Bolobedu Solar
CLEAN ENERGY FOR A BRIGHT FUTURE

Bolobedu Solar Farm PV

Summary of the Environmental Impact Assessment (EIA) process and subsequent amendments

1. PURPOSE

The purpose of this document is to provide a summary of the Environmental Impact Assessment (EIA) and subsequent amendment applications for the Bolobedu Solar Farm PV ("Solar Farm") project.

2. BACKGROUND

This project involves the development of a renewable energy generation facility situated on the Remainder of the Farm Bolobedu 1024 LT. The site is located within the Greater Letaba Local Municipality, Mopani District Municipality, Limpopo Province, South Africa. It lies approximately 49km southwest of Giyani, 75km northeast of Tzaneen and 58km southwest of Modjadjiskloof. The location of the Solar Farm is illustrated in Figure 1 below. The development site is located on communal land, surrounded by rural villages. The land is owned by the National Government of South Africa and controlled by the Modjadji Traditional Council.

The Farm Bolobedu 1024 LT is the result of an application for the consolidation of the Remainder of the Farm Kromrivierfontein 360 LT and the Remainder of the farm Worcester 200 LT.

The Solar Farm includes a 132kV overhead transmission powerline on the Farm Bolobedu 1024 LT and The Remainder of Farm Worcester 200 LT to connect the Solar Farm to the Eskom grid, at the existing Eskom Spencer Main Transmission Station.

Environmental Authorisation (EA) for the Solar Farm was initially obtained on January 25, 2019. Due to evolving project designs and industry developments, applications have been made for amendments to the original EA. The EIA process is conducted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

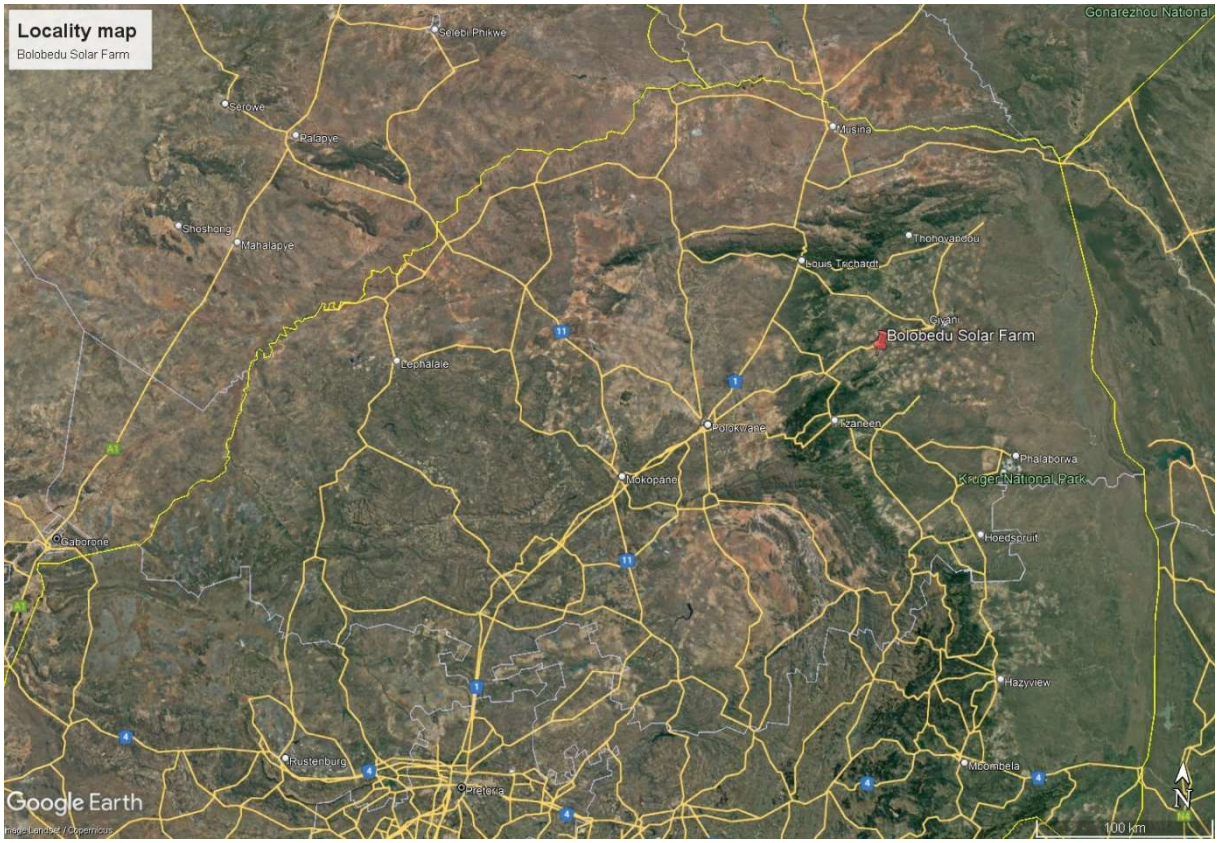

FIGURE 1 : LOCATION OF BOLOBEDU SOLAR FARM

3. PROJECT DESCRIPTION

The Solar Farm is a Photovoltaic (PV) power plant. The original Environmental Authorisation (EA) permitted a maximum generation capacity of 75 MW. Subsequent amendment applications assessed in July 2021 included increasing the generating capacity to 130 MW. The planned development footprint for the solar farm covers an area of approximately 200 hectares.

The project infrastructure includes key components such as PV modules (solar panels), internal roads, a control building, medium voltage receiving stations, warehouses, offices, ablution facilities with sewage conservancy tanks, storage of water in water tanks and an access road. Access to the site will be from a secondary road off the R81. The project layout is shown below in *FIGURE 2*.

A significant aspect assessed in the July 2021 amendment report was the proposed addition of a Battery Energy Storage System (BESS) with a storage capacity of up to 60 MWh. This BESS was intended to be located within the approved 200ha footprint, occupying about 2.5 hectares, and would store electricity generated by the solar plant using lithium-ion batteries in containers. The BESS aimed to add flexibility to

the system by storing energy during low demand and releasing it during peak demand periods or when PV generation is low. However, a more recent amendment application submitted in August 2023 specifically applied to remove the BESS from the authorised amendments, due to it not currently being catered for in the project layout.

Other changes assessed in the July 2021 report included an increase in the height of the solar panels due to changes in tracker technology and panel configuration, potentially reaching a maximum height of 4.5m. This change was stated to occur within the existing property footprint. Minor infrastructure updates requested in the August 2023 application include replacing a sewage plant with a conservancy tank and adding 20,000 litre water tanks, along with minor reconfiguration in the layout to ensure optimization.

The project has undergone a separate EIA and EA application process for the Solar Farm and 132kV distribution powerline connecting the Solar Farm to the existing Eskom Transmission Station.

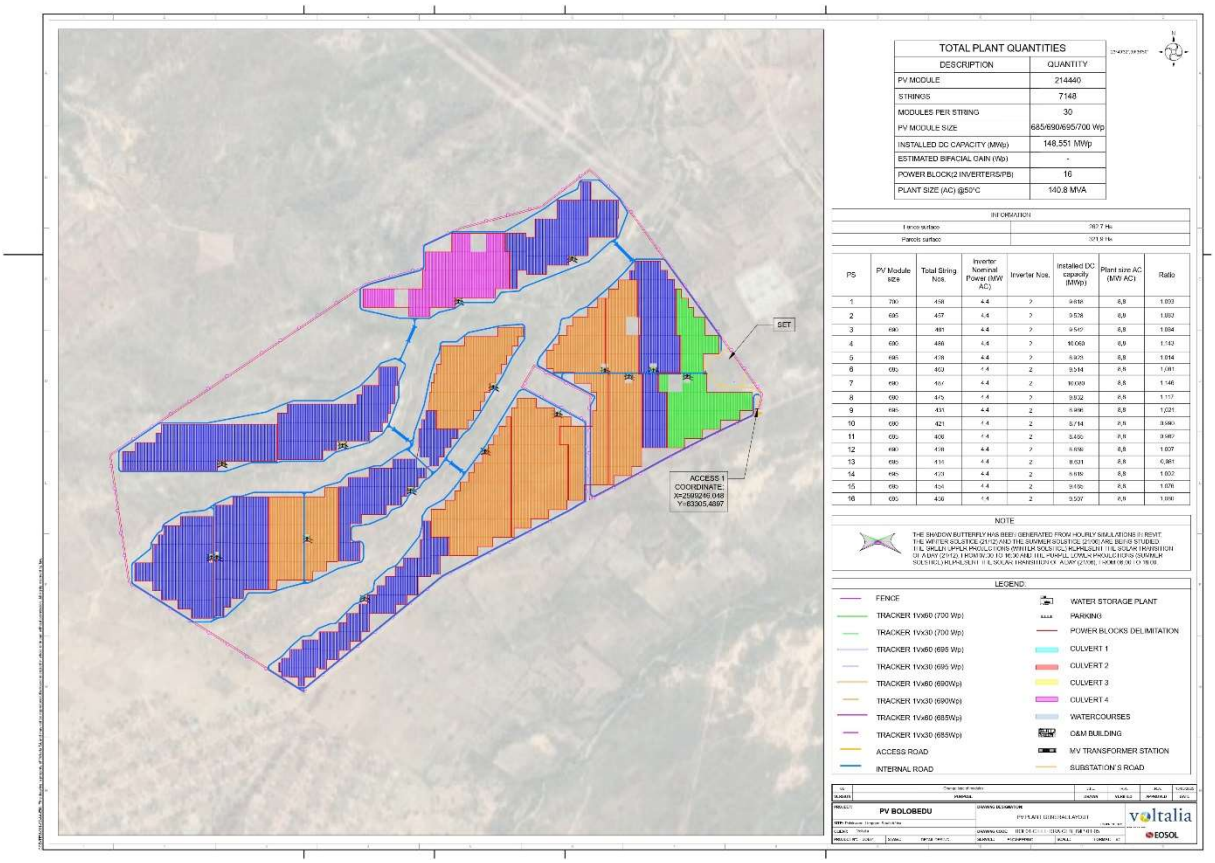

FIGURE 2 BOLOBEDU SOLAR FARM LAYOUT

4. THE ENVIRONMENTAL IMPACT ASSESSMENT

The EIA process is a requirement in terms of GNR 982, EIA Regulations published on 4 December 2014 (as amended) under sections 24(5) and 44 of the NEMA to obtain EA from the Competent Authority, the Department of Forestry, Fisheries and the Environment (DFFE) in this case.

An EIA is the systematic process of identifying, assessing and reporting environmental impacts associated with an activity. An EIA can be done either by a scoping and environmental impact reporting (S&EIR) process or a Basic Assessment (BA) process.

The EIA process also identifies appropriate mitigation and management measures as part of an Environmental Management Programme (EMPr). The EIA process also gives the opportunity to dialogue with interested and affected parties (I&APs) through a public participation process (PPP). I&APs are offered an opportunity to comment on the EIA.

The Solar Farm development entails a number of listed activities, which required the Solar Farm to follow a Scoping and Environment Impact Reporting (S&EIR) EIA process to identify, assess, and mitigate potential environmental impacts associated with the construction and operation of the infrastructure projects. AGES Limpopo (Pty) Ltd was appointed as the Environmental Assessment Practitioner (EAP) for the project and also conducted the subsequent amendment applications.

The EIAs consider various environmental aspects, including: air quality, noise, ground- and surface water, water resources, soil and agricultural potential, heritage resources, biodiversity and ecological aspects, visual, and socio-economic factors, safety, security and fire hazards, and, cumulative impacts.

The listed activities associated with the Solar Farm are as follows:

Relevant notice	Description
Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	
GN R.327, Item 12 (ii) The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs – (a) within a watercourse. (c) within 32 m of a watercourse, measured from the edge of a watercourse;	The PV Power Plant and connection infrastructure, including inter alia, drainage line crossings and access roads will impact on drainage lines. An Ecological Impact Assessment and Wetland Delineation was conducted on the property to take the drainage lines present on site, into consideration.
GN R.327, Item 19 (i) The infilling or depositing of any material of more than 10 m^3 into, or the dredging, excavation, removal or moving of soil, sand,	The PV Power Plant and connection infrastructure will interfere with drainage lines on site. The Wetland Delineation Study gave a clear indication of the locality and presence of drainage lines on site.

Relevant notice	Description
Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	
shells, shell grit, pebbles or rock of more than 10 m^3 from – (i) a watercourse;	
N R.327 Item 24 (ii) The development of a road – (ii) with a reserve wider than 13,5m, or where no reserve exists where the road is wider than 8m.	Access to Solar Farm will be from a secondary road from R81. During the construction phase, the road reserve will be wider than 13.5 m to allow transportation of abnormal loads. Internal roads will be maximum 8.0 m wide with a road reserve maximum 12.0 m wide.
Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	
GN R.325 Item 1 The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 MW or more	The project will consist of construction, operation and maintenance of a Photovoltaic (PV) Power Plant with a maximum generation capacity of 130 MW with associated infrastructure and structures.
GN R.325 Item 15 The clearance of an area of 20 ha or more of indigenous vegetation	The PV Power Plant with associated infrastructure and structures will be constructed and operated on a footprint bigger than 20 ha and the required footprint will be cleared from indigenous vegetation.

5. ALTERNATIVES

The location of the preferred alternative for the Solar Farm is based primarily on the location of the existing Eskom Bolobedu substation as well as an agreement with the local communities on the proposed use of the land for a solar farm. The actual footprint area is based on the results obtained from the specialists.

During the initial EIA process, various layout alternatives were considered based on specialist studies, particularly regarding sensitive ecological- and heritage areas and excluding an access road that's been used by the local communities for years. Engineers designed a preferred site layout, taking this information into account.

The EIA process also included the consideration of the "No-Go" alternative. Choosing the No-Go option, meaning the solar farm is not built, which would result in the loss of potential benefits. These foregone benefits include the contribution of renewable energy to the national grid, the reduction of pressure on

existing power sources, and the positive socio-economic impacts such as investment, job creation, training, skills development, and community projects in the rural area. Furthermore, the current degraded state of the site due to overgrazing could continue, whereas the solar farm development includes plans for stormwater management and potential rehabilitation of the riparian vegetation.

6. ENVIRONMENTAL AUTHORISATION AND AMENDMENTS

Environmental Authorisation was granted for the Solar Farm in 2019 (Ref. No. 14/12/16/3/3/2/1054; issued 25/01/2019).

The Solar Farm has undergone two amendment processes.

Solar Farm amendment 1 (Ref. No. 14/12/16/3/3/2/1054/AM1; issued 14/10/2021) to accommodate changes such as the addition of a BESS, increases in solar panel height and generating capacity, and modifications to contact details and project infrastructure. The EMPr was amended to account for the project changes and was approved for implementation (Ref. No. 14/12/16/3/3/2/1054/MP1; approved 09/12/2022). The amendment followed a Part 2 Amendment process to assess the proposed changes' impacts.

Solar Farm amendment 2 (Ref. No. 14/12/16/3/3/2/1054/AM2; issued 18/09/2024) in order to accommodate changes such as the removal of the BESS, micro-siting and changes to the associated infrastructure in the layout, administrative corrections of the original EA (coordinates and listed activity) and modifications to the contact details and person in care of the EA. The amendment followed a Part 1 Amendment process with no material changes to the project to accommodate the changes.

7. PUBLIC PARTICIPATION PROCESS

Public participation is an important part of the EIA Regulations and EIA process. For the initial EIA and subsequent processes, public participation activities were conducted. This included providing information to government departments and I&APs, and liaising with the Modjadji Traditional Authority, the Department of Agriculture, Land Reform and Rural Development and local communities.

Measures taken include advertising the project in a local newspaper, putting up site notices and distributing written notices to landowners and neighbouring landowners.

Comments and issues raised by I&APs are documented and addressed in the EIA reports.

Concerns raised by I&APs include the following and relate mostly to socio-economic aspects:

- Land is no longer available for agricultural purposes including grazing and crop production

- Job opportunities
- Skills development program
- Direct benefits to the local community
- Long term benefits to the local community as opposed to short term benefits
- Level of consultation with local community
- Investigation into the direct impacts the proposed development will have on the local community.

Socio-economic aspects were assessed in the EIA process and included suggestions, including engaging with the local community and investigating their needs to inform how the project can benefit the local community.

For the Part 2 EA amendment application that assessed the BESS and increased panel height and power plant capacity (2021), a public participation process was undertaken, involving placing site notices and notifying identified I&APs. Historically, there has been limited formal response from I&APs, mainly because the site is communal land where engagement primarily occurs through the Traditional Authority, with the assistance of the Department of Agriculture, Land Reform and Rural Development. For the 2021 amendment application, no comments were received from the public or state departments during the formal commenting period, other than from the DFFE. Comments received and corresponding responses were included in the final EIA submission for decision-making to DFFE.

The 2024 Part 1 amendment did not require public participation, but as with the original EA decision and Part 2 amendment, registered I&APs were informed of the decision, and a 20-day appeal period that was available against the decision.

8. ENVIRONMENTAL AND SOCIAL SETTING

The project site is located within the Savanna biome, specifically the Granite Lowveld Bushveld vegetation type, which is considered vulnerable. The climate is warm-temperate, with most rainfall in summer. The Giyani area which is near to the project site normally receives about 421mm of rain per year. The area receives the lowest rainfall (0mm) in June and the highest (93mm) in January. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Giyani range from 23.9°C in June to 31°C in January. The region is the coldest during July when the mercury drops to 8°C on average during the night.

The landscape consists of slightly undulating to flat plains with two major drainage channels and has an average elevation of 580 metres above mean sea level. The site is currently degraded due to past overgrazing, leading to bush encroachment and erosion.

Socially, the site is communal land near rural villages. The land was used for communal grazing.

9. SPECIALIST STUDIES

Various specialist studies were conducted as part of the EIA process to understand the site's environmental and social characteristics. These covered areas such as terrestrial ecology (plants and animals), birds, watercourses, soils, land use and agricultural potential, visual impacts, heritage resources, geo-hydrology, geotechnical conditions, socio-economic impacts, civil services, flood lines, and traffic impacts. The findings and recommendations from these studies were integrated into the assessment of impacts and the proposed mitigation measures.

a. Environmental sensitivity

The area includes degraded Sickle Bush (*Dichrostachys cinerea*) thickets, croplands, old fields, a rocky outcrop, water courses that don't flow continuously throughout the year and some riparian woodland.

Three protected tree species according to the National Forest Act (Act no 84 of 1998) were found in the development area namely Marula, Leadwood, and Applewood. Two protected plant species according to the Limpopo Environmental Management Act (Act no 7 of 2003) were found on the study area, confined to the riparian area that is excluded from development, namely Tamboti (*Spirostachys Africana*) and Paintbrush Lily (*Scadoxis puniceus*).

Mammals found using the area include small antelope like duiker and steenbok in the more natural areas, and feral cats and dogs.

The protection of the riparian area and rocky outcrop was highlighted as importance for reptiles. Reptile species such as the southern rock python, the black mamba, puff adder, boomslang, vine snake, spotted bush snake and several members of the green snake family (*Philothamnus spp.)* are expected to occur in the study area, although the presence is dependent on suitable prey species like rodents and frogs.

Frogs are poorly represented on the site due to the habitat not being suitable.

Fifty-six (56) bird species were recorded during the specialist site visit in summer when most migrants are around, and many species are more vocal as a result of breeding activities. The site showed poor avifaunal diversity. All the species recorded are common and widespread in the region and thrive in disturbed areas or in areas where bush encroachment is evident.

The soils associated with the site are mostly deep red apedal on the plains, while black, alluvial soils are associated with the drainage channels. It is also classified as class 2 for moisture availability which means that the climatic conditions are conducive for rain-fed arable agriculture and according to the characteristics of the site, the soils are highly suitable for arable agriculture where the climate permit.

For Land capability the soils are moderately suitable for livestock and / or game grazing due to the slightly higher nutrient and organic content of the topsoil in woodland areas that support a mixture of palatable and unpalatable species. The site has a medium to low potential for grazing due to the dense stands of sickle bush. Bush encroachment takes place because of overgrazing in this area. The grazing has a low

palatability due to overgrazing. The soil associated with the drainage lines have a zero agricultural potential for arable agriculture due to wetness factors. It also has a high land capability for grazing due to the palatable grasses which grow through the year on these soils.

The project site is located within the B81G quaternary catchment. Precipitation generally occurring as short, intense, thundery showers. Drainage occurs as sheet-wash towards the major rivers. The development area contains two primary watercourses. Watercourses on site are highly eroded due to the soil degradation caused by overgrazing and are considered in a degraded state.

Geohydrological findings included localised areas subject to flooding; shallow seasonal seepage water can be expected; that there are localised areas of steep slopes mainly adjacent to drainage features; moderate to high erodibility of the upper soils based on material properties and active erosion in the region and towards the south-eastern portion of the site; corrosiveness potential of the soils to ferrous metals; and, areas of expected shallow hard rock.

Ecological studies have classified the area into different sensitivity classes and development zones based on vegetation status, soil types, composition, and previous land use. High sensitivity areas requiring avoidance are primarily the water courses with riparian woodland area consisting of a buffer protection zone that was delineated by the Ecological specialist. Protected trees and plants were also identified, particularly in riparian zones, which also need to be protected. Permits were obtained for the removal of protected trees where their removal could not be avoided. The sensitivity map can be viewed below in *FIGURE 3*.

b. Social sensitivity

The project is consistent with national, provincial and municipal development policy and the important issues emerging from economic development strategies are the imperatives for alternative energy generation and for job creation. The policy case for the urgent roll-out of renewable energy in South Africa has been made at a national government level using compelling arguments that are in line with international policy trends and with financial benefits. Solar PV electricity generation is listed as one of the priority infrastructure projects in the Limpopo Province and actively encourages development of solar energy projects. The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site if the proposed project goes ahead. After approval, the project will take approximately 15 months to be built and could have a lifetime of 25-30 years. A larger workforce will be employed during the construction period than the operation period.

It was found that the project and adjacent settlements on communal land do not compete with current tourism activities or undeveloped tourism potential in the Municipality.

The site has very low carrying capacity of 20ha/livestock unit, which will not be used during the operation period of the project for this purpose.

The site is on communal land and the traditional community structures were consulted and was ongoing during the EIA, alongside the Department of Agriculture, Land Reform and Rural Development. Public consultation was undertaken for the project and community permissions were obtained for the use of the land for the project.

Visual assessments have been conducted, concluding few moderate to substantial incidences for select visually sensitive receptors, like the villages of Ga-Ramaroka and Mohlabaneng, travellers on footpaths and roads, as well as some subsistence farming in the area.

Assessments have been conducted to identify and protect archaeological and cultural heritage resources. These studies identified archaeological sites and an informal cemetery requiring avoidance.

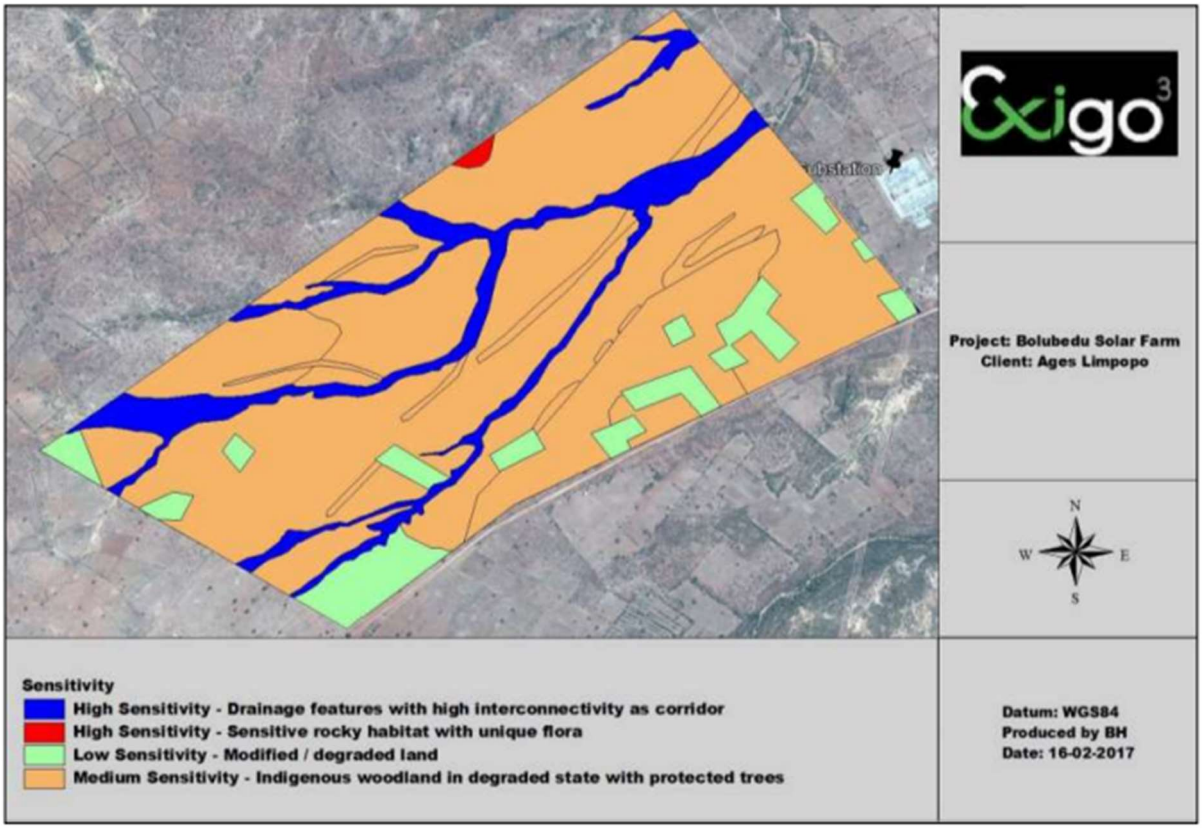

FIGURE 3 SENSITIVITY OF THE BOLOBEDU SOLAR FARM

10. POTENTIAL IMPACTS AND MITIGATION MEASURES

An environmental impact is defined as a change in the environment, be it the physical/chemical, biological, cultural and or socio-economic environment. Any impact can be related to certain aspects of human activities in this environment and this impact can be either positive or negative. It could also affect the environment directly or indirectly and the effect of it can be cumulative.

The EIA process identified potential environmental and social impacts during construction and operation. For the proposed project and the amendments assessed in the July 2021 report (BESS, increased panel height and power plant capacity), the potential impacts, along with their status and significance (with and without mitigation) are summarised in the tables (Table 1 – 3) below.

TABLE 1 SUMMARY OF CONSTRUCTION PHASE IMPACTS, WITH THEIR STATUS AND SIGNIFICANCE (WITH AND WITHOUT MITIGATION)

Construction phase impacts	**Atmospheric Pollution and noise impact**	
Activity/aspect		
Earthworks and Vegetation clearance (dust)	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Vehicle movement (smoke)	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Vehicle movement (dust)	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Vehicle movement (noise)	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Burning of cleared vegetation, solid waste & veld fires	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Cooking fires of workers	Without mitigation	With Mitigation
Significance	Low-medium	Low
Construction phase impacts	**Groundwater and Surface water Pollution impact**	
Activity/aspect		

Spillage of fuel and lubricants from construction vehicles	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
Spillage of fuel and fuel tanks	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
Clearing of vegetation	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Solid waste disposal freshwater resources	Without mitigation	With Mitigation
Significance	Low-medium	Low-medium
Activity/aspect		
Sanitation seepage from chemical toilets and/or from the temporary sanitation system	Without mitigation	With Mitigation
Significance	Low-medium	Low
Construction phase impacts	**Water use impact**	
Activity/aspect		
Construction process	Without mitigation	With Mitigation
Significance	Medium-high	Medium
Construction phase impacts	**Land and soils impact**	
Activity/aspect		
Spilling of oil/diesel by construction machines or tanks	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Spilling of chemicals/sewage	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Solid waste disposal	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Storm water over roads and cleared areas	Without mitigation	With Mitigation
Significance	Low-Medium	Low

Activity/aspect		
Trenches for electric cables and water and sewerage pipes	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Moving of equipment over soils	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Activity/aspect		
Using land for solar facility	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Construction phase impacts	**Loss of Archaeological, Cultural and social features impact**	
Activity/aspect		
Earth moving and soil clearance	Without mitigation	With Mitigation
Significance	Medium-high	Low
Construction phase impacts	**Ecology (Fauna and Flora) impact**	
Activity/aspect		
Earthworks and vegetation clearance at construction site	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Vegetation clearance and use of herbicides to control re-growth at different development areas	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
The occurrence of veldt fires on site	Without mitigation	With Mitigation
Significance	Medium-high	Medium
Activity/aspect		
Littering (e.g. cans and plastics) along access road and at construction site	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
The control of animals on site	Without mitigation	With Mitigation

Killing, poisoning or hunting of animals		
Significance	Medium	Low-medium
Construction phase impacts	**Visual disturbance impact**	
Activity/aspect		
Buildings& panels	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Lights	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Construction phase impacts	**Visual disturbance impact with proposed amendments**	
Activity/aspect		
Buildings and panels	Without mitigation	With Mitigation
Significance	Medium-high	Low-medium
Activity/aspect		
Lights	Without mitigation	With Mitigation
Significance	Medium-high	Low-medium
Construction phase impacts	**Safety, security and fire hazards impact**	
Activity/aspect		
Construction activities – excavation of foundations, trenches etc.	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
Security	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Fire hazards	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Construction phase impacts	**Job creation impact**	
Activity/aspect		
Job creation	Without mitigation	With Mitigation
Significance	High+	N/A

TABLE 2 SUMMARY OF OPERATIONAL PHASE IMPACTS, WITH THEIR STATUS AND SIGNIFICANCE (WITH AND WITHOUT MITIGATION)

Operational phase impacts	**Atmospheric Pollution and noise impact**	
Activity/aspect		
Vehicle movement	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Fire places and veldt fires	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Burning of vegetation refuse and solid waste	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Operational phase impacts	**Groundwater and Surface water Pollution impact**	
Activity/aspect		
Spillage of fuel and lubricants from vehicles	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Solid waste disposal freshwater resources	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Leakage from the permanent Sanitation system	Without mitigation	With Mitigation
Significance	Medium	Low-medium
Activity/aspect		
Use of fertilizers, insecticides and herbicides	Without mitigation	With Mitigation
Significance	Low-medium	Low
Activity/aspect		
Storm water runoff	Without mitigation	With Mitigation
Significance	Medium	Low
Operational phase impacts	**Water use impact**	
Activity/aspect		
Water use & cleaning of panels	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Operational phase impacts	**Land and soils impact**	
Activity/aspect		

Solid waste	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Storm water from paved areas and roofs	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Storm water over roads and cleared areas	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Activity/aspect		
Use of fertilizers, insecticides and herbicides	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Operational phase impacts	**Loss of Archaeological, Cultural and social features impact**	
Activity/aspect		
Operational activities of development	Without mitigation	With Mitigation
Significance	Medium-high	Low
Operational phase impacts	**Ecology (Fauna and Flora) impact**	
Activity/aspect		
Rehabilitation of cleared areas	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Activity/aspect		
The occurrence of veldt fires	Without mitigation	With Mitigation
Significance	Medium-High	Medium
Activity/aspect		
Functioning of permanent sewage treatment systems – treated sewage outflow	Without mitigation	With Mitigation
Significance	Medium-High	Low-Medium
Activity/aspect		
Disposal and storage of solid waste and littering	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Activity/aspect		
The control of pests and vermin	Without mitigation	With Mitigation
Significance	Medium	Low

Activity/aspect		
The feeding of fauna e.g. birds &small mammals	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
Catching of wild animals e.g. reptiles, bids and small mammals as pets	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
Birds colliding with power line and panels	Without mitigation	With Mitigation
Significance	Medium	Low
Activity/aspect		
The erection of fences and the construction of roads with a kerb	Without mitigation	With Mitigation
Significance	Medium	Low
Operational phase impacts	**Visual disturbance impact**	
Activity/aspect		
Buildings and panels	Without mitigation	With Mitigation
Significance	Medium-High	Medium
Activity/aspect		
Lights	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Activity/aspect		
Electrical lines	Without mitigation	With Mitigation
Significance	Low-Medium	Low-Medium
Operational phase impacts	**Visual disturbance impact with proposed amendments**	
Activity/aspect		
Buildings & panels – 3.1m (current authorisation)	Without mitigation	With Mitigation
Significance	Medium-High	Medium
Activity/aspect		
Buildings & panels – 4.5m (Amendment applied for	Without mitigation	With Mitigation
Significance	Medium-High	Medium
Activity/aspect		
Lights	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Activity/aspect		

Electrical lines	Without mitigation	With Mitigation
Significance	Low-Medium	Low-Medium
Activity/aspect		
Electrical lines	Without mitigation	With Mitigation
Significance	Low-Medium	Low-Medium
Significance	Medium-High	Medium
Activity/aspect		
Fire hazards	Without mitigation	With Mitigation
Significance	Medium	Low
Operational phase impacts	**Job creation impact**	
Activity/aspect		
Local Community development	Without mitigation	With Mitigation
Significance	High+	N/A

TABLE 3 SUMMARY OF CUMULATIVE IMPACTS, WITH THEIR STATUS AND SIGNIFICANCE (WITH AND WITHOUT MITIGATION)

Cumulative impacts	**Atmospheric Pollution and noise impact**	
Activity/aspect		
Pollution & Noise	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Cumulative impacts	**Groundwater and Surface water Pollution impact**	
Activity/aspect		
Water pollution and increased water run-off	Without mitigation	With Mitigation
Significance	Low-Medium	Low
Cumulative impacts	**Water use impact**	
Activity/aspect		
Water use	Without mitigation	With Mitigation
Significance	Medium	Low-Medium
Cumulative impacts	**Land and soils impact**	
Activity/aspect		
Increased potential for negative impacts on soil resource	Without mitigation	With Mitigation
Significance	Medium	Low
Cumulative impacts	**Loss of Archaeological, Cultural and social features impact**	
Activity/aspect		

Activities on site during construction and operational	Without mitigation	With Mitigation
Significance	Medium-high	Low
Cumulative impacts	**Ecology (Fauna and Flora) impact**	
Activity/aspect		
Increased potential negative impacts on ecology of the area	Without mitigation	With Mitigation
Significance	Medium-high	Low
Cumulative impacts	**Visual disturbance impact**	
Activity/aspect		
Increased visibility of yet another solar farm in the area	Without mitigation	With Mitigation
Significance	Low-Medium	Low-Medium
Cumulative impacts	**Safety, security and fire hazards impact**	
Activity/aspect		
Higher number of people in the area increases safety risks	Without mitigation	With Mitigation
Significance	Medium	Low
Cumulative impacts	**Job creation impact**	
Activity/aspect		
Increased potential for job creation.	Without mitigation	With Mitigation
Significance	High+	N/A

The August 2023 amendment application changes, including removing the BESS from the project, correcting coordinates, and minor infrastructure changes, are not expected to cause new or increased negative environmental impacts beyond what was previously assessed.

11. RECOMMENDATIONS

- Archaeological significant sites – must be demarcated and avoided
- An excavation permit must be obtained from SAHRA for archaeological sites
- Protected trees and plants on site – permit applications and avoidance
- Drainage features – should be excluded from the development and be avoided. A wetland specialist should be appointed to assist
- Agricultural land availability – social consultation should be followed with traditional authorities and applicable government department departments

The potentially significant negative impacts that have been identified in the EIA should be mitigated through the implementation of the mitigation measures highlighted in EIA and included in the EMPr. The proposed mitigation measures will effectively lower the impacts to acceptable levels.

12. CONCLUSION

Based on the EIA process for the Solar Farm, including assessments for previous and current proposed amendments, potential environmental and social impacts exist.

However, the EIA concluded that most impacts can be successfully mitigated through the implementation of appropriate measures.

The project is seen as aligning with national energy policy and contributing positively to energy security. Furthermore, it is expected to bring positive socio-economic benefits to the rural host communities, including employment.

Areas identified as environmentally or culturally sensitive, such as archaeological sites, graves, drainage lines, and areas with protected plants, are planned to be avoided. Mitigation measures are proposed to address anticipated impacts that were identified.

The latest amendment application (August 2023), which includes changes like the removal of the BESS from the authorised text, correcting coordinates, and minor infrastructure changes, is not anticipated to result in new or more significant negative environmental impacts. The alternative of not proceeding with the project would mean foregoing the positive contributions to renewable energy supply and the socio-economic benefits for the local area.

Subject to the implementation of the recommended mitigation and management measures outlined in the EIA reports and EMPr, the development is considered acceptable from an environmental and social perspective.