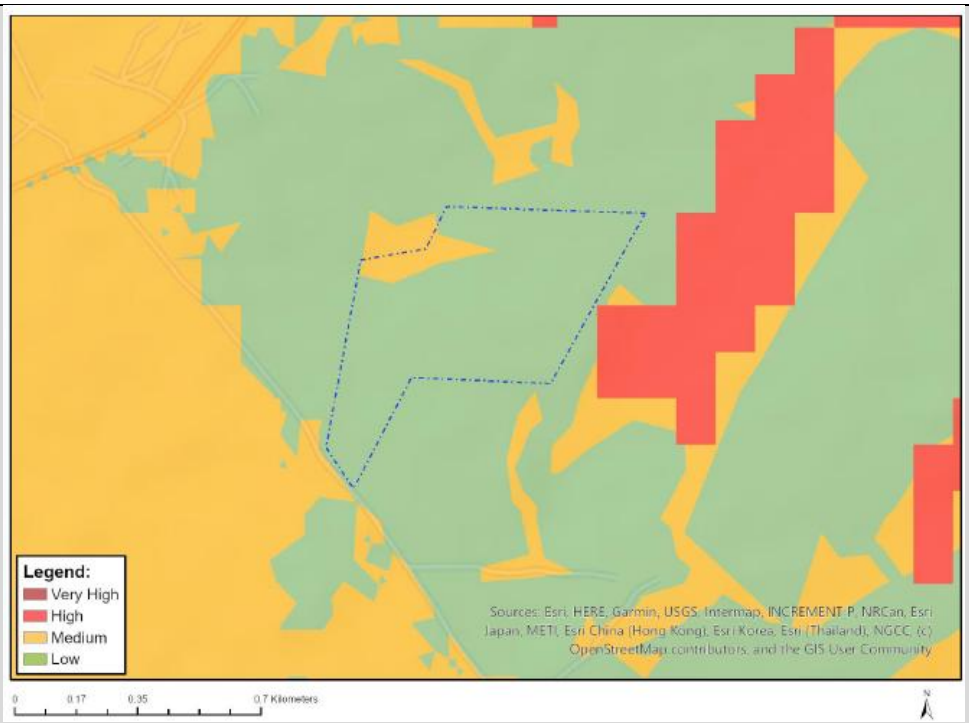


Figure 9. Animal species biodiversity sensitivity.

2.8 HYDROLOGY

The project area is located in an aquatic ESA 1 according to the ECBCP, 2019 and the Screening Report. It is also located within the Eastern Cape Drakensberg Strategic Water Source Area for Surface water and FEPA sub catchment. Strategic Water Source Areas are defined as areas that generate a disproportionately high volume of the country's surface water runoff relative to their size, they contribute around 50% of the nation's mean annual surface water runoff, making them critical for national water security, economic development, agricultural production and ecosystem functioning (Nel et al., 2017). The north and eastern borders of the SEF area have two ephemeral drainage lines that drain into the NFEPA KuKowa river. The site also falls within the 500m buffer of a NFEPA wetland located along the eastern border of the proposed site (**Figure 9**).

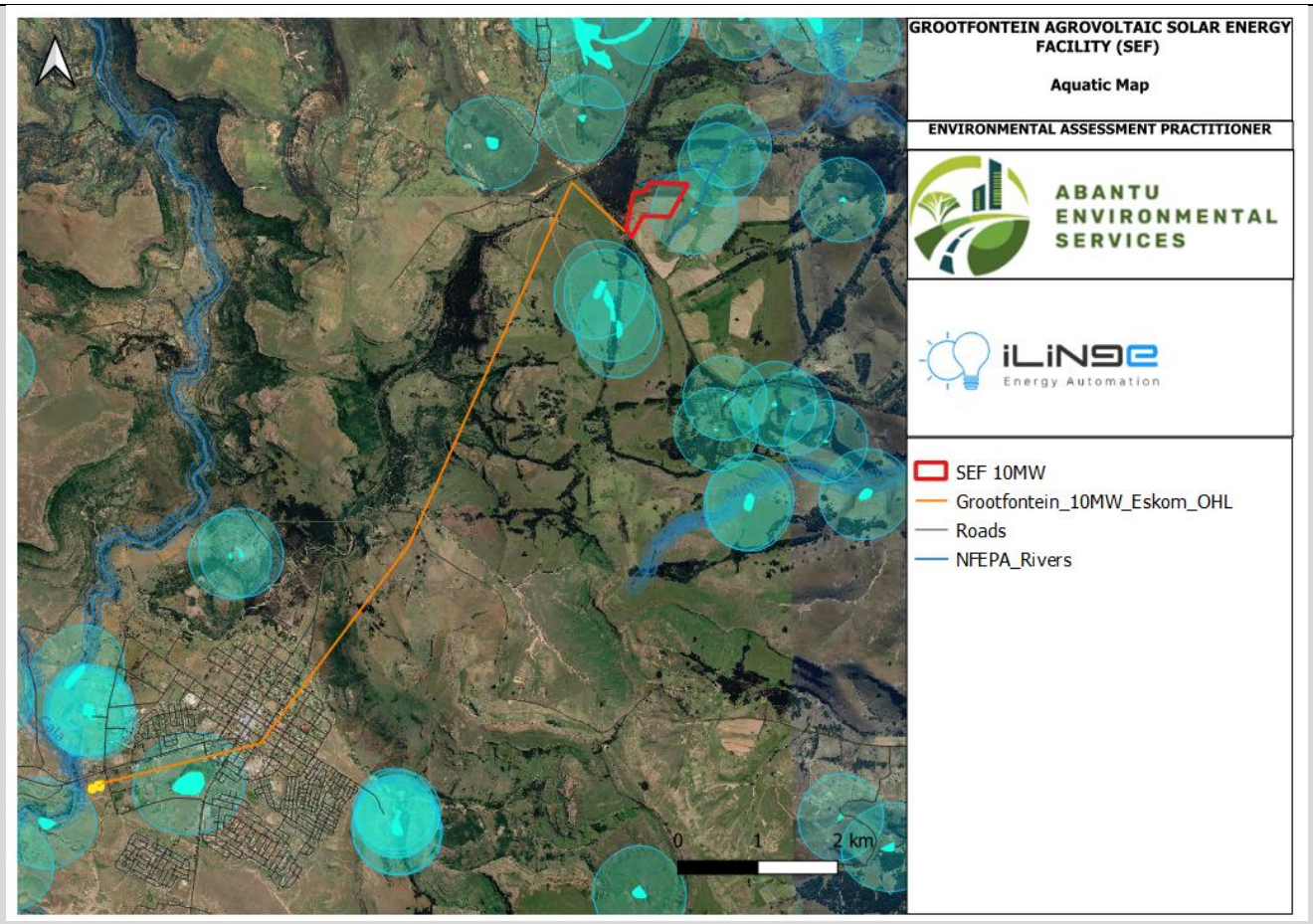


Figure 10. Aquatic map of the proposed development.

2.9 Aquatic Biodiversity Sensitivity

As reported in the Screening Report, the aquatic biodiversity sensitivity on the SEF is high (**Figure 10**) which correlates with the site being designated ESA 1 (**Figure *12***) and falling within the Eastern Cape Drakensburg SWSA for surface water. Additionally, the SEF encroaches a 100 buffer of a stream and a 500m buffer of a NFEPA wetland as well as the powerline closer to the receiving station in Cala. Sections of the powerline that are rated as High sensitivity are those where the powerline crosses a watercourse. Therefore, the High rating of the Screening tool is supported by this sensitivity report and a full aquatic study will be undertaken.



Figure 11. Aquatic Biodiversity of the proposed development site.

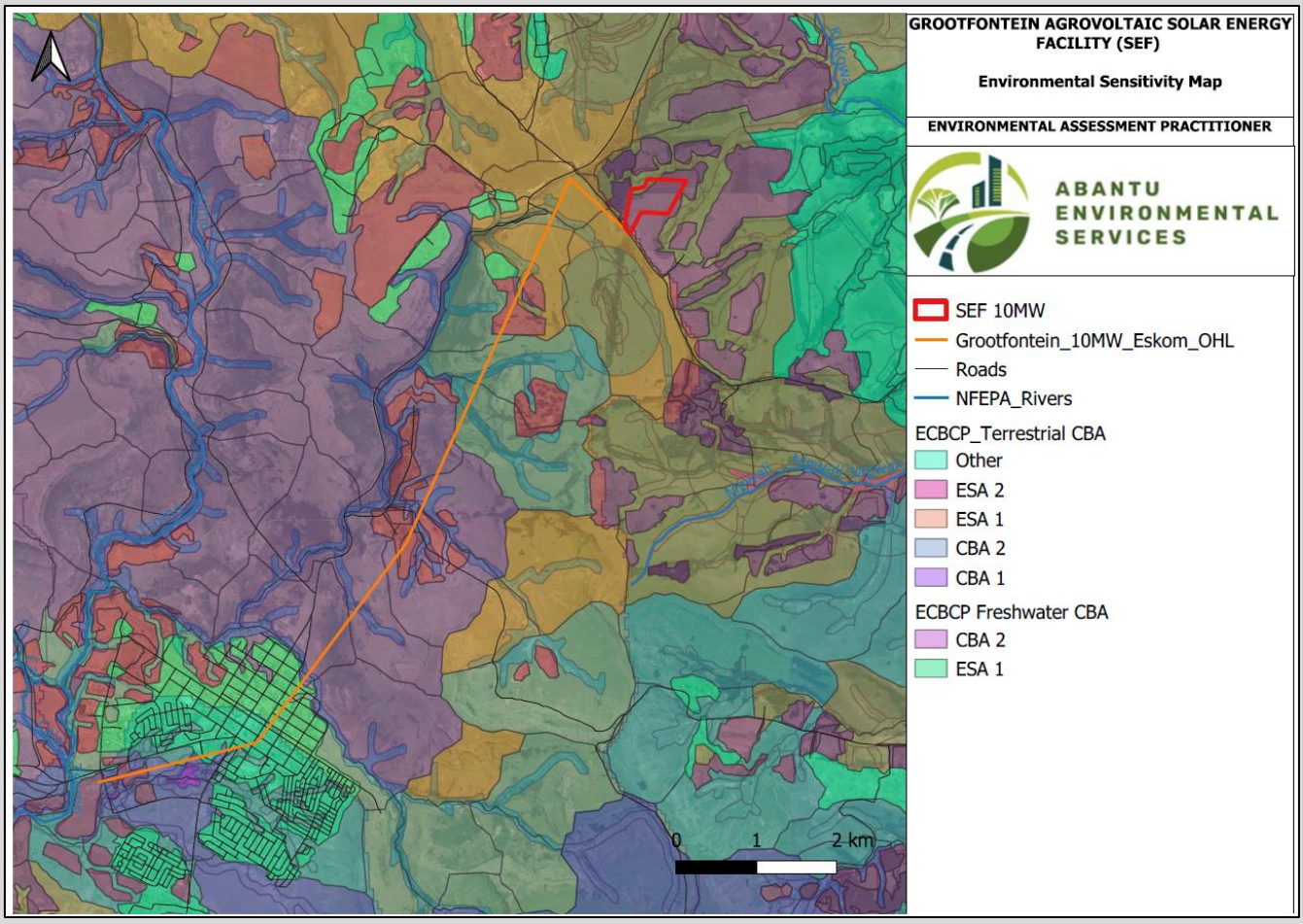


Figure 12. Environmental sensitivity map of the development.

3. Socio-economic Profile

According to the SLM IDP, 2026, the Sakhisizwe Local municipality is a Category B type e with largely rural (61%) and low revenue base. It is the smallest municipality of the six within the Chris Hani District Municiplaity and makes up for only 6% of the district. It is bordered by the Joe Gqabi District to the north, Intsika Yethu to the south, Engcobo to the east, and Emalahleni to the west. It is made up of the main town of Cala and Khowa, formerly known as Elliot, and dispersed rural villages and farms which result in high service delivery costs and unequal access to economic opportunities.

The municipality's IDP (2026) reports that the area is characterised by high levels of unemployment with the official rate of 38.8% (StatsSA,2022) and other socio-economic vulnerability. The economy is largely dependent on agriculture, public services and informal economic activities to supplement household income. These activities include retail trading through spaza shops and street vendors, the sale of fresh produce and livestock products, home based businesses such as hair salons, construction work and domestic services. According to StatsSA (2022) and SLM IDP (2024), limited formal employment opportunities have contributed to a high dependency ratio and increased reliance on government assistance.

Poverty remains widespread, with approximately 62.9% of the population living below the poverty line, while about 37.4% of households depend primarily on social grants for their livelihoods. Agriculture forms the backbone of the local economy and is the municipality's largest productive sector. Livestock farming and maize cultivation contribute significantly to employment and household income. Furthermore, the municipality faces infrastructure and services delivery challenges. Many communities do not have adequate road infrastructure, reliable water supply, sanitation and housing. These deficiencies constrain economic development, discourage private investments and increase the cost of doing business within the municipality (Eastern Cape Socio-Economic Consultative Council, 2023).

3.1 Population

According to the Statistics South Africa Census 2022, Sakhisizwe Local Municipality has a total population of 63 981 people living in approximately 17 355 households, reflecting only marginal population growth since the 2011 Census (63 154 people). This indicates a relatively stable population, with an average annual growth rate of approximately 0.13%, suggesting limited in-migration and modest natural population growth (Statistics South Africa, 2024).

The municipality has a relatively youthful population, although demographic trends indicate gradual ageing. Approximately 30.4% of the population is younger than 15 years, 60.9% falls within the economically active age group (15–64 years), and 8.7% is aged 65 years and older. The relatively high proportion of economically active residents presents opportunities for economic development; however, these are constrained by high unemployment and limited formal employment opportunities (Statistics South Africa, 2024).

The municipality has an average household size of 3.7 people per household, which indicates a decline from the previous census period and also reflecting changing household composition and demographic trends. Despite the stable population, the municipality continues to experience high dependency levels due to widespread unemployment and reliance on social grants, placing considerable pressure on municipal resources and social support systems (Statistics South Africa, 2024; Sakhisizwe Local Municipality, 2024).

3.2 Housing and Services

Housing within Sakhisizwe Local Municipality comprises a mixture of formal dwellings, traditional rural homesteads and informal housing structures. According to Statistics South Africa (2024), the majority of households reside in formal brick houses; however, a considerable proportion of the population, particularly in rural villages and traditional settlements, occupies traditional dwellings constructed from mud brick, stone or other locally available materials. Informal dwellings are generally concentrated around the urban centres of Cala and Khowa, where housing demand has exceeded the rate of formal residential development (Statistics South Africa, 2024).

The municipality continues to experience a housing backlog driven by population growth, limited municipal financial resources and ongoing rural-to-urban migration. Many low-income households remain on the waiting list for subsidized housing, while the dispersed settlement pattern increases the cost of providing housing and associated municipal infrastructure (Sakhisizwe Local Municipality, 2024).

Electricity is supplied primarily through the national grid operated by Eskom. Most households have access to electricity for lighting; however, electrification levels are generally lower in remote rural settlements. As a result, some households continue to rely on alternative energy sources such as firewood, paraffin and liquefied petroleum gas (LPG) for cooking and heating, increasing pressure on surrounding natural resources and exposing residents to indoor air pollution (Statistics South Africa, 2024).

3.3 Economic aspect

The municipality's economy is supported by agriculture, community services, trade, finance and government services. Agriculture remains a key land use across the municipality, particularly in the rural areas, contributing significantly to local employment and economic activity.

3.4 Sensitivity Verification

A significant proportion of the population is affected by poverty, with many households dependent on agriculture as a source of household income. These conditions highlight the vulnerability of local communities and the need for sustainable development interventions that can contribute positively to socio-economic upliftment.

The proposed Solar Energy Facility (SEF) is expected to make a positive contribution to the socio-economic development of the Sakhisizwe Local Municipality by creating employment opportunities, stimulating local economic activity and supporting South Africa's renewable energy objectives. During the construction phase, the project will generate temporary employment opportunities

for local residents across a range of occupations, including civil works, electrical installation, security, transport, vegetation management and general labour. The procurement of goods and services from local suppliers, including accommodation, catering, fuel, plant hire and maintenance services is also expected to stimulate economic activity and support local businesses. The facility will provide permanent employment opportunities associated with the operation and maintenance of the solar infrastructure, security, vegetation management and site administration.

Importantly, the proposed facility incorporates an agrovoltaic design, allowing agricultural production to continue beneath and between the solar photovoltaic arrays. This approach supports the dual use of land by enabling renewable energy generation while maintaining agricultural activities, thereby reducing the permanent loss of productive agricultural land. Continued farming activities may assist in sustaining local livelihoods, preserving agricultural productivity and enhancing the long-term sustainability of land use.

The anticipated socio-economic impacts are considered to be largely positive and localized in nature and are not expected to give rise to significant adverse effects that would warrant a detailed, standalone Socio-Economic Impact Assessment. The development is aligned with existing municipal objectives of promoting economic development, creating employment opportunities, strengthening infrastructure and encouraging sustainable investment while maintaining agricultural production. Based on the above, it is concluded that a separate Socio-Economic Impact Assessment will not be undertaken, as the potential impacts are considered to be of low significance, predominantly beneficial, and can be adequately addressed within the Basic Assessment report.

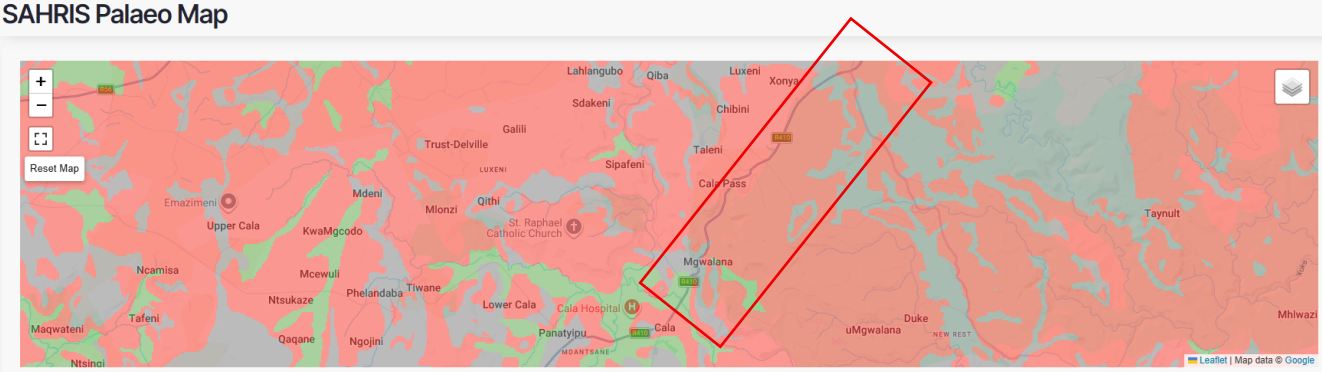
4. Cultural Heritage, Palaeontologic, and Archaeological Aspects

According to the Screening Report, the development site has Very High paleontological sensitivity (**Figure 13**). The South African Heritage Resources Information System (SAHRIS) map (**Error! Reference source not found.**) also shows that the sensitivity on palaeontological resources within the proposed SEF site is rated as Very High as a result of the presence of features with very high paleontological sensitivity. The OHPL is also rated as Very High, although some sections have medium sensitivity. The report further recommends a field assessment and protocol requirements be followed.



Figure 13. The paleontological sensitivity of the development site.

SAHRIS Palaeo Map



1 in 250 000 geological formation layers are courtesy of the Council for GeoScience
For more information, go to How to Use the Palaeontological (fossil) Sensitivity Map

Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 14. SAHRIS Palaeo Map (SAHRIS, 2026).

The cultural heritage and archaeology theme has a sensitivity of Low (**Figure *15***). However, due the palaeontological theme a Cultural Heritage, Palaeontology, and Archaeology Impact Assessment will be undertaken.



Figure 15. Cultural Heriatge sensitivity of the sites.

5. Current Landuses

The SEF site is a cultivated agricultural field (**Figure *16***). The south-western boarder of the SEF is characterized by dense woody vegetation, identified as the Black wattle invasive species. There is an existing farm access road along the southern boarder of the SEF. The receiving station is located with the settlement of Cala, while the rest of the powerline back to the SEF is located on undeveloped grasslands.



Figure 16. the crops cultivated in the SEF site.



6. Agriculture and Sensitivity Verification

According to the National Screening Tool, the SEF site has a High agricultural sensitivity (**Figure *17***). This is because the development falls within the Elliot-Indwe Protected Agricultural Area (PAA) and on land used for subsistence farming. The original natural vegetation has largely been removed and replaced by agricultural fields, with the remaining vegetation comprising disturbed areas, secondary successional communities and invasive alien species. Furthermore, the proposed development incorporates an agrovoltaic design, allowing agricultural activities to continue beneath and between the solar arrays, thereby maintaining the existing agricultural land use.

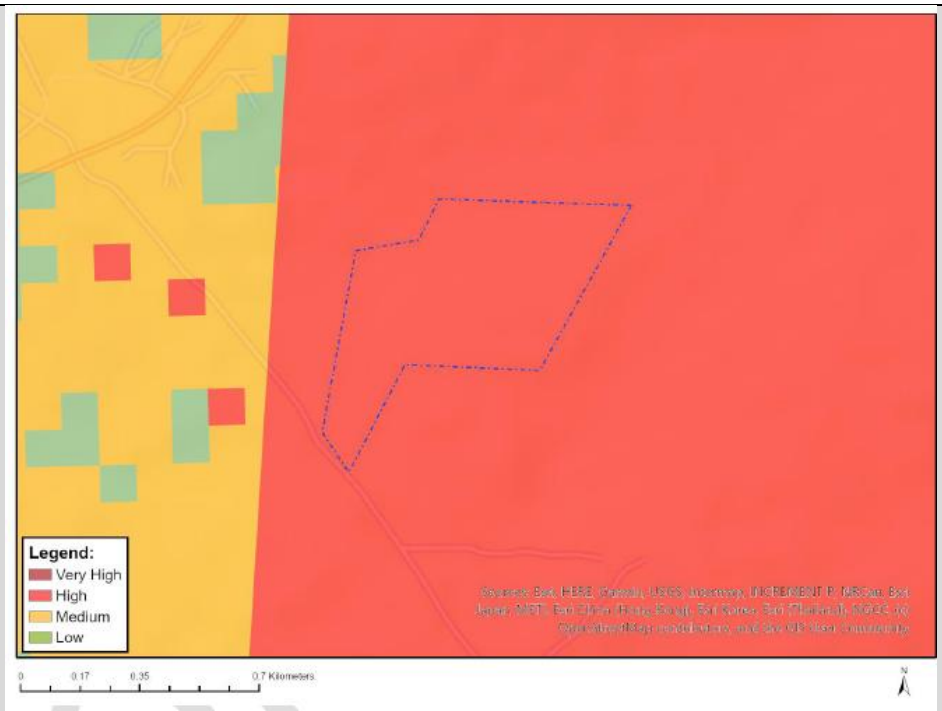


Figure 17. Agricultural them sensitivity.

This approach reduces the degree of land-use transformation by maintaining the site's agricultural function and supporting the continued productive use of the land (Dupraz et al., 2011; Amaducci et al., 2018). The retention of agricultural vegetation beneath and between the solar photovoltaic arrays contributes to soil conservation by reducing erosion, maintaining soil structure and limiting the extent of exposed bare ground (Amaducci et al., 2018). Furthermore, the shading provided by the solar panels may improve soil moisture retention, reduce evaporative water losses and create favourable microclimatic conditions for crops (Barron-Gafford et al., 2021).

7. Avian Sensitivity Verification

The proposed development site for the SEF presents a Very High avian sensitivity as per the Screening Report (**Figure *18***). The site is situated more than 20 km of the known Cape Vulture restaurants sites and 50km of colonies. Thus, the development is unlikely to pose any impacts to this theme, and therefore the sensitivity has been revised to Medium. However, proposed powerline introduces an additional collision and, where applicable, electrocution risk for birds, while the solar PV facility may result in habitat loss, disturbance, displacement of sensitive species and changes to bird movement and foraging patterns. In accordance with EIA regulations, 2014 (as amended), cumulative impacts arising from the interaction of the existing and proposed infrastructure must also be considered. Therefore, further assessment will be conducted.

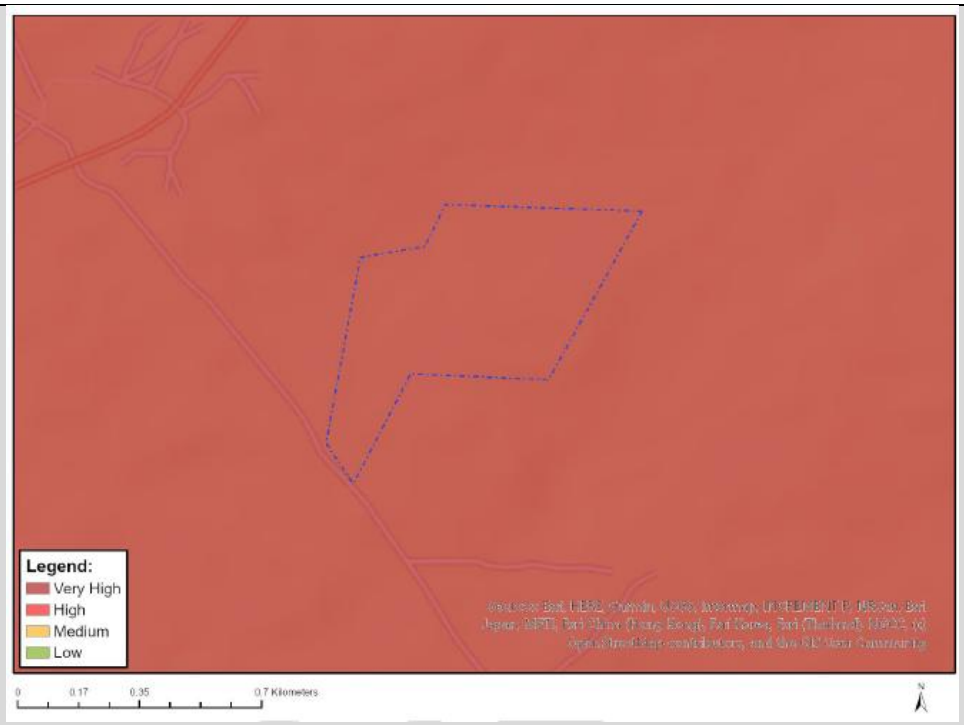


Figure 18. Avian theme sensitivity.

9. Defense and Sensitivity Verification

The National Screening Tool classifies the Defense theme sensitivity of the proposed site as Low (**Figure *19***). Therefore, no further assessment will be required for the development.



Figure 19. Defense theme sensitivity.

10. Civil Aviation Sensitivity Verification

The NSTR rates the sensitivity of the SEF as Low (***Figure 20***) due to no major or other types of civil aviation aerodromes.

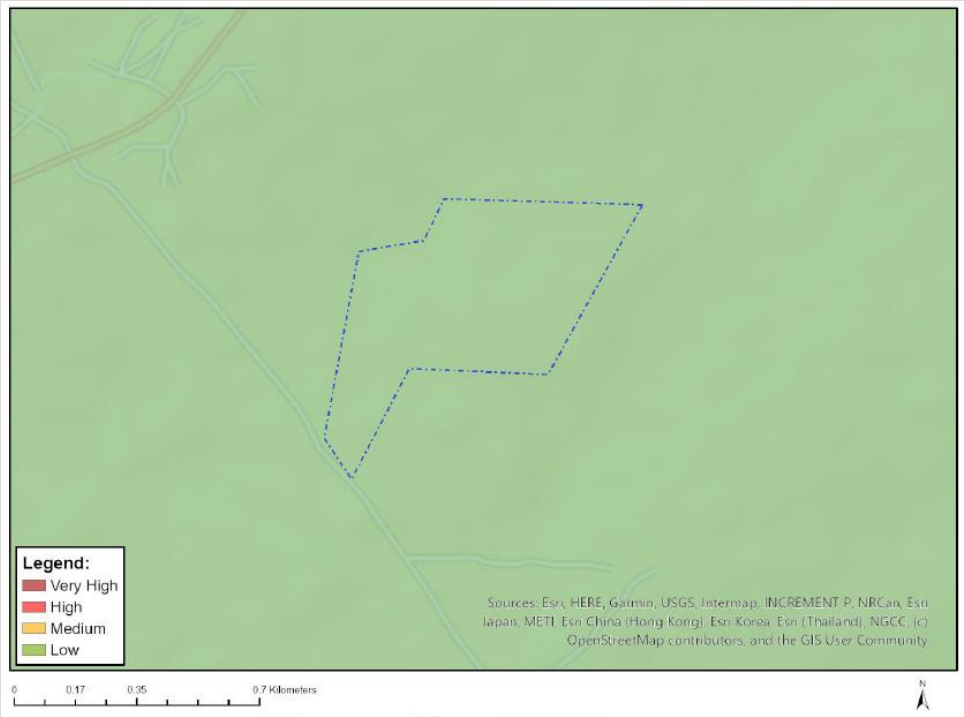


Figure 20. Civil aviation sensitivity.

11. Landscape Sensitivity Verification

The NSTR rates the landscape sensitivity of the SEF site as Very high (***Figure 21***) because the development is located between 500 and 1000m of a town or village. It is also located on mountain tops and high ridges, which are recognised as visually prominent landscape features with high scenic value and increased visibility from surrounding areas. Development on these landforms has the potential to result in significant visual intrusion and alteration of the natural landscape character. While this desktop classification is recognised, site observations indicate that the development footprint is located on land that has been extensively modified through long-term agricultural cultivation. The existing landscape is characterised by cultivated fields and contour farming rather than an intact natural landscape.

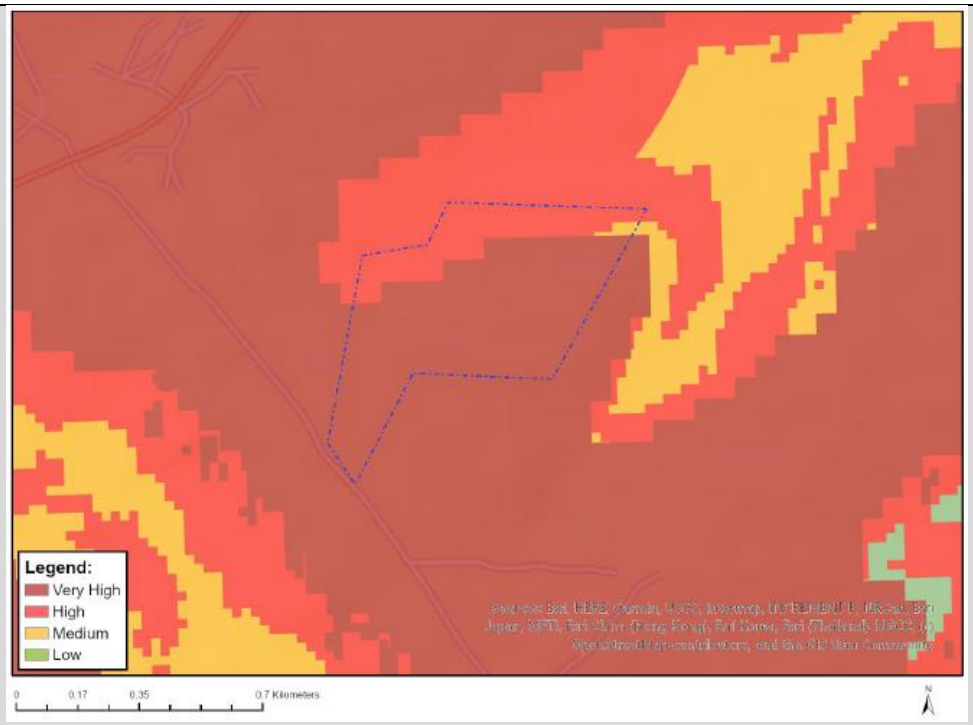


Figure 21. Landscape sensitivity of the SEF site identified by the NSTR.

Furthermore, the proposed agrovoltaic design will maintain the existing agricultural land use and landscape function, thereby reducing the degree of landscape transformation that would typically be associated with a conventional solar facility.

12. RFI Sensitivity Verification

The RFI theme sensitivity for the SEF site is rated as Low (***Figure* 22**), as per the NSTR.

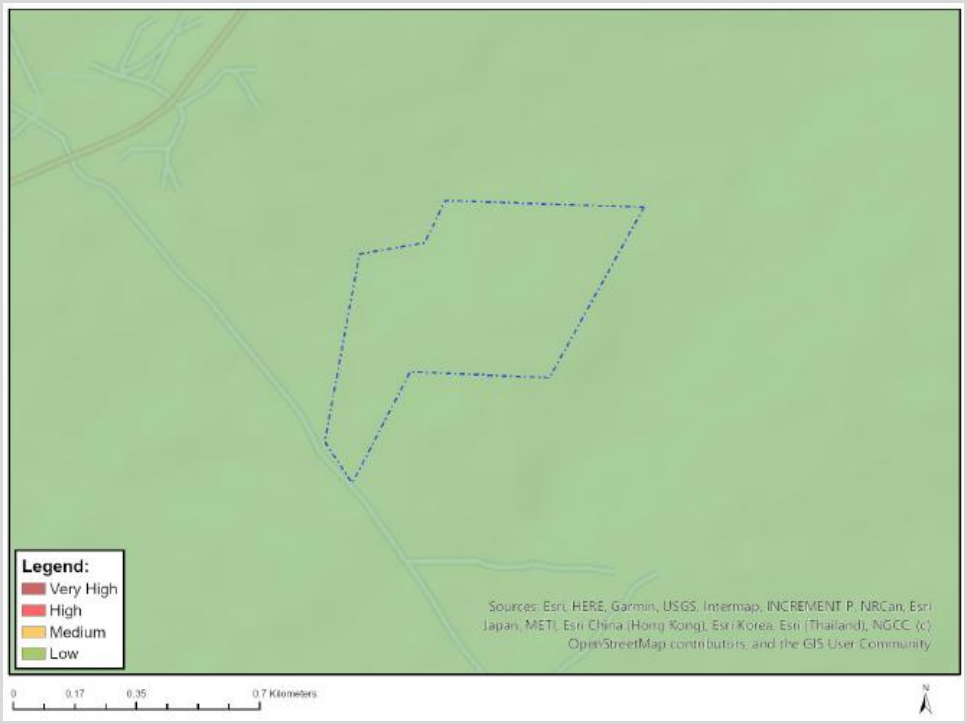


***Figure 22**. RFI theme sensitivity identified by the NSTR.*

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. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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.

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

a) Site alternatives

Alternative Site 1
No site alternatives have been identified for the proposed development as the applicant is the owner of the land.

Layout alternatives
Layout alternatives for the proposed Solar Energy Facility were informed by the proposed site.

Layout Alternative 1 (proposed)
This alternative seeks to concentrate the development within the designated footprint, optimize the use of available land for solar generation, maintain agricultural functionality where feasible, and minimise unnecessary disturbance outside the development area.

Layout Alternative 2
This alternative retains the proposed solar energy facility infrastructure and general PV array configuration but replaces the proposed maize cultivation beneath and between the solar panels with indigenous vegetation or controlled livestock grazing. The layout alternative would allow naturally occurring indigenous vegetation to establish and be manged within the PV array or provide suitable areas for controlled grazing where compatible with the operation and maintenance of the facility. This approach could reduce the need for intensive agricultural activities and associated inputs while supporting ecological functionality and maintaining a productive land use within the solar facility footprint.

b) Technology alternative
No feasible technology alternatives have been identified for the proposed development. The proposed single-axis tracking technology is the considered preferable for the Grootfontein SEF as it provides a balance between energy generation, land use efficiency, and compatibility with the proposed agrovoltaic approach.

c) Operational alternative
No other operational alternatives were considered feasible, as the proposed operation best aligns with the identified need for a solar energy facility.

d) No-Go alternative
The No-Go alternative is the option of not developing the SEF and associated grid connection are not developed. Under this alternative, the site would remain in its current land use, with no electricity generated by the project. Thereby avoiding the construction-related environmental impacts associated with the project but would also forgo the potential renewable electricity generation, socio-economic benefits and agrovoltaic land-use benefits associated with the proposed development. Implementing the No-Go alternative does not help address South Africa's heavy reliance on fossil fuels, particularly coal, which contributes significantly to greenhouses gas emissions and climate change. There is therefore a need to diversify the country's energy production and increase the contribution of renewable energy sources. The growing demand for electricity, together with environmental concerns associated with fossil-fuel based generation, highlights the strategic importance of renewable energy projects such as solar energy facilities. The proposed project will contribute to the diversification of South Africa's electricity supply and support the transition towards lower-carbon energy generation. As such, the No-Go alternative is not considered the preferred option.

3. ACTIVITY POSITION

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.
List alternative sites if applicable.

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

Alternative S1[1] (preferred or only site alternative)

Corner	Latitude	Longitude
PV Area	31°27'52.67"S	27°44'52.22"E
	31°27'53.31"S	27°45'10.34"E
	31°28'6.38"S	27°45'1.71"E
	31°28'6.23"S	27°44'48.89"E
	31°28'14.65"S	27°44'43.62"E
	31°28'11.36"S	27°44'41.03"E
	31°27'56.87"S	27°44'44.26"E
	31°27'55.88"S	27°44'50.28"E
[redacted]		

Alternative S2 (if any)

Alternative S3 (if any)

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred or only route alternative)		
• Starting point of the activity	[redacted]	
• Middle point of the activity	[redacted]	
• End point of the activity	[redacted]	
Alternative S2 (if any)		
• Starting point of the activity	[redacted]	
• Middle point of the activity	[redacted]	
• End point of the activity	[redacted]	
Alternative S3 (if any)		
• Starting point of the activity	[redacted]	
• Middle point of the activity	[redacted]	
• End point of the activity	[redacted]	

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.

4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	55 271 m
Alternative A2 (if any)	[redacted]
Alternative A3 (if any)	

or, for linear activities:

Alternative:	**Length of the activity:**

[1] "Alternative S.." refer to site alternatives.

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

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

[redacted]

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

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	[redacted]
Alternative A2 (if any)	
Alternative A3 (if any)	

5. SITE ACCESS

Does ready access to the site exist? YES [redacted]
If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

The site will be accessed through a gravel road off the R410 road that heads to Cala. A gravel internal access road (5 m wide) encircling the site perimeter for maintenance and security access is proposed.



Figure 23. Access to the proposed SEF site.



Figure 24. Conditions of the access road from the R410.

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

6. SITE OR 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:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 metres of the site;

6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 the exact position of each element of the application as well as any other structures on the site;

6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

6.6 all trees and shrubs taller than 1.8 metres;

6.7 walls and fencing including details of the height and construction material;

6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

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

6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.10 the positions from where photographs of the site were taken.

7. 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 form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 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.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R185 million
What is the expected yearly income that will be generated by or as a result of the activity?	R30 million

Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	120
What is the expected value of the employment opportunities during the development phase?	R80 million
What percentage of this will accrue to previously disadvantaged individuals?	>70%
How many permanent new employment opportunities will be created during the operational phase of the activity?	10
What is the expected current value of the employment opportunities during the first 10 years?	R30 million
What percentage of this will accrue to previously disadvantaged individuals?	>70%

9(b) Need and desirability of the activity

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

One of the most significant socio-economic challenges facing South Africa is the ongoing energy crisis, which continues to constrain economic growth, industrial productivity and service delivery. The crisis is largely attributable to insufficient electricity generation capacity, ageing generation infrastructure, increasing electricity demand and operational constraints experienced by the national electricity utility, Eskom. This is evident with the ongoing loadshedding that the country faces on a daily basis, which has highlighted the urgent need to diversify South Africa's energy mix and expand electricity generation capacity to ensure a secure, reliable and sustainable energy supply.

South Africa has therefore recognised the need to expand electricity generation capacity within the country. This is based on national policy and informed by ongoing planning undertaken by the Department of Mineral Resources and Energy (DMRE) and the National Energy Regulator of South Africa (NERSA). South Africa has a high level of renewable energy potential and presently has in place a target of 17 800 MW of renewable energy. Renewable energy technologies such as solar photovoltaic (PV) and wind are being implemented as alternative sources of energy on a national scale through various programmes, informed by relevant energy planning policies.

The proposed Solar Energy Facility (SEF) and associated overhead powerline directly support these national objectives by contributing additional renewable electricity generation capacity to the national grid while strengthening regional electricity transmission infrastructure through the construction of an overhead powerline connecting the facility to the existing electricity network.

The proposed development will also improve the reliability and security of South Africa's electricity supply. Diversification of the national energy mix reduces dependence on a single generation technology and improves the resilience of the electricity system against supply disruptions. Additional renewable generation capacity contributes towards meeting increasing electricity demand while reducing the environmental impacts associated with conventional electricity generation. The associated overhead powerline plays a critical role in ensuring that the electricity generated by the solar facility can

be transmitted efficiently into the national grid, thereby supporting regional electricity distribution and strengthening network capacity.

The proposed development also aligns with the objectives of the National Development Plan (NDP) 2030, which identifies reliable and sustainable energy infrastructure as a key enabler of economic growth, investment and socio-economic development. Furthermore, the project is consistent with the Integrated Resource Plan (IRP) 2019, which identifies solar photovoltaic technology as one of the principal renewable energy technologies required to diversify South Africa's future electricity generation mix and ensure long-term energy security.

The proposed development is expected to make a positive contribution to the socio-economic development of the Sakhisizwe Local Municipality. The municipality experiences relatively high unemployment levels and limited economic diversification, creating a need for investment that promotes sustainable local economic development. During the construction phase, the project will create temporary employment opportunities for local communities and stimulate demand for accommodation, transport, catering, construction materials and other support services. The operational phase will provide permanent employment opportunities related to facility operation, maintenance, security and administration. Procurement of goods and services from local suppliers, where feasible, will further contribute to economic activity within the municipality.

The increased availability of electricity generated from renewable sources supports broader rural development objectives by contributing to a more reliable electricity supply. Improved energy availability facilitates the provision of essential public services, including healthcare, education, water treatment and sanitation infrastructure, while also supporting business development, agricultural processing and other productive economic activities. Improved access to reliable electricity can enhance living standards, promote investment in rural areas and reduce the need for outward migration in search of economic opportunities.

The proposed development is therefore consistent with the economic development objectives of the Sakhisizwe Local Municipality, which seek to attract investment, stimulate local economic growth, improve infrastructure and create employment opportunities. The project also aligns with provincial and national renewable energy policies that promote sustainable infrastructure development, climate resilience and the transition towards a low-carbon economy.

Indicate any benefits that the activity will have for society in general:

During the construction phase, the project will create temporary employment opportunities for skilled, semi-skilled and unskilled workers. Employment opportunities are expected in areas such as site preparation, civil works, electrical installation, security, transport, vegetation management, catering and other support services. The operational phase will also provide permanent employment opportunities associated with the operation, maintenance, security and administration of the facility.

The project is expected to generate indirect and induced economic benefits through the procurement of goods and services from local businesses. Increased demand for accommodation, catering, fuel, transportation, construction materials and equipment suppliers will support existing enterprises and create opportunities for the establishment and growth of small, medium and micro enterprises (SMMEs). The injection of project expenditure into the local economy will increase household income, stimulate local spending and contribute to broader economic activity within the municipality.

The creation of employment and increased household income have the potential to reduce poverty by improving access to basic needs, including food, housing, healthcare and education. Increased disposable income can also stimulate local economic activity through higher consumer spending, thereby creating additional economic opportunities within the municipality. Consequently, the proposed development is expected to make a positive contribution to poverty alleviation and

socio-economic development, while supporting the objectives of the Sakhisizwe Local Municipality to promote inclusive economic growth, job creation and improved quality of life for local communities.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The benefits of the proposed project are that:

- It will create temporary employment opportunities for residents and support local contractors and suppliers, contributing to household income and skills development during the construction phase.
- Diversification of household income sources by providing employment opportunities that supplement income derived from subsistence cultivation.
- Procurement of goods and services from local businesses and Small, Medium and Micro Enterprises (SMMEs), where feasible.
- It will improve land-use efficiency by combining renewable energy generation with agricultural activities on the same footprint, reducing competition between food production and energy development.
- Potential improvements in crop productivity for suitable crops due to partial shading provided by the solar panels which can reduce heat stress, decrease evapotranspiration and improve soil moisture retention.

10. 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:	Administering authority:	Date:
GNR 327 Activity 1(i)(ii) The development of facilities or infrastructure for the generation of electricity from a renewable resource where (i) the electricity output is more than 10 megawatts but less than 20 megawatts; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare; excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure	DEDEAT	December 2017
GN R.327 Activity 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 but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback;	DEDEAT	December 2017

(b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.		
GNR 327 28 (ii) Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	DEDEAT	December 2017
GN R.324 Activity 4. a.i. (ee) The development of a road wider than 4 metres with a reserve less than 13,5 metres. **a. Eastern Cape** i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed 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; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (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 seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or (ii) In an estuarine functional zone, excluding areas falling behind the development setback line; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Seawards of the development setback line or within urban protected areas.	DEDEAT	December 2017

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

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

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

Construction solid waste will be managed via a Construction Environmental Management Plan (EMP) and will incorporate reduction, recycling and re-use principles. It will be hauled away by trucks from the construction site and taken to the Cala landfill site. Manifests or a waste disposal register will be kept as proof of safe disposal.

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

All construction waste will be collected and temporarily stored on site. It will then be collected by trucks and taken to the nearest registered landfill as per the conditions and mitigation measures outlined in the EMPr. Any scrap metal will be sent for recycling.

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

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

Waste generated during the operational phase of the development will be associated with routine maintenance activities, administrative functions, and the replacement of damaged equipment. Waste streams may include general domestic waste for offices and security personnel, packaging materials, scrap metal, electrical and electronic waste (e-waste), used oils and lubricants, contaminated absorbent materials, and damaged photovoltaic (PV) panels.

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

Waste will be disposed at the nearest registered landfill site.

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 relevant legislation?	[redacted] NO
If yes, inform the competent authority and request a change to an application for scoping and EIA.	
Is the activity that is being applied for a solid waste handling or treatment facility?	[redacted] 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.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	[redacted] NO

If yes, what estimated quantity will be produced per month? N/A

Will the activity produce any effluent that will be treated and/or disposed of on site? NO

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

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

If yes, provide the particulars of the facility:

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

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

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere? YES

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

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

Construction vehicle emissions and dust during construction phase. Sources of emissions include those produced by heavy diesel vehicles involved in site preparation of the proposed infrastructure. During the operational phase, dust emissions may also occur from vehicle movement along unpaved access roads during maintenance activities. No emissions would be generated from the actual functioning of the facility during the operational phase as solar energy facilities operate by converting solar energy to electricity.

11(d) Generation of noise

Will the activity generate noise? YES

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

If no, describe the noise in terms of type and level:

Construction activity generated noise and noise levels. Noise will only be generated during construction phase due to construction vehicles and general construction activities. Any potential receptors are likely to be the farm workers in the neighbouring farms as the site is located at least 1km away from the nearest settlement, and the noise levels are not expected to be very high.

12. WATER USE

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

municipal

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 permit from the Department of Water Affairs? YES

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

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

The proposed development takes the position of the optimum solar radiation into account in order to efficiently capture solar energy. The proposed solar energy facility would generate electricity from a renewable source, i.e. solar energy, and thereby promote the use of more energy efficient technologies for power production. The agrovoltaic design further promotes efficient land use by enabling agricultural activities to continue beneath and between the solar arrays, allowing renewable energy generation and agricultural production to occur simultaneously on the same land footprint

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

Not applicable.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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 C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C 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? [X] YES [ ]

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

[X] Flat [ ]

Alternative S2 (if any):

[ ]

Alternative S3 (if any):

[ ]

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO		
Dolomite, sinkhole or doline areas	NO		
Seasonally wet soils (often close to water bodies)	NO		
Unstable rocky slopes or steep slopes with loose soil	NO		
Dispersive soils (soils that dissolve in water)	NO		
Soils with high clay content (clay fraction more than 40%)	NO		
Any other unstable soil or geological feature	NO		
An area sensitive to erosion	NO		

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

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition [E]
4.2 Natural veld – scattered aliens [E]
4.3 Natural veld with heavy alien infestation [E]
4.4 Veld dominated by alien species [E]
4.5 Gardens
4.6 Sport field

4.7 Cultivated land
4.8 Paved surface
4.9 Building or other structure
4.10 Bare soil

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



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

5. 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:

5.1 Natural area
5.2 Low density residential
5.3 Medium density residential
5.4 High density residential
5.5 Informal residential
5.6 Retail commercial & warehousing
5.7 Light industrial
5.8 Medium industrial **AN**
5.9 Heavy industrial **AN**
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam**A**
5.14 Quarry, sand or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant**A**
5.22 Train station or shunting yard **N**
5.23 Railway line **N**
5.24 Major road (4 lanes or more) **N**
5.25 Airport **N**

5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture
5.34 River, stream or wetland
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 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.

Not applicable

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

If YES, specify and explain:

Not applicable

If YES, specify:

Not applicable

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

If YES, specify and explain:

Not applicable

If YES, specify:

Not applicable

6. 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	YES	According to the Screening Report, the development site has Very High paleontological sensitivity (***Figure 25***). The South African Heritage Resources Information System (SAHRIS) map (**Figure 27**) also shows that the sensitivity on palaeontological resources within the proposed SEF site is rated as Very High as a result of the presence of features with very high paleontological sensitivity.  **Figure 25**. The palaeontological sensitivity of the development site. The cultural heritage and archaeology theme has a sensitivity of Low (***Figure 26***).  **Figure 26**. The cultural heritage sensitivity of the development site.



1 in 250 000 geological formation layers are courtesy of the Council for GeoScience
For more information, go to How to Use the Palaeontological (fossil) Sensitivity Map

Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 27. SAHRIS Paleo map (SAHRIS, 2026).

Archaeological or palaeontological sites, on or close (within 20m) to the site?	No
If YES, explain:	

If uncertain, conduct a specialist investigation by a recognised specialist in the field 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?	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;
(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;
(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
  (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  (iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and
(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

- Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)
- Department of Water and Sanitation (DWS)
- Department of Fisheries, Forestry and the Environment (DFFE)
- Eastern Cape Provincial Heritage Resources Authority (ECPHRA)
- South African Heritage Resources Agency (SAHRA)
- Sakhisizwe Local Municipality
-

Also refer to the attached I&APs database.

List of authorities from whom comments have been received:

No comments have been received to date.

7. CONSULTATION WITH OTHER STAKEHOLDERS

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

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	YES	~~NO~~

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

No comments received to date.

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. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No comments have been received to date.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

No comments have been received to date.

2.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

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) 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.

Alternative (preferred alternative)

The potential impacts discussed below have been rated using a standard impact rating method. This method is described in Appendix H. The complete rating table is also included in Appendix H.

IMPACT ASSESSMENT METHODOLOGY

The impacts identified were assessed according to the criteria outlined below. Each impact was ranked according to the nature, extent, duration, magnitude, probability, irreplaceable loss of resources and reversibility. These criteria are based on the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) Guideline Document to the EIA Regulations (1998). A significance rating of each identified impact was further reviewed by the EAP and/or specialist by applying professional judgement. Where possible, mitigatory measures were recommended for the impacts identified.

Rating	Definition of Rating	Score
A. *Spatial extent –* *the area in which the impact will be experienced*		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1

Regional	The region, which may be defined in various ways, e.g. cadastral. Catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. *Intensity –* *the magnitude or size of the impact*		
None		0
Low	Natural and/or social functions and processes continue albeit in a slightly modified way	1
Medium	Natural and/or social functions and processes continue albeit in a modified way	2
High	Natural and/or social functions and processes are severely altered	3
C. *Duration -* *the time frame for which the impact will be experienced*		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 20 years	2
Long-term	More than 20 years	3

Combined Score (A+B+C)	
Consequence Rating	
Not significant	0 -2
Very low	3 – 4
Low	5
Medium	6
High	7
Very high	8 - 9

Probability – *the likelihood of the impact occurring*		
Improbable	< 40% chance of occurring	0
Possible	40% - 70% chance of occurring	1
Probable	> 70% - 90% chance of occurring	2
Definite	> 90% chance of occurring	3

Significance Rating	***Possible Impact Combinations***	
	Consequence	***Probability***
Insignificant	Very Low	Improbable
	Very Low	Possible
Very Low	Very Low	Probable
	Very Low	Definite
	Low	Improbable
	Low	Possible
Low	Low	Probable
	Low	Definite
	Medium	Improbable
	Medium	Possible
Medium	Medium	Probable

	Medium	Definite
	High	Improbable
	High	Possible
High	High	Probable
	High	Definite
	Very High	Improbable
	Very High	Possible
Very High	Very High	Probable
	Very high	Definite

Status of impact *The environmental impacts of an activity are those resultant changes in environmental parameters, in space and time, compared with what would have happened had the activity not been undertaken. It is an appraisal of the type of effect the activity would have on the affected environmental parameter. Its description includes what is being affected, and how*	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a 'benefit')
	– ve (negative – a 'cost')

Confidence of assessment	
The degree of confidence in predictions based on available information, EAP's judgement and/or specialist knowledge	Low
	Medium
	High

IMPACTS

PLANNING AND DESIGN PRE-CONSTRUCTION PHASE

Table 2. Impacts identified for the planning and pre-construction phase.

Impacts	Description
Direct impacts	
Legal and environmental compliance	Commencement of project construction and activities without lodging and obtaining relevant authorisation applications and being approved for resulting in authorities halting the project, issuing fines, implying no development commencement.
Poor site establishment	Inappropriate siting of construction camps, stockpiles and laydown areas can result in unnecessary habitat destruction, erosion, increased soil compaction and inefficient use of land and increase the footprint of the development.
Inadequate stormwater management design	Poor stormwater planning may cause erosion, flooding and sedimentation within the cultivated land the surrounding farms once construction and operation commence.
Loss of cultivated agricultural land	Poor planning of the development footprint may result in unnecessary clearing of cultivated crops and loss of and productive agricultural land.
Inadequate rehabilitation and maintenance of the natural environment	Inadequate implementation of systematic (or phased) rehabilitation post construction may render the unrehabilitated site prone to soil erosion, infestation by alien invasive species and subsequently lead to altered hill slopes and fluvial natural flow responses.
Land-use compatibility issues	Poor siting of the proposed infrastructure may conflict with existing agricultural activities, surrounding land uses and environmentally sensitive areas, resulting in unnecessary environmental disturbance and reduced land-use efficiency.

Environmental awareness training	Lack of environmental awareness and environmental non-compliance of the staff and foremen will result in the damage to environmentally sensitive areas and possible environmental risks associated with construction activities.
Indirect impacts	
Fragmentation of the cultivated fields	The installation of solar panels and access roads in between the crops fragments the cultivated land, restricts cultivation machinery and reduces the efficiency of farming operations.
Cumulative impacts	
Progressive reduction of productive agricultural land	Inappropriate site selection and infrastructure layout during the planning and design phase may result in the unnecessary occupation and fragmentation of productive agricultural land.
Increased long-term operational costs	Failure to integrate sustainability principles during the planning and design phase may result in increased long-term operational and maintenance costs associated with the agrovoltaic Solar Energy Facility (SEF). Poor planning may lead to inefficient water and energy use, increased vegetation management requirements, more frequent infrastructure maintenance and reduced operational efficiency, which could also compromise the long-term environmental sustainability of the development.

CONSTRUCTION PHASE

Table 3. Impacts identified for the construction phase.

Impacts	Description
Direct impacts	
Legal and environmental non-compliance	Failure to comply with environmental standards
Site establishment and security	Poor site establishment and lack of security
Environmental awareness and training	Lack of environmental awareness and environmental non-compliance of the staff and foremen will result in the damage to environmentally sensitive areas and possible environmental risks associated with construction activities
Loss of productive agricultural land	The construction of permanent infrastructure will occupy portions of cultivated land, reducing the area available for agricultural production.
Soil disturbance and compaction	Earthworks, excavation and vehicle movement may disturb topsoil and compact soils, reducing soil structure, infiltration capacity and agricultural productivity.
Soil erosion and sedimentation	Removal of vegetation cover and exposure of soil may increase erosion by wind and water, particularly during rainfall events.
Soil contamination	Accidental spillage of small amounts of cement and oil for machinery maintenance or from vehicles may contaminate the soil.
Proliferation of invasive alien vegetation	The movement of construction vehicles, machinery, materials and soil may introduce or disperse alien plant seeds within the development footprint and adjacent areas.
Increased surface runoff	Vegetation clearance, soil compaction and the construction of access roads and other infrastructure will reduce water infiltration and increase the volume and velocity of surface runoff, leading to erosion, sedimentation and potential impacts on nearby drainage features and wetlands
Direct loss of vegetation and habitat transformation	The Disturbance from noise and vibration is expected to affect domestic animals on the farm.
Direct loss of ESA	The construction of the SEF and associated infrastructure within ESA will result in the direct transformation and disturbance of land that contributes to

Impacts	Description
	maintaining ecological processes and landscape connectivity. Although the site is currently cultivated and the agrovoltaic design allows continued agricultural use, permanent infrastructure such as access roads, inverter stations, substations will reduce the ecological functioning of the ESA by fragmenting habitats, disturbing fauna and altering natural ecological processes.
Loss of Ecosystem function and connectivity	The development will introduce permanent structures that will further fragments the landscape and create barriers to the movement of fauna. This will reduce habitat connectivity between adjacent natural areas, limiting species movement, dispersal and the functioning of ecological corridors.
Changes to surface water quality characteristics	Construction activities may introduce sediment, pollutants and contaminated runoff into nearby wetlands, drainage lines and water bodies, resulting in increased turbidity, reduced water quality and degradation of aquatic ecosystems
Contamination of surface and ground water from hazardous substances	Accidental spills or leaks of fuels, oils, lubricants and other hazardous substances during construction may contaminate soils, surface water and groundwater, resulting in the degradation of water quality and degradation of aquatic ecosystems.
Loss and degradation of aquatic and wetland habitat	Earthworks, vegetation clearance, increased noise, dust, vibration, human activity and stormwater runoff may degrade wetland ecological functioning, reduce habitat quality and disturb wetland-dependent flora and fauna.
Disturbance of drainage lines and wetland systems	Construction activities such as vegetation clearance, excavations, stockpiling and establishment of associated infrastructure may directly or indirectly impact wetlands or drainage lines occurring within or in close proximity to the development footprint. Such activities may affect the ecological functioning of the wetland and drainage line systems.
Palaeontological and heritage resource disturbance	Damage to cultural, heritage, archaeological and palaeaontogical resources during construction activities such as excavations and plant movement.
Changes to hydrological regime and increase in soil erosion	Construction activities may alter natural surface water flow patterns and drainage pathways. These changes may affect the timing, direction and volume of runoff entering adjacent wetlands and drainage features, potentially disrupting natural hydrological processes and reducing the ecological functioning of downstream aquatic ecosystems.
Sanitation and hygiene	Inadequate provision or poor management of sanitation facilities for construction personnel may result in the contamination of soils, surface water and groundwater through the improper disposal of sewage or wastewater.
Hazardous material storage and handling	Improper storage or handling of hazardous materials may pose risks to health and the environment.
Dust pollution	Earthworks and construction traffic on unpaved roads may generate dust, reducing local air quality and potentially affecting nearby crops.
Noise pollution	Construction machinery and heavy vehicles will generate temporary elevated noise levels, potentially disturbing nearby fauna and receptors.
Fauna disturbance	Construction activities, noise and increased human presence may disturb birds, reptiles, mammals and invertebrates occurring within cultivated fields and adjacent habitats.
Construction waste and litter	Poor management of construction waste may result in litter accumulation, pollution of soils and water resources and visual degradation
Health and safety	Construction activities may expose workers and the public to safety risks associated with heavy machinery, vehicle movement, excavation, electrical works and hazardous substances, potentially resulting in accidents, injuries and environmental incidents if not appropriately manage
Short-term landscape change from the current rural agricultural sense of place	The site is characterised by open veld with a rural agricultural sense of place. The establishment of a site camp, the presence of temporary construction

Impacts	Description
to the semi-industrial renewable energy landscape- PV Area	equipment and structures on-site, and the associated activities will result in a change in sense of place.
Employment opportunities	Temporary employment opportunities will be created for the local's inhabitants and SMME's. In the process, the beneficiaries will accrue source of income and be upskilled in construction methods. Thereby, improving livelihoods of the inhabitants
Indirect impacts	
Indirect impacts on animal species due to the disturbance and modification of existing habitat during the construction of project infrastructure	Construction activities may temporarily reduce habitat suitability and disturb fauna through vegetation disturbance, noise, dust, increased human activity and infrastructure development, resulting in the displacement of animals and disruption of movement and breeding patterns.
Skills development	Local workers may receive training and experience in construction and renewable energy infrastructure.
Traffic congestion and visual disturbance	Delivery of materials and movement of workers will temporarily increase traffic on local roads
Cumulative impacts	
Change in the sense of place	The site is characterised by open veld with a rural agricultural sense of place. The establishment of a site camp, the presence of temporary construction equipment and structures on-site, and the associated activities will result in a change in sense of place.

REHABILITATION PHASE

Table 4. Impacts identified for the rehabilitation phase.

Impacts	Description
Direct impacts	
Inadequate environmental compliance	Lack of post construction follow-up on environmental obligations fulfilment may result into unattended environmental impacts which may lead to environmental degradation.
Poor site de-establishment	Environmental pollution such as illegally dumped waste and construction material might be a result of unmonitored site de-establishment.
Soil compaction	Earthworks, excavation and vehicle movement may disturb topsoil and compact soils, reducing soil structure, infiltration capacity and agricultural productivity.
Waste management	Decommissioning will generate significant quantities of recyclable material, e-waste, scrap metal and hazardous waste requiring appropriate management
Traffic impacts	Rehabilitation activities will require the movement of vehicles, machinery and personnel to remove temporary infrastructure, transport waste materials and undertake rehabilitation works.
Indirect impacts	
Delayed rehabilitation	Failure to rehabilitate disturbed areas promptly may increase erosion and delay restoration of agricultural productivity.
Increased maintenance burden	Inadequate rehabilitation may increase long-term maintenance costs
Cumulative impacts	
Long-term degradation of cultivation land	Inadequate rehabilitation may contribute to cumulative land degradation within the municipality.

OPERATIONAL PHASE

Table 5. Impacts identified for the operational phase.

Impacts	Description
Direct impacts	
Legal and environmental non-compliance	Failure to fulfil legal environmental legislations and EA conditions during operations may lead to overall disapproval and failure of the project
Alien and invasive vegetation management	The movement of vehicles may introduce or disperse alien plant seeds within the development footprint and adjacent areas.
Increase in Anthropogenic Disturbance	Human activities, including increased movement of personnel and vehicles, routine maintenance, and operational activities, may disturb local fauna and flora, and contribute to habitat disturbance and degradation.
Alteration of surface runoff	Solar panels, access roads and other hardened or compacted surfaces may alter the distribution and velocity of surface runoff across the site. Concentrated runoff may increase localised erosion and sediment transport and may alter the quantity and pattern of water reaching nearby wetlands and drainage systems.
Ongoing disturbance associated with maintenance/agricultural activities.	Routine maintenance, vehicle movement, vegetation management and agricultural activities associated with the agrovoltaic facility may cause disturbance where undertaken close to wetlands or drainage lines.
Waste management	Routine maintenance will generate small quantities of general waste, e-waste, used oils and contaminated materials requiring appropriate disposal
Localised pollution from maintenance	Accidental spills of fuels, lubricants or transformer oil during maintenance activities may contaminate soil or water resources.
Stormwater management	Failure to implement effective stormwater management measures may result in an increase in surface soil erosion and sedimentation of the nearby watercourse and wetland.
Reduced scenic quality	The development will diminish the aesthetic appeal of the natural or rural landscape of the development area.
Sanitation	Poorly maintained ablution facilities/sewerage pipelines may result in the pollution of the immediate and surrounding environment and poor maintenance may cause health risks
Social and economic benefits	The development will supplement the supply of electricity in the municipality.
Indirect impacts	
Spread of alien invasive vegetation	Inadequate vegetation management may allow invasive alien plant species to establish within the facility footprint.
Changes to the microclimate	Solar arrays may locally alter shade patterns, soil moisture and airflow, potentially influencing crop growth beneath the panels
Indirect impacts on animal species due to disturbance and modification of existing habitat during the operation of the project	The presence of the solar facility and routine maintenance activities may alter habitat suitability and disturb fauna, affecting movement, foraging and habitat use within the operational footprint.

No-Go

Table 6. Impacts identified for the Status quo.

Impacts	Description
Status quo – No Agrovoltaic Solar Energy Facility	
Socio-economic	Results in the continuation of existing socio-economic conditions, with no additional employment, local procurement, skills development or income-generating opportunities associated with the proposed agrovoltaic solar energy facility.
Conversion of electricity generation to renewable energy	The proposed conversion of electricity generation to renewable solar energy would not occur. Consequently, the opportunity to add approximately 10 MWAC of renewable electricity generation to the grid and reduce reliance on fossil-fuel-based electricity generation would not be realised.

SUMMARY OF SPECIALIST STUDIES IDENTIFIED IMPACTS

Specialist studies are appended as **Appendix D** of this report. This section provides an overview of the key findings from the conducted specialist studies (excluding the Cultural and Heritage outlined in Section 6 of this report);

- Agricultural Impact Assessment (Enviro-Solum Consulting, 2026)
- Archaeological Impact Assessment (Booth Consulting, 2026)
- Aquatic Biodiversity Compliance Statement (Abantu Environmental Services, 2026)
- Terrestrial Biodiversity Impact Assessment (Mbambo Ecological Services, 2026)
- Palaeontological Impact Assessment (Marion Bamford, 2026)
- Visual Impact Assessment (Skyvision Geospatial Consulting,2026)

AGRICULTURAL IMPACT ASSESSMENT

Key Findings

- The entire study area is dominated by the Ca119 land type class, which generally refers to land dominated by red, freely drained soils, often with relatively high clay content.
- Most of the study area is dominated by moderate to high land capability, with scores ranging from 5 (low) to 8 (moderate).
- According to the Natural Agricultural Resources Manual (NAR Atlas Manual, 2018), the livestock grazing capacity potential is estimated to be approximately 7 hectares per livestock unit (ha/LSU) for the entire study area.
- According to the Department of Agriculture, Land Reform and Rural Development DALRRD, 2020) database, the proposed development is located within the rainfed (RF) protected agricultural area.
- Based on the observations during the site assessment, the dominant soils within the study area are Clovelly and Mispah/Glenrosa.

Mitigation and Recommendations

- Direct surface disturbance of the identified arable soils can be avoided where possible to minimise loss of arable soils;
- Avoid construction on the active agricultural soils where feasible;

- Minimise the development footprint within the actively cultivated soils;
- The footprint areas should be lightly ripped to alleviate compaction;
- Limit removal of vegetation to demarcated areas only;
- Limit earthworks and vehicle movement to demarcated paths and areas;
- Soil compaction is usually greatest when soils are moist, so soils should be stripped when moisture content is as low as possible;
- Heavy equipment movement over replaced soils should be minimised;
- Minimize compaction during smoothing of replaced soils by using dozers rather than graders;
- Following placement, compacted soils should be ripped to full rooting depth (30cm as the bare minimum seedbed) to allow penetration of plant root;
- Contamination preventation measures should be addressed in the Environmental Management Programme (EMPr) for the proposed development, and this should be always implemented and made available and accessible to the contractors and construction crew conducting the works on site for reference;
- A spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans should also be compiled to guide the construction works;
- An emergency response contingency plan should be put in place to address clean-up measures should a spill and/or a leak occur, as well as preventative measures to prevent contamination;
- Burying of any waste, including rubble, domestic waste, empty containers, on site should be strictly prohibited, and all construction rubble waste must be removed to an approved disposal site.
- 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;
- All excavation/construction vehicles should be in good condition and inspected regularly to ensure there are no chemical spills (diesel/oil) which will negatively impact the receiving environment;
- After the powerline installation, the ground should be seeded with an indigenous grass or other native cover;
- Vegetation clearance and commencement of construction activities can be scheduled to coincide with low rainfall conditions when the erosive stormwater and wind are anticipated to be low whenever possible;
- Avoid vegetation clearance prior to periods of prolonged inactivity;
- All disturbed areas adjacent to the proposed development areas should be re-vegetated with an indigenous grass mix or vegetation mix, if necessary, to re-establish a protective cover, to minimize soil erosion;
- Temporary erosion control measures should be used to protect the disturbed soils during the construction phase until adequate vegetation has established.

ARCHAEOLOGICAL IMPACT ASSESSMENT

Key Findings

- No archaeological heritage materials or historical heritage materials, sites, or features, including stone-packed structures, were identified during the field assessment.
- Although stone artefacts may occur between the surface and approximately 80 cm below ground, the likelihood of uncovering archaeological and/or historical heritage resources during construction is low.

- Unmarked human burials may occur between the surface and up to 150 cm below ground; therefore, if any human remains or other heritage materials are encountered, all work in the immediate area must cease and the chance-find procedures outlined in this report must be implemented.
- The landowner confirmed that no graves are present within the proposed development area. No mention by the landowner was made of the area being used for spiritual, ritual, or living heritage spaces by themselves or the community.

Mitigations and Recommendations

- Contractor teams must be briefed on heritage sensitivities, chance find procedures, and reporting requirements. Heritage awareness should form part of environmental induction and ongoing site compliance monitoring.
- A formal chance-find procedure must be implemented for all contractors. If human remains, grave structures, artefacts, or culturally significant features are uncovered, work must stop immediately and ECPHRA must be notified. The procedure must be included in contractor induction training.
- All heritage-related actions, including public participation, consultation, monitoring, chance-find responses, and assessments must be documented and included in the final heritage compliance report submitted to ECPHRA.
- If concentrations of pre-colonial archaeological heritage material including subsurface dense artefact accumulations, associated cultural deposits, or human remains such as graves or burials are uncovered during construction, all work must cease immediately and the discovery must be reported without delay to the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) at 043 492 1370. No further disturbance may occur until the heritage authority has provided guidance.

AQUATIC BIODIVERSITY IMPACT ASSESSMENT

Key Findings

- According to the ECBCP (2019), the proposed development site is located within aquatic ESA 1.
- According to the NFEPA datasets the development does not overlap any FEPA rivers. The NFEPA dataset identifies a mapped wetland feature within 500 m of the proposed development footprint.
- The National Wetland Map version 5 (NWM5) shows no inland wetland ecosystems. The level of confident for the study area is low, illustrating a very low confidence.
- According to the national screening tool report the proposed site falls within the Eastern Cape Drakensberg SWSA, however according to the SWSA datasets the proposed development footprint does not fall within the identified SWSA
- The proposed development is located outside the aquatic features under the assessment. Therefore, it does not directly impact the aquatic systems. Notwithstanding, the development is within regulated water areas of the aquatic systems under this assessment which are;
    - An ephemeral tributary traversing north of the site in a downstream direction
    - UCVBW located south of the development and
    - A downstream located CVBW located towards the catchment outlet.
- The overall assessment of the aquatic systems rates them as Moderately modified with a PES of C however constituted by varying levels for various indicators such as Hydrology, Geomorphology, Water Quality and Vegetation ranging from B- D, with the latter PES identified for the Hydrology module of the UCVBW.
- The implementation of the recommended mitigation measures, the impacts are expected to reduce to Low or Very Low significance. From an aquatic biodiversity perspective, the proposed development is therefore considered acceptable, provided that the recommended mitigation measures are effectively implemented and all required environmental and water related authorisations are compiled

Mitigation and Recommendations

- The relevant authorizations should be obtained prior to commencement of the development
- The layout should be amended to ensure;
    - that the northern boundary of the development footprint is located outside the recommended 100 m buffer of the northern drainage line.
    - The O&M building and any planned sanitation system should be located outside the any regulated water areas
- Stormwater management plan for construction phase should be compiled and implemented
- Delineated wetlands and drainage lines and associated buffers must be demarcated prior to construction and treated as no-go areas.
- No construction activities may occur within delineated wetlands, drainage lines or their approved buffers.
- Construction camps, laydown areas, stockpiles, refuelling areas and waste storage areas must be located outside wetlands and drainage lines.
- Construction activities must be restricted to the development footprint.
- Site camp locality must be selected in conjunction with the project Environmental Control Officer (ECO)
-
- Rehabilitated areas should be regularly monitored, and measures must be implemented to ensure that the reinstated topsoil does not wash away.
- Limit vegetation clearing to the area required for construction.
- Clearly demarcate the approved working footprint and treat areas outside it as no-go areas.
- Temporarily disturbed areas must be rehabilitated and revegetated after construction.
- Erosion and sediment barriers must be installed immediately downstream of active work areas (including soil stockpiles) as necessary to trap any excessive sediments generated during construction.
- All temporary erosion and sediment control measures must be monitored for the duration of the construction phase and repaired immediately when damaged.
- Exposed soils must be stabilised and stockpiles must be located away from wetlands and drainage pathways.
- Refuelling and maintenance of machinery must not occur within wetlands, drainage lines or their buffers.
- Fuels, oils, chemicals and cement must be stored and handled in designated controlled areas away from aquatic features.
- Spill response kits must be available on site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site.
- Runoff from panels, access roads and other compacted areas must not be concentrated directly into wetlands or drainage lines.
- A stormwater management plan must be compiled for the approval of the Department prior to commissioning
- Similarly. An Alien and Invasive Vegetation Species Management Plan must be compiled for the approval of the Department prior to commissioning
-
- Vegetation cover beneath and between solar panels should be maintained as far as practicable to promote infiltration and reduce runoff velocity.
- Maintenance vehicles and agricultural activities must remain within the development footprint.
- Agricultural activities must be restricted to approved areas and must not encroach into aquatic areas.

TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

Key Findings

- The proposed development site falls within terrestrial CBA 1 and ESA 2 in the Albany centre of plant endemism.
- Terrestrially, the project area falls under BLMC 2, these areas are near natural landscapes.
- The proposed development site is in the Drakensberg Foothill Moist Grassland, which is listed as a Least threatened ecosystem type.
- The proposed development site does not occur within or near any protected area or its formal buffer zone; therefore, direct physical impacts are not expected.
- There are no forest patches within the development footprint.
- During the site visit, no plant SCC were recorded; however, the survey was conducted outside the peak flowering season.
- The plant species recorded on site were: *Themeda triandra*, *Juncus* sp., *Aristida* sp., *Helichrysum nudifolium*, *Heteropogon contortus, Hypoxis* sp.*, Eragrostis* sp., and *Bidens pilosa*. All of these are classified as Least Concern according to the SANBI Red List.
- Three alien species were identified on site, and both are listed as Alien Invasive Species (AIS).
- Two wetlands also occur adjacent to the proposed development area, one which is about 200m away and the other is ~ 650m; for this reason, the mapped wetland buffer extends into the proposed development footprint.
- There were also a notable number of birds observed in the area. These features make the ecological sensitivity of the site high, since the area maintains hydrological and ecological processes.

Mitigation and Recommendations

- Minimise natural vegetation clearance: Limit the footprint of disturbance by maximising the use of existing tracks, roads, and infrastructure corridors wherever possible.
- Environmental supervision: Appoint a competent Environmental Control Officer (ECO) for the construction phase to ensure all recommendations in this report are implemented.
- Restrict access: Limit all construction and maintenance access to demarcated areas to prevent disturbance to vegetation outside the development footprint.
- Protect natural resources: Prohibit collection of plants, wood, or other natural resources outside the approved development footprint.
- Laydown areas: Restrict laydown, storage, and temporary work areas to sites of low ecological sensitivity to reduce unnecessary habitat loss.
- Selective clearing: Only clear vegetation that is essential for construction, such as for pipelines and avoid unnecessary widening of access routes, laydown areas, material storage areas and construction camps.
- Topsoil management: Remove and stockpile topsoil carefully during construction for use in the rehabilitation of disturbed areas.
- Rehabilitation timing: Undertake rehabilitation immediately after construction activities cease in a given area to reduce erosion and promote ecosystem recovery.
- Rehabilitation methods: Allow mostly passive regeneration of vegetation, supplemented initially with indigenous grass mixes to stabilise soils and accelerate recovery.
- Minimise natural vegetation clearance as far as possible by: minimising the development footprint; avoiding unnecessary clearing or disturbance of surrounding grassland; and avoiding unnecessary widening of the road;
- Secondary and Tertiary PAOI are no-go areas, and no development activities are allowed.

- Minimise natural vegetation clearance as far as possible by: minimising the development footprint; avoiding unnecessary clearing or disturbance of surrounding grassland; and avoiding unnecessary widening of the road;
- Implement the Open Space Maintenance Plan.
- Limit the use of pesticides and herbicides during the operation phase, particularly with the control of AIS.
- Access should be limited to prevent further disturbance to the vegetation outside of the development footprint.
- No fires should be allowed on site.
- No plant or wood collection should be allowed outside of the proposed development footprint.
- Prevent development from occurring within the identified No Go Areas (i.e surrounding vegetation).

PALAEONTOLOGICAL IMPACT ASSESSMENT

Key findings

- The impact on the palaeontological heritage would be low.
- The PV site has been cleared and ploughed for cultivation so there are no rocky outcrops and, therefore, no fossils on the soil covered land surface.
- The material to be excavated is soil in a cultivated field and this does not preserve fossils.
- No fossil localities are recorded near the site, the nearest known fossil site is located at Askeaton more than 20km southwest.
- The geological structures suggest that the rocks are the correct type and age to contain fossils. However, the material to be excavated is soil in a cultivated field and this does not preserve fossils.

Mitigation and Recommendations

- There is a very small chance that fossils may below the soils of the cleared and cultivated fields in the shales of the Burgersdorp and Molteno Formations so a Fossil Chance Find Protocol should be added to the EMPr.
- If fossils are found by the environmental officer, or other responsible person once excavations for foundations and infrastructure have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample.

VISUAL IMPACT ASSESSMENT

Key findings

- This VIA has determined that the visual character across much of the study area is of high conservation value, however, it has been disturbed by pre-existing transmission lines and cultivated agricultural plots hence resulting in a “rural agricultural” sense of place.
- The area has falls within the Eastern EGI corridor and Stomberg Wind REDz. Thus, the introduction of the proposed Agrovoltaic SEF, will not result in severe visual intrusion or significantly alter the visual sense of place post-mitigation in the study area.
- The assessment has concluded that the proposed development would be of Moderate significance in visual impact during the construction phases of the project, with a Low significance post mitigation. The decommissioning phase would be of Low significance.
- The introduction of the Agrovoltaic SEF, will not result in severe visual intrusion or significantly alter the visual sense of place post-mitigation in the study area. This takes into account the limited visual

impacts that the proposed infrastructure will have in comparison to the pre-existing and potentially planned developments for the region.

Mitigation and Recommendations

- Retain and maintain natural vegetation (if present) immediately adjacent to the development footprint.
- Ensure that vegetation cover adjacent to the development footprint (if present) is not unnecessarily removed during the construction phase, where possible.
- Restrict the activities and movement of construction workers and vehicles to the immediate development footprint and existing access roads.
- Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.
- Screen the construction camp and laydown area yards by enclosing the entire area with a dark green or black cloth of no less than 2m height.
- Where possible, utilize existing screening features such as dense vegetation and topographical features to place the construction camps and lay-down yards out of the view of sensitive visual receptors.
- Reduce and control construction dust using approved dust suppression techniques as and when required (i.e., whenever dust becomes apparent).
- Reduce the construction period by ensuring that adequate resources are mobilised for the construction phase.
- Rehabilitate all disturbed areas (if present / if required) immediately after the completion of construction works.
- Limit the construction phase duration to a short term.

IMPACT RATINGS

A summary of all the identified impacts, their associated phase, as well as their impact calculations and significance are presented in (**Table 7**).

Table 7.Impact ratings for each development phase.

	Impact	Mitigation	Extent	Intensity	Duration	Consequence	Consequence	Probability	Probability	Significance	Status	Confidence
	Direct											
Planning and Design	**Legal and environmental compliance**	Without	1	3	1	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Poor site establishment	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Inadequate stormwater management design	Without	1	3	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Loss of cultivated agricultural land	Without	1	2	3	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	2	4	Very low	1	Possible	**Insignificant**	-ve	High
	Inadequate rehabilitation and maintenance of the natural environment	Without	1	3	2	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Land-use compatibility issues	Without	1	2	3	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	-ve	High
	Environmental awareness training	Without	1	2	2	5	Low	2	Probable	**Low**	-ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Indirect Impacts											
	Fragmentation of the cultivated fields	Without	1	3	2	6	Medium	2	Probable	**Medium**	-ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	-ve	High
	Cumulative Impacts											
	Progressive reduction of productive agricultural land	Without	1	2	2	5	Low	2	Probable	**Low**	-ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Increased long-term operational costs	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
Construction	**Direct**											
	Legal and environmental non-compliance	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Site establishment and security	Without	1	3	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High

	Environmental awareness and training	Without	1	3	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Loss of productive agricultural land	Without	1	3	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Soil disturbance and compaction	Without	1	3	3	7	High	3	Definite	**High**	- ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
	Soil erosion and sedimentation	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Soil contamination	Without	1	2	2	5	Low	3	Definite	**Low**	-ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Proliferation of invasive alien vegetation	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Increased surface runoff	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Direct loss of vegetation and habitat transformation	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Direct loss of ESA	Without	2	3	2	7	High	3	Definite	**High**	-ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
	Loss of Ecosystem function and connectivity	Without	2	2	2	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Changes of surface water quality characteristics	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
	Contamination of surface and ground water from hazardous substances	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
	Loss and degradation of aquatic and wetland habitat	Without	2	2	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Disturbance of drainage lines and wetland systems	Without	2	3	2	7	High	3	Definite	**High**	- ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
	Palaeontological and heritage resource disturbance	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
		Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High

	Changes to hydrological regime and increase in soil erosion	With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Sanitation and hygiene	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	2	4	Very low	1	Possible	**Insignificant**	- ve	High
	Hazardous material storage and handling	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Dust pollution	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Noise pollution	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Fauna disturbance	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Construction waste and litter	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	2	4	Very low	1	Possible	**Insignificant**	- ve	High
	Health and safety	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	- ve	High
	Short-term landscape change from the current rural agricultural sense of place to the semi-industrial renewable energy landscape - PV area	Without	1	3	3	7	High	3	Definite	**High**	- ve	High
		With	1	2	2	5	Low	2	Probable	**Low**	- ve	High
	Employment opportunities	Without	2	2	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	2	3	2	7	High	3	Definite	**High**	+ ve	High
	Indirect Impacts											
	Indirect impacts on animal species due to the disturbance and modification of existing habitat	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Skills development	Without		3	2	5	Low	2	Probable	**Low**	- ve	High
		With	2	3	2	7	High	3	Definite	**High**	+ ve	High
	Traffic congestion and visual disturbance	Without	1	3	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	- ve	High
	Cumulative Impacts											

	Change in the sense of place	Without	2	3	2	7	High	3	Definite	**High**	- ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	- ve	High
Rehabilitation	**Direct**											
	Inadequate environmental compliance	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Poor site de-establishment	Without	1	3	2	6	Medium	2	Probable	**Medium**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Soil compaction	Without	1	3	3	7	High	2	Probable	**High**	- ve	High
		With	1	2	2	5	Low	2	Probable	**Low**	- ve	High
	Waste management	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Traffic impacts	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Indirect Impacts											
	Delayed rehabilitation	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Increased maintenance burden	Without	1	2	2	5	Low	1	Possible	**Very Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Cumulative Impacts											
	Long-term degradation of cultivated land	Without	1	3	3	7	High	2	Probable	**High**	- ve	High
		With	1	2	2	5	Low	2	Probable	**Low**	- ve	High
Operations	**Direct impacts**											
	Legal and environmental non-compliance	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Alien and invasive vegetation management	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	- ve	High
	Increase in anthropogenic disturbance	Without	1	2	2	5	Low	2	Probable	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	-ve	High
	Alteration of surface runoff	Without	2	2	2	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	2	1	4	Very low	2	Probable	**Very Low**	-ve	High

	Ongoing disturbance associated with maintenace/agricultural activities	Without	2	2	2	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	-ve	High
	Waste management	Without	1	2	2	5	Low	3	Definite	**Low**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Localised pollution from maintenance	Without	1	2	3	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	- ve	High
	Stormwater management	Without	1	2	3	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	- ve	High
	Reduced scenic quality	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Sanitation and hygiene	Without	1	2	3	6	Medium	3	Definite	**Medium**	- ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	- ve	High
	Social and economic benefits	Without	1	1	3	5	Low	2	Probable	**Low**	- ve	High
		With	1	3	3	7	High	3	Definite	**High**	+ ve	High
	Indirect impacts											
	Spread of alien invasive vegetation	Without	1	2	2	5	Low	2	Probable	**Low**	-ve	High
		With	1	1	1	3	Very low	1	Possible	**Insignificant**	-ve	High
	Changes to the microclimate	Without	1	2	3	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	2	4	Very low	2	Probable	**Very Low**	-ve	High
	Indirect impacts on animal species due to the disturbance and modification of existing habitat	Without	2	2	2	6	Medium	3	Definite	**Medium**	-ve	High
		With	1	1	1	3	Very low	2	Probable	**Very Low**	-ve	High
No-Go	**Status-quo – No agrovoltaic solar energy facility**	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	High
	Socio-economic	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	High
	Conversion of electricity generation to renewable energy	Without	2	2	2	6	Medium	3	Definite	**Medium**	- ve	High
		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	High

MITIGATIONS

PLANNING AND DESIGN PRE-CONSTRUCTION PHASE

Table 8. Mitigation measures for the planning and pre-construction phase.

Impacts	Mitigations
Direct impacts	
Legal and environmental compliance	• Ensure environmental authorisations namely EA is obtained for the development • A full time independent Environmental Control Officer (ECO) to be appointed to monitor compliance with permits conditions • All health and safety permits and certification to be in place • A health and safety plan in terms of the Occupational Health and Safety Act (Act No 85 of 1993) must be drawn up by the HSE officer prior to construction to ensure workers safety • Environmental files to be compiled prior to commencement of construction activities. An Environmental Management plan should be incorporated in the file. • Environmental file to be compiled prior to commencement of construction activities and the file to contain records of: o EA copy o Approved EMPr o Approved plans o Method statements o Ablutions servicing manifests o Waste disposal manifests o Safety data sheets o Daily plant and vehicle checklist o ECO audit reports • Compile all methods statements for ECO approval o Site establishment o Environmental awareness and training o Dust pollution control o Concrete batching o Hazardous material handling o Material and soil stockpiling o Solid waste management o Vegetation clearing and rehabilitation
Poor site establishment	• The layout should be amended to ensure; o that the northern boundary of the development footprint is located outside the recommended 100 m buffer of the northern drainage line. o The O&M building and any planned sanitation system should be located outside the any regulated water areas • Stormwater management plan for construction phase should be compiled and implemented • Construction site to be selected by the contractor in conjunction with the consulting engineer and the ECO.

Impacts	Mitigations
	• Fulltime security officers to be appointed to safeguard the site, its personnel, plant and equipment. • The site to be clearly and firmly demarcated using appropriate methods. • No-go areas to be clearly and firmly barricaded using appropriate techniques • Necessary health and safety as well as road construction signage to be installed.
Inadequate stormwater management design	• Develop a storm water drainage design during detail design development stage. • Storm water management designs and slope stabilisation must be in accordance with generally accepted design standards. • A storm water management plans or mitigation to be developed prior to commencement of construction activities
Loss of cultivated agricultural land	• Maintain adequate spacing between solar panel rows to allow continued access and operation of agricultural machinery • Strip, stockpile and protect topsoil separately from subsoil in areas to be disturbed, and reuse it during rehabilitation to maintain soil fertility. • Rehabilitate all temporarily disturbed areas immediately following construction and restore them to a condition suitable for continued agricultural production • Prevent soil compaction, erosion and contamination through the implementation of appropriate soil conservation and stormwater management measures.
Inadequate rehabilitation and maintenance of the natural environment	• Development a rehabilitation plan to foster phased rehabilitation during and post construction. • Rehabilitate all disturbed areas (if present / if required) immediately after the completion of construction works.
Land-use compatibility issues	• Minimise vegetation clearance and confine to the infrastructural footprint • Implement systematic and incremental rehabilitation • Regular monitoring of implementation of this plan for the rehabilitation of disturbed areas must be conducted throughout the duration of the construction/decommissioning phase.
Environmental awareness training	• Undergo environmental induction for all staff and foremen prior to commencement of work on site to cover all identified project impacts and linked activities. • A training programme to be presented by ECO on possible environmental risks that may result from construction activities and how to deal with these (including a reporting structure) must be made available prior to construction commencing.
Indirect impacts	
Fragmentation of the cultivated fields	• Maintain adequate spacing between solar panel rows to accommodate the movement and operation of agricultural machinery in accordance with the agrovoltaic design. • Use existing farm roads and access tracks where possible to minimise the need for new access routes

Impacts	Mitigations
	• Rehabilitate all temporarily disturbed cultivated areas immediately after construction and restore them to a condition suitable for continued agricultural production. • Ensure that construction activities are coordinated to minimise disruption during critical planting and harvesting periods, where practicable. • Restrict the activities and movement of construction workers and vehicles to the immediate development footprint and existing access roads.
Cumulative impacts	
Progressive reduction of productive agricultural land	• Position permanent infrastructure (e.g. inverter stations, substations, battery storage facilities (if applicable) and overhead powerline support structures) in less productive areas, along field boundaries or in areas that minimise disruption to farming operations. • Optimise the layout of access roads by utilising existing farm roads where practicable and minimising the construction of new roads. • Design the spacing and orientation of solar panel rows to accommodate the movement of agricultural machinery and support ongoing cultivation. • Avoid unnecessary fragmentation of cultivated fields by consolidating infrastructure within a compact development footprint
Increased long-term operational costs	• Design an effective stormwater management system to prevent erosion, flooding and infrastructure damage, thereby reducing long-term repair costs. • Incorporate appropriate vegetation management strategies into the design to minimise the frequency and cost of vegetation control during operation. • Develop a preventative maintenance programme during the design phase to ensure the timely inspection and servicing of equipment, reducing the likelihood of major equipment failures. • Ensure that the facility design promotes efficient water and energy use during operation, including minimising water requirements for panel cleaning where feasible

CONSTRUCTION PHASE

Table 9. Mitigation measures for the construction phase.

Impacts	Mitigations
Direct impacts	
Legal and environmental non-compliance	• ECO to be appointed to audit environmental compliance with conditions in the EMPr and other permits and authorisations. • CLO and Social Facilitator to be retained throughout the construction tenure to represent the surrounding communities and local businesses and local businesses, particularly SMMEs.
Site establishment and security	• Construction site to be selected by the contractor in conjunction with the consulting engineer and the ECO.

Impacts	Mitigations
	• Fulltime security officers to be appointed to safeguard the site, its personnel, plant and equipment. • The site to be clearly and firmly demarcated using appropriate methods. • No-go areas to be clearly and firmly barricaded using appropriate techniques. • Necessary health and safety as well as road construction signage to be installed. • Screen the construction camp and laydown area yards by enclosing the entire area with a dark green or black cloth of no less than 2m height. • Where possible, utilize existing screening features such as dense vegetation and topographical features to place the construction camps and lay-down yards out of the view of sensitive visual receptors.
Environmental awareness and training	• Undergo environmental induction for all staff and foremen prior to commencement of work on site to cover all identified project impacts and linked activities. • A training programme to be presented by ECO on possible environmental risks that may result from construction activities and how to deal with these (including a reporting structure) must be made available prior to construction commencing. • Undergo ongoing environmental training through toolbox talks.
Loss of productive agricultural land	• Minimise vegetation clearance and confine to the infrastructural footprint. • Implement systematic and incremental rehabilitation. • Regular monitoring of implementation of this plan for the rehabilitation of disturbed areas must be conducted throughout the duration of the construction/decommissioning phase. • Direct surface disturbance of the identified arable soils can be avoided where possible to minimise loss of arable soils. • Avoid construction on the active agricultural soils where feasible. • Direct surface disturbance of the identified arable soils can be avoided where possible to minimise loss of arable soils. • The footprint areas should be lightly ripped to alleviate compaction. • Limit removal of vegetation to demarcated areas only. • Limit earthworks and vehicle movement to demarcated paths and areas.
Soil disturbance and compaction	• Restrict construction vehicles and machinery to designated access roads and approved working areas to minimise unnecessary disturbance of cultivated land. • Clearly demarcate the construction footprint, access routes and laydown areas before construction commences to prevent vehicle movement outside authorised areas. • Minimise the movement of heavy machinery over agricultural soils. • Use existing farm roads and tracks where feasible to reduce the need for new access routes. • Strip and stockpile topsoil separately before construction in areas requiring excavation and protect stockpiles from erosion and contamination for use during rehabilitation. • Soil compaction is usually greatest when soils are moist, so soils should be stripped when moisture content is as low as possible. • Heavy equipment movement over replaced soils should be minimised. • Minimize compaction during smoothing of replaced soils by dozers rather than graders. • Compacted soils should be ripped to full rooting depth (30cm as the bare minimum seedbed) to allow penetration of plant root.

Impacts	Mitigations
Soil erosion and sedimentation	• Appropriate erosion control and slope stabilisation measures should be implemented. • Stockpiles of excavated earth must not exceed 2 m height • Stockpile duration must be minimised to reduce their vulnerability to erosion. • Topsoil excavated from the site should be stockpiled and utilised for rehabilitation of the site after construction. • Movement of plant/ machinery/ vehicle must be avoided in order to prevent compaction. • Excavations must be limited to development footprint. • Disturbed areas must be rehabilitated immediately after construction has ceased. • 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. • All excavation/construction vehicles should be in good condition and inspected regularly to ensure there are no chemical spills (diesel/oil) which will negatively impact the receiving environment. • After the powerline installation, the ground should be seeded with an indigenous grass or other native cover. • Vegetation clearance and commencement of construction activities can be scheduled to coincide with low rainfall conditions when the erosive stormwater and wind are anticipated to be low whenever possible. • Avoid vegetation clearance prior to periods of prolonged inactivity. • All disturbed areas adjacent to the proposed development areas should be re-vegetated with an indigenous grass mix or vegetation mix, if necessary, to re-establish a protective cover, to minimise soil erosion. • Temporary erosion control measures should be used to protect the disturbed soils during the construction phase until adequate vegetation has established. • Erosion and sediment barriers must be installed immediately downstream of active work areas (including soil stockpiles) as necessary to trap any excessive sediments generated during construction. • All temporary erosion and sediment control measures must be monitored for the duration of the construction phase and repaired immediately when damaged. • Exposed soils must be stabilised and stockpiles must be located away from wetlands and drainage pathways.
Soil contamination	• Designate specific areas for the storage of fuels, oils, chemicals and other hazardous substances, located away from drainage lines, wetlands and sensitive areas. • Store all hazardous substances in sealed, clearly labelled containers on impermeable surfaces. • Refuelling, servicing and maintenance of construction vehicles and machinery must only take place in designated areas equipped with appropriate spill containment measures. • Ensure that spill kits are readily available at all fuel storage, refuelling and maintenance areas, and that construction personnel are trained in spill response procedures. • Prohibit the discharge of cement wash water, concrete, chemicals, fuels, oils or wastewater onto the ground or into drainage features.

Impacts	Mitigations
	• Inspect construction vehicles and equipment regularly for fuel, oil and hydraulic fluid leaks, and repair any leaks before equipment is used on site. • Collect and dispose of hazardous waste, including contaminated soil, used oils, oil filters and absorbent materials, in accordance with applicable waste management legislation. • Minimise the area of soil disturbance and strip, stockpile and protect topsoil separately to prevent contamination and facilitate rehabilitation. • 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. • All excavation/construction vehicles should be in good condition and inspected regularly to ensure there are no chemical spills (diesel/oil) which will negatively impact the receiving environment. • After the powerline installation, the ground should be seeded with an indigenous grass or other native cover. • Vegetation clearance and commencement of construction activities can be scheduled to coincide with low rainfall conditions when the erosive stormwater and wind are anticipated to be low whenever possible. • Avoid vegetation clearance prior to periods of prolonged inactivity. • All disturbed areas adjacent to the proposed development areas should be re-vegetated with an indigenous grass mix or vegetation mix, if necessary, to re-establish a protective cover, to minimise soil erosion. • Temporary erosion control measures should be used to protect the disturbed soils during the construction phase until adequate vegetation has established.
Proliferation of invasive alien vegetation	• Regular and ad-hoc alien vegetation removal • Construction site maintenance to include vegetation control and removal alien invasive vegetation from the land and other surrounding areas. • Revegetation of all disturbed and exposed surface with the same or similar indigenous vegetation. • Undertake visual inspections of the project footprint on a regular basis to identify the establishment of any AIPs. • Document and review the implementation of management actions to prevent additional establishment and spread of AIPs. • Monitor alien invasive species during construction and implement routine removal of the species. • Where required, rehabilitate and revegetate areas as soon as possible using indigenous plant species.
Increased surface runoff	• Design and implement a stormwater management system before construction commences to maintain natural drainage patterns and minimise concentrated runoff. • Retain existing natural drainage channels and avoid unnecessary modification of drainage features. • Install temporary erosion and sediment control measures, such as silt fences, sediment traps, berms and diversion drains, to reduce runoff velocity and prevent sediment transport. • Stabilise exposed soils as soon as practicable using mulch, erosion control blankets or temporary vegetation cover.

Impacts	Mitigations
	• Stockpile excavated material away from drainage lines and protect stockpiles from erosion using appropriate containment measures. • Rehabilitate disturbed areas progressively throughout construction rather than waiting until construction is complete. • Regularly inspect and maintain all stormwater control structures, particularly after rainfall events, to ensure they remain functional. • Ensure construction personnel receive environmental awareness training on stormwater management and erosion prevention requirements contained in the Environmental Management Programme (EMPr).
Direct loss of vegetation and habitat transformation	• Limit the footprint of disturbance by maximizing the use of existing tracks, roads, and infrastructure corridors wherever possible. • Appoint a competent Environmental Control Officer (ECO) for the construction phase to ensure all recommendations in this report (Terrestrial Biodiversity Impact Assessment) are implemented. • Limit all construction and maintenance access to demarcated areas to prevent disturbance to vegetation outside the development footprint. • Prohibit collection of plants, wood, or other natural resources outside the approved development footprint. • Restrict laydown, storage, and temporary work areas to sites of low ecological sensitivity to reduce unnecessary habitat loss. • Only clear vegetation that is essential for construction, such as for pipelines and avoid unnecessary widening of access routes, laydown areas, material storage areas and construction camps. • Remove and stockpile topsoil carefully during construction for use in the rehabilitation of disturbed areas. • Undertake rehabilitation immediately after construction activities cease in a given area to reduce erosion and promote ecosystem recovery. • Allow mostly passive regeneration of vegetation, supplemented initially with indigenous grass mixes to stabilize soils and accelerate recovery.
Direct loss of ESA	• Minimise natural vegetation clearance and the footprint for the disturbed area as far as possible by maximising the use of existing tracks and infrastructure • An Environmental Awareness Programme should be implemented to ensure basic environmental principles are adhered to; • All lay down areas should be limited to areas of Low sensitivity • Rehabilitation of sites should occur immediately after disturbance • Relevant permits must be applied for to remove all protected species; and • Clear Alien Invasive Species from areas disturbed by construction on a regular basis, as per Alien Management Plan.
Loss of Ecosystem function and connectivity	• Minimise natural vegetation clearance and the footprint for the disturbed area as far as possible by maximising the use of existing tracks and infrastructure; • An Erosion management plan must be implemented if construction occurs on the steeper slopes on site • Implement Alien Management Plan, including a maintenance plan post construction phase. • Vegetation clearance to only occur by hand in Very High and High Sensitivity areas, with no soil disturbance. • Where required, rehabilitate and revegetate areas as soon as possible using indigenous plant species.

Impacts	Mitigations

	• Minimise natural vegetation clearance as far as possible by:
	  ○ minimizing the development footprint;
	  ○ avoiding unnecessary clearing or disturbance of surrounding grassland;
	  ○ avoiding unnecessary widening of the road.
	• Secondary and Tertiary PAOI are no-go areas and no development activities are allowed.

Changes to surface water quality characteristics	• All liquid chemicals including fuels and oil must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely. • Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment). • Mechanical plant and bowsers must not be refueled or serviced within 100m of a drainage line or wetland. • All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 100 m from any demarcated water courses. • Littering and contamination associated with construction activity must be avoided through effective construction camp management. • No stockpiling should take place within or near a water course. • All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable. • ECO monitors the site on a daily basis to ensure plant is in working order (minimise leaks), spills are prevented and if they do occur, are quickly rectified. • Refuelling and maintenance of machinery must not occur within wetlands, drainage lines or their buffers. • Fuels, oils, chemicals and cement must be stored and handled in designated controlled areas away from aquatic features. • Spill response kits must be available on site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site.
Contamination of surface and ground water from hazardous substances	• Construction plant should be well serviced and in good condition. • Drip trays should be provided for stationary and overnight parked plant. • Concrete batching should be done on impermeable surfaces not directly onto soil substrate. • Hazardous material spillages must be cleaned up immediately with the contaminated substrate and be disposed of to a registered landfill site.
Loss and degradation of aquatic and wetland habitat	• Clearly demarcate all wetlands, drainage lines and no-go areas before construction commences, and ensure these areas are fenced or marked to prevent accidental encroachment. • Position the overhead powerline and associated infrastructure to avoid direct impacts on wetlands wherever technically feasible. • Restrict all construction activities, vehicles and machinery to designated access routes and working areas to minimise unnecessary disturbance. • Implement erosion and sediment control measures (e.g. silt fences, sediment traps and stormwater diversion structures) to prevent sediment entering wetlands. • Prohibit the disposal of spoil, construction waste, wastewater, fuels, oils and hazardous substances within or near wetlands.

Impacts	Mitigations
	• Refuel and service construction vehicles and equipment in designated areas located outside wetlands and buffer zones, with appropriate spill containment measures in place. • Maintain natural drainage patterns and avoid impeding surface water flow into or out of wetlands during construction. • Limit vegetation clearance to the minimum area required for construction • Implement an Alien Invasive Species Management Plan to prevent the establishment and spread of invasive plant species within disturbed wetland areas. • Temporarily disturbed areas must be rehabilitated and revegetated after construction.
Disturbance of drainage lines and wetland systems	• The layout should be amended so that the northern boundary of the development footprint is located outside the recommended 100 m buffer of the northern drainage line. • Delineated wetlands and drainage lines and associated buffers must be demarcated prior to construction and treated as no-go areas. • No construction activities may occur within delineated wetlands, drainage lines or their approved buffers. • Construction camps, laydown areas, stockpiles, refuelling areas and waste storage areas must be located outside wetlands and drainage lines. • Construction activities must be restricted to the development footprint. • Rehabilitated areas should be regularly monitored, and measures must be implemented to ensure that the reinstated topsoil does not wash away.
Palaeontological and heritage resource disturbance	• If fossils are found by the Environmental officer, or other responsible person once excavations for foundations and infrastructure have commenced then they should be rescued and a Palaeontologist called to assess and collect a representative sample. • Contractor teams must be briefed on heritage sensitivities, chance find procedures, and reporting requirements. Heritage awareness should form past of environmental induction and ongoing site compliance monitoring. • A formal chance find procedure must be implemented for all contractors. If human remains, grave structures, artefacts, or culturally significant features are uncovered, work must stop immediately and ECPHRA must be notified. The procedure must be included in contractor induction training. • All heritage related actions, including public participation, consultation, monitoring, chance find responses, and assessments must be documented and included in the final heritage compliance report submitted to ECPHRA. • If concentrations of pre-colonial archaeological heritage material including subsurface dense artefact accumulations, associated cultural deposits, or human remains such as graves or burials are uncovered during construction, all work must cease immediately and the discovery must be reported without delay to the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) at 043 492 1370. No further disturbance may occur until the heritage authority has provided guidance.
Changes to hydrological regime and increase in soil erosion	• No stormwater discharged may be directed to delineated aquatic zones or the associated buffers. • A stormwater management plan finalised post EA, detailing the structures and actions that must be installed to prevent the increase of surface water flows directly into any natural systems.

Impacts	Mitigations
	• Effective stormwater management must include measures to slow, spread and deplete the energy of concentrated flows thorough effective stabilisation (gabions and Reno mattresses) and the re vegetation of any disturbed areas.
Sanitation and hygiene	• Ensure availability of ablutions for males and females. One ablution facility for every 10 workers during construction phase • Ensure regular servicing of the ablution toilets by a service provider
Hazardous material storage and handling	• A Hazardous Material Spill Response and Contingency Plan must be developed by the Contractor/s • Hazardous materials must be stored and handled in accordance with appropriate legislation and standards, including the Hazardous Substances Act (Act No. 15 of 1973) and Occupational Health and Safety Act (No. 85 of 1993). • Avoid hydrocarbon pollution to soil and watercourses. • During the construction phase all oils, fuel and other maintenance equipment and supplies must be stored in a secure area with an impermeable and bound area. • All stationary plant on site must have drip trays including tools such as generators and equivalent • All maintenance must take place off site. • Spill kits must be kept on-site and maintained. • Cement and concrete must only be mixed in designated areas and on an impermeable surface.
Dust pollution	• Dust suppression through a water carting truck should be implemented. • Vehicle and plant speed should be kept minimal to reduce dust pollution. • Construction plant, equipment, machinery and vehicles should be well maintained and services regularly to minimise exhausted fumes air pollution. • Daily plant checklist to be maintained on site throughout the construction period. • Reduce and control construction dust using approved dust suppression techniques as and when required (i.e., whenever dust becomes apparent).
Noise pollution	• Machinery should be serviced and good conditions to reduce their noise levels. • Construction activities should be maintained during the normal working hours (08h00-17h00) • Where works are to be carried outside the normal working hours, the affected adjacent residents must be informed, and such be undertaken within the shortest time possible • Vehicles and plant to be inspected daily for defects which may cause elevated noise generation.
Fauna disturbance	• Restrict construction activities to the approved development footprint and clearly demarcate all no-go areas before construction commences • Conduct a pre-construction walk-through by a suitably qualified ecologist to identify and relocate, where necessary and permitted, any species of conservation concern that may be affected by construction • Ensure that excavations and trenches are covered or fitted with escape ramps where left open overnight to prevent animals from becoming trapped • Rehabilitate temporarily disturbed areas as soon as construction activities are completed to restore habitat and reduce long-term disturbance.
Construction waste and litter	• Provision of waste bins for general and hazardous waste • Waste bins should be marked accordingly and have waterproof lids.

Impacts	Mitigations
	• Sufficient waste bins must be provided throughout the construction site for collecting of waste. • No waste must be buried or burned on site. • Any waste or building rubble generated during the construction phase should be recycled, where possible. • Rubble or vegetation debris should not be dumped onto adjacent natural vegetation. • Personnel should be instructed not to litter on site. • Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.
Health and safety	• The contractor must ensure that workers adhere to all safety regulations as per Occupational Health and Safety Act. • Appropriate PPE must be worn by workers at all times. • Regular training/talks must be given to all workers on site regarding safe working procedures. • Appropriate warning signs must be in place to notify the public regarding construction activities. • The construction site and camp must have access control and be demarcated, where possible.
Short-term landscape change from the current rural agricultural sense of place to the semi-industrial renewable energy landscape- PV Area	• Restrict the construction footprint to the minimum area required to reduce unnecessary disturbance of the surrounding rural landscape. • Locate construction camps, laydown areas, material stockpiles and parking areas away from public roads, nearby residences and visually sensitive receptors where practicable. • Rehabilitate disturbed areas to restore the rural character of the site. • Retain and maintain natural vegetation (if present) immediately adjacent to the development footprint. • Ensure that vegetation cover adjacent to the development footprint (if present) is not unnecessarily removed during the construction phase, where possible.
Employment opportunities	• It is recommended that, where possible, the labour force required during construction must be sourced from the local communities; and • Skills development in the form of training must be implemented where possible.
Indirect impacts	
Indirect impacts on animal species due to the disturbance and modification of existing habitat during the construction of project infrastructure	• Clearly demarcate all construction areas to avoid the unplanned loss, transformation of habitat • Locate construction camps and equipment stockpiles in transformed habitats and away from sensitive habitats. • Minimise vegetation clearance and confine to the infrastructural footprint. • Implement systematic and incremental rehabilitation. • Regular monitoring of implementation of this plan for the rehabilitation of disturbed areas must be conducted throughout the duration of the construction/decommissioning phase. • Minimise vegetation clearance and confine to the infrastructural footprint. • Implement systematic and incremental rehabilitation. • Regular monitoring of implementation of this plan for the rehabilitation of disturbed areas must be conducted throughout the duration of the construction/decommissioning phase.

Impacts	Mitigations
Skills development	• No mitigation measures.
Traffic congestion and visual disturbance	• Limit construction road access to an efficient minimum by coordinated planning between the project management and the environmental control officer. • Traffic signage for residents and oncoming traffic • Speed should be kept at a minimum next to the construction site. • Restrict traffic to clearly demarcated access routes and construction areas only.
Cumulative impacts	
Change in the sense of place	• Restrict the construction footprint to the minimum area required to reduce unnecessary disturbance of the surrounding rural landscape. • Locate construction camps, laydown areas, material stockpiles and parking areas away from public roads, nearby residences and visually sensitive receptors where practicable. • Rehabilitate disturbed areas to restore the rural character of the site

REHABILITATION PHASE

Table 10. Mitigation measures for the rehabilitation phase.

Impacts	Mitigations
Direct impacts	
Inadequate environmental compliance	• Rehabilitation should be implemented as per the EMPr • Quarterly rehabilitation audits for a 1-year period must be undertaken post construction to audit and monitor rehabilitation post completion of construction
Poor site de-establishment	• All structures should be removed and the site should be clean with no waste, rubble or construction material. • All infrastructure that is not required post-decommissioning should be removed
Soil compaction	• Post construction, the laydown areas and other construction areas no longer needed for operational management, should be ripped (0.5m depth) to restore compacted topsoil, and then rehabilitated to natural vegetation under the supervision of the rehabilitation specialist.
Waste management	• Provision of waste bins for general and hazardous waste • Waste bins should be marked accordingly and have waterproof lids. • Sufficient waste bins must be provided throughout the construction site for collecting of waste. • No waste must be buried or burned on site. • Any waste or building rubble generated during the construction phase should be recycled, where possible. • Rubble or vegetation debris should not be dumped onto adjacent natural vegetation. • Personnel should be instructed not to litter on site. • Maintain a neat decommissioning site by removing rubble and waste materials regularly.
Traffic impacts	• Restrict rehabilitation traffic to existing access roads and designated haul routes to minimise disturbance to surrounding land and agricultural activities • Ensure that all vehicles comply with applicable speed limits, particularly on gravel roads and near residences or farm entrances

Impacts	Mitigations
	• Implement appropriate dust suppression measures on unpaved roads where excessive dust generation occurs.
Indirect impacts	
Delayed rehabilitation	• Implement progressive rehabilitation by rehabilitating disturbed areas as soon as construction activities are completed, rather than delaying rehabilitation until the end of the construction period. • Develop and implement a Rehabilitation Plan prior to the commencement of construction, detailing rehabilitation objectives, methods, timelines and monitoring requirements. • Carefully plan to minimize the decommissioning period and avoid delays. • All cleared and disturbed areas should be rehabilitated as soon as possible.
Increased maintenance burden	• Rehabilitation designs must prioritise low-maintenance, indigenous vegetation. • A post-construction maintenance plan must be developed and implemented. • Responsibilities for maintenance must be clearly assigned to the relevant authority or solar energy facility management.
Cumulative impacts	
Long-term degradation of cultivation land	• Restrict the construction footprint to the minimum area required and avoid unnecessary disturbance of cultivated land. • Restrict vehicle and machinery movement to designated access routes to minimise soil compaction across cultivated areas. • Implement erosion and stormwater control measures to prevent the loss of fertile topsoil through runoff and sediment transport. • Rehabilitate all temporarily disturbed areas immediately following construction by ripping compacted soils where necessary, replacing topsoil and re-establishing cultivation or suitable vegetation.

OPERATIONS PHASE

Table 11. Mitigation measures for the operations phase.

Impacts	Mitigations
Direct impacts	
Legal and environmental non-compliance	• All post construction requirements of the environmental permits should be fully adhered to.
Alien and invasive vegetation management	• Regular and ad-hoc alien vegetation removal • Construction site maintenance to include vegetation control and removal alien invasive vegetation from the land and other surrounding areas. • Revegetation of all disturbed and exposed surface with the same or similar indigenous vegetation. • Undertake visual inspections of the project footprint on a regular basis to identify the establishment of any AIPs.

Impacts	Mitigations
	• Document and review the implementation of management actions to prevent additional establishment and spread of AIPs.
Increase in Anthropogenic Disturbance	• An Environmental Awareness Programme should be implemented to ensure basic environmental principles are adhered to; • Access should be limited to prevent further disturbance to the vegetation outside of the development footprint; • No fires should be allowed on site; • No plant or wood collection should be allowed outside of the proposed development footprint; • Prohibit littering and supply animal proof waste bins. • Implement the Open Space Management Plan. • Limit the use of pesticides and herbicides during the operation phase, particularly with the control of AIS. • Access should be limited to prevent further disturbance to the vegetation outside of the development footprint. • No fires should be allowed on site. • No plant or wood collection should be allowed outside if the proposed development footprint.
Alteration of surface runoff	• Runoff from panels, access roads and other compacted areas must not be concentrated directly into wetlands or drainage lines. • Vegetation cover beneath and between solar panels should be maintained as far as practicable to promote infiltration and reduce runoff velocity.
Ongoing disturbance associated with maintenance/agricultural activities.	• Maintenance vehicles and agricultural activities must remain within the development footprint. • Agricultural activities must be restricted to approved areas and must not encroach into aquatic areas.
Waste management	• Compilation of a waste management plan, amongst other things to consider: • Provision of waste bins for general and hazardous waste • Promote recycling activities through provision of waste bins for recyclables which may be dominant waste types such as metal, plastics etc.
Localised pollution from maintenance	• Designate specific areas for the storage of fuels, oils, chemicals and other hazardous substances, located away from drainage lines, wetlands and sensitive areas. • Store all hazardous substances in sealed, clearly labelled containers on impermeable surfaces. • Refuelling, servicing and maintenance of construction vehicles and machinery must only take place in designated areas equipped with appropriate spill containment measures. • Ensure that spill kits are readily available at all fuel storage, refuelling and maintenance areas, and that construction personnel are trained in spill response procedures. • Prohibit the discharge of cement wash water, concrete, chemicals, fuels, oils or wastewater onto the ground or into drainage features. • Inspect construction vehicles and equipment regularly for fuel, oil and hydraulic fluid leaks, and repair any leaks before equipment is used on site.

Impacts	Mitigations
	• Collect and dispose of hazardous waste, including contaminated soil, used oils, oil filters and absorbent materials, in accordance with applicable waste management legislation. • Minimise the area of soil disturbance and strip, stockpile and protect topsoil separately to prevent contamination and facilitate rehabilitation.
Stormwater management	• Stormwater management infrastructure must be properly maintained and monitored
Reduced scenic quality	• As far as possible, limit the amount of security and operational lighting present on site. • Lighting fixtures should make use of minimum lumen or wattage. • Mounting heights of lighting fixtures should be limited, or alternatively, foot-light or bollard level lights should be used.
Sanitation and hygiene	• Maintain sanitation facilities in a good and hygienic condition. • Regular inspection faults, leaks and upgrades requirements. • Any leaks and failures of the sewer system must be fixed immediately
Social and economic benefits	• Developer to prioritize local skilled and unskilled labour for the operation. • Local contractor should be prioritized for all procurement. • Prioritise local staff and service providers for day-to-day operations
Indirect impacts	
Spread of alien invasive vegetation	• Maintenance of the receiving areas should include alien vegetation control and eradication.
Changes to the microclimate	• Design the agrovoltaic system with appropriate panel height, spacing and orientation to allow adequate sunlight penetration, air circulation and continued agricultural production beneath and between the solar arrays. • Monitor soil moisture, vegetation condition and crop productivity periodically to identify any adverse microclimatic effects and implement corrective measures. • Ensure regular maintenance of the solar arrays to prevent unnecessary disturbance to soils and vegetation during operational activities.
Indirect impacts on animal species due to disturbance and modification of existing habitat during the operation of the project	• Restrict maintenance activities to where habitat disturbances have already occurred. • Use existing roads and access routes and only use designated roads and tracks for maintenance activities; avoid driving off road. • Develop and implement: i) Alien and invasive plant management plan to eradicate these species, and ii) Rehabilitation plan for the rehabilitation of cleared areas where appropriate.

3. CLIMATE CHANGE ASSESSMENT

Climate change issues must be considered as part of the EIA process Please consider the Climate Change guideline. EAP must determine:

a)The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development;

b)The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;

c)whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;

d)whether the proposed development is necessary to achieve long term decarbonisation goals;

e)the impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;
f) the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.
g)Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable
h) whether, and to what extent, the impacts identified in (a) -(g) can be mitigated.

CLIMATE CHANGE ASSESSMENT

a) The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development;

Climate change impacts:

Pre-construction

- Existing vegetation and agricultural land provide carbon sequestration through photosynthesis and contribute to the storage of carbon in biomass and soils (+ve)
- Existing vegetation cover assits with regulating soil moisture, reducing erosion and improving rainwater infiltration (+ve)
- Existing agricultural activities provide livelihoods and income to local land users, supporting community resilience to climate-related economic pressures (+ve)

Construction phase:

- Site establishment and construction activities will result in a carbon footprint through the use of construction materials, machinery and energy (-ve)
- Vegetation clearing and soil disturbance may result in the release of store Soil Organic Carbon (SOC) and reduce carbon sequestration capacity (-ve)
- Construction vehicles and machinery will generate greenhouse gas (GHS) emissions through fuel consumption (-ve)
- Carbon footprint of construction material manufacturing and transportation (-ve)
- Increased exposed soil during construction may increase vulnerability to soil erosion and runoff during intense rainfall events associated with climate variability (-ve)
- Construction activities may create temporary employment and local procurement opportunities, supporting local economic resilience (+ve)

Rehabilitation (Post construction)

- Rehabilitation and revegetation of disturbed areas with suitable indigenous vegetation will restore carbon sequestration and contribute to the recovery of SOC (+ve)
- Maintaining vegetation cover will improve soil stability, infiltration and resilience to intense rainfall and erosion (+ve)
- Where feasible, rehabilitation will reduce the long-term extent of exposed and disturbed soil (+ve)

Operational phases:

- Generation of renewable energy from solar energy will contribute to reducing reliance on fossil fuel-based electricity generation and associated GHG emissions (+ve)
- The agrovoltaic layout allows compatible agricultural activities to continue within suitable areas, supporting local land-use productivity and climate resilience (+ve)
- Maintaining indigenous vegetation beneath and between PV arrays can provide ongoing carbon sequestration, improve soil protection and support ecosystem functioning (+ve)
- Solar PV generation does not require the combustion of fossil fuels during normal electricity generation, resulting in a relatively low operational carbon footprint (+ve)
- Operation and maintenance activities, including vehicle use and replacement of equipment, will result in some GHG emissions (-ve)

- The PV panels and associated infrastructure may alter local surface conditions and microclimatic conditions, although these effects are expected to be localised
- The project can contribute to local employment, procurement and skills development, strengthening the socio-economic resilience of surrounding communities to climate-related pressures (+ve)

b) The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;

Alternative considered include the No-Go alternative, layout alternatives and operational alternatives. The No-Go alternative would avoid construction-related vegetation clearance, soil disturbance, waste generation and greenhouse gas emissions, but would forgo the renewable energy generation and associated socio-economic benefits. Alternatives with reduced climate and environmental impacts include efficient PV technology, a compact site layout, underground MV cabling, retention of indigenous vegetation and/or controlled grazing beneath and between PV panels, and the reuse and recycling of construction materials. These alternatives can reduce energy use, emissions, waste generation and environmental disturbance while maintaining the potential social and economic benefits of renewable energy generation, local employment and continued agricultural land use.

c) Determine whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;

The proposed development will result in low to moderate GHG emissions, primarily during the construction phase from the manufacture and transportation of construction vehicles and machinery. During the operational phase, direct GHG emissions will be minimal, with emissions mainly associated with maintenance activities, staff and maintenance vehicle travel and electricity use within the facility. As a solar PV facility, the project will generate electricity without direct fossil fuel combustion during normal operation, thereby providing a low-carbon source of electricity and reducing reliance on fossil fuel-based generation. The use of efficient PV technology and retention of indigenous vegetation and/or controlled grazing within the agrovoltaic area will further support the reduction of the project's overall carbon footprint.

d) Determine whether the proposed development is necessary to achieve long term decarbonisation goals;

The proposed development will contribute to South Africa's long-term decarbonisation goals by adding approximately 10MWac of renewable solar generation capacity to the electricity grid. South Africa has committed to a just transition towards net-zero CO_2 emissions by 20250, with diversification away from fossil fuel dependence and increased renewable energy generation identified as important components of this transition (DFFE, 2025). The Grootfontein SEF will therefore support these objectives by generating electricity from solar energy without direct fossil-fuel combustion during normal operation. Its agrovoltaic design, which allows for compatible agricultural activities or indigenous vegetation within the PV array, can further support sustainable land use and local socio-economic resilience.

e) Determine the impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;

The development will have low to moderate impacts on the environment due to vegetation clearance, soil disturbance and potential changes to surface drainage. Although, the agrovoltaic design allows for agricultural activities and renewable energy generation to coexist. Socially and economically, the project will enhance climate resilience by creating employment opportunities, supporting local economic activity and increasing access to renewable energy. The built environment will benefit from diversified and climate-resilient energy infrastructure, reducing reliance on conventional electricity sources and supporting adaptation to future climate-related energy challenges.

f) Determine the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.

Inter-annual changes in rainfall patterns, combination of droughts and floods, in the medium and long-term has negative impacts on structural integrity of facilities. The fluctuations in external forces (flows), severe floods, heating and cooling of structure cumulatively compromises the structures. Projected climate change impacts include higher temperatures, intense rainfall events, and periods of drought. Prolonged drought and reduced water availability may also affect vegetation and agricultural activities beneath and around the solar infrastructure. Higher temperatures may reduce solar panel efficiency and increase thermal stress on electrical infrastructure. Without appropriate climate-resilient design,

stormwater management, erosion control and maintenance measures, these changing climatic conditions could increase operational risks and maintenance requirements over the medium and long term.

g) Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable

Climate change could intensify risks such as extreme temperatures, drought, intense rainfall, stormwater runoff, erosion and reduced water availability. These impacts will be minimised through appropriate stormwater management and drainage systems, erosion-control measures, climate-resilient design of solar panels and associated infrastructure, and the use of durable materials suitable for projected temperature and weather conditions. Water-efficient practices and appropriate vegetation management will further reduce vulnerability to water scarcity. The facility will be designed and maintained to accommodate projected climate extremes and enhance its resilience under worst-case climate scenarios.

h) Determine whether, and to what extent, the impacts identified in (a) -(g) can be mitigated.

Climate considering engineering designs and on-going structural integrity inspections are necessary. Residual impacts may remain where extreme or unprecedented climate events exceed the design capacity of the infrastructure; however, adaptive management and periodic review of climate projections can further reduce long-term vulnerability.

4. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative A (preferred alternative)

The proposed development's environmental impacts are localised to the immediate receiving environment and are expected to remain manageable provided that the mitigation measures outlined in this BAR and EMPr, as informed by specialist studies, are strictly implemented. The majority of identified negative impacts are anticipated to be short-term, localised, and of low to moderate significance, occurring mainly during the planning and construction phases to reduce the significance and severity of these impacts, all mitigation measures must be adhered to throughout the project lifestyle, with an ECO appointed to monitor compliance, particularly during construction, and an Operational Environmental Management Plan implemented during the operational phase to ensure continued environmental protection. Overall, the proposed development is expected to yield positive socio-economic benefits during both the construction and operational phases through the creation of temporary and permanent employment opportunities, thereby contributing to local economic development.

No-go alternative (compulsory)

The No-Go alternative has been evaluated and discredited. This alternative would avoid all construction-related environmental impacts. However, it would result in the continued reliance on electricity generated from fossil fuels, thereby not contributing to South Africa's goal of achieving net-zero CO_2 emissions by 2050.

SECTION E. RECOMMENDATIONS 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
Is an EMPr attached?	YES

The EMPr must be attached as Appendix F.

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

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

PLANNING, DESIGN PHASE & PRE-CONSTRUCTION PHASE

- All relevant permits and authorisations including Water Use Licenses must be in place prior to commencement of construction.
- The layout should be amended to ensure;
    - that the northern boundary of the development footprint is located outside the recommended 100 m buffer of the northern drainage line.
    - The O&M building and any planned sanitation system should be located outside the any regulated water areas
- Stormwater management plan for construction phase should be compiled and implemented
- Delineated wetlands and drainage lines and associated buffers must be demarcated prior to construction and treated as no-go areas.
- No construction activities may occur within delineated wetlands, drainage lines or their approved buffers.
- Construction camps, ablutions, laydown areas, stockpiles, refuelling areas and waste storage areas must be located outside wetlands and drainage lines.
- Construction activities must be restricted to the development footprint.
- Site camp locality must be selected in conjunction with the project Environmental Control Officer (ECO)
- A stormwater management plan must be compiled for the approval of the Department prior to commissioning
- Similarly, an Alien and Invasive Vegetation Species Management Plan must be compiled for the approval of the Department prior to commissioning
- It is recommended that an Environmental Control Officer be appointed to conduct independent audits and compile monthly audit reports to ensure compliance with the EMPr, EA and Water Use Licence during construction.
- Appropriate storm water structures must be designed to minimise erosion and sedimentation of watercourses.
- Rainwater tanks must be considered in the planning and design phase.
- The design and layout should consider the use of alternative energy sources.
- Conduct a floral and faunal search and rescue prior to construction commencement

CONSTRUCTION PHASE

- Necessary health and safety signage to be installed.
- No-go areas to be clearly and firmly barricaded using appropriate techniques
- Stock piles should be protected from the wind by covering them

- Rehabilitation of natural vegetation immediately after construction has finished, strictly in a systematic manner

REHABILITATION PHASE

- Re-vegetation of all disturbed and exposed surface with the same or similar indigenous vegetation at least 80% cover should be achieved in the construction site

OPERATION PHASE

- All relevant legislation and policy must be consulted, and the proponent must ensure that the project is compliant with such legislation and policy. The operational conditions outlined in the EA, WUL and EMP rmust be adhered to
- An Operational Environmental Management Plan to be compiled and implemented during operations to ensure continued environmental protection.
- Storm water management infrastructure must be properly maintained and monitored.
- Water-wise practices should be considered such as use of rainwater for non-portable water requirements.
- Effective monitoring and maintenance of all water reticulation infrastructures should be implemented to ensure there are no leakages.

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information