

THE PROPOSED DEVELOPMENT OF THE 10MW_{AC} BECRUX TWO SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY

Basic Assessment Report

March 2022

savannah
environmental

t +27 (0)11 656 3237

f +27 (0)86 684 0547

e info@savannahsa.com

w www.savannahsa.com

Prepared for:

Becrux Solar PV Project Two (Pty) Ltd
2D Nautica Building
100 Beach Road
Cape Town
8005
South Africa

Prepared by:

savannah
environmental



destea

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

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PROJECT DETAILS

Reference No.	:	To be Advised
Title	:	Basic Assessment Process Basic Assessment Report: 10MW _{ac} Becrux Two Solar PV Energy Facility, Free State Province
Authors	:	Savannah Environmental Kristen Shaw Mmakoena Mmola
Specialists	:	The Biodiversity Company CTS Heritage LOGIS Savannah Environmental
Applicant	:	Becrux Solar PV Project Two (Pty) Ltd
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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Becrux Solar PV Project Two (Pty) Ltd is proposing the development of a Photovoltaic (PV) Solar Energy Facility and associated infrastructure on the Remaining Extent of Portion 1 of the Farm Saltberry Plain 137 and the Remaining Extent of Portion 1 of the Farm Roseberry Plain 250 (refer to **Figure A**). The project site is located near the Sigma Colliery Mine, approximately 4km southeast of the town of Sasolburg and adjacent to the township of Zamdela, between the R57 in the east and the R59 in the north, within jurisdiction of the Metsimaholo Local Municipality, which forms part of the Fezile Dabi District Municipality in the Free State Province.

The Solar PV Energy Facility will have a contracted capacity of up to 10MW_{ac}¹ and will use tracking or fixed-tilt PV technology to harness the solar resource on the project site. The purpose of the facility will be to generate electricity for exclusive use by Sasol Limited at its Sasolburg operations. Power generated at the facility will be delivered to Sasol Limited by feeding into the grid through a Wheeling Agreement signed with Eskom and/or direct embedded generation. The construction of the Solar PV Energy Facility aims to reduce Sasol's dependence on direct supply from Eskom's national grid for operation purposes and demonstrate Sasol's move towards a greener future through procurement of renewable energy from Independent Power Producers (IPPs).

A development area² of up to 30ha in extent and a much smaller development footprint³ of up to 19.99ha have been identified within the project site⁴ (~339.87ha) by Becrux Solar PV Project Two (Pty) Ltd for the development of the Becrux Two Solar PV Energy Facility.

Infrastructure associated with the Solar PV Energy Facility will include the following:

- » Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the panels.
- » 11kV onsite containerised/non-containerised substation.
- » 11kV overhead power line for the distribution of the generated power, which will be connected to the existing Sigma Substation.
- » Main access gravel road and internal gravel roads.
- » Operations and Maintenance (O&M) building, including a sewage/conservancy tank and water storage tanks.
- » Site office, workshop area, storage area, and laydown area.
- » Fire break and fencing around the site, including an access gate.

¹ Alternating Current (AC) - alternating current is an electric current that periodically reverses direction and changes its magnitude continuously with time in contrast to direct current which flows only in one direction.

² The development area is that identified area (located within the project site) where the Becrux Solar PV Facility is planned to be located. This area has been selected as a practicable option for the facility, considering technical preference and constraints, and has been assessed within this BA Report and by the respective specialists. The development area is up to 30ha in extent.

³ The development footprint of the Becrux Solar PV Facility will be located within the 30ha development area and will be a much smaller area within which the PV panels and associated infrastructure will be constructed and operated. The development footprint, which is up to 19.99ha in extent, has been subject to a detailed design process by the developer through the consideration of sensitive environmental features identified by independent specialists, which need to be avoided by the PV Facility.

⁴The project site is that identified area within which the development area and development footprint are located. It is the broader geographic area assessed as part of the BA process, within which direct effects of the proposed project may occur. The project site is ~433ha in extent.

To evacuate the generated power to Sasol Limited, an 11kV overhead power line will be established to connect the proposed 11kV onsite containerised/non-containerised substation to the existing Sigma Substation. A grid connection corridor up to 200m wide, extending up to ~400m around the footprint of the Sigma Substation, and up to 500m in length, has been identified for the assessment and suitable placement of the grid connection infrastructure within the corridor. This corridor will provide for the avoidance of sensitive environment areas and features and allow for the micro-siting of the overhead power line within the corridor.

Site-specific studies and assessments have delineated areas of potential sensitivity within the development area (refer to **Figure B**). These have been avoided by the appropriate placement of infrastructure within the development footprint (refer to **Figure C**).

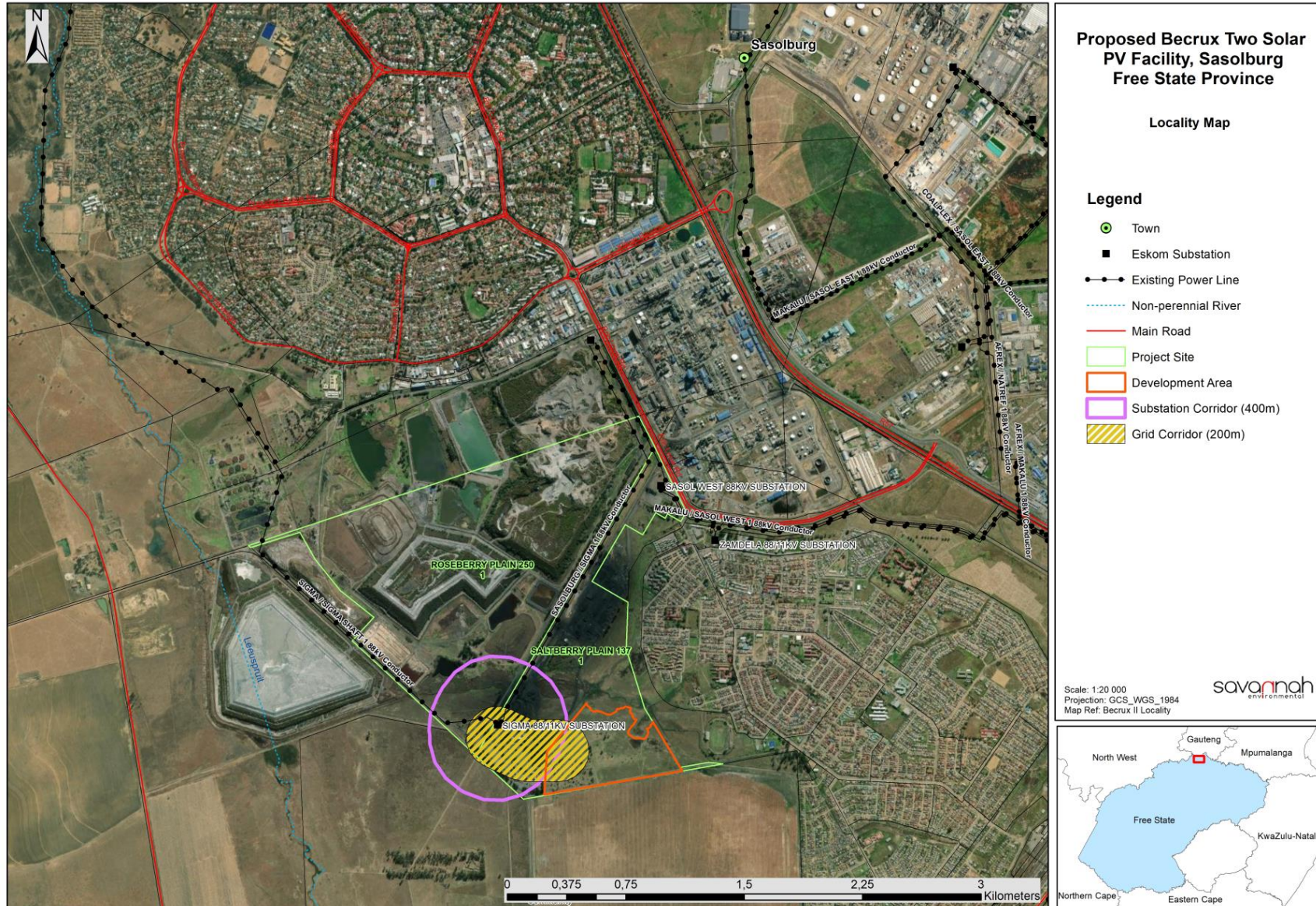


Figure A: Locality map showing the location of the project site proposed for the development of the Becrux Two Solar PV Energy Facility

The potential environmental impacts associated with the project identified and assessed through the BA process are summarised below:

1.1. Impacts on Terrestrial Ecology (including flora and fauna)

The development area falls within the Central Free State vegetation type, which is characterised by undulating plains supporting short grassland, in natural conditions dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. It overlaps with a degraded area and other natural areas and is situated 2.2km from a National Protected Area Expansion Strategy (NPAES) focus area. Two red data plant species which are regarded as protected as per the Red List of South African plants (South African National Biodiversity Institute (SANBI), 2017) were identified within development area and grid connection corridor. The red data plant species occur frequently within the development area and grid connection corridor and may therefore require a permit from the provincial environmental Department. No plant species protected in terms of the Free State Nature Conservation Ordinance 8 of 1969 and the National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA) were recorded during the field survey of the development area. In addition, no tree species protected in terms of the National Forest Act (No. 84 of 1998) were identified on site.

Six (6) habitats were identified within the development area and grid connection corridor, namely, transformed areas, degraded grassland, disturbed grassland, seepage wetlands, unchannelled valley bottom wetlands, and artificial wetlands. The identified habitats were allocated a sensitivity category using the guidelines for interpreting site ecological importance in the context of the proposed development activities. According to these guidelines, the natural wetlands (i.e., seep and unchannelled valley bottom) are regarded to be of high sensitivity, the degraded grassland and artificial wetlands are regarded to be of medium sensitivity, and the disturbed grassland and transformed areas are regarded to be of low and very low sensitivity, respectively.

No mammal, reptile, and amphibian species of conservation concern were recorded during the survey period for the development area.

The Terrestrial Ecology and Wetland Impact Assessment (**Appendix D1** of the BA Report) determined that no significant impacts from a terrestrial ecology perspective area expected subject to the implementation the recommended mitigation measures, especially pertaining to wetlands, as much of the areas have been found to be modified. Historically, mining and the land use has led to the deterioration of the six habitats identified within the development area and grid connection corridor. The classification of the development area as degraded and other natural area is therefore corroborated. Potential impacts on terrestrial biodiversity expected to occur with the development of the project includes:

- » Destruction, further loss and fragmentation of habitats (including wetlands), ecosystems and vegetation community.
- » Introduction of alien species, especially plants.
- » Destruction of protected plant species.
- » Displacement of the faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching).

1.2. Impacts on Wetlands

A total of three (3) wetland systems were identified and delineated within the 500m regulated area surrounding the development area. These comprised both natural and artificial systems, with the artificial systems consisting of impoundments/dams and drainage features. Of the three (3) wetland systems relevant to the development area, only two are classified as natural systems, namely, the unchanneled valley bottom wetland associated with an unnamed tributary of the Leeuspruit system, and hillslope seepage areas.

Both the unchannelled valley bottom wetland and seepage wetlands overall scored Moderately Low in terms of wetland ecosystem services. Overall, the Unchannelled valley bottom wetland and the seepage areas were determined to be in a critically modified (Class F) to seriously modified (Class E) state, respectively. The overall ecological importance and sensitivity of the systems was determined to be moderate. A 22m 'no-go' buffer around the identified wetland features was initially calculated assuming mitigation measures are applied. However, taking into consideration the Critically Endangered threat status of the wetlands, it is recommended that a conservative approach be opted for the wetland systems and a minimum buffer width of 30m be implemented.

The Terrestrial Ecology and Wetland Impact Assessment (**Appendix D1** of the BA Report) determined that there are no impacts associated with the project that cannot be mitigated to an acceptable level; and, as such, the development may proceed subject to the implementation of the prescribed mitigation measures. Potential impacts on the wetland systems expected to occur with the development of the project are:

- » Disturbance/degradation/loss to wetland soils or vegetation due to the construction of the solar facility.
- » Increased erosion and sedimentation.
- » Potential contamination of a wetland with machine oils and construction materials.
- » Potential for increased stormwater runoff, leading to increased erosion and sedimentation.
- » Potential for increased contaminants entering the wetland systems.
- » Potential loss or degradation of through inappropriate closure during the decommissioning phase.

1.3. Impacts on Avifauna

The development area is located ~45km from an Important Bird Area (IBA), namely, the Suikerbosrand Nature Reserve. Fifty-one (51) bird species were recorded during the survey of the development area and grid connection corridor. Of the identified bird species, the Laughing Doves has the highest abundance, followed by the Southern Red Bishops and the Cape Turtle Doves. None of the species recorded were of conservation concern.

Two types of nests were observed, namely, the nests of the Southern Masked Weavers and the White-browed Sparrow Weavers. It is therefore recommended that if feasible, construction activities take place during the breeding season (September to March).

Eleven species were found that would be regarded as high-risk species, namely, the Egyptian Goose, Red-billed Teal, African Black Duck, Yellow-billed Duck, Black-headed Heron, Hadeda Ibis, Steppe Buzzard, Helmeted Guineafowl, Spur-winged Goose, Glossy Ibis, and African Sacred Ibis. High risk species are species that are regarded as collision prone species and species that would have a high electrocution risk on powerlines.

Potential impacts on the avifauna expected to occur with the development of the project are:

- » Collection of eggs, nest destruction and poaching.
- » Collisions with PV panels, associated powerlines, and fences.
- » Electrocutation by solar plant connections and powerline.

1.4. Impacts on Soil, Land Capability and Agricultural Potential

A Pedology Assessment of the development area was undertaken as part of the BA process (refer to **Appendix D2** of the BA Report). The study found that the development area falls within Land Types Ca 1 and Dc 7. The Ca land type is characterised by plinthic catena. Upland duplex and/or marginalitic soils are common in this land type and is undifferentiated. The Dc land type is characterised by Prisma-cutanic and/or pedocutanic diagnostic horizons with the addition of one or more of the following: Vertic, melanic and red structured diagnostic horizons. Four soil forms were identified throughout the 50 m regulated area, namely, Avalon, Longlands, Westleigh and Rensburg, with the Avalon soil form being the most dominant soil form over the regulated area. Various hydromorphic soil forms were also identified throughout the 50 m regulated area, which were mostly dominated by the Rensburg soil form. The Avalon soil form is regarded to be most important in the development area as it demonstrates the most sensitive land capability. It consists of an orthic topsoil on top of a yellow-brown apedal horizon, which in turn is underlain by a soft plinthic horizon.

Three land potential levels were determined within the development area and grid connection corridor, namely, land potential level 5, level 'Vlei', and level 6. Five potential land capability classes are located within the development area and grid connection corridor, namely land capability classes 6 to 8, which are regarded to be of low/moderate and moderate sensitivity, and land capability classes 9 to 10, which are regarded to be of moderately high sensitivity.

Considering the primarily low sensitivities associated with the land potential resources, it is the specialist's opinion that the proposed activities will have an acceptable impact on soil resources and that the proposed activities should proceed as have been planned as no loss of land capability is evident. It is also expected that no segregation of high production agricultural resources will occur.

The following impacts were identified by the specialist:

- » Loss of land capability during the construction of the Solar PV Energy Facility, power line and substation.
- » Loss of land capability during the operation of the Solar PV Energy Facility, power line and substation.

1.5. Impacts on Heritage Resources (including archaeology and palaeontology)

The development area was thoroughly assessed in the field assessment, as detailed in the Heritage Impact Assessment (refer to **Appendix D3** of the BA Report) (HIA). During the field survey, no heritage and archaeological resources of significance were identified within the development area. Therefore, no impacts to heritage resources are anticipated.

Based on the desktop assessment completed, it was noted that although the area proposed for the development of the Becrux Two Solar PV Energy Facility has been extensively previously disturbed,

significant archaeological heritage is known from the broader area and as such, it is possible that the proposed development may negatively impact on similar archaeological heritage.

In terms of palaeontology, the development area is underlain by very highly sensitive rocks of the Vryheid Formation (Ecca Group, Karoo Supergroup) that could potentially preserve impression fossils of the *Glossopteris* flora. The site visit confirmed that there were no fossils visible on the site and along the route for the grid connection. Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint.

The area proposed for development has been extensively previously disturbed through agriculture and mining infrastructure (Becrux Two Solar PV Energy Facility is proposed to be located adjacent to the Sigma Colliery).

The installation of a Solar PV Energy Facility is therefore in keeping with the broader development character of the immediate surroundings which lie on the peri-urban edge of Sasolburg and the massive Sigma coal mine nearby to the east and northwest. A number of monuments, burial grounds and significant historical structures are located within 10km of the development area; however, none, of these heritage resources are anticipated to be impacted directly or indirectly by the proposed development.

There is no objection to the development of the proposed project, on condition that:

- » The Chance Fossil Finds Procedure must be implemented for the duration of construction activities.
- » Should any previously unrecorded archaeological or palaeontological resources or possible burials be identified during the course of construction activities, work must cease in the immediate vicinity of the find, and SAHRA must be contacted regarding an appropriate way forward.

1.6. Visual Impacts

The construction and operation of the proposed Becrux Two Solar PV Energy Facility and its associated infrastructure may have a visual impact on the study area, especially within a 1km radius (and potentially up to a radius of 3km) of the proposed facility. The visual impact will differ amongst places, depending on the distance from the facility. It should also be noted that the study area is not considered to be pristine, due to the presence of existing mining and industrial activities, and infrastructure within the region. The visual amenity of the study areas has therefore already been compromised to a large degree.

The PV facility will primarily be visible to observers living along the western perimeter of the Zamdela residential area. There are no additional farm residences within a 1km radius of the proposed PV facility and a generally limited number of homesteads within a 1–3km (and up to 6km) radius.

Overall, the post mitigation significance of the visual impacts is expected to range from moderate to low. An additional mitigating factor for the proposed PV facility is the fact that it utilises a renewable source of energy (considered as an international priority) to generate electricity and is therefore generally perceived in a more favourable light. The PV Facility does not emit any harmful by-products or pollutants and is therefore not negatively associated with possible health risks to observers.

A number of mitigation measures have been proposed to reduce the significance of anticipated visual impacts. Regardless of whether or not mitigation measures will reduce the significance of the anticipated

visual impacts, they are considered to be good practice and should all be implemented and maintained throughout the construction, operation and decommissioning phases of the proposed facility.

If mitigation is undertaken as recommended, it is concluded that the significance of most of the anticipated visual impacts will remain at or be managed to acceptable levels. As such, the PV facility and associated infrastructure would be considered to be acceptable from a visual impact perspective and can therefore be authorised.

The following impacts were identified from a visual perspective:

- » Visual impact of construction activities on sensitive visual receptors in close proximity to the proposed PV Facility.
- » Potential visual impact on sensitive visual receptors located within a 1km radius, and 1-3km radius of the PV Facility during the operation of facility.
- » Potential visual impact of operational, safety and security lighting of the facility at night on observers in close proximity to the proposed PV Facility.
- » Potential visual impact of solar glint and glare as a visual distraction and possible air/road travel hazard.
- » Potential visual impact of solar glint and glare on static ground-based receptors (residents of homesteads) in close proximity to the PV Facility.
- » Visual impact of the ancillary infrastructure during the operation phase on observers in close proximity to the structures.
- » The potential visual impact of the proposed PV facility on the sense of place of the region.

1.7. Social Impacts

Impacts are expected to occur with the development of the Becrux Two Solar PV Energy Facility during the construction, operation and decommissioning phases. Both positive and negative impacts are identified and assessed.

Positive and negative impacts during construction include:

- » Direct employment and skills development.
- » Economic multiplier effects.
- » Safety and security risks.
- » Impacts on daily living and movement patterns.
- » Nuisance impact (noise and dust).

Positive and negative impacts during operation include:

- » Direct employment and skills development.
- » Development of clean, renewable energy infrastructure.
- » Visual and sense of place impacts.

From a social perspective, it is concluded that the project is supported, but that mitigation measures should be implemented and adhered to. The assessment of the key issues indicated that there are no negative impacts that can be classified as fatal flaws, and which are of such significance that they cannot be successfully mitigated. Positive impacts could be enhanced by implementing appropriate

enhancement measures and through careful planning. Based on the social assessment, the following general conclusions and findings can be made:

- » The potential negative social impacts associated with the construction phase are typical of construction related projects and not just focused on the construction of PV facilities and could be reduced with the implementation of the mitigation measures proposed.
- » Employment opportunities will be created in the construction and operation phases and the impact is rated as positive even if only a small number of individuals will benefit in this regard.
- » The proposed project could assist the local economy in creating entrepreneurial development, especially if local businesses could be involved in the provision of general material and services during the construction and operational phases.
- » Capacity building and skills training amongst employees are critical and would be highly beneficial to those involved, especially if they receive portable skills to enable them to also find work elsewhere and in other sectors.
- » The proposed development also represents an investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society.

From a social perspective, it is concluded that the project could be developed subject to the implementation of the recommended mitigation measures, enhancement measures and management actions.

1.8. Assessment of Cumulative Impacts

Cumulative impacts are expected to occur with the development of the project throughout all phases of its lifecycle and within all areas of study considered as part of the BA Report. The main aim for the assessment of cumulative impacts is to test and determine whether the project will be acceptable within the landscape proposed for the development; and whether the impact, from an environmental and social perspective, will be acceptable without whole-scale change.

There is only one authorised solar energy facility proposed within a 30km radius of the project, namely, the 75MW Solar PV Energy Facility at the Lethabo Coal-Fired Power Station, located approximately 15km north-east of the proposed Becrux Two Solar PV Energy Facility. Based on the specialist cumulative assessment and findings, and consideration of the project's development and its contribution to the overall impact of all existing and proposed solar energy facilities within a 30km radius, it was concluded that cumulative impacts will be of a Low to Medium significance. The project will not result in unacceptable, high cumulative impacts nor a whole-scale change of the environment and is therefore considered acceptable from a cumulative impact perspective.

1.9. Environmental Sensitivity Mapping

As part of the specialist investigations undertaken within the development area, specific environmental features and areas were identified. The environmental features identified within and directly adjacent to the development area are illustrated in **Figure B**. The following points provide a description of the sensitivities identified within the development area:

» **Terrestrial ecology and wetland features:**

- * Six (6) habitats were identified within development area and grid connection corridor, namely, transformed areas, degraded grassland, disturbed grassland, seepage wetlands, unchannelled valley bottom wetlands, and artificial wetlands.
- * The natural wetlands (i.e., seep and unchannelled valley bottom) are regarded to be of high sensitivity, the degraded grassland and artificial wetlands are regarded to be of medium sensitivity, and the disturbed grassland and transformed areas are regarded to be of low and very low sensitivity, respectively.
- * A 22m 'no-go' buffer around the identified wetland features was initially calculated assuming mitigation measures are applied. However, taking into consideration the Critically Endangered threat status of the wetlands, it is recommended that a conservative approach be opted for the wetland systems and a minimum buffer width of 30m be implemented.

» **Soil resources:**

- * Five land capability classes were identified within the development area and grid connection corridor, namely land capability classes 6 - 10. Land capability classes 6 to 8 are regarded to be of low/moderate and moderate sensitivity. Land capability classes 9 to 10 are regarded to be of moderately high sensitivity.

» **Heritage resources:**

- * No heritage resources of archaeological or palaeontological significance were identified within the development area proposed for the Becrux Two Solar PV Energy Facility Project.
- * It is confirmed that there were no fossils visible within the development area or along the route for the grid connection.
- * According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of very high and moderate palaeontological sensitivity.

The areas of high sensitivity (i.e., the natural wetland systems and their associated 30m buffer zones) have been avoided by the appropriate placement of infrastructure for the facility within the development footprint.

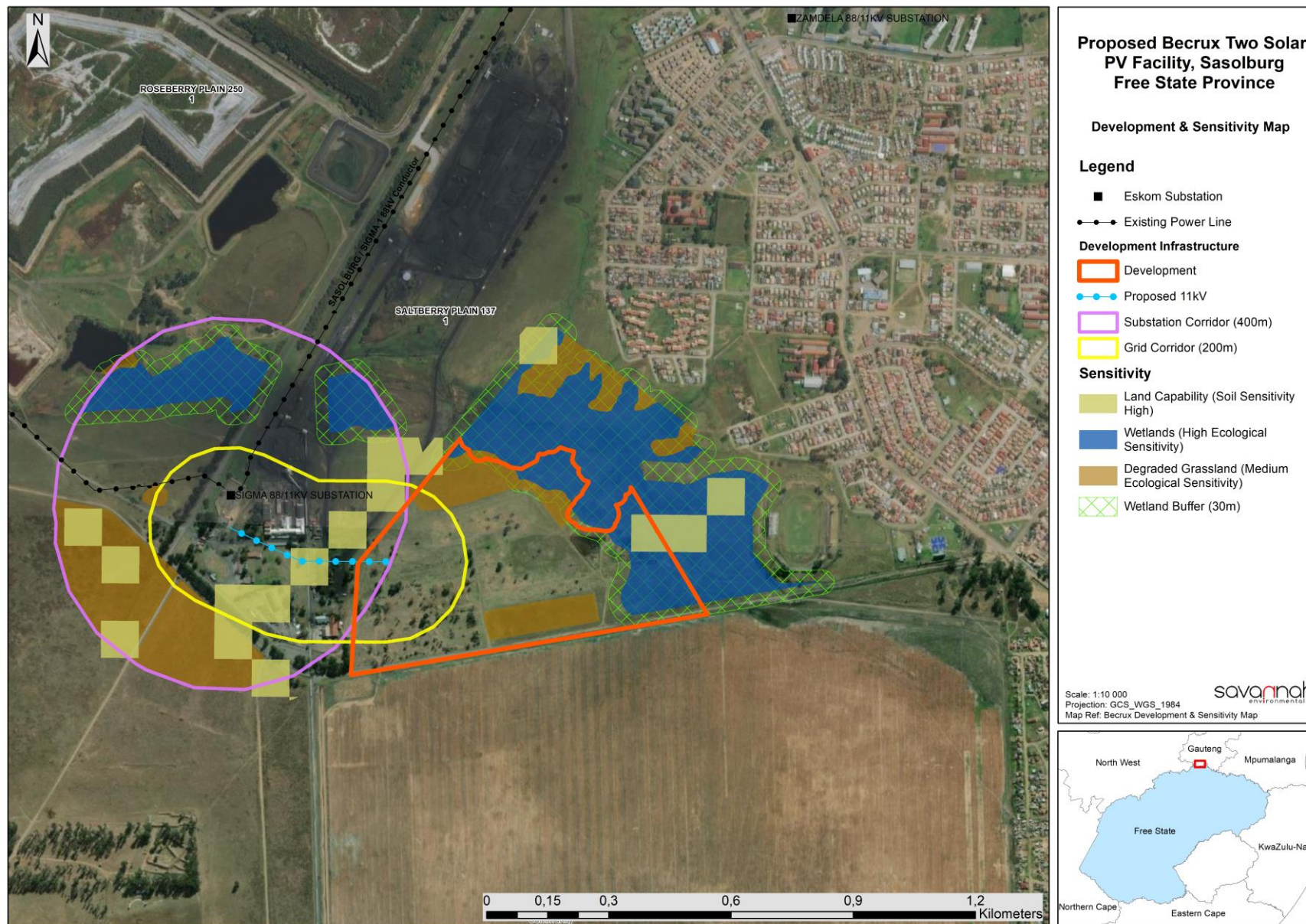


Figure B: Environmental sensitivity map overlain with the development area and grid connection corridor for the Becrux Two Solar PV Energy Facility

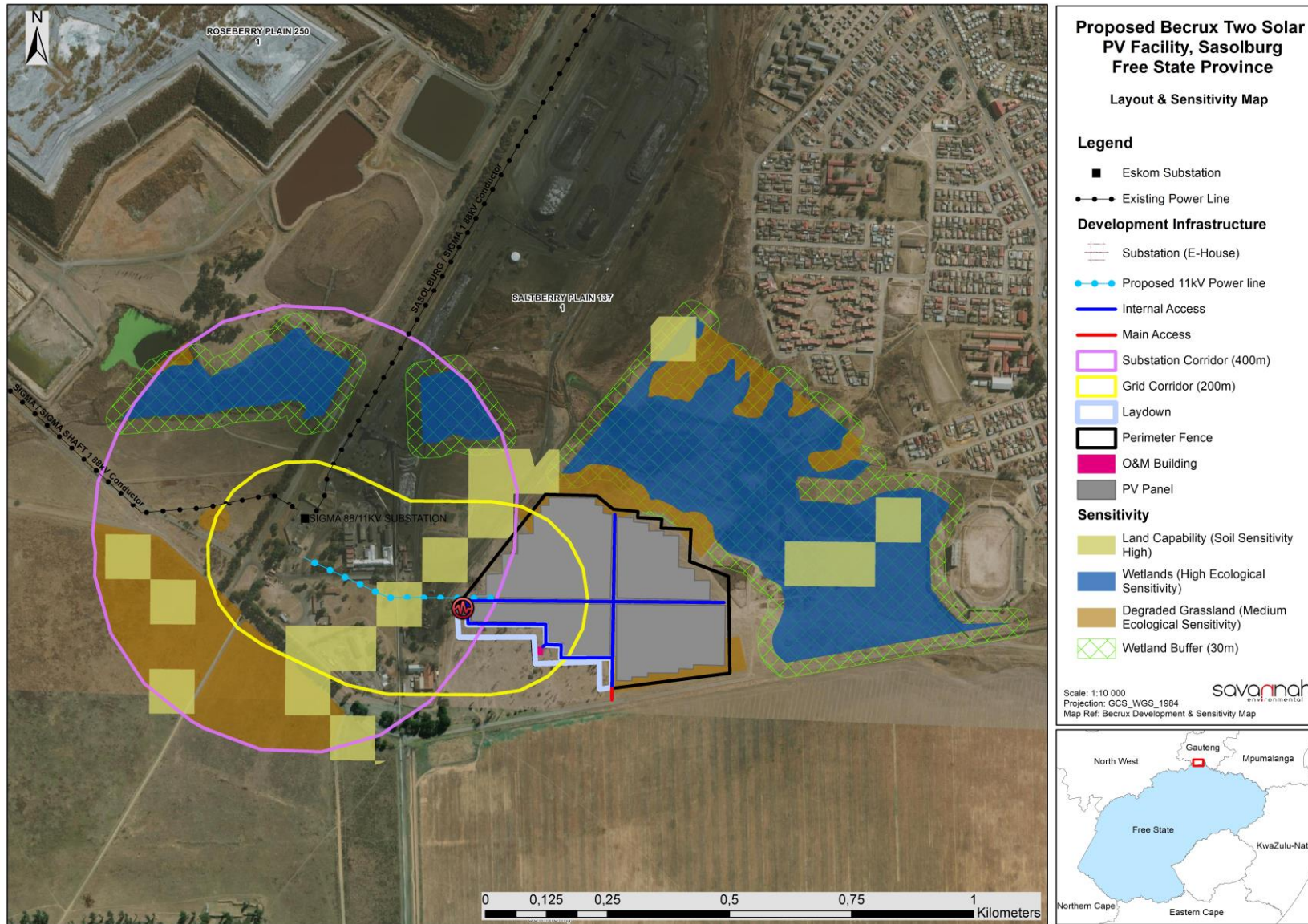


Figure C: Environmental sensitivity map overlain with the facility layout

1.10. Overall Conclusion (Impact Statement)

A technically viable site for the project was proposed by Becrux Solar PV Project Two (Pty) Ltd and assessed as part of the BA process. The environmental assessment of the development area was undertaken by independent specialists and their findings have informed the results of this BA Report.

The specialist findings have indicated that there are no identified environmental fatal flaws associated with the project's implementation. High sensitivity freshwater features (i.e., wetlands and their associated 30m buffer zones), which are regarded as no-go areas, were identified within the development area. Becrux Solar PV Project Two (Pty) Ltd has proposed a technically viable layout for the project and associated infrastructure, which avoids these areas of high sensitivity.

The proposed layout is therefore considered as the most appropriate from an environmental perspective and acceptable within all fields of specialist study undertaken for the project. All impacts associated with the proposed project can be mitigated to acceptable levels through implementation of the recommended mitigation measures. The layout map included as **Figure D** is considered the preferred facility layout for the project.

Through the assessment undertaken in this BA Report, the following can be concluded regarding the key environmental considerations in terms of the International Finance Corporation (IFC) Project Developers Guide for the project:

- » *Construction phase impacts* (i.e., OHS, temporary air emissions from dust and vehicle emissions, noise related to excavation, construction and vehicle transit, solid waste generation and wastewater generation from temporary building sites) will be local in extent and of a low magnitude. The significance of impacts associated with the construction phase will be of a low to medium rating post-mitigation.
- » *Water usage* (i.e., the cumulative water use requirements) will be kept to a minimum during the project's construction and operation. Appropriate water demand and conservation measures will be implemented.
- » *Landscape and visual impacts* (i.e., the solar panels' visibility within the wider landscape and associated impacts on landscape designations, character types and surrounding communities) for the construction and operation phases will mostly be of I medium significance due to the proximity of the site to the Zamdela residential area. It is however important to note that there is existing mining and industrial activities, and infrastructure within the region, and therefore, the visual quality of the area has already been compromised to a large degree.
- » *Land Matters* will be of low significance, as Sasol Limited, the exclusive offtaker of the power to be generated by the proposed Becrux Two Solar PV Energy Facility, is the owner of the affected properties. There will be no involuntary land acquisition / resettlement associated with this project.
- » *Ecology and natural resources* (i.e., habitat loss/fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species) will be impacted on by the project. The layout of the facility has been designed to avoid areas of high sensitivity, thereby reducing impacts on these resources. It is important to note that the site were the facility is proposed has been previously disturbed by anthropogenic activities.
- » *Cultural heritage* (i.e., impacts on possible buried archaeological and palaeontological resources and the cultural landscape) is of low impact significance, and no heritage and archaeological resources of significance are associated with the development area. Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are the correct age and type to contain fossils. However, no fossils were seen on the surface and there were no rocky outcrops that could

preserve fossils. Since there is a small chance that fossils from the Vryheid Formation could occur below the surface and may be disturbed, the implementation of a Fossil Chance Find Protocol has been recommended.

- » Transport and access (i.e., impacts of transportation of materials and personnel) will be appropriately managed, and existing roads will be used during construction and operation. A gravel access road will be established to provide direct access to the site.
- » *Consultation and disclosure* (i.e., consulting with key authorities, statutory bodies, affected communities and other relevant stakeholders) is being undertaken for the project, and documented for inclusion in the assessment of the project. All identified stakeholders and interested and affected parties (I&APs) will be afforded the opportunity to participate in a meaningful way to the BA for the project.
- » An Environmental Management Programme (EMPr) has been compiled to ensure that mitigation measures, as identified by the specialist studies undertaken, are implemented during the project lifecycle (refer to **Appendix G** of this BAR Report).

Based on the conclusions of the specialist studies undertaken, it can be concluded that the development of the Becrux Solar PV Facility based on the current layout as provided by the developer will not result in unacceptable environmental impacts (subject to the implementation of the recommended mitigation measures).

1.11. Overall Recommendation

Considering the findings of the independent specialist studies; the impacts identified; the proposed facility layout, which avoids all identified no-go/highly sensitive environmental features within the development area; and the potential to further minimise the impacts to acceptable levels through mitigation, it is the reasoned opinion of the EAP that the development of the 10MW_{ac} Becrux Two Solar PV Energy Facility is acceptable within the landscape and can reasonably be authorised.

The preferred facility layout is illustrated in **Figure D**. The period for which the Environmental Authorisation (EA) is required to remain valid is 10 years from the date of authorisation, with a period of 5 years for the design, planning, construction, and commissioning of the activity to be concluded.

The authorisation for the project would include the following key infrastructure and components:

- » Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the panels.
- » 11kV onsite containerised/non-containerised substation.
- » 11kV overhead power line for the distribution of the generated power, which will be connected to the existing Sigma Substation.
- » Main access gravel road and internal gravel roads.
- » Operations and Maintenance (O&M) building, including a sewage/conservancy tank and water storage tanks.
- » Site office, workshop area, storage area, and laydown area.
- » Fire break and fencing around the site, including an access gate.

The key conditions required to be included within an authorisation issued for the project are included under **Section E** of this BA Report.

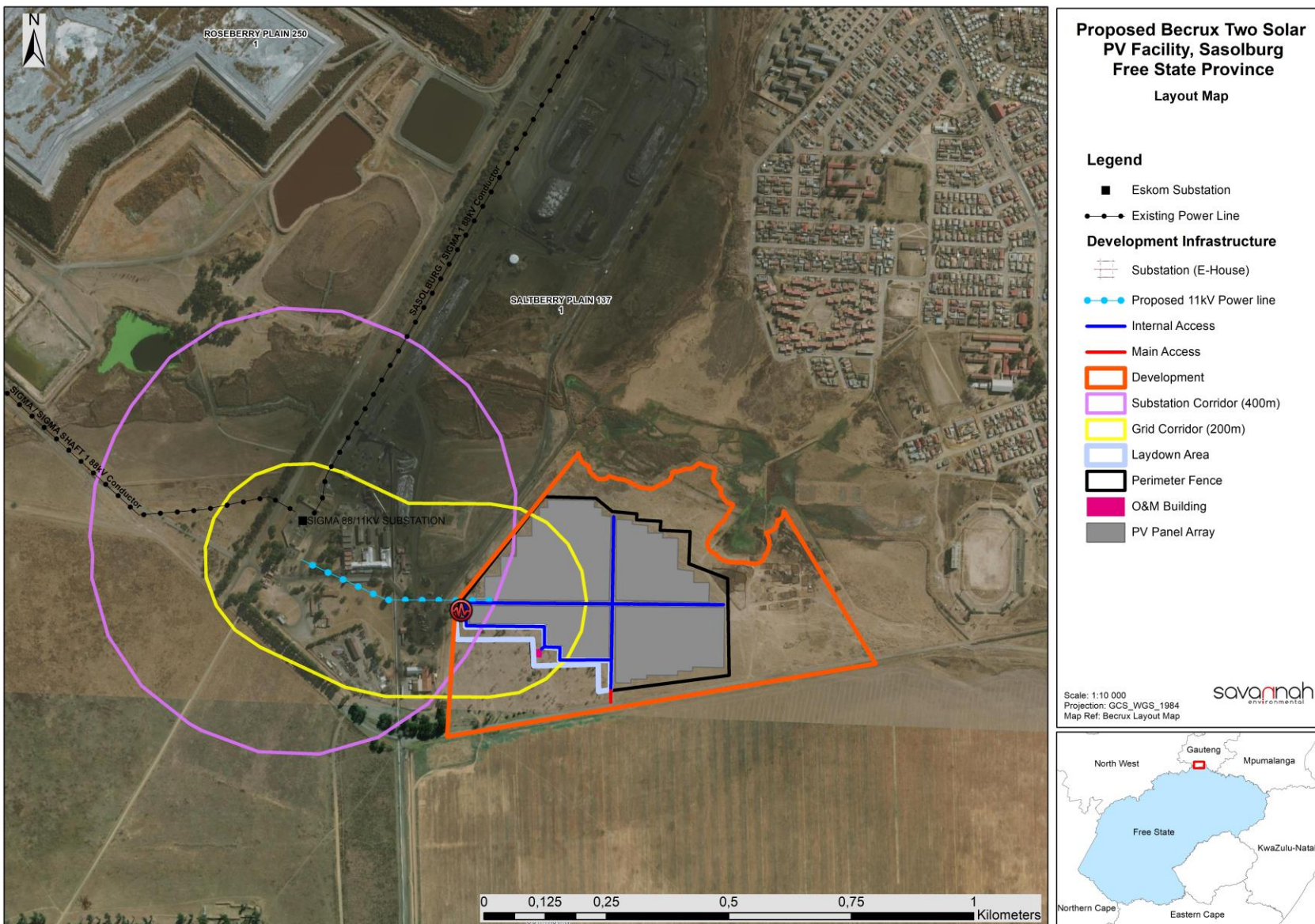


Figure D: Facility layout for the Becrux Two Solar PV Energy Facility

DEFINITIONS AND TERMINOLOGY

Alien species: A species that is not indigenous to the area or out of its natural distribution range.

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Assessment: The process of collecting, organising, analysing, interpreting and communicating information which is relevant.

Biodiversity: The variables among living organisms from all sources, including, terrestrial, marine and other aquatic ecosystems and the ecological complexes they belong to.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Commissioning: Commissioning commences once construction is completed. Commissioning covers all activities including testing after all components of the wind turbine are installed.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Development area: The development area is that identified area (located within the project site) where the Becrux Two Solar PV Energy Facility is planned to be located. This area has been selected as a practicable option for the facility, considering technical preference and constraints, and has been assessed within this BA Report and by the respective specialists. The development area is up to ~30ha in extent.

Development footprint: The development footprint is the defined area where the PV panel array and other associated infrastructure for the Becrux Two Solar PV Energy Facility is planned to be constructed. This is the anticipated actual footprint of the facility, and the area which would be disturbed. The exact size of this area is subject to finalisation of the layout. However, following initial layout optimisation, the footprint is up to ~19.99ha.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g., noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Ecosystem: A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Emergency: An undesired/ unplanned event that results in a significant environmental impact and requires the notification of the relevant statutory body, such as a local authority.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

- i. The land, water and atmosphere of the earth;
- ii. Micro-organisms, plant and animal life;
- iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Authorisation (EA): means the authorisation issued by a competent authority (Limpopo Department of Economic Development, Environment and Tourism (FSDESTEA)) of a listed activity or specified activity in terms of the National Environmental Management Act (No 107 of 1998) (NEMA) and the EIA Regulations promulgated under the NEMA.

Environmental Assessment Practitioner (EAP): An individual responsible for the planning, management and coordinating of EMPRs plan or any other appropriate environmental instruments introduced by legislation.

Environmental Control Officer (ECO): An individual appointed by the Owner prior to the commencement of any authorised activities, responsible for monitoring, reviewing and verifying compliance by the EPC Contractor with the environmental specifications of the EMPr and conditions of the EA.

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme (EMPr): An operational plan that organises and co-ordinates mitigation, rehabilitation, and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Habitat: The place in which a species or ecological community occurs naturally.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act of 2000).

Hazardous waste: Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Incident: An unplanned occurrence that has caused, or has the potential to cause, environmental damage.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g., the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

Interested and affected party (I&AP): Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method statement: A written submission to the ECO and the site manager (or engineer) by the EPC Contractor in collaboration with his/her EO.

No-go areas: Areas of environmental sensitivity that should not be impacted on or utilised during the development of a project as identified in any environmental reports.

Photovoltaic effect: Electricity can be generated using photovoltaic panels (semiconductors), which are comprised of individual photovoltaic cells that absorb solar energy to produce electricity. The absorbed solar radiation excites the electrons inside the cells and produces what is referred to as the Photovoltaic Effect.

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances.

Pre-construction: The period prior to the commencement of construction, this may include activities which do not require Environmental Authorisation (e.g., geotechnical surveys).

Project site: The project site is that identified area within which the development area and development footprint are located. It is the broader geographic area assessed as part of the BA process, within which direct effects of the proposed project may occur. The project site is ~339.87ha in extent.

Project description: A description of the proposed project that includes technical details of the siting, operation.

Residual impacts: Predicted effects of a project on the environment after proposed mitigation measures have been adopted; in other words, the predicted actual effects of the project.

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Savannah Environmental has been appointed as the independent environmental consultancy to undertake the Environmental Basic Assessment, to identify and assess the potential environmental impacts associated with the proposed solar energy facility. Neither Savannah Environmental nor any of its specialist sub-consultants on this project are subsidiaries of or are affiliated to the proposed development of the 10MW_{ac} Becrux Two Solar PV Energy Facility. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessments (EIA), and planning to ensure compliance and evaluate the risk of development, and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Savannah Environmental team has considerable experience in EIAs and environmental management and has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa, including those associated with electricity generation. The project team responsible for this Basic Assessment process include:

- » **Kristen Shaw**, the principle author of this Basic Assessment Report, holds BA in Psychology, Geography and Environmental Management, and a B.Sc. Honours degree with distinction from the North-West University in South Africa. Her key focus is on undertaking environmental impact assessments and environmental permitting, authorisations, GIS and Mapping for the project.
- » **Mmakoena Mmola**, the principle EAP on this project and co-author of this Basic Assessment Report, holds a B.Sc. Honours in Geochemistry from the University of the Witwatersrand and is currently completing a B.Sc. Honours in Environmental Management with the University of South Africa. She has over 4 years of experience in the environmental management field. Her responsibilities for environmental studies include project management, review and integration of specialist studies, identification and assessment of potential negative environmental impacts and benefits, and the identification of mitigation measures, and compilation of reports in accordance with applicable environmental legislation. She is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), Registration Number: 126748.
- » **Lehlogonolo Mashego**, the Public Participation Consultant on this project, holds an M.Sc. in Environmental Science as obtained from the University of Witwatersrand. She is a Gauteng Branch Committee Member for International Association for Impact Assessment South Africa (IAIASA) facilitating the students and young professionals' division. She has 5 years of professional working experience in the public participation field; specializing in overall public facilitation, stakeholder engagement, public awareness, stakeholder liaison and project administration. She is responsible for project management of public involvement participation processes for a wide range of projects across South Africa in industries which include but not limited to mining, renewable energy, infrastructure, and recreation. Through her role as an environmental practitioner, she has facilitated a range of Screening Assessments, Basic Assessments, Scoping and Environmental Impact Assessments, Environmental Auditing and Environmental Training.

Curricula Vitae (CVs) detailing Savannah Environmental team's expertise and relevant experience are provided in **Appendix G1**.

DRAFT BASIC ASSESSMENT REPORT FOR REVIEW

This Basic Assessment Report has been prepared by Savannah Environmental to assess the potential environmental impacts associated with the project. This process is being undertaken in support of an application for EA from the FSDESTEA in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA).

The 30-day period for review is from 25 March 2022 until 26 April 2022. The report is available for public review at (<http://www.savannahsa.com/public-documents/energy-generation/>). All comments received and recorded during the 30-day review and comment period will be included, considered and addressed within the final BA Report to be submitted to the Competent Authority for consideration.

Comments should be submitted in writing on or before 26 April 2022 to the contact person below.

Please submit your comments by 26 April 2022 to:
Lehlogonolo Mashego of Savannah Environmental PO Box 148, Sunninghill, 2157 Tel: 011-656-3237 Mobile: 060 978 8396 Fax: 086-684-0547 Email: publicprocess@savannahsa.com

Comments can be made as written submission via fax, post, or email.

SECTION A: ACTIVITY INFORMATION

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

YES	NO
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If **YES**, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

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1. PROJECT DESCRIPTION

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

Becrux Solar PV Project Two (Pty) Ltd is proposing the development of a Photovoltaic (PV) Solar Energy Facility and associated infrastructure on the Remaining Extent of Portion 1 of the Farm Saltberry Plain 137 and the Remaining Extent of Portion 1 of the Farm Roseberry Plain 250 (refer to **Figure 1**). The project site approximately 4km southeast of the town of Sasolburg and adjacent to the township of Zamdela, between the R57 in the east and the R59 in the north, within jurisdiction of the Metsimaholo Local Municipality, which forms part of the Fezile Dabi District Municipality in the Free State Province.

The Solar PV Energy Facility will have a contracted capacity of up to 10MW_{ac}⁵ and will use tracking or fixed-tilt PV technology to harness the solar resource on the project site. The purpose of the facility will be to generate electricity for exclusive use by Sasol Limited at its Sasolburg operations. Power generated at the facility will be delivered to Sasol Limited by feeding into the grid through a Wheeling Agreement signed with Eskom and/or direct embedded generation. The construction of the Solar PV Energy Facility aims to reduce Sasol's dependence on direct supply from Eskom's national grid for operation purposes and demonstrate Sasol's move towards a greener future through procurement of renewable energy from Independent Power Producers (IPPs).

A development area⁶ of up to 30ha in extent and a much smaller development footprint⁷ of up to 19.99ha have been identified within the project site⁸ (~339.87ha) by Becrux Solar PV Project Two (Pty) Ltd for the development of the Becrux Two Solar PV Energy Facility.

Infrastructure associated with the Solar PV Energy Facility will include the following:

⁵ Alternating Current (AC) - alternating current is an electric current that periodically reverses direction and changes its magnitude continuously with time in contrast to direct current which flows only in one direction.

⁶ The development area is that identified area (located within the project site) where the Becrux Solar PV Facility is planned to be located. This area has been selected as a practicable option for the facility, considering technical preference and constraints, and has been assessed within this BA Report and by the respective specialists. The development area is up to 30ha in extent.

⁷ The development footprint of the Becrux Solar PV Facility will be located within the 30ha development area and will be a much smaller area within which the PV panels and associated infrastructure will be constructed and operated. The development footprint, which is up to 19.99ha in extent, has been subject to a detailed design process by the developer through the consideration of sensitive environmental features identified by independent specialists, which need to be avoided by the PV Facility.

⁸The project site is that identified area within which the development area and development footprint are located. It is the broader geographic area assessed as part of the BA process, within which direct effects of the proposed project may occur. The project site is ~433ha in extent.

- » Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the panels.
- » 11kV onsite containerised/non-containerised substation.
- » 11kV overhead power line for the distribution of the generated power, which will be connected to the existing Sigma Substation.
- » Main access gravel road and internal gravel roads.
- » Operations and Maintenance (O&M) building, including a sewage/conservancy tank and water storage tanks.
- » Site office, workshop area, storage area, and laydown area.
- » Fire break and fencing around the site, including an access gate.

Table 1 below provides the details of the project, including the main infrastructure components and services that will be required during the project life cycle.

TableError! No text of specified style in document. 1: Details of the proposed Becrux Two Solar PV Energy Facility and associated infrastructure

Component	Description / Dimensions
District Municipality	Fezile Dabi District Municipality
Local Municipality	Metsimaholo Local Municipality
Ward Number (s)	Ward 11 and Ward 14
Nearest town(s)	Sasolburg
Farm name(s) and number(s) of properties affected by the Solar Facility	» Remaining Extent of Portion 1 of the Farm Saltberry Plain 137 (F02500000000013700001).
Portion number(s) of properties affected by the Solar Facility	» Remaining Extent of Portion 1 of the Farm Roseberry Plain 250 (Remaining Extent) (F025000000000025000001).
SG 21 Digit Code (s)	
Current zoning	Mining
Site Coordinates (centre of development area)	26°50'53.61"S, 27°50'17.38"E
Total extent of the Affected Properties, also referred to as the study area	~339.87ha
Total extent of the Development area	Up to ~30ha
Total extent of the Development footprint	Up to ~19.99ha
Contracted capacity of the facility	Up to 10MW _{ac}
Technology	Tracking PV or fixed-tilt with bi-facial or mono-facial panels. Bi-facial panels with single-axis tracking are preferred over fixed-axis or double-axis tracking systems, and mono-facial panels due to the potential to achieve higher annual energy yields whilst minimising the balance of system (BOS) costs, resulting in the lowest levelized cost of energy (LCOE).
PV panels	Height: ~3m from ground level (installed).
Inverters and transformers	» Up to 54 string inverters or 2 central inverters with a maximum height of 3m.
On-site Facility Substation	» Located within the development Footprint. » Approximately 100m ² in extent. » The substation will connection to the existing Sigma

<p>Access gravel roads and internal roads</p>	<p>Substation via a new 11kV overhead power line.</p> <ul style="list-style-type: none"> » Access to the proposed development area is provided by a secondary road that traverses from the Eric Louw Road (at the Sasol Plant's west gate) to the Sigma Colliery. » A main gravel access road up to 8m in width and 200m in length will be constructed to provide direct access to the development area. » A network of 6m wide (with a total length of 200m) gravel internal access roads will be constructed to provide access to the various components of the facility.
<p>Laydown area</p>	<ul style="list-style-type: none"> » Up to 10 000m².
<p>O&M building</p>	<ul style="list-style-type: none"> » Up to 200m².
<p>Fire break and fence area (including access gate)</p>	<ul style="list-style-type: none"> » Up to 12 000m².
<p>Services required</p>	<ul style="list-style-type: none"> » <i>Auxiliary Electricity</i> – electricity will either be sourced from Sasol Limited or directly from Eskom. » <i>Water Supply</i> - water will be sourced from the Sigma Colliery Mine / procured from the Metsimaholo Local Municipality, or through a Contractor upon reaching a Service Level Agreement. » <i>Waste Collection / Removal</i> - only refuse disposal will be required. Refuse will be collected by the municipality or by a Contractor and be disposed of at a licensed waste disposal facility. » <i>Sanitation</i> - No effluent will be generated by the project, except for normal sewage due to the presence of construction and O&M personnel on-site (during the construction and operations phase). The sewage will be collected and treated in accordance with the legislative framework using a septic or conservancy tank. Should the Metsimaholo Local Municipality not permit the use of the conservancy / septic tank, the sewage will be kept in the conservancy tank and be collected by a Contractor with a honey-sucker truck. <p>The Metsimaholo Local Municipality will be engaged prior to Financial Close to determine if they have the capacity to render the above-mentioned services. If not, the applicant will go out to tender to obtain these services.</p>

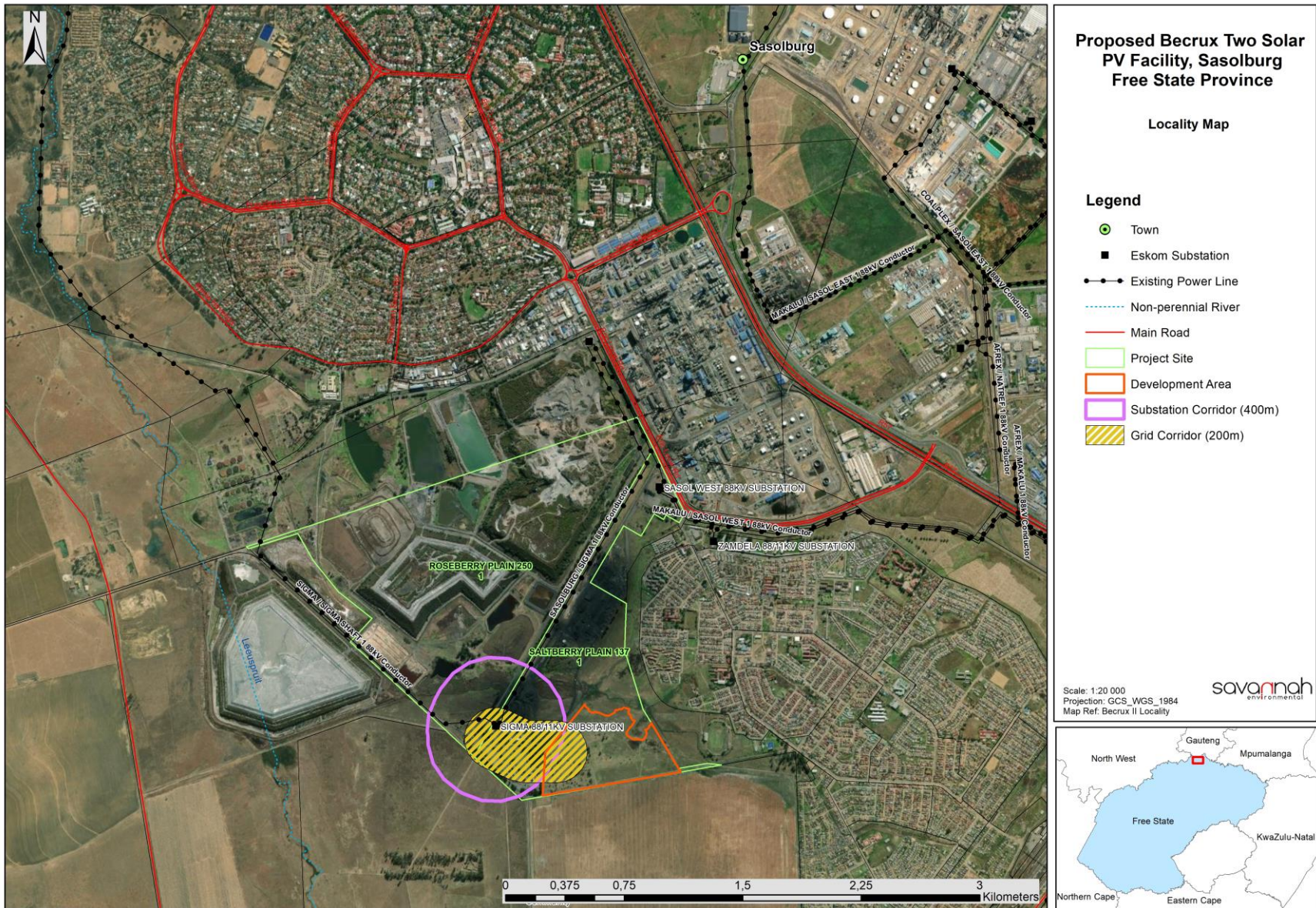


Figure 1: Locality map illustrating the location of the development area under investigation for development of the 10MW_{ac} Becrux Two Solar PV Energy Facility

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

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
1(ii)	The development of facilities or infrastructure for the generation of electricity from a renewable resource where – (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	The Becrux Two Solar PV Energy Facility will make use of solar energy as a renewable energy resource. The project will have a contracted capacity of up to 10MW_{ac}. A development footprint of up to 19.99ha in extent will be occupied by the PV panels and associated infrastructure.
12(ii)(a)(c)	The development of – (ii) infrastructure or structures with a physical footprint of 100 square meters or more; where such development occurs – (a) within a watercourse; or (c) if no development setback exists, within 32 meters of a watercourse, measured from the edge of a watercourse.	The development of the Becrux Two Solar PV Energy Facility will require the establishment of infrastructure (including internal access roads) with a physical footprint exceeding 100m² within a watercourse or within 32m of a watercourse. The development footprint of the PV facility will be up to ~19.99ha in extent.
14	The development and related operation of facilities and infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	The development of the Becrux Two Solar PV Energy Facility will require the construction and operation of facilities and infrastructure for the storage and handling of dangerous goods such as petrol/diesel for trucks, cranes, bulldozers, etc., and limited amounts of transformer oils, where such storage will occur inside containers with a combined capacity exceeding 80 cubic meters but not exceeding 500 cubic meters.
27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	The development of the Becrux Two Solar PV Energy Facility will require the clearance of up to 19.99ha of vegetation for the placement of the solar PV panel array and associated infrastructure. The project would therefore result in the clearance of

		<i>an area of indigenous vegetation of 1ha or more, but less than 20ha in extent.</i>
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
4(b)(i)(gg)	The development of a road wider than 4 metres with a reserve less than 13.5 metres. b. Free State i. Outside urban areas: (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.	<i>The development of Becrux Two Solar PV Energy Facility will require the construction of a main gravel access road up to 8m wide and internal gravel roads up to 6m wide. The site is located in the Free State Province, outside an urban area and within 5km of the Leeuwspruit Private Nature Reserve, which is a formally protected area.</i>
10(b)(i)(gg)(hh)	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. b. Free State i. Outside urban areas: (gg) Areas within 10 kilometres from national parks or would heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or (hh) Areas within a watercourse or wetlands; or within 100 metres from the edge of a watercourse or wetland.	<i>The development of the Becrux Two Solar PV Energy Facility will require the construction and operation of facilities and infrastructure for the storage and handling of dangerous goods such as petrol/diesel for trucks, cranes, bulldozers, etc., and limited amounts of transformer oils, where such storage will occur inside containers with a combined capacity of 30 cubic metres or more, but not exceeding 80 cubic metres, within wetland, or within 100m from the edge of a wetland.</i> <i>The site is located in the Free State Province, outside an urban area, and within 5km of the Leeuwspruit Private Nature Reserve, which is a formally protected area.</i>
14(ii)((a)(c)(b)(i)(hh)	The development of – (ii) infrastructure or structures with a physical footprint of 10 square meters or more; where such development occurs –	<i>The development of the Becrux Two Solar PV Energy Facility will require the establishment of infrastructure (including internal access roads) with a physical</i>

	<p>(a) within a watercourse; or (c) if no development setback exists, within 32 meters of a watercourse, measured from the edge of a watercourse.</p> <p>b. Free State i. Outside urban areas: (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere or reserve.</p>	<p>footprint exceeding 10m² within a watercourse or within 32m of a watercourse. The development footprint of the PV facility will be up to ~19.99ha in extent.</p> <p>The site is located in the Free State Province, outside an urban area and within 5km of the Leeuwspruit Private Nature Reserve, which is a formally protected area.</p>
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2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h) of GN 326, Regulation 2014 as amended. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

the property on which or location where it is proposed to undertake the activity

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The placement of a Solar PV Facility is dependent on several factors, including the: land suitability; climatic conditions (solar irradiation levels); topography; location of the study area; availability of grid connection infrastructure; extent of the study area; latitude of the site; cloud occurrence and the need and desirability of the project. From a regional site selection perspective, the Free State region is considered to be favourable for the development of a Solar PV Facility as it is ranked number 3 amongst South Africa's provinces in terms of its estimated solar power generation potential. From a local level perspective, the project site has specifically been identified by the proponent as	26°50'51.47"S	27°50'23.86"E

<p>being highly desirable for the development of a Solar PV Facility based on the following characteristics:</p> <ul style="list-style-type: none"> » Solar resource: The economic viability of a Solar PV Facility is directly dependent on the annual direct solar irradiation values of the area within which it will operate. The Global Horizontal Irradiation (GHI) for the study area is in the region of approximately 1900 - 2050 kWh/m²/annum. This is considered feasible for the development of a Solar PV Facility. Based on the solar resource available, no alternative locations are considered. » Topography: The topography of the study area is described as slightly undulating plains with an even (flat) slope and a gradual drop (approximately 90m) from the south to the Vaal River to the north-west. The proposed development site itself is located at an average elevation of 1 470m above sea level and has an even slope to the north. The majority of the development area is characterised by a slope percentage between 0 and 5%, with some smaller patches within the project area characterised by a slope percentage up to 30%. The flat topography of the project area is considered beneficial in terms of the construction activities that will be required. Based on the suitable and preferable topography, no location alternatives are considered for the development. » Site extent: The project site (i.e., the affected properties) is up to ~339.87ha in extent, which is sufficient for the installation of a facility with a contracted capacity of up to 10MW_{ac} and allowing for avoidance of environmental site sensitivities. The development area and footprint are up to ~30ha and 19.99ha in extent, respectively, which is equivalent to approximately 6-9% of the project site. The project site is sufficient for the proposed project and therefore eliminates the need to consider alternative locations. » Site access: Access to the proposed development area is provided by a secondary road that traverses from the Eric Louw Road (at the Sasol Plant's west gate) to the Sigma Colliery. A main gravel access road up to 8m in width and 200m in length will be constructed to provide direct access to the development area. A network of 6m wide (with a total length of 200m) gravel internal access roads will be constructed to provide access to the various components of the facility. Sufficient access is therefore available for the delivery of equipment and project components during construction and to access the site during operation. Based 		
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<p>on the sufficient access available for the project, no alternative locations are considered.</p> <p>» Land suitability: Land use activities within the broader region are predominantly described as maize farming (predominantly dryland agriculture) and cattle farming, with the mining activities and the Sasol CTL Plant prominently visible within the study area. The proposed project will not conflict with the current land use or any future mine expansions. Sites that facilitate easy construction conditions (i.e., relatively flat topography, lack of major rock outcrops etc.) are favoured during the site selection process for a Solar PV Facility, and the proposed project area fits this criterion.</p> <p>» Geographic location: The development area is close to the Sigma Colliery Mine, one of Sasol Mining's operations. There is no evidence of livestock or game farming, nor recent rainfed crop production within the development area. The project area compliments the proposed land use by repurposing undeveloped land with an economically viable land use.</p> <p>» Latitude of the site: At higher latitudes, the angle of irradiation is smaller, causing energy to be spread over a large area of the surface, resulting in cooler temperatures. At lower latitudes (i.e., between 20° and 30°), the sun is higher in the sky, causing energy to be spread over a small area of the surface, resulting in warmer temperatures. The project site is located at a latitude of 26°50'51.47"S, which means that it receives high amounts of solar energy, making it suitable for the development of a Solar PV Energy Facility.</p> <p>» Occurrence of clouds: Cloudy weather has a negative effect on solar power production as clouds reduce the amount of sunlight that reaches solar panels. Clouds tend to form where air rises, and descending air inhibit cloud formation. Since air descends between latitudes of 15° and 30° north and south of the equator, clouds are rare in areas located at these latitudes. The project site is located at a latitude of 26°50'51.47"S, which means cloud occurrence is rare in the area. It is therefore unlikely that there would be cloudy weather in the area that would reduce the amount of sunlight that reaches the solar panels.</p> <p>» Access to the Electricity Grid – A key factor in the siting of any power generation project is the availability of a viable grid connection. Following confirmation of sufficient available land for the development of the Solar PV Facility, the</p>		
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<p>developer considered the possible grid connection points in order to evacuate the generated power from the PV facility to Sasol Limited. The developer consulted with the Eskom network planners to understand the current capacity of the existing grid connection infrastructure and to identify feasible connection points for the PV facility. The existing Sigma Substation located directly adjacent to the north-west of the site was identified as the preferred grid connection point for the project. Use of the Sigma Substation to deliver power generated at the PV Facility to Sasol Limited will be done so through a Wheeling Agreement signed with Eskom and/or direct embedded generation.</p> <p>» Environmental screening and consideration of sensitive environmental features: Following the confirmation of the project site as being technically feasible for the development of a Solar PV Facility, specialist investigations of the development area were undertaken, during which sensitive features were identified. The sensitivity spatial data compiled by the specialist team for the development area and broader area was provided to Becrux Solar PV Project Two (Pty) Ltd prior to lodging of the application for the EA. Through integration of the specialist sensitivity data obtained, Becrux Solar PV Project Two (Pty) Ltd developed a layout that avoids areas and features of high environmental sensitivity. ...</p> <p>As the overall purpose of the facility is to generate power for use Sasol Limited, Becrux Solar PV Project Two (Pty) Ltd has identified the Remaining Extent of Portion 1 of Farm Saltberry Plain137 and the Remaining Extent of Portion 1 of Farm Roseberry Plain 250 as the most feasible option for the development of the facility. This decision was based on land availability for the development of a Solar PV Facility; the proximity to Sasol Limited's Sasolburg operations (the exclusive offtaker of the generated power); and the distance from a viable grid connection point.</p> <p>Based on the above site-specific attributes and considerations, the development area was identified by Becrux Solar PV Project Two (Pty) Ltd as being the most technically feasible and viable site within the broader area for further investigation in support of an application for EA. As a result, no feasible alternative sites were identified for assessment as part of this BA process.</p>		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

**b) The type of activity to be undertaken;
 In the case of linear activities:**

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
• Starting point of the activity	26°50'54.83"S	27°50'5.99"E
• Middle/Additional point of the activity	26°50'55.05"S	27°49'58.39"E
• End point of the activity	26°50'52.61"S	27°49'52.00"E
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

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

Becrux Solar PV Project Two (Pty) Ltd is a renewable energy project developer and as such will only consider renewable energy activities. The only activity considered for implementation on the identified site is therefore power generation, specifically solar PV power generation, and as such, no activity alternatives are considered as part of this BA process.

c) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The full extent of the affected properties (i.e., the Remaining Extent of Portion 1 of the Farm Saltberry Plain 137 and the Remaining Extent of Portion 1 of the Farm Roseberry Plain 250) is ~339.87ha in extent, which is sufficient for the installation of a Solar PV Facility with a contracted capacity of 10MW _{ac} , while allowing for the avoidance of environmental site sensitivities. A development footprint of ~19.99ha has been identified within the affected properties, within which the solar PV facility and its associated infrastructure will be located. The location of the development footprint was informed by the findings of the specialist investigations undertaken during the BA process.	N/A	N/A
Areas to be avoided by the project were identified, specifically relating to ecological and/or aquatic features. The identified		

<p>sensitivities were utilised as a tool by Becrux Solar PV Project Two (Pty) Ltd, to identify and locate the development footprint within the project site and development area. This was undertaken with the aim of avoiding possible sensitive areas within the development footprint as far as possible, to limit impacts associated with the project.</p> <p>Only one feasible layout has been designed considering the findings of the specialist studies and BA process.</p>		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

d) Technology alternatives

Alternative 1 (preferred alternative)
<p>Since the development area is unsuitable for wind generation, solar energy has been identified by Becrux Solar PV Project Two (Pty) Ltd as the preferred technology for implementation within the development area. Few technology options are available for solar facilities, and the use of those that are considered are usually differentiated by weather and temperature conditions that prevail in the area, so that optimality is obtained by the final site selection. Solar energy is considered the most suitable renewable energy technology for this area, based on site location, ambient conditions and energy resource availability. Solar PV was therefore determined as the most suitable option for further assessment, and no other technology alternatives are being assessed for the project.</p>
<p>Several solar PV technology alternatives are available, including <i>inter alia</i>:</p>
<ul style="list-style-type: none"> » Bifacial PV panels. » Monofacial PV panels. » Fixed mounted PV systems (static / fixed-tilt panels). » Single-axis tracking or double-axis tracking systems (with solar panels that rotate around a defined axis to follow the sun's movement). » Monocrystalline modules, polycrystalline modules or thin film modules.
<p>The primary difference between PV technologies available relate to the extent and height of the facility; however, the potential for environmental impacts remains similar in magnitude. Fixed mounted PV systems can occupy a smaller extent and have a lower height when compared to tracking PV systems, which require both a larger extent of land, and are taller in height. However, both options are considered acceptable for implementation from an environmental perspective. Bifacial solar PV panels offer many advantages over monofacial PV panels, as power can be produced on both sides of the module, increasing total energy generation. Monocrystalline polycrystalline or thin film modules differ mainly in their cost and efficiency values, but do not represent a fundamentally different panel design type from an environmental perspective. The preference will, therefore, be determined on technical considerations and the site conditions.</p>

The PV panels are designed to operate continuously for more than 30 years, mostly unattended and with low maintenance. The impacts associated with the construction, operation, and decommissioning of the facility are anticipated to be the same irrespective of the PV panel selected for implementation.

Alternative 2
Alternative 3

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

Alternative 1 (preferred alternative)
No alternative is applicable
Alternative 2
Alternative 3

f) No-go alternative

The 'no-go' alternative is the option of not constructing the 10MW_{ac} Becrux Two Solar PV Energy Facility. Should this alternative be selected, there would be no environmental impacts or benefits due to the construction and operation activities associated with a Solar PV Facility. This alternative is assessed in detail in **Section D(2)**.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:
 Alternative A1⁹ (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the activity:
 19.99ha

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or, for linear activities:

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

Length of the activity:
 ~500m

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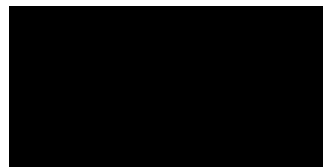
⁹ "Alternative A.." refer to activity, process, technology or other alternatives.

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

Alternative:

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

Size of the site/servitude:



4. SITE ACCESS

Does ready access to the site exist?

[Access to the proposed development area is provided by a secondary road that traverses from the Eric Louw Road (at the Sasol Plant's west gate) to the Sigma Colliery]

	NO
200m	

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

Describe the type of access road planned:

An 8m wide main gravel access road will be constructed to provide direct access to the development. In addition, a network of 6m wide (with a total length of 200m) gravel internal access roads will be constructed to provide access to the various components of the facility.

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.

1. LOCALITY MAP

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

- » an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- » indication of all the alternatives identified;
- » closest town(s);
- » road access from all major roads in the area;
- » road names or numbers of all major roads as well as the roads that provide access to the site(s);
- » all roads within a 1km radius of the site or alternative sites; and
- » a north arrow;
- » a legend; and
- » locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal

minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

A locality map has been included as part of this report as **Appendix A1**.

2. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

A layout plan has been included as part of this report within **Appendix A3**.

3. SENSITIVITY MAP

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

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

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

A map of the layout overlain with the environmental sensitivities has been included as part of this report within **Appendix A4**.

5. SITE PHOTOGRAPHS

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

Refer to **Appendix B** for the site photographs.

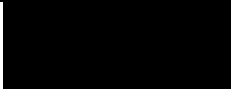


6. FACILITY ILLUSTRATION

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

A facility illustration has been included as part of this report within **Appendix C**.

7. ACTIVITY MOTIVATION

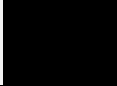

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?		NO	Please explain
The proposed project is located adjacent to the Sigma Colliery (owned and operated by Sasol Mining) and is proposed to be developed on properties owned by both Sasol Mining and Sasol Limited. The proposed site is currently zoned as mining. Therefore, the site will be required to be rezoned to 'special use' as required by the municipality.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
The Free State PSDF is a provincial spatial and strategic planning policy that responds to and complies with, in particular, the National Development Plan (NDP) Vision 2030 and the National Spatial Development Perspective (NSDP). This framework promotes a developmental state in accordance with the principles of global sustainability as is stated by, among others, the South African Constitution and the enabling legislation. The FS PSDF is based on six growth and development pillars, each of which has its own set of drivers with long-term programmes. Pillar 1 highlights the job creation, economic and sustainable growth by expanding and maintaining basic road infrastructures and through the implementation of alternative electricity infrastructure.			
The proposed project will create 150 temporary employment opportunities during the construction phase, and 10 permanent employment opportunities during the operational phase. The proposed project is a renewable energy facility that will provide power to Sasol Limited's Sasolburg operations, resulting in a reduction of pressure from Sasol's operations on the Eskom national grid. Therefore, the proposed project is in line with the Free State PSDF.			
(b) Urban edge / Edge of Built environment for the area	YES		Please explain
The proposed project site it is located just outside the urban areas of Sasolburg and Zamdela (~4km southeast and ~1 km east). The site falls outside the urban edge and adjacent to the Sigma Colliery mining boundary.			

<p>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</p>	<p>YES</p>	<p>Please explain</p>
<p>The proposed project will create direct job opportunities that will stimulate local economic and produce power through harnessing the solar resource from the project site and is therefore considered as an example of a sustainable development. As such, the project aligns with the mission of the Metsimaholo Local Municipality: <i>"To promote the sustainable socio-economic development of our communities through effective, efficient and quality services and sound institutional and financial management"</i>. The project will therefore not compromise the integrity of the IDP.</p> <p>The municipality strategy aims at meeting the needs of its environmental, economic and social challenges, with a planning strategy which:</p> <ul style="list-style-type: none"> » Protects and improves the environment and encourages high quality design » Relate the development of land to a fair and effective distribution of resources » Achieves sustainable and less energy intensive forms of development » Attempts to secure economic diversification » Sustains and enhances the role of the Town Centers for commercial and leisure purposes and a place to live » Fosters regeneration and redevelopment in the municipality's disadvantaged areas and the town centers currently facing decay as a result of decentralization of economic activities on the edges of the municipal area (the Gauteng bordering areas) » Encourages development in the growth areas to ensure the fair distribution of economic activities within the municipality » The protection of major open spaces within the urban and rural settlements from inappropriate development <p>The municipality attaches considerable importance to "green" issues inducing for example energy conservation, the protection of its blue corridors, the retention of the green wedges and other areas of open space and heritage significance.</p> <p>The SDF identifies a number of priority areas which are regarded as relevant to the proposed development which include: sustainable and less energy intensive forms of development and economic diversification. The proposed development is located in close proximity to Sasolburg within an industrial area. The development also has the intention of providing job opportunities for the local community which is in line with the SDF. The project will therefore not compromise the integrity of the SDF.</p>		

(d) Approved Structure Plan of the Municipality	YES		Please explain
<p>There are several renewable energy projects that are proposed in the Metsimaholo Local Municipality under the Department of Mineral Resources and Energy (DMRE's) Renewable Energy Independent Power Producers Procurement Programme (REIPPPP). However, the proposed Becrux Two Solar PV Energy Facility will not be bid under the REIPPPP Programme as it is the developer's intention to supply the generated power to Sasol Limited as a way of reducing total carbon emissions and diversifying electricity supply to its Sasolburg operations. The municipality will need to confirm whether the existing municipal infrastructure available will have the capacity for the proposed project, including the capacity for the handling of waste in the associated waste landfill.</p>			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		NO	Please explain
<p>The Metsimaholo Local municipality does not have an EMF as a development guiding tool in its jurisdiction.</p>			
(f) Any other Plans (e.g. Guide Plan)		NO	Please explain
<p>N/A</p>			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES		Please explain
<p>The main purpose of the development is to generate electricity from a renewable resource, which will be supplied to Sasol Limited's Sasolburg operations. The project is not specifically considered within the approved municipal SDF. However, the municipality identified basic service delivery such as electricity, job creation and economic growth as priorities within the SDF and IDP both locally and within the district municipality. The proposed development will assist in achieving these objectives.</p>			

<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES</p>	<p>Please explain</p>
<p>The evacuation of additional power for use by Sasol Limited will serve to improve the stability of the national grid within the immediate area as a reduction in the demand for electricity by Sasol Limited's Sasolburg operations will reduce the supply pressure on the national grid for the area. The proposed project will also assist the government in achieving the goal of adding new capacity from renewable energy as part of the electricity generation technology mix by 2030. In addition, the project will assist in the reduction in the need to mine non-renewable resources such as coal for conventional power generation.</p> <p>The proposed development will benefit the local community through job creation, skills development opportunities and training which will, in turn, assist in reducing poverty levels that the area is currently facing, and indirectly strengthen electricity supply for the area.</p>		
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater to the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>	<p>Please explain</p>
<p>The Metsimaholo Local Municipality will be engaged prior to Financial Close to determine if they have the capacity to render the services such as electricity and water supply, waste collection/removal and sanitation. If not, the applicant will go out to tender to obtain these services.</p>		
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project is to be developed by a private developer (i.e., Becrux Solar PV Project Two (Pty) Ltd) and not the municipality. It therefore does not fall within, nor does it have any implications for the infrastructure planning of the municipality.</p>		

<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>		<p>Please explain</p>
<p>Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003). In order to meet the long-term goal of a sustainable renewable energy industry, a goal of 17.8GW of renewables by 2030 has been set by the DMRE within the Integrated Resource Plan (IRP) 2019. This energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. This is however dependent on the assumed learning rates and associated cost reductions for renewable options.</p> <p>Power generated at the proposed Becrux Two Solar PV Energy Facility will be evacuated to Sasol Limited's Sasolburg operations. This will reduce Sasol Limited's direct dependency on the supply of energy from the national grid.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES</p>		<p>Please explain</p>
<p>The proposed site for the development of the Becrux Two Solar PV Energy Facility is situated on land owned by the Sasol Mining and Sasol Limited, the exclusive offtaker of the power to be generated by the facility. The location of the proposed facility includes benefits such as that the various operations owned by exclusive offtaker of the generated power are situated in close proximity to the project site, and that the point of connection, i.e., the Sigma Substation, is in close proximity, shortening the length of the distribution line needed.</p>			

9. Is the development the best practicable environmental option for this land/site?

YES

Please explain

Sections of the proposed site have been transformed and altered through historical anthropogenic activities as there were houses on the site which were demolished by Sasol due to the geotechnical risks associated with the site. This facility will be contributing to a positive and sustainable function for the site in the long-term, as it will no longer be available for mining activities as well as of other transformation activities taking place on site as fencing will be placed around the facility, decreasing accessibility. The PV facility will also reduce the Sasol Limited's dependency on non-renewable power sources for the operation of some of its Sasolburg operations, as well as producing "clean" energy that will not have a detrimental effect on the broader environment.



<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>	<p>[REDACTED]</p>	<p>Please explain</p>
<p>The negative impacts associated with the proposed activity include localised impacts on vegetation, soils and land use and are expected to be limited to the development footprint and are not considered to be of high significance (refer to Section D). All impacts can be managed and mitigated to acceptable levels, as outlined in the Environmental Management Programme.</p> <p>Sections of the proposed site have been transformed and altered through historical anthropogenic activities as there were houses on the site which were demolished by Sasol due to the geotechnical risks associated with the site. This facility will be contributing to a positive and sustainable function for the site in the long-term, as it will no longer be available for mining activities as well as of other transformation activities taking place on site as fencing will be placed around the facility, decreasing accessibility. The PV facility will also reduce the Sasol Limited's dependency on non-renewable power sources for the operation of some of its Sasolburg operations, as well as producing "clean" energy that will not have a detrimental effect on the broader environment.</p> <p>Positive impacts associated with the facility include i) the diversifying of the power use for Sasol Limited's Sasolburg operations ii) generation of electricity from a renewable resource also reduces reliance (although limited) on conventional power sources; iii) local economic upliftment and minimal job creation iv) and the reduction of Sasol Limited's carbon footprint. These positive impacts will extend beyond the boundary of the site and are expected to outweigh the negative impacts.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>There is one Solar PV Energy Facility with an approved EA situated within 30km of the project site (i.e., the 75MW Solar PV Energy Facility at the Lethabo coal-fired power station). Therefore, the project will not set a precedent for the construction of Solar PV Energy Facilities in the area.</p>			
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	<p>[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project will take place on privately owned land immediately adjacent to Sasol Mining's Sigma Colliery. The two affected properties are owned by both Sasol Mining and Sasol Limited. Sasol Limited is intended to be the exclusive user/offtaker of the power to be generated. Sasol Limited would enter into a lease agreement with the developer (Becrux Solar PV Project Two (Pty) Ltd) who will develop and operate the PV plant to supply power to Sasol Limited's Sasolburg operations. No infrastructure will extend beyond the boundaries of the two affected properties owned by Sasol Mining and Sasol Limited. Therefore, no rights of any persons will be negatively affected.</p>			
<p>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</p>	<p>YES</p>	<p>[REDACTED]</p>	<p>Please explain</p>
<p>The project site is located outside the urban edge, close to the urban areas of Sasolburg and Zamdela (~4km southeast and ~1 km east, respectively). Therefore, the proposed project will not compromise the urban edge as defined by the local municipality.</p>			
<p>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?</p>	<p>[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>The project will not be registered as a SIP on the basis of its scale/capacity (i.e., 10MW_{ac}).</p>			

<p>15. What will the benefits be to society in general and to the local communities?</p>	<p>Please explain</p>
<p>Job opportunities, although limited, will be created during the construction and operation of the proposed facility. In addition, local and regional economic benefits would be realised through the additional revenue generated as a result of the proposed project (through direct and indirect job opportunities, local spend, local procurement, etc.).</p> <p>The primary benefit to society in general will be a reduction in the use of non-renewable resources for the generation of power, contributing to a sustainable environment and development.</p>	
<p>16. Any other need and desirability considerations related to the proposed activity?</p>	<p>Please explain</p>
<p>Metsimaholo Local Municipality encounters high levels of air pollution due to the high level of industrialization within the area. The municipality is close to the Vaal Triangle and is declared to be part of the Vaal Triangle Airshed Priority Area. The SOLA Group/ Becrux Solar PV Project Two (Pty) Ltd was selected as a preferred bidder by Sasol to develop and operate a Solar PV Facility near Sasolburg, with the aim of reducing Sasol's carbon footprint and diversifying Sasol's energy supply through the usage of solar energy. Sasol has a corporate vision of a greener future, which includes the procurement of renewable energy from Independent Power Producers (IPPs). According to the Sasol Climate Change Report (2021), the Sasolburg operations contributed at least 4 918 kilotons (kt) of CO₂. Furthermore, the report indicates Sasol's 2030 and 2050 greenhouse gas emission reduction road map where the company intends to reduce 30% of its emissions by 2030 in support of accelerated actions to curb climate change. Therefore, the project is considered to be desirable for Sasol Limited as it will reduce the overall carbon emissions and footprint of its Sasolburg operations, and also diversify electricity supply for these operations. .</p>	
<p>17. How does the project fit into the National Development Plan for 2030?</p>	<p>Please explain</p>
<p>By 2030, South Africa aims to reduce carbon emissions, promote economic development and increase the Gross Domestic Product (GDP). This project will fit into this vision since it aims to contribute towards electricity supply through renewable energy sources. This Solar PV Energy Facility with which the activities are associated will assist in reducing the country's carbon footprint, as it will be generating renewable energy, and will facilitate the infrastructure growth in the area through employment and increasing infrastructure.</p>	
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>	
<p>The general objectives of Integrated Environmental Management have been taken into account for this BA Report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits and promote compliance with the principles of environmental management.</p>	

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

The principle of environmental management as set out in section 2 of NEMA states that:

- » Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- » Development must be sustainable socially (people), environmentally (planet) and economically (prosperity).
- » Sustainable development requires the consideration of all the relevant factors.

From a project perspective the development can be considered sustainable as it makes use of a renewable energy resource, does not result in any significant impacts during its construction, and does not emit any pollution during the operational phase.

These principles of sustainable development are further taken into account by including measures within the Environmental Management Programme (EMPr) to mitigate impacts that may occur, thereby further reducing the environmental impacts. The EMPr provides mitigation measures in terms of disturbance to vegetation, loss of wetlands and land capability, pollution and degradation to the environment, waste and stormwater management.

8. 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:

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
National Legislation			
Constitution of the Republic of South Africa (No. 108 of 1996)	<p>In terms of Section 24, the State has an obligation to give effect to the environmental right. The environmental right states that:</p> <p><i>“Everyone has the right –</i></p> <ul style="list-style-type: none"> » <i>To an environment that is not harmful to their health or well-being, and</i> » <i>To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:</i> <ul style="list-style-type: none"> * <i>Prevent pollution and ecological degradation,</i> * <i>Promote conservation, and</i> <p><i>Secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development.”</i></p>	Applicable to all authorities	The Constitution has no permitting requirements. The application of the Environmental Right however implies that environmental impacts associated with proposed developments are considered separately and cumulatively. It is also important to note that the “right to an environment clause” includes the notion that justifiable economic and social development should be promoted, through using natural resources and ecologically sustainable development.
National Environmental Management Act (Act No 107 of 1998)	In terms of the Duty of Care Provision in section 28(1), Becrux Solar PV Project Two (Pty) Ltd must ensure that reasonable measures are taken throughout the	Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs	The listed activities triggered by the proposed Solar PV Facility have been identified and are being assessed as part of the BA process currently underway for the project. The BA

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>lifecycle of this project, to ensure that any pollution or degradation of the environment associated with it is avoided, stopped or minimised.</p> <p>In terms of NEMA, it is the legal duty of a project proponent to consider a project holistically, and the cumulative effect of a variety of impacts.</p> <p>Considering the capacity of the proposed solar PV facility (i.e., contracted capacity of 10MW) and the triggering of Activity 1 of Listing Notice 1 (GN R.983), a Basic Assessment process is required in support of the application for EA.</p>	<p>(FSDESTEA) – competent authority</p>	<p>process will culminate in the submission of a final BA Report to FSDESTEA for approval.</p>
<p>National Environmental Management Act (Act No 107 of 1998)</p>	<p>In terms of the “Duty of Care and Remediation of Environmental Damage” provision in Section 28(1) of NEMA, every person who causes, has caused or may cause significant pollution or environmental degradation must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the</p>	<p>FSDESTEA</p>	<p>While no permitting or licensing requirements arise directly by virtue of the proposed project through this section, it finds application through the consideration of potential cumulative, direct, and indirect impacts. It will continue to apply throughout the lifecycle of the project.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>environment.</p> <p>Under NEMA, it is the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>		
<p>Environment Conservation Act (Act No 73 of 1989) (ECA)</p>	<p>The Noise Control Regulations in terms of Section 25 of the ECA are applicable for noise control in the Free State Province.</p>	<p>FSDESTEA</p>	<p>Noise impacts are expected to be associated with the project's construction phase. Considering the project area's location in relation to residential areas and provided that appropriate mitigation measures are implemented, construction noise is unlikely to present a significant intrusion to the local community. There is therefore no requirement for a noise permit in terms of this legislation.</p>
<p>National Water Act (Act No 36 of 1998)</p>	<p>A water use listed under Section 21 of the NWA must be licensed with the Regional DHSWS, unless it is listed in Schedule 1 of the NWA (i.e. is an existing lawful use); is permissible under a General Authorisation (GA); or if a responsible authority waives the need for a water use licence (WUL).</p> <p>Water use is defined broadly and includes consumptive and non-consumptive water uses; taking and storing water; activities which reduce stream flow; waste discharges and disposals; controlled activities (activities which impact</p>	<p>Regional Department of Human Settlements, Water and Sanitation (DHSWS)</p>	<p>A WUL or GA is required to be obtained if water resources are impacted on (either directly or indirectly). The development area is located within the 500m regulated area of wetland features (i.e., seepage and unchanneled valley bottom wetlands). A General Authorisation for the project will therefore need to be registered with the DHSWS for water uses 21(c)&21(i); however, the process will only be completed once a positive EA has been received.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>detrimentally on a water resource); altering a watercourse; removing water found underground for certain purposes; and recreation.</p> <p>Consumptive water uses may include taking water from a water resource (Section 21(a)) and storing water (Section 21(b)).</p> <p>Non-consumptive water uses may include impeding or diverting of flow in a watercourse (Section 21(c)); and altering of bed, banks or characteristics of a watercourse (Section 21(i)).</p>		
<p>National Water Act (Act No 36 of 1998) (NWA)</p>	<p>In terms of Section 19, Becrux Solar PV Project Two (Pty) Ltd must ensure that reasonable measures are taken throughout the project's lifecycle to prevent and remedy pollution to water resources from occurring, continuing, or recurring.</p>	<p>Regional DHSWS</p>	<p>This section will apply with respect to the potential impact on the wetland features located within the 500m regulated area of the development area, primarily during the construction phase (i.e., pollution from construction vehicles).</p>
<p>Minerals and Petroleum Resources Development Act (Act No 28 of 2002) (MPRDA)</p>	<p>In accordance with the MPRDA, a mining right permit is required where a mineral in question is to be mined, including the mining of materials from a borrow pit.</p>	<p>Department of Mineral Resources and Energy (DMRE)</p>	<p>Any person who wishes to apply for a mining permit in accordance with Section 27(6) must simultaneously apply for an Environmental Authorisation in terms of NEMA. No borrow pits are expected to be required for the construction of the project, and as a result a mining permit or EA in this regard is not</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>Section 53 of the MPRDA states that any person who intends to use the surface of any land in any way which may be contrary to any object of the Act, or which is likely to impede any such object must apply to the Minister for approval in the prescribed manner.</p>		<p>required to be obtained.</p> <p>In terms of Section 53 of the MPRDA, approval is required from the Minister of Mineral Resources and Energy to ensure that the proposed development does not sterilise a mineral resource that might occur on site.</p>
<p>National Environmental Management: Air Quality Act (Act No 39 of 2004) (NEM:AQA)</p>	<p>The National Dust Control Regulations (GNR 827), published under Section 32 of NEM:AQA, prescribe the general measures for dust control in all areas, and a standard for acceptable dustfall rates in residential and non-residential areas.</p> <p>In accordance with these Regulations any person who conducts any activity in such a way as to give rise to dust in quantities and concentrations that may exceed the dustfall standard set out in Regulation 3 must, upon receipt of a notice from the air quality officer, implement a dustfall monitoring programme.</p> <p>Any person who has exceeded the dustfall standard must, within three months after submission of the dustfall monitoring report, develop and submit a dust management plan to the air quality officer for approval.</p>	<p>FSDESTEA</p> <p>Fezile Dabi District Municipality</p>	<p>If the project results in the generation of excessive levels of dust, a dustfall monitoring programme would be required for the project. Dustfall monitoring results from the dustfall monitoring programme would then need to be included in a dust monitoring report, and a dust management plan would need to be developed.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
<p>National Heritage Resources Act (Act No 25 of 1999) (NHRA)</p>	<p>Relevant sections include-</p> <p>Section 7 stipulates assessment criteria and categories of heritage resources according to their significance.</p> <p>Section 35 of the NHRA provides for the protection of all archaeological and palaeontological sites, and meteorites.</p> <p>Section 36 provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority.</p> <p>Section 38(1) lists activities which require developers or any person who intends to undertake a listed activity to obtain consent from the responsible heritage resources authority through the procedure set out in section 38. This is not required where a basic assessment is undertaken under NEMA, including a HIA, and SAHRA's requirements are considered the competent authority when granting the EA.</p> <p>Section 44 requires the compilation of a Conservation Management Plan and a permit from SAHRA for the presentation of archaeological sites as part of public</p>	<p>South African Heritage Resources Agency (SAHRA)</p> <p>Free State Heritage Resources Authority</p>	<p>A Heritage Impact Assessment (including palaeontology) was undertaken for the project as per the requirements of Section 38 of the NHRA (refer to Appendix D4).</p> <p>During the field survey, no heritage and archaeological resources of significance were identified within the development area. In terms of palaeontology, the proposed site lies on the palaeontologically very highly sensitive rocks of the Vryheid Formation (Ecca Group, Karoo Supergroup) that could potentially preserve impression fossils of the Glossopteris flora. The site visit however confirmed that there were no fossils visible on the site and along the route for the grid connection.</p> <p>Should a heritage resource be impacted upon, a permit may be required from SAHRA or Free State Heritage Resources Authority, in accordance with of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668).</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
<p>National Environmental Management: Biodiversity Act (Act No 10 of 2004)(NEM:BA)</p>	<p>enjoyment, education, research, tourism attraction.</p> <p>Section 53 of NEM:BA provides for the MEC / Minister to identify any process or activity in a listed ecosystem as a threatening process.</p> <p>Three government notices have been published in terms of Section 56(1) of NEM:BA as follows:</p> <ul style="list-style-type: none"> » Commencement of TOPS Regulations, 2007 (GNR 150). » Lists of critically endangered, vulnerable, and protected species (GNR 151), as amended in 2020 (GN627). » TOPS Regulations (GNR 152). <p>NEM:BA provides for listing threatened or protected ecosystems in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process, including the: purpose and rationale for listing ecosystems; criteria used to identify listed</p>	<p>DFFE and FSDESTE</p>	<p>Under NEM:BA, a permit would be required for any activity that is of a nature that may negatively impact on the survival of a listed protected species.</p> <p>A Terrestrial Ecology and Wetland Impact Assessment has been undertaken as part of the BA process (refer to Appendix D1). No protected species which require a permit under NEM:BA were identified within the development area.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>ecosystems; implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (NEM:BA: National list of ecosystems that are threatened and in need of protection, (Government Gazette 1002, 9 December 2011, GG 34809.</p>		
<p>National Environmental Management: Biodiversity Act (Act No 10 of 2004)</p>	<p>Chapter 5 of NEM:BA pertains to alien and invasive species, and states that a person may not carry out a restricted activity involving a specimen of an AIP without a permit issued in terms of Chapter 7 of NEM:BA; and that a permit may only be issued after a prescribed assessment of risks and potential impacts on biodiversity is carried out.</p> <p>Applicable, and exempted AIP are contained within the Alien and Invasive Species List 2020, GNR 1003 of Government Gazette No. 43726.</p>	<p>DFFE and FSDESTEA</p>	<p>A Terrestrial Ecology and Wetland Impact Assessment (refer to Appendix D1) was undertaken as part of the BA process to identify any alien invasive plants present on site. Sixteen (16) alien invasive plants were recorded within the development area, namely, <i>Argemone ochroleuca</i>, <i>Canna indica</i>, <i>Cestrum parqui</i>, <i>Cirsium vulgare</i>, <i>Datura ferox</i>, <i>Eucalyptus camaldulensis</i>, <i>Flaveria bidentis</i>, <i>Melia azedarach</i>, <i>Mirabilis jalapa</i>, <i>Nerium oleander</i>, <i>Pennisetum clandestinum</i>, <i>Pinus pinaster</i>, <i>Robinia pseudoacacia</i>, <i>Tamarix ramosissima</i>, <i>Verbena bonariensis</i>, and <i>Verbena brasiliensis</i>. These species are listed under the Alien and Invasive Species List 2020, Government Gazette No. GN1003 as Category 1b. Category 1b species must be controlled by implementing an invasive alien plants Management Programme, in compliance with section 75 of the NEMBA, as stated above.</p>
<p>Conservation of Agricultural</p>	<p>Section 5 of CARA provides for the</p>	<p>Department of Agriculture,</p>	<p>CARA will apply throughout the project's</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
<p>Resources Act (Act No 43 of 1983) (CARA) and Regulations (GN R1048) (CARA Regulations)</p>	<p>prohibition of the spreading of weeds.</p> <p>Relevant sections include:</p> <p>Regulation 15 provides for the classification of categories of weeds and invader plants, and restrictions in terms of where these species may occur.</p> <p>Regulation 15E provides requirements and methods to implement control measures for different categories of AIPs.</p>	<p>Land Reform and Rural Development (DALRD)</p>	<p>lifecycle. In this regard, soil erosion prevention and soil conservation strategies need to be developed and implemented. In addition, a weed control and management plan must be implemented.</p> <p>In terms of Regulation 15E, where Category 1, 2 or 3 plants occur a land user is required to control them by means of one or more of the following methods:</p> <ul style="list-style-type: none"> » Uprooting, felling, cutting or burning. » Treatment with a weed killer that is registered for use in connection with such plants, in accordance with the directions for the use of such a weed killer. » Biological control, carried out in accordance with the stipulations of the Agricultural Pests Act (No. 36 of 1983), the ECA and any other applicable legislation. » Any other method of treatment recognised by the executive officer that has as its object the control of plants concerned, subject to the provisions of sub-regulation 4. » A combination of one or more of the methods prescribed, save that biological control reserves and areas where biological control agents are effective shall not be disturbed by other control methods

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
<p>National Forests Act (Act No. 84 of 1998) (NFA)</p>	<p>According to the NFA, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. Notice of the List of Protected Tree Species under the NFA was published in GNR 536.</p> <p>The prohibitions provide that <i>“no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister”</i>.</p>	<p>DFFE</p>	<p>if the agents are destroyed or become ineffective.</p> <p>A permit would need to be obtained for any protected trees that are affected by the project.</p> <p>The Terrestrial Ecology and Wetland Impact Assessment included a site visit which allowed for the identification of protected trees that may require a license in terms of the NFA within the project area (refer to Appendix D1). The Terrestrial Ecology and Wetland Impact Assessment (Appendix D1) identified no protected trees that may require a license in terms of the NFA within the development area.</p>
<p>National Veld and Forest Fire Act (Act 101 of 1998) (NVFFA)</p>	<p>Chapter 4 places a duty on owners to prepare and maintain firebreaks; the procedure in this regard; and the role of adjoining owners and the fire protection association. The applicant must ensure that: firebreaks are wide and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land; it does not cause soil erosion; and it is reasonably free of inflammable material capable of carrying a veldfire across it.</p>	<p>DFFE</p>	<p>Whilst the NVFFA has no permitting or licensing requirements, it will be applicable during the construction and operation of the project for the preparation and maintenance of firebreaks; and provision of appropriate equipment and trained personnel for firefighting purposes.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>Chapter 5 places a duty on all owners to acquire equipment and have available personnel to fight fires. Every owner on whose land a veldfire may start or burn, or from whose land it may spread, must have such equipment; protective clothing; and trained personnel for extinguishing fires. Such owners must ensure that in their absence responsible persons are present on or near their land who, in the event of fire, will extinguish it, or assist in doing so, and take all reasonable steps to alert adjoining landowners and the relevant fire protection association, if any.</p>		
<p>Hazardous Substances Act (Act No 15 of 1973)</p>	<p>This Act regulates the control of: (i) substances that may cause injury, ill health, or death (due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances); and (ii) certain electronic products. It provides for the: rating of such substances or products by the degree of danger; and prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <p>» <i>Group I and II: Any substance or</i></p>	<p>Department of Health</p>	<p>It is necessary to identify and list all Group I, II, III, and IV hazardous substances that may be on the project area and in what operational context they are used, stored or handled. If applicable, a licence would be required to be obtained from the Department of Health.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance.</p> <ul style="list-style-type: none"> » Group IV: any electronic product, and » Group V: any radioactive material. <p>The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate licence being in force.</p>		
<p>National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) (NEMWA)</p>	<p>The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> » adding other waste management activities to the list; » removing waste management activities from the list; and » making other changes to the particulars on the list. <p>In terms of the Regulations published in</p>	<p>DFFE (hazardous waste)</p> <p>FSDESTEA (general waste)</p>	<p>No waste listed activities are triggered by proposed project, therefore, no Waste Management Licence is required to be obtained.</p> <p>General and hazardous waste handling, storage and disposal will be required during construction and operation. The National Norms and Standards for the Storage of Waste (GNR 926), published under Section 7(1)(c) of NEM:WA, will need to be considered in this regard.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>terms of NEMWA (GN 921), a basic assessment or EIA is required to be undertaken for identified listed waste management activities.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this NEMWA, to ensure that:</p> <ul style="list-style-type: none"> » the containers in which any waste are stored are intact and not corroded or in any other way rendered unfit for the safe storage of waste; » adequate measures are taken to prevent accidental spillage or leaking. » the waste cannot be blown away; » nuisances, such as odour, visual impacts and breeding of vectors, do not arise; and » environmental pollution and harm to health are prevented. 		
<p>National Road Traffic Act (Act No 93 of 1996) (NRTA)</p>	<p>The technical recommendations for highways (TRH 11): “<i>Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads</i>” outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads; and the prescribed procedures in applying for exemption</p>	<p>South African National Roads Agency Limited (national roads)</p> <p>Free State Department of Roads and Transport</p>	<p>An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits for vehicles carrying abnormally heavy or abnormally dimensioned loads; and transport vehicles exceeding the dimensional limitations (length) of 22m. Depending on the trailer configuration and height when loaded, some of the on-site</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>permits are described and discussed.</p> <p>Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts.</p> <p>The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the NRTA and its relevant Regulations.</p>		<p>substation components may not meet specified dimensional limitations (height and width).</p>
<p>Astronomy Geographic Advantage Act (Act No. 21 of 2007) (AGA)</p>	<p>The AGA provides for: the preservation and protection of areas within South Africa that are uniquely suited for optical and radio astronomy; intergovernmental co-operation and public consultation on matters concerning nationally significant astronomy advantage areas; and matters connected thereto.</p> <p>Chapter 2 of the AGA allows for the</p>	<p>Department of Science and Technology</p>	<p>The project site is located within the Free State Province and well outside of areas considered as nationally significant astronomy advantage areas. Therefore, the requirements of AGA are not considered applicable.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<p>declaration of astronomy advantage areas. Chapter 3 pertains to the management and control of astronomy advantage areas, which includes the following:</p> <ul style="list-style-type: none"> » Restrictions on use of radio frequency spectrum in astronomy advantage areas; » Declared activities in core or central astronomy advantage area; » Identified activities in coordinated astronomy advantage area; and » Authorisation to undertake identified activities. 		
<p>Aviation Act (Act No 74 of 1962) 13th amendment of the Civil Aviation Regulations (CARs) 1997</p>	<p>Any communications structure, building or other structure, whether temporary or permanent, which has the potential to endanger aviation in navigable airspace or interfere with the operation of navigation or surveillance systems or Instrument Landing Systems, including meteorological systems for aeronautical purposes, is considered an obstacle and must be submitted to the Commissioner for Civil Aviation for evaluation (refer SA-CAR Part 139.01.33).</p> <p>The following structures require markings:</p>	<p>South African Civil Aviation Authority (CAA)</p>	<p>This Act will find application during the operation phase of the project. Appropriate marking of project infrastructure >45m above ground level is required to meet the specifications, as detailed in the CAR Regulations Part 139.01.33. An obstacle approval (or confirmation that no approval is required) would be obtained from the South African CAA.</p>

Legislation	Applicable Requirements	Administering Authority	Compliance Requirements
	<ul style="list-style-type: none"> » Any structure exceeding 45m above ground level or structures where the top of the structure exceeds 150m above the mean ground level, the mean ground level considered to be the lowest point in a 3km radius around such structure. » Structures lower than 45m, which are considered as a danger to aviation shall be marked as such when specified. » Overhead wires, cables etc., crossing a river, valley or major roads shall be marked; and, in addition, their supporting towers marked and lighted if an aeronautical study indicates it could constitute a hazard to aircraft. 		
Provincial Legislation			
Free State Nature Conservation Ordinance 8 of 1969	Lists plant and animal species as protected	FSDESTEA	A Terrestrial Ecology and Wetland Impact Assessment has been undertaken as part of the BA process (refer to Appendix D1). No protected flora and fauna species which require a permit under the Free State Nature Conservation Ordinance were identified within the development area.

9. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

YES	
Not determined at this stage.	

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

The solid waste generated during construction will mainly be construction material, excavated substrate, and domestic solid waste. Cardboard waste will be produced from panel packaging and compacted on site prior to removal. Other wastes will include rubber caps on panel edges, wooden pallets, and plastic wrapping (all related to the panel packaging). There may also be some broken panels, which must be removed as per the latest regulations regarding producer responsibilities to minimise waste. Waste will be disposed of in either waste skips and/or scavenger-proof recycling bins (where possible) and temporarily placed in a central location for removal by an appropriate contractor. Where possible, waste will be recycled. Non-recyclable solid construction waste will be temporarily held in skips or other appropriate waste containers, to be disposed of at an appropriately licensed landfill site. Any other waste and excess material will be removed once construction is complete and disposed of at a registered waste facility.

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

Recyclable waste will be recycled through accredited recycling companies and non-recyclable solid construction waste will be disposed at a registered municipal solid waste disposal site.

Will the activity produce solid waste during its operational phase?

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

YES	
Not determined at this stage.	

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

The operation of the PV facility will result in the generation of general solid waste, such as damaged or broken panels; general waste from the offices; and oils from the on-site substation. The general solid waste generated during the operational phase will be temporarily stored in either waste skips and/or scavenger proof recycling bins (where possible), for removal by an appropriate contractor and subsequent disposal at an appropriately licensed landfill site. Where possible, waste will be recycled. Hazardous waste produced during the operational phase will be appropriately stored in bunded areas for removal by an appropriate contractor and subsequent disposal at a registered hazardous waste disposal facility.

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

This has not been determined at this stage. The Metsimaholo Local Municipality will be engaged prior to Financial Close to determine if any their registered landfill sites have the capacity to accept waste generated by the project.

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

All solid waste generated during the operational phase will be fed into a municipal waste stream. Should the municipal landfill sites not have capacity to accept solid waste generated during the operational phase, other options will be explored by the operator.

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

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

NO

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

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

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

b) Liquid effluent

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

YES

NO

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

m³

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

NO

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO

If **YES**, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

Cell:

Fax:

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

- » During the construction phase, measures may be put in place to separate clean and dirty water.
- » Sewage will be handled/managed by establishing portable ablution facilities. The sewage will be collected and treated in accordance with the legislative framework using a septic or conservancy tank.
- » Water used within the construction process, if tested and found to be within the required limits, may be used for dust suppression.

c) Emissions into the atmosphere

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

	NO

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

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

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

Solar energy installations operate by converting solar energy into electricity. This is characterised as a non-consumptive use of a natural resource and consumes no fuel for its continuing operation. Solar PV facilities produce an insignificant quantity of greenhouse gases over their lifecycle. During the construction phase, minor dust impacts and exhaust emissions may occur; however, acceptable limits will not be exceeded. The operational phase of a solar PV facility does not produce carbon dioxide, sulphur dioxide, mercury, particulates, or any other type of pollution.

d) Waste permit

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

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

e) Generation of noise

Will the activity generate noise?

YES	NO
YES	NO

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

Describe the noise in terms of type and level:

Minimal noise will occur during the construction phase due to vehicle movement; the presence of construction workers on site; and machinery operation. This is not regarded as a significant noise source/impact and will not constitute a "disturbing noise". No noise will be generated during the operation phase.

10. WATER USE

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

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	the activity will not use water
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Water will be sourced from the Sigma Mine / procured from the Metsimaholo Local Municipality, or through a Contractor upon reaching a Service Level Agreement.

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

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

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

The application process will only commence once a positive EA is received from the Competent Authority.

N/A	
YES	

11. ENERGY EFFICIENCY

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

The activity is in itself an activity that is proposed to generate electricity from a cleaner alternative energy source (i.e., solar radiation).

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

The purpose of a Solar PV Energy Facility is to utilise a renewable energy source (i.e., solar radiation) for electricity production. Therefore, it is not required to consider any additional alternative energy sources.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

YES

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

Property description/physical address:

Province	Free State Province
District Municipality	Fezile Dabi District Municipality
Local Municipality	Metsimaholo Local Municipality
Nearest town(s)	Sasolburg (~4km)
Ward Number(s)	11, 14
Farm name and number	Saltberry Plain 137 and Roseberry Plain 250
Portion number	Remaining Extent of Portion 1 of the Farm Saltberry Plain 137 and Remaining Extent of Portion 1 of the Farm Roseberry Plain 250
SG Code	» Portion 1 of the Farm Saltberry Plain 137 (F02500000000013700001) » Portion 1 of the Farm Roseberry Plain 250 (Remaining Extent) (F02500000000025000001)

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

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

The project site is currently zoned for mining.

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

Is a change of land-use or a consent use application required?

YES

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

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

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

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUND COVER

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

Natural veld - good condition ^E	Natural veld with scattered aliens^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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

5. SURFACE WATER

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

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

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

Wetland systems were identified and delineated for the project. These comprised both natural and artificial systems, with the artificial systems consisting of impoundments/dams and drainage features. The dams are located adjacent to and also within the valley bottom wetland, creating a disruption to the system. The drainage features are also numerous and are located across the catchment area. The two hydrogeomorphic (HGM) types identified for the project include an unchanneled valley bottom wetland associated with an unnamed tributary of the Leeuspruit system, and hillslope seepage areas.

Both the unchannelled valley bottom wetland and seepage wetlands overall scored Moderately Low in terms of wetland ecosystem services. Overall, the unchannelled valley bottom wetland and the seepage areas were determined to be in a critically modified (Class F) to seriously modified (Class E) state, respectively. The overall ecological importance and sensitivity of the systems was determined to be moderate. A 22m 'no-go' buffer around the identified wetland features was initially calculated assuming mitigation measures are applied. However, taking into consideration the Critically Endangered threat status of the wetlands, it is recommended that a conservative approach be opted for the wetland systems and a minimum buffer width of 30m be implemented.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

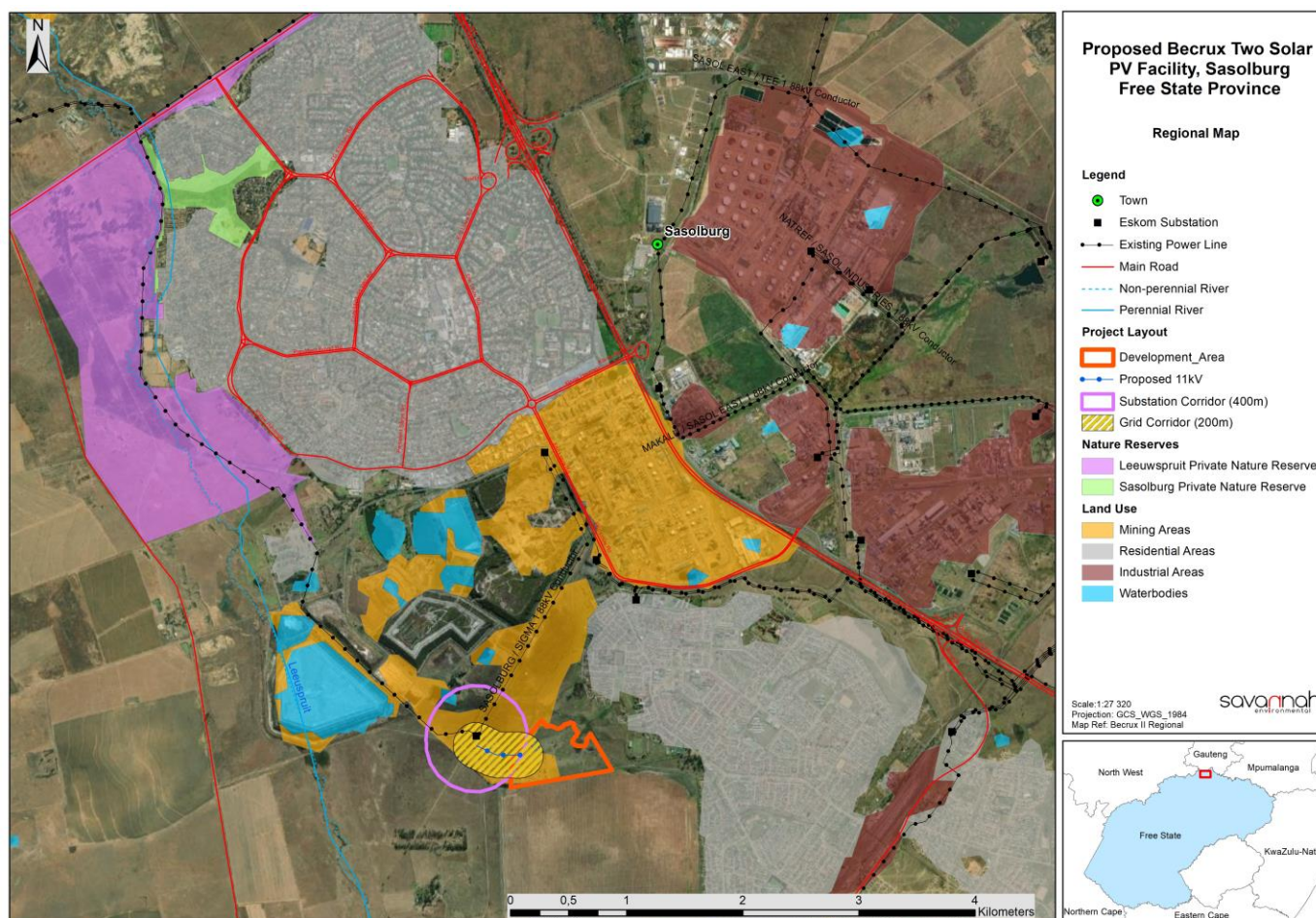


Figure 2: Map showing the land use character of the surrounding area

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

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

[Redacted]

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

[Redacted]

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

[Redacted]

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

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

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

7. CULTURAL/HISTORICAL FEATURES

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

YES	NO
Uncertain	

[Redacted]

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Briefly explain the findings of the specialist:

A Heritage Impact Assessment (refer to **Appendix D3**) was undertaken for the proposed project. A Heritage Impact Assessment is required in terms of Section 38(8) of the NNHRA. The findings of the assessment are described below:

Heritage Resources identified

No heritage resources of archaeological or palaeontological significance were identified within the development area for the Becrux Two Solar PV Energy Facility. The proposed development footprint has been disturbed by various mining and agricultural activities.

Palaeontology

According to the SAHRIS Palaeosensitivity Map (**Figure 3**), the area proposed for development is underlain by sediments of the Vryheid Formation which are regarded to be of very high and moderate palaeontological sensitivity, and could potentially preserve impression fossils of the Glossopteris flora. The site visit confirmed that there were no fossils visible on site or along the route for the grid connection.

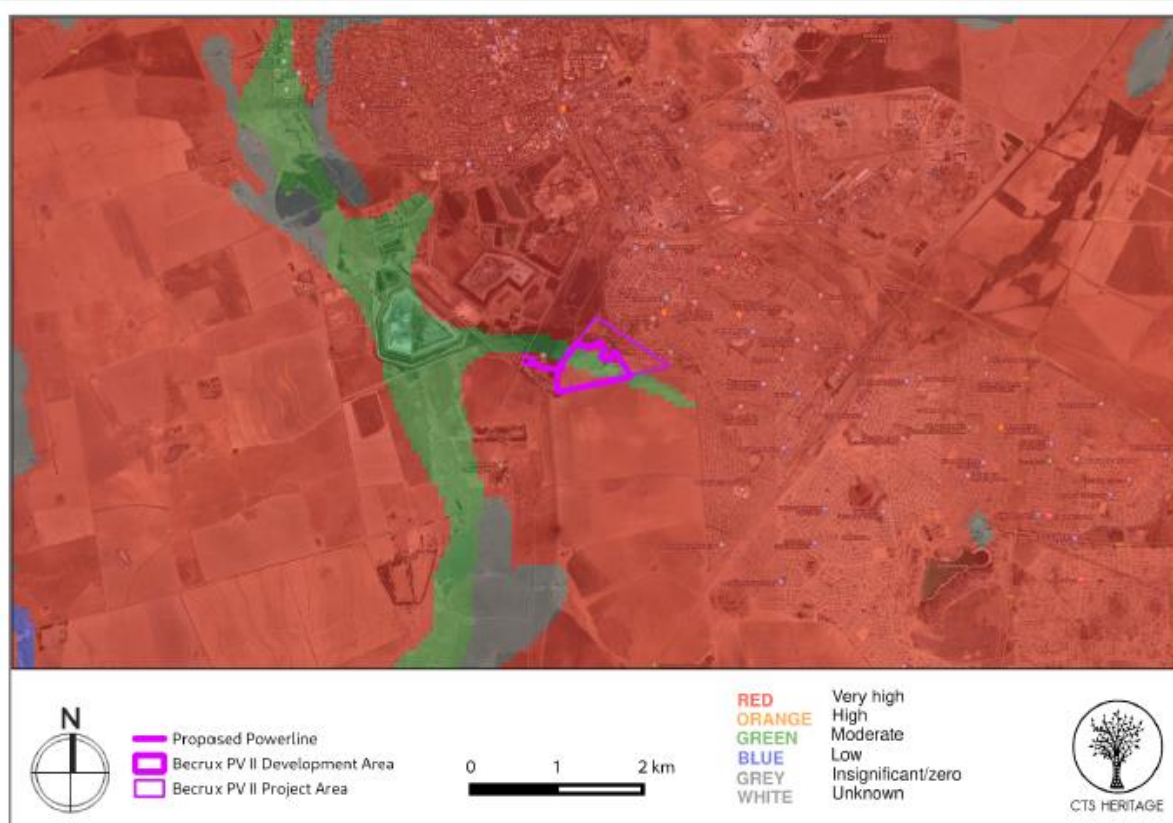


Figure 3: Palaeontological sensitivity of the area

Briefly explain the findings of the specialist:

Cultural Landscape and the Built Environment

The area proposed for development has been extensively previously disturbed through agriculture and mining infrastructure (Becrux Two Solar PV Energy Facility is proposed to be located adjacent to the Sigma Colliery).

The installation of a Solar PV Energy Facility is therefore in keeping with the broader development character of the immediate surroundings which lie on the peri-urban edge of Sasolburg and the massive Sigma coal mine nearby to the east and northwest. A number of monuments, burial grounds and significant historical structures are located within 10km of the development area; however, none, of these heritage resources are anticipated to be impacted directly or indirectly by the proposed development.

Potential Impacts

The archaeological field assessment completed did not identify any archaeological or other heritage resources of significance within the area proposed for development. As such, it is very unlikely that the proposed development will impact significant archaeological heritage. The area proposed for development is underlain by sediments of the Vryheid Formation which are regarded to be of very high and moderate palaeontological sensitivity. However, no fossils were seen on the surface during the field survey and there were no rocky outcrops that could preserve fossils. Since there is a small chance that fossils from the Vryheid Formation could occur below the surface and may be disturbed, a Fossil Chance Find Protocol has been recommended for inclusion in the project EMPr.

Cumulative Impacts

In terms of cumulative impacts, there is only one renewable energy facility within 30km of the proposed site (i.e., the 75MW Solar PV Energy Facility at the Lethabo coal-fired power station). It may also be important to note that the site is located within an area that has been disturbed by numerous mining and industrial activities, as well as residential areas.

The preferred area proposed for development is located within an area that has been previously impacted by the development of the Sigma Colliery Mine. As such, it is not anticipated that the proposed PV development will have a negative cumulative impact on the broader landscape which is already dominated by mining infrastructure and agriculture.

Recommendations and Conclusions

There is no objection to the proposed development of the proposed Becrux Two Solar PV Energy Facility and its associated infrastructure on the condition that:

- » The Chance Fossil Finds Procedure be implemented for the duration of construction activities.
- » Should any previously unrecorded archaeological and palaeontological resources or possible burials be identified during the course of construction activities, work must cease in the immediate vicinity of the find, and SAHRA must be contacted regarding an appropriate way forward.

Will any building or structure older than 60 years be affected in any way? YES NO

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

YES	NO
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If **YES**, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to the 2011 Census data, the level of unemployment in the Metsimaholo Local Municipality is 32.10%.

Economic profile of local municipality:

Table 1 provides a baseline summary of the socio-economic profile of the Metsimaholo Local Municipality within the development of the 10MW_{ac} Becrux Two Solar PV Energy Facility is proposed. To provide context against which the Local Municipality's socio-economic profile can be compared, the socio-economic profiles of the Fezile Dabi District, Free State Province, and South Africa as a whole have also been provided where applicable. The data presented in the table below have been derived from the 2011 Census, Fezile Dabi District Growth and Development Strategy (2004 -2014), Free State Provincial Growth and Development Strategy (FSPGDS) (2030), and the Metsimaholo Local Municipality Integrated Development Plan (IDP) (2020-2021).

Table 1: Baseline description of the socio-economic characteristics of the area within which the Becrux Two Solar PV Energy Facility is proposed

Population characteristics

- » Metsimaholo LM has a population of 163 564, which is about one-third of the figure in Fezile Dabi (494 777).
- » The majority of the local population belong to the Black African group and the most spoken language is Sotho.
- » 69.4% of the MLM population comprise the Economically Active Population (EAP); this implies that there is a larger human resource base for development projects to involve the local population. The dependency ration is high at 30.6% of the MLM population (that is almost a third of the local population) which puts pressure on the EAP and local municipalities.
- » The male population is slightly more prominent in the MLM; linked to the industrial character of the area.
- » The skills profile of the area indicates that the availability of local labour for the proposed project is largely limited to low-skilled construction workers and a small number of skilled workers.
- » There is a high unemployment rate in the MLM (20.3%) with a large economically active population seeking employment opportunities. Local workers should be utilised as much as possible for the proposed development in order to alleviate local unemployment.
- » The continuous increase in the number of formal households in the local area will have an upward

impact on electricity demand, thus requiring greater electrical capacity.

- » Higher unemployment and lower income levels in the study area demonstrate the need for job creation.
- » The high demand for employment can be addressed (although marginally) through direct job creation during the construction and operation phase of the proposed development.

Economic and household characteristics

- » Access to basic services is generally greater in the MLM than at provincial level demonstrating that service delivery is generally more accessible.
- » The shift of the economy from a primary to a tertiary economy is resulting in a large number of job losses and the mining sector is identified as suffering the largest losses. Metsimaholo has been earmarked as a development nodal point for the coming 20 years, which is line with the proposed development.
- » For households headed by children under 18 years, there is 167 households, which is about one-fifth of the figure in Fezile Dabi (751).
- » 15% child-headed households are informal dwellings (shack), which is about three-fifths of the rate in Fezile Dabi (24.1%)
- » 58.7% child-headed households have women as their head, which is about 1.3 times the rate in Fezile Dabi (45.27%).
- » Annual household income is R7200, which is more than double the amount in Fezile Dabi (R2 400).

Services

- » There are 59 115 households in the municipality, which is about one-third of the figure in Fezile Dabi (172,370).
- » About 12.2% households are informal dwellings.
- » 96.9% are getting water from regional or local service providers, which is a little higher than the rate in Fezile Dabi (93.29%).
- » 12.6% have no access to electricity, which is about double the rate in Fezile Dabi (6.48%).
- » 74.9% have access to flush or chemical toilets, which is about 90 percent of the rate in Fezile Dabi (82.55%).
- » 80.1% are getting refuse disposal from a local authority, private company or community members, which is about 90% of the rate in Fezile Dabi (86.5%).

Level of education:

Education characteristics

- » 72.4% of the population in the MLM has completed Grade 9 or higher, which is a little higher than the rate in Fezile Dabi (68.39%).
- » 42.4% have completed matric or higher which is about 10% percent higher than the rate in Fezile Dabi (38.86%)

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

R175 million
N/A
NO
NO

How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Up to 150
What is the expected value of the employment opportunities during the development and construction phase?	Not determined at this stage
What percentage of this will accrue to previously disadvantaged individuals?	Not determined at this stage
How many permanent new employment opportunities will be created during the operational phase of the activity?	Up to 10
What is the expected current value of the employment opportunities during the first 10 years?	Not determined at this stage
What percentage of this will accrue to previously disadvantaged individuals?	Not determined at this stage

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	N/A

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

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	10%	Natural areas which have not been directly impacted by anthropogenic activities occur on site. These natural areas are the natural wetland features and drainage features identified within the development area and grid connection corridor. This

		habitat needs to be protected and improved due to the role of this habitat as a water resource.
Near Natural (includes areas with low to moderate level of alien invasive plants)	20%	<p>The degraded grassland habitat unit is regarded as semi-natural grassland, but disturbed due to grazing by livestock and also human infringement in areas close to roads.</p> <p>Generally, this habitat unit has moderate ecological function attributed to floral communities, including the protected species. Although the habitat unit is not entirely disturbed, ongoing and historic disturbances have resulted in the plant community no longer being fully representative of the reference vegetation.</p>
Degraded (includes areas heavily invaded by alien plants)	40%	<p>The disturbed grassland habitat unit comprises areas where the grassland has been altered due to historic and/or current human activity as well as livestock pressure. This habitat is not entirely transformed but is in a constant modified state as it cannot recover to a more natural state due to ongoing disturbances and pressures imposed from the surrounding transformed areas and the current land use. This area is considered to have a low sensitivity due to the fact that it may be used as a movement corridor and in many cases forms a barrier between the more natural grassland and the transformed areas.</p>
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	30%	<p>The transformed areas are the areas which have little to no natural areas left due to being transformed by the informal housing, roads, mining practise and other infrastructure such as powerlines. Indirect impacts arise from the extensive anthropogenic presence from the current and historic land use. This habitat contributed to the high amount of alien vegetation recorded within the development area and grid connection corridor.</p>

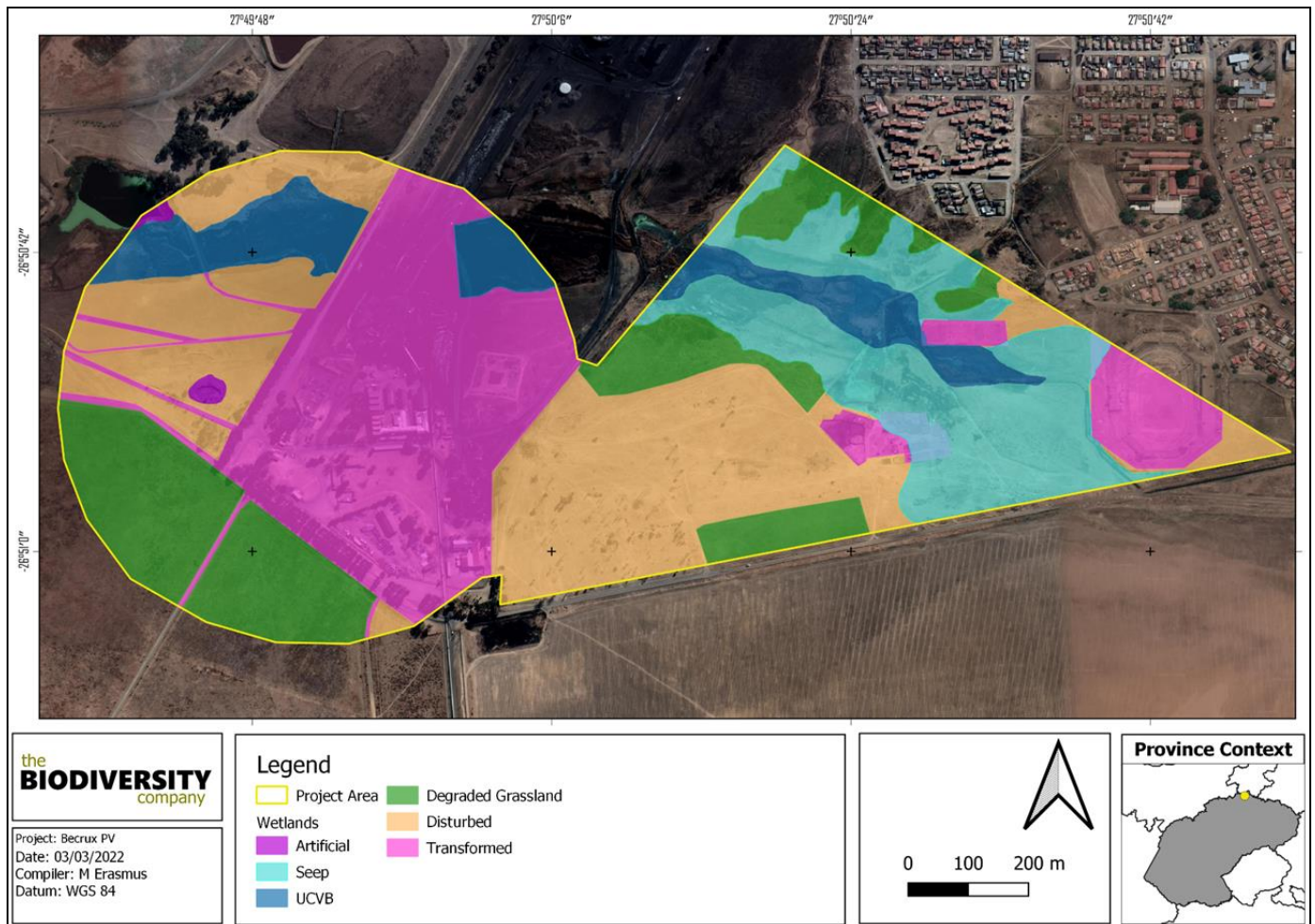


Figure 4: Habitats identified within the development area and grid connection corridor

- c) Complete the table to indicate:
- (i) the type of vegetation, including its ecosystem status, present on the site; and
 - (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
The site falls within the Central Free State vegetation type								
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and Unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES	NO	UNSURE	YES	NO	YES	NO

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Vegetation Type

The development area falls within the Central Free State Grassland vegetation type (refer to **Figure 5**).



Figure 5: Map illustrating the vegetation type associated with the development area

The Central Free State Grassland comprises undulating plains supporting short grassland, in natural conditions dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats.

Important taxa:

Important plant taxa are those species that have a high abundance, a frequent occurrence or are prominent in the landscape within a particular vegetation type (Mucina & Rutherford, 2006). The following species are important in the Central Free State Grassland vegetation type (d= dominant):

- » **Graminoids:** *Aristida adscensionis* (d), *A. congesta* (d), *Cynodon dactylon* (d), *Eragrostis chloromelas* (d), *E. curvula* (d), *E. plana* (d), *Panicum coloratum* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Tragus koelerioides* (d), *Agrostis lachnantha*, *Andropogon appendiculatus*, *Aristida bipartita*, *A. canescens*, *Cymbopogon pospischilii*, *Cynodon transvaalensis*, *Digitaria argyrograpta*, *Elionurus muticus*, *Eragrostis lehmanniana*, *E. micrantha*, *E. obtusa*, *E. racemosa*, *E. trichophora*, *Heteropogon contortus*, *Microchloa caffra*, *Setaria incrassata*, *Sporobolus discosporus*.

- » **Herbs:** *Berkheya onopordifolia* var. *onopordifolia*, *Chamaesyce inaequilatera*, *Conyza pinnata*, *Crabbea acaulis*, *Geigeria aspera* var. *aspera*, *Hermannia depressa*, *Hibiscus pusillus*, *Pseudognaphalium luteo-album*, *Salvia stenophylla*, *Selago densiflora*, *Sonchus dregeanus*.
- » **Geophytic Herbs:** *Oxalis depressa*, *Raphionacme dyeri*.
- » **Succulent Herb:** *Tripteris aghillana* var. *integrifolia*.
- » **Low Shrubs:** *Felicia muricata* (d), *Anthospermum rigidum* subsp. *Pumilum*, *Helichrysum dregeanum*, *Melolobium candicans*, *Pentzia globosa*.

Conservation Status of the Vegetation Type

The national conservation target is 24%. Only small portions enjoy statutory conservation (Willem Pretorius, Rustfontein and Koppies Dam Nature Reserves) as well as some protection in private nature reserves. The conservation status of this vegetation community was listed by Mucina and Rutherford (2006) as Vulnerable.

Wetland Ecology

Natural and artificial wetland systems were identified and delineated for the project, with the artificial systems consisting of impoundments/dams and drainage features. The two natural wetland types identified for the project include an unchannelled valley bottom wetland associated with an unnamed tributary of the Leeuspruit system, and hillslope seepage areas. The unchannelled valley bottom wetland overall scored Intermediate in terms of its wetland ecosystem services, and the seepage wetland scored Moderately Low. Overall, the unchannelled valley bottom wetland and the adjacent seepage areas were determined to be in a critically modified (class F) to seriously modified (class E) state, respectively. The overall ecological importance and sensitivity of the systems were determined to be moderate. Taking into consideration the Critically Endangered threat status of the wetlands, it is recommended that a conservative approach be opted for the wetland systems and a minimum buffer width of 30 m be implemented.



Figure 6: Wetland habitat evident on the project site

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Vaal Weekblad	
Date published	23 March 2022	
Site notice positions	Latitude	Longitude
	26°84'85.56"S	27°84'03.06"S
	26°85'01.69"S	27°83'90.47"S
	26°85'11.22"S	27°83'32.48"S
Date placed	01 March 2022	

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 a format as may be determined by the department) 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.

Include proof of the placement of the relevant advertisements and notices in Appendix E2.

Three site notices were placed on site and 8 process notices were placed at the nearest town (i.e., Sasolburg) and in the informal settlement of Zamdela on 01 March 2022. Please refer to **Appendix E2** for proof of placement of the site and process notices.

One newspaper advertisement (in English) was published in Vaal Weekblad newspaper on 23 March 2022. Please refer to **Appendix E2** for a tearsheet of the newspaper advertisement.

- (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 department.

Notification letters, inclusive of Background Information Document (BID), announcing the commencement of the BA process being undertaken and how I&APs can become involved in the BA process were distributed via e-mail to pre-identified Interested and Affected Parties (I&APs) and stakeholders on 16 March 2022. Notification letters announcing the availability of the BA Report and EMPr for a 30-day review and comment period were distributed via email on 25 March 2022. Please refer to **Appendix E4 and E5** for proof of distribution of the notification letters.

- (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 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).

An English advertisement announcing the commencement of the BA process and the availability of the BA Report and EMPr for a 30-day review and comment period was placed in the Vaal Weekblad on 23 March 2022. Please refer to **Appendix E2**.

- (e) using reasonable alternative methods, as agreed to by the department, 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.

Alternative means of undertaking consultation have been designed and implemented by Savannah Environmental to ensure that I&APs are afforded sufficient opportunity to access project information and raise comments on the project through an interactive web-based platform (i.e. online stakeholder engagement platform) readily available and accessible to any person registering their interest in the project. It ensures that the public participation process is undertaken in line with Regulations 41 to 44 of the EIA Regulations, 2014, as amended. The online stakeholder engagement platform implemented by Savannah Environmental for the project allows the EAP to visually present details regarding the project and consultation documentation, including project maps and plans, presentations and posters. It also contains the BA Report available for review. The use of an online tool enables stakeholders and I&APs to explore the project-specific content in their own time, whilst still participating in a meaningful way in the consultation process.

Virtual Focus Group Meetings with the relevant stakeholder groups (i.e., landowners, authorities, and stakeholders (including Organs of State, local municipality and official representatives of community-based organisations)) will be held during the 30-day public review and comment period due to the COVID-19 pandemic. Meeting dates are still to be confirmed and will be included within the final BA Report.

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 department 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
 - (v) the manner in which and the person to whom representations in respect of the application may be made.

Please refer to **Appendix E2** for copies of the advertisement and site notice.

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 department 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 these Regulations.

Advertisements and notices must make provision for all alternatives.

The project will not have impacts that extend beyond the municipal area within which it is situated. Vaal Weekblad, which is a local newspaper, was used to advertise the project. A description was given of the proposed project; affected property; and BA process being undertaken.

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 department to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to the identified I&APs. Virtual Focus Group Meetings with the relevant stakeholder groups (i.e., landowners, authorities, and stakeholders (including Organs of State, local municipality and official representatives of community-based organisations)) will be held during the 30-day public review and comment period. Meeting dates are still to be confirmed and will be included within the final BA Report.

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Samantha Ralston	BirdLife South Africa	The contact details of the key stakeholders have been excluded as per the requirements of the POPI Act.
Serame Motlhake	Sentech Ltd	
Zamikhaya Magogotya	South African Weather Services	
Simphiwe Masilela	Air Traffic and Navigation Services (ATNS)	
Selaelo Matlhane	South African Radio Astronomy Observatory (SARAO)	
Lizelle Stroh	South African Civil Aviation Authority	

Refer to the database attached within **Appendix E1**.

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E4 and E5. This proof may include any of the following:

- (a) e-mail delivery reports;
- (b) registered mail receipts;
- (c) courier waybills;
- (d) signed acknowledgements of receipt; and/or
- (e) or any other proof as agreed upon by the competent authority.

5. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No issues have been raised by I&APs to date. Issues raised during the 30-day public review and comment period of the draft BA Report will be included in the final BA Report and Comments and Responses Report.

6. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E8.

A Comments and Responses Report has been compiled for the project. Comments received during the 30-day review and comment period of the draft BA Report will be included in the Comments and Responses Report within the final BA Report. The Comments and Responses Report is included as **Appendix E8**.

7. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

All organs of state and/or any other applicable authorities, including their contact details, have been included in the I&AP database (refer to **Appendix E1**)

Authorities are key interested and E1affected 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 input¹⁰.

Authorities and organs of state identified as key stakeholders:

Refer to the database attached within **Appendix E1**.

Authority/Organ of State	Contact person (Title, Name and Surname)
Department of Forestry, Fisheries and the Environment	Seoka Lekota
Department of Water and Sanitation: Free State Province	Pule Lenong
Department of Agriculture and Rural Development	Nozizwe Makgalemele
Department of Mineral Resources and Energy	Mthetheleli Maphinda
Free State Provincial Heritage Resources Agency	Ntando Mbatha
Free State Department of Economic Small Business Development, Tourism and Environment	Grace Mkhosana
Free State Department of Agriculture and Rural Development	Thabita Mokone
SANRAL	Nxobile Mabaso
SAHRA	Natasha Higgitt
Eskom Holdings SOC Ltd	John Geeringh

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4 and E5.

Proof that the Authorities and Organs of State received written notification of the proposed project has been included in **Appendix E4 and E5**.

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

¹⁰ Contact details of the relevant authorities have been excluded as per the requirements of the POPI Act.

8. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

A list of registered I&APs must be included as Appendix E1.

A list of registered I&APs has been included as **Appendix E1**.

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

No correspondence for project has been received to date. Virtual Focus Group Meetings will be held during the 30-day review and comment period of the BA Report and EMPr. Copies of correspondence received, and minutes of meetings held during the 30-day review and comment period will be included in the final BA Report as **Appendix E6**.

Has any comment been received from stakeholders?

NO

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

Comments received from stakeholders during the 30-day public review and comment period of the BA Report will be included in the final BA Report, and copies of such correspondence will be attached.

SECTION D: IMPACT ASSESSMENT

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

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

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

1.1 Outcomes of the Department of Forestry, Fisheries and the Environment (DFFE) Web-Based Screening Tool

In terms of GN R960 (promulgated on 5 July 2019) and Regulation 16(1)(b)(v) of the 2014 EIA Regulations (as amended), the submission of a Screening Report generated from the national web based environmental screening tool is compulsory for the submission of applications in terms of Regulations 19 and 21 of the EIA Regulations.

The requirement for the submission of a Screening Report (**Appendix G2**) for the project is applicable as it triggers Regulation 19 of the EIA Regulations, 2014 (as amended). **Table 2** provides a summary of the specialist assessments identified in terms of the screening tool and responses to each assessment from the project team, considering the project area under consideration.

Table 2: Sensitivity ratings from the DFFE's web-based online Screening Tool associated with the development of the Solar PV Energy Facility and associated infrastructure.

Specialist Assessment	Impact	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Project Team Response
Agricultural Assessment	Impact	High	A Pedology Impact Assessment was undertaken for the project and is included as Appendix D2 . The findings of the Pedology Impact Assessment somewhat corroborate the results of the Screening Tool Report as pockets of areas of moderate to high sensitivity were identified within the development area and grid connection area. The majority of the area is however regarded to be of low to moderate sensitivity.

<p>Visual Impact Assessment</p>	<p>Very High</p>	<p>A Visual Impact Assessment has been undertaken for the Becrux Two Solar PV Energy Facility and is included in this BA Report as Appendix D4. The findings of the Visual Impact Assessment somewhat corroborate the results of the Screening Tool Report as there are numerous sensitivity visual receptors in proximity to the proposed development, namely, commuters and visitors to the region using the arterial, main and secondary roads within the study area, residents of Zamdela and residents residing at the homesteads within the development area. It is important to note that the visual amenity of the study areas has already been compromised to a large degree due to the presence of existing mining and industrial activities, and infrastructure within the region.</p>
<p>Archaeological and cultural heritage Impact assessment</p>	<p>Low</p>	<p>A Heritage Impact Assessment was undertaken for the project to comply with the NHRA's requirements and is included as Appendix D3. The Heritage Impact Assessment also considers archaeology. The findings of the assessment corroborate the results of the Screening Tool Report as no heritage and archaeological sites of significance were identified within the development area and grid connection corridor.</p>
<p>Palaeontological Impact assessment</p>	<p>Very High</p>	<p>A Heritage Impact Assessment was undertaken for the project to comply with the NHRA's requirements and is included as Appendix D3. The Heritage Impact Assessment also considers palaeontology. The findings of the assessment corroborate the results of the Screening Tool as the area proposed for development is underlain by sediments of the Vryheid Formation which are regarded to be of very high and moderate palaeontological sensitivity. It is important to note that no fossils were seen on the surface and there were no rocky outcrops that could preserve fossils. Since there is a small chance that fossils from the Vryheid Formation could occur below the surface and may be disturbed, a Fossil Chance Find Protocol has been added to this report. Taking account of the defined criteria, the potential impact to fossil heritage resources is extremely low</p>
<p>Terrestrial biodiversity Impact assessment</p>	<p>Low</p>	<p>A Terrestrial Ecology and Wetland Impact Assessment (including flora and fauna) was undertaken for the project and is included as Appendix D1. The findings of the assessment somewhat corroborate the results of the Screening Tool Report as the site comprises degraded and disturbed grassland habitats and transformed areas regarded to be of Very Low to Medium sensitivity.</p>
<p>Aquatic biodiversity Impact assessment</p>	<p>Low</p>	<p>A Terrestrial Ecology and Wetland Impact Assessment was undertaken for the project and is included as Appendix D1. The findings of the assessment dispute the results of the Screening Tool Report as wetland and drainage features were identified within the development area. These features are regarded to be of high sensitivity, and a 30m buffer has been recommended around the wetland features.</p>

Avian Impact assessment	Low	The Terrestrial Ecology and Wetland Impact Assessment included an avifauna component. Fifty-one (51) bird species were recorded during the survey of the development area and grid connection corridor. None of the identified species are regarded to be of conservation concern.
Civil Aviation Assessment	Medium	A Civil Aviation Assessment was not deemed necessary for the proposed development of the 10MW _{ac} Becrux Two Solar PV Energy Facility since there is a low potential for negative impacts on the civil aviation installation given the sensitivity rating. The Civil Aviation Authority will be consulted during the BA process and any specific requirements will be addressed by Becrux Solar PV Project Two (Pty) Ltd.
Defence Assessment	Low	As per GNR 320 (of 20 March 2020), no Defence Assessment is required where a low sensitivity is determined.
Radio Frequency Interference (RFI) Assessment	Medium	The project is not located within any sensitive regions in terms of RFI and therefore, no study is deemed necessary. Comments from the South African Radio Astronomy Observatory (SARAO) and Sentech will however be requested during the assessment process, to determine the requirement for further study.
Socio-economic Assessment	The Screening Report did not include a rating for this theme	A Social Impact Assessment has been undertaken for the Becrux Two Solar PV Energy Facility and is included in the BA Report as Appendix D5 .
Plant species assessment	Medium	A Terrestrial Ecology and Wetland Impact Assessment was undertaken for the project and is included as Appendix D1 . The findings of the assessment somewhat corroborate the results of the Screening Tool Report as two red data plant species listed under the Red List of South African plants (SANBI, 2017) were identified frequently within the development area and grid connection corridor, namely, <i>Helichrysum rugulosum</i> and <i>Helichrysum nudifolium</i> . Amphibian and mammal species were also identified and none of these are regarded to be of conservation concern.
Animal species assessment	High	

1.2 Assessment of Issues Identified through the BA Process (Direct and Indirect)

Issues that required investigation during the BA process and the specialist consultants involved in the assessment of these impacts are indicated in **Table 3** below.

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

Table 3: Specialist studies undertaken as part of the BA process

Specialist Study	Specialist Company	Specialist Name	Appendix
Terrestrial Ecology and Wetland Impact Assessment	The Biodiversity Company	Lindi Steyn Marnus Erasmus Andrew Husted	Appendix D1
Pedology Impact Assessment	The Biodiversity Company	Andrew Husted Ivan Baker	Appendix D2

			Michael Douglas	
Heritage Assessment	Impact	CTS Heritage	Jenna Lavin Nicholas Wiltshire	Appendix D3
Visual Assessments	Impact	LOGIS	Lourens du Plessis	Appendix D4
Social Assessment	Impact	Savannah Environmental	Nodumiso Bulunga	Appendix D5

Specialist studies considered direct and indirect environmental impacts associated with the development of all components of the facility. Identified impacts are assessed in terms of the following criteria:

- » The **nature**, a description of what causes the effect, what will be affected, and how it will be affected.
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. a score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high).
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1.
 - * The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2.
 - * Medium-term (5–15 years) – assigned a score of 3.
 - * Long-term (> 15 years) - assigned a score of 4.
 - * Permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
 - * 0 is small and will have no effect on the environment.
 - * 2 is minor and will not result in an impact on processes.
 - * 4 is low and will cause a slight impact on processes.
 - * 6 is moderate and will result in processes continuing but in a modified way.
 - * 8 is high (processes are altered to the extent that they temporarily cease).
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
 - * 1–5, where 1 is very improbable (probably will not happen).
 - * 2 is improbable (some possibility, but low likelihood.)
 - * 3 is probable (distinct possibility).
 - * 4 is highly probable (most likely).
 - * 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- » The **status**, which is described as either positive, negative or neutral.
- » The degree to which the impact can be reversed.
- » The degree to which the impact may cause irreplaceable loss of resources.
- » The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$$S = (E+D+M) P; \text{ where}$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- » **30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- » **60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area).

Specialist studies also considered cumulative impacts associated with similar developments within a 30km radius of the proposed project. The purpose of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e. whether the addition of the proposed project in the area will increase the impact). In this regard, specialist studies considered whether the construction of the project will result in:

- » Unacceptable risk
- » Unacceptable loss.
- » Complete or whole-scale changes to the environment or sense of place.
- » Unacceptable increase in impact.
- » A conclusion regarding whether the project will result in any unacceptable loss or impact considering all the projects proposed in the area is included in the respective specialist reports.

As Becrux Solar PV Project Two (Pty) Ltd has the responsibility to avoid or minimise impacts and plan for their management (in terms of the requirements of NEMA and the 2014 EIA Regulations (GNR 326)), the mitigation of significant impacts is discussed. Assessment of impacts with mitigation is made, to demonstrate the effectiveness of the proposed mitigation measures. An EMPr that includes all the mitigation measures recommended by the specialists for the management of significant impacts is included as **Appendix F** to this BA Report.

1.3 Assessment of Cumulative Impacts

The project may have effects (positive and negative) on natural resources; the social environment; and on the people living in the project area.

This section includes an assessment of the potential for the impacts associated with the project to become more significant when considered in combination with other known or proposed solar power generation developments in the area. This assessment is based on information currently available and considers impacts

from similar solar power generation developments in the vicinity of the proposed project. The following potential cumulative impacts are considered on:

- » Terrestrial Ecology (including fauna and flora).
- » Avifauna.
- » Freshwater resources (i.e., wetlands and drainage features).
- » Soil, land capability and agricultural potential.
- » Heritage resources (including archaeology and palaeontology).
- » Visual impacts.
- » Social impacts.

Figure 7 indicates the location of the project in relation to all known solar power generation developments located within a radius of 30km. These developments were identified using DFFE screening tool report; and information available in the public domain at the time of this assessment.

It should be noted that not all the solar facilities presently under consideration by various developers will be built for operation. Not all proposed developments will be granted the relevant permits by the relevant authorities (DFFE, DMRE, NERSA) due to the following reasons:

- » There may be limitations to the capacity of the existing or future Eskom grid.
- » Not all applications will receive a positive EA.
- » Where projects are to be developed as part of the national energy mix, stringent requirements must be met by applicants in terms of the Renewable Energy Independent Power Producer Procurement (REIPPP) Programme and a highly competitive process that only selects the most competitive projects.
- » Not all proposed PV facilities will be able to reduce the associated negative impacts to acceptable levels or mitigate the impacts to acceptable levels (fatally flawed).
- » Not all proposed facilities will eventually be granted a generation license by NERSA and sign a Power Purchase Agreement with Eskom.
- » Not all developers will be successful in securing financial support to advance their projects further.

In terms of cumulative impacts, there is only one renewable energy facility within 30km of the proposed site. It may also be important to note that the site is located within an area that has been disturbed by numerous mining and industrial activities, as well as residential areas. As such, it is not anticipated that the proposed PV development will have a negative cumulative impact on the broader landscape which is already dominated by mining infrastructure and agriculture. In terms of renewable development activities which can have an industrial feel, it is recommended that such infrastructure be grouped or clustered to avoid sprawl across natural landscapes.

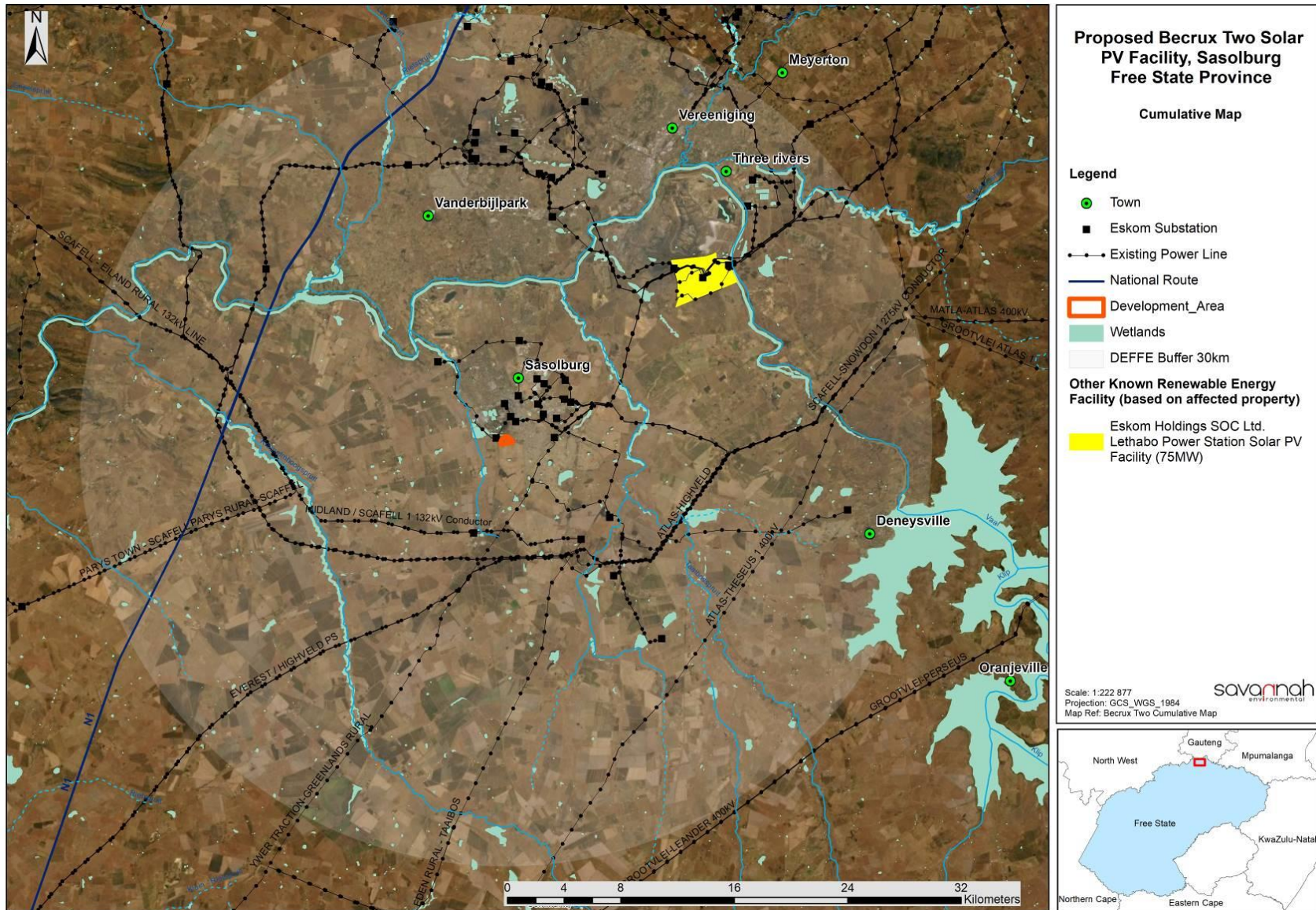


Figure 7: Cumulative map indicating the location of one other solar energy development within 30km of the development area

1.4. Assessment of Impacts on Terrestrial Ecology (Direct, Indirect and Cumulative)

Potential impacts on biodiversity resulting from the project would stem from a variety of different activities and risk factors associated with the project's pre-construction, construction and operation phases. Potential impacts; their relative significance; and the recommended mitigation measures are summarised below (refer to **Appendix D1** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION, OPERATION AND DECOMMISSIONING				
Construction, operation and decommissioning of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation and access roads	Direct impacts: » Destruction, further loss and fragmentation of the habitats, ecosystems and vegetation community, including protected species.	High (64)	Low (15)	<ul style="list-style-type: none"> » Areas rated as High sensitivity and their buffers in proximity to the development areas should be avoided as much as is feasible. Avoided areas must be declared as 'no-go' areas during the life of the project, and all efforts must be made to prevent access to these areas from construction workers and machinery. The infrastructure should be realigned to prioritise development within very low/ low sensitivity areas. Mitigated development in medium sensitivity areas is permissible. » Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted to within the low/medium sensitivity areas. No further loss of very high sensitivity areas should be permitted. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. » Existing access routes, especially roads must be made use of. » All laydown, chemical toilets etc. should be restricted to medium sensitivity areas. Any materials may not be
	» Degradation and loss of surrounding natural vegetation arising from construction activities and dust precipitation.	Medium (56)	Low (12)	
	» Loss of protected plant species.	High (64)	Low (10)	
	» Displacement of faunal community due to habitat loss, direct mortalities and disturbance.	Medium (48)	Low (10)	
	» Continued fragmentation and degradation of habitats and ecosystems during the operational phase	Medium (52)	Low (10)	
	» Spread of alien and/or invasive species.	Medium (56)	Low (10)	
	» Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise,	Medium (39)	Low (12)	

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
	<p>light, dust, vibration) during the operation phase.</p> <p>» Continued fragmentation and degradation of habitats during decommissioning.</p>	<p>Medium (60)</p>	<p>Low (5)</p>	<p>stored for extended periods of time and must be removed from the project area once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials where possible. No storage of vehicles or equipment will be allowed outside of the designated project areas.</p> <p>» A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment. Construction activities and vehicles could cause spillages of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the project area.</p> <p>» It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the</p>

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<p>illegal collection of plants.</p> <ul style="list-style-type: none"> » A fire management plan needs to be complied and implemented to restrict the impact fire might have on the surrounding areas. » Any individual of the protected plants that are present needs a relocation or destruction permit in order for any individual that may be removed or destroyed due to the development. High visibility flags must be placed near any protected plants in order to avoid any damage or destruction of the species. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. Infrastructure, development areas and routes where protected plants cannot be avoided, these plants many being geophytes or small succulents should be removed from the soil and relocated/ re-planted in similar habitats where they should be able to resprout and flourish again. All protected and red-data plants should be relocated, and as many other geophytic species as possible. If the plants cannot be relocated seed must be collected and utilised as part of the rehabilitation process. » Environmentally friendly dust suppressants must be utilised. » The duration of construction phase should be kept to a minimum and must take place as much is feasible in the winter to avoid disturbing avifauna. » A qualified Environmental Control Officer must be on site when construction begins. A site walk through is recommended by a suitably qualified ecologist prior to any construction activities, preferably during the wet season and any SSC should be noted. In situations where the threatened and protected plants must be removed, the proponent may only do so after the required permission/permits have been obtained in accordance

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<p>with national and provincial legislation. In the abovementioned situation the development of a search, rescue and recovery program is suggested for the protection of these species. Should animals not move out of the area on their own, relevant specialists must be contacted to advise on how the species can be relocated.</p> <ul style="list-style-type: none"> » The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments. » The duration of the construction phase should be minimized to as short term as possible, to reduce the period of disturbance on fauna. » Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals. » No trapping, killing, or poisoning of any wildlife is to be allowed. » Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (green/red) lights should be used wherever possible. » All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. » All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<p>Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken.</p> <ul style="list-style-type: none"> » Any holes/deep excavations must be dug and planned in a progressive manner and shouldn't be left open overnight unless appropriate demarcation is in place. Should the holes be left open overnight, they must be covered temporarily to ensure no small fauna species fall in. » Ensure that cables and connections are insulated successfully to reduce electrocution risk and preferably buried. » Infrastructure should be consolidated where possible in order to minimise the amount of ground and air space used. » All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements the Environmental Authorisation and within the EMPr. The avoidance and protection of the wetland areas must be included into a site induction. Contractors and employees must all undergo the induction and made aware of the "no-go" areas to be avoided. » Areas that are denuded during construction need to be re-vegetated with indigenous vegetation where possible to prevent erosion during flood and wind events. This will also reduce the likelihood of encroachment by alien invasive plant species. All livestock must always be kept out of the project area, especially areas that have been

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<p>recently re-planted.</p> <ul style="list-style-type: none"> » Compilation of and implementation of an alien vegetation management plan. » The footprint area should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprint of the roads must be kept to prescribed widths. » Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. » A pest control plan must be put in place and implemented; it is imperative that poisons not be used due to the likely presence of SCCs » Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces. No non environmentally friendly suppressants may be used as this could result in pollution of water sources. » Speed limits must be put in place to reduce erosion. Reduce dust generated by earth moving machinery through wetting the soil surface and putting up speed limit signs as well as speed bumps built to force slow speeds. » A stormwater management plan must be compiled and implemented. » Implementation of a rehabilitation plan. » Implementation of an alien invasive management plan and monitoring on an annual basis for 3 years post construction. » There should be follow-up rehabilitation and revegetation of any remaining bare areas with indigenous flora including seeds of the SCCs found on

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				site. » Dust management needs to be undertaken in the areas where the infrastructure will be removed. This includes wetting of the soil. This area must be rehabilitated as soon as possible. » All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed outside of the decommissioning area. » All vehicles (construction or other) accessing the site should adhere to a low-speed limit on site (40 km/h max) to avoid collisions with susceptible avifauna, such as nocturnal and crepuscular species (e.g. nightjars and owls) which sometimes forage or rest on roads, especially at night. » The area must be walked through prior to decommissioning to ensure fauna species are not affected by the removal of the infrastructure.
	Indirect impacts: » None			
	Cumulative impacts: » The development of the proposed infrastructure will contribute to cumulative habitat loss, especially in the ecological corridors like the wetland and thereby impact the water resource and ecological processes in the region.	Low (27) - Overall impact of the proposed project considered in isolation	Medium (33) - Cumulative impact of the project and other projects in the area	» Should the vegetation be removed, the impact cannot be mitigated.

1.5. Assessment of Impacts on Avifauna (Direct, Indirect and Cumulative)

Potential impacts on avifauna and the relative significance of the impacts associated with the construction, operation and decommissioning of the project are summarised below (refer to **Appendix D1** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION, OPERATION AND DECOMMISSIONING				
Construction, operation and decommissioning of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, and the containerised/non-containerised substation	Direct impacts: » Collection of eggs, nest destruction and poaching.	Medium (60)	Low (16)	<ul style="list-style-type: none"> » All personnel should undergo environmental induction with regards to avifauna and in particular awareness about not harming, collecting or hunting terrestrial species (e.g. guineafowl, francolin), and owls, which are often persecuted out of superstition. » Signs must be put up stating that should any person be found poaching any species they will be fined. » Construction must take place in the winter months as much is feasible. » Ensure that cables and connections are insulated successfully to reduce electrocution risk and preferably buried. » Monitoring of the OHL route must be undertaken to detect bird carcasses, to enable the identification of any potential areas of high impact to be marked with bird flappers if not already done so. Monitoring should be undertaken at least once a month for the first year of operation. » The design of the proposed PV must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa. » All the parts of the infrastructure must be nest proofed and anti-perch devices placed on areas that can lead to electrocution.
	» Collisions with PV panels, associated powerlines and connection lines and fences.	High (64)	Medium (42)	
	» Electrocution by solar plant connections and powerline during the operational phase.	High (64)	Low (28)	
	» Electrocution by solar plant connections and powerline during the decommissioning phase.	High (64)	Low (28)	

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<ul style="list-style-type: none"> » Fencing mitigations: <ul style="list-style-type: none"> * Top 2 strands must be smooth wire * Routinely retention loose wires * Minimum 30cm between wires * Place markers on fences » White strips should be placed along the edges of the panels, to reduce similarity to water and deter birds and insects. Consider the use of bird deterrent devices to limit collision risk. » Infrastructure should be consolidated where possible in order to minimise the amount of ground and air space used. This would involve using existing/approved pylons and associated infrastructure for the 11kV lines. » If any powerlines/connection lines from existing lines to the facility are to be placed above ground, they must be marked with industry-standard bird flight diverters. » Ensure that monitoring is sufficiently frequent (preferably monthly) to detect electrocutions reliably and that any areas where electrocutions occurred are repaired as soon as possible. » During the first year of operation, quarterly reports summarizing interim findings should be compiled by the developer and submitted to BirdLife South Africa. If the findings indicate that electrocutions have not occurred or are minimal with no red-listed species, an annual report can be submitted.
	Indirect impacts: » None			
	Cumulative impacts: » None			

1.6. Assessment of Impacts on Aquatic Features (Direct, Indirect and Cumulative)

Potential impacts on aquatic features and the relative significance of the impacts associated with the construction, operation and decommissioning of the project are summarised below (refer to **Appendix D1** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION, OPERATION AND DECOMMISSIONING				
Construction, operation and decommissioning of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation, and access roads	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Destruction, further loss and fragmentation of the habitats, ecosystems and vegetation community during the construction phase. 	High (64)	Low (15)	<ul style="list-style-type: none"> » Demarcate and avoid all wetlands and the associated 30 m buffer area. » Clearly demarcate the construction footprint and restrict all construction activities to within the proposed infrastructure area. » When clearing vegetation, allow for some vegetation cover as opposed to bare areas. » Minimize the disturbance footprint and the unnecessary clearing of vegetation outside of this area. » Use the wetland shapefiles to signpost the edge of the wetlands closest to site. Place the sign 30 m from the edge (this is the buffer zone). Label these areas as environmentally sensitive areas, keep out. » Educate staff and relevant contractors on the location and importance of the identified wetlands through toolbox talks and by including them in site inductions as well as the overall master plan.
	<ul style="list-style-type: none"> » Continued fragmentation and degradation of habitats and ecosystems during the operation phase. 	Medium (52)	Low (10)	<ul style="list-style-type: none"> » Promptly remove / control all alien and invasive plant species that may emerge during construction (i.e.

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
	<p>» Continued fragmentation and degradation of habitats during the decommissioning phase.</p>	<p>Medium (60)</p>	<p>Low (5)</p>	<p>weedy annuals and other alien forbs).</p> <ul style="list-style-type: none"> » All alien vegetation along the transmission line servitude should be managed in terms of Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. » Landscape and re-vegetate all denuded areas as soon as possible. » Limit construction activities near (< 50m) the wetlands to winter where possible when rain is least likely to wash concrete and sand into the wetland. Activities in hydromorphic soils can become messy during the height of the rainy season and construction activities should be minimised during these times to minimise unnecessary soil disturbances. » Ensure soil stockpiles and concrete / building sand are sufficiently safeguarded against rain wash. » Make sure all excess consumables and building materials / rubble is removed from site and deposited at an appropriate waste facility. » Appropriately stockpile topsoil cleared from the project area. » Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking and entering the wetlands. » Design and implement an effective stormwater management plan. » Promote water infiltration into the ground beneath the solar panels. » Release only clean water into the environment. » Stormwater leaving the site should not be concentrated in a single exit drain but spread across multiple drains around the site each fitted with energy dissipaters (e.g. slabs of concrete with rocks cemented in).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
				<ul style="list-style-type: none"> » Regularly clear drains. » Minimise the extent of concreted / paved / gravel areas. » A covering of soil and grass (regularly cut and maintained) below the solar panels is ideal for infiltration. If not feasible then gravel is preferable over concrete or paving. » Avoid excessively compacting the ground beneath the solar panels. » Where possible, minimise the use surfactants to clean solar panels and herbicides to control vegetation beneath the panels. If surfactants and herbicides must be used do so well prior to any significant predicted rainfall events. » Develop and implement a rehabilitation and closure plan. » Appropriately rehabilitate the project area by ripping, landscaping and re-vegetating with locally indigenous species
	<p>Indirect impacts: » None</p>			
	<p>Cumulative impacts: » The development of the proposed infrastructure will contribute to cumulative habitat loss, especially in the ecological corridors like the wetland and thereby impact the water resource and ecological processes in the region.</p>	<p>Low (27) - Overall impact of the proposed project considered in isolation</p>	<p>Medium (33) - Cumulative impact of the project and other projects in the area</p>	<p>Should the vegetation be removed, the impact cannot be mitigated.</p>

1.7. Assessment of Impacts on Soils, Land Capability and Agricultural Potential (Direct, Indirect and Cumulative)

Potential impacts on soils, land capability and agricultural potential and the relative significance of the impacts associated with the construction and operation of the project are summarised below (refer to **Appendix D2** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION AND OPERATION				
Construction and operation of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation, and access roads	Direct impacts: » Loss of land capability associated with the construction of the PV Facility.	Medium (60)	Medium (48)	<ul style="list-style-type: none"> » The establishment of large concrete areas should be avoided as far as possible. » Develop and implement a rehabilitation management and monitoring plan from the onset of construction. » Demarcate all access routes. » Vegetate or cover all stockpiles after stripping/removing soils. » Storage of potential contaminants should be undertaken in bunded areas. » All contractors must have spill kits available and be trained in the correct use thereof. » All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good "housekeeping". » No cleaning or servicing of vehicles, machines and equipment may be undertaken in water resources. » Have action plans on site, and training for contractors and employees in the event of spills, leaks and other impacts to the aquatic systems. » Continuously monitor erosion on site. » Monitor compaction on site.
	» Loss of land capability associated with the operation of the PV Facility.	Low (24)	Low (18)	
	» Loss of land capability associated with the construction of the overhead power line.	Low (24)	Low (12)	
	» Loss of land capability associated with the operation of the overhead power line.	Low (14)	Low (7)	
	» Loss of land capability associated with the construction of substation.	Medium (60)	Medium (48)	
	» Loss of land capability associated with the operation of the substation.	Low (24)	Low (18)	
	Indirect impacts:			

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
	» None Cumulative impacts: » Loss of land capability	Low (18) - Overall impact of the proposed project considered in isolation	Low (18) - Cumulative impact of the project and other projects in the area	<ul style="list-style-type: none"> » The establishment of large concrete areas should be avoided as far as possible. » Develop and implement a rehabilitation management and monitoring plan from the onset of construction. » Demarcate all access routes. » Vegetate or cover all stockpiles after stripping/removing soils. » Storage of potential contaminants should be undertaken in bunded areas. » All contractors must have spill kits available and be trained in the correct use thereof. » All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good "housekeeping". » No cleaning or servicing of vehicles, machines and equipment may be undertaken in water resources. » Have action plans on site, and training for contractors and employees in the event of spills, leaks and other impacts to the aquatic systems. » Continuously monitor erosion on site. » Monitor compaction on site.

1.8. Assessment of Impacts on Heritage Resources (including Archaeology and Palaeontology) (Direct, Indirect and Cumulative)

Potential impacts on heritage resources and the relative significance of the impacts associated with the construction of the project are summarised below (refer to **Appendix D3** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION				
Construction of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation, and access roads	Direct impacts: » It is possible that buried archaeological resources may be impacted by the proposed development in the preferred location. » It is possible that buried palaeontological resources may be impacted by the proposed development in the preferred location.	Low (7)	Low (7)	» Should any previously unrecorded archaeological and palaeontological resources or possible burials be identified during the course of construction activities, work must cease in the immediate vicinity of the find, and SAHRA must be contacted regarding an appropriate way forward. » The Chance Fossil Finds Procedure must be implemented for the duration of construction activities.
	Indirect impacts: » None			
	Cumulative impacts: » Cumulative Impact to the sense of place and known archaeological resources.	Low (16) - Overall impact of the proposed project considered in isolation	Medium (30) - Cumulative impact of the project and other projects in the area	» None.

1.9. Assessment of Visual Impacts (including Archaeology and Palaeontology) (Direct, Indirect and Cumulative)

Potential visual impacts and the relative significance of the impacts associated with the construction, operation and decommissioning of the project are summarised below (refer to **Appendix D4** for more details).

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
Alternative 1 (preferred alternative)				
CONSTRUCTION, OPERATION AND DECOMMISSIONING				
Construction, operation and decommissioning of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation, and access roads	Direct impacts: » Visual impact of construction activities on sensitive visual receptors in close proximity to the proposed PV facility.	Medium (48)	Medium (30)	<ul style="list-style-type: none"> » 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. » Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas), wherever possible. » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Rehabilitate all disturbed areas (if present/if required) immediately after the completion of construction works. » Consult adjacent landowners (if present) in order to inform them of the development and to identify any
	» Visual impact on residents at homesteads within a 1km radius of the PV facility structures during the operation phase.	High (64)	Medium (42)	
	» Visual impact on observers travelling along the roads and residents at homesteads within a 1 – 3km radius of the PV facility structures.	Medium (45)	Medium (39)	
	» Visual impact of lighting at night on sensitive visual receptors in close proximity to the proposed PV facility.	Medium (48)	Low (28)	

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
	<ul style="list-style-type: none"> » The visual impact of solar glint and glare as a visual distraction and possible air/road travel hazard 	Low (24)	N/A - No mitigation of this impact is required since the PV facility is not expected to interfere with aircraft operations or impact the safety of road users.	<p>(valid) visual impact concerns.</p> <ul style="list-style-type: none"> » Maintain the general appearance of the facility as a whole. » Remove infrastructure not required for post-decommissioning use. » Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications. » Shield the sources of light by physical barriers (walls, vegetation, or the structure itself), where possible. » Limit mounting heights of lighting fixtures, or alternatively use foot-lights or bollard level lights.
	<ul style="list-style-type: none"> » The visual impact of solar glint and glare on residents of homesteads in closer proximity to the PV facility. 	Medium (42)	Low (24)	<ul style="list-style-type: none"> » Make use of minimum lumen or wattage in fixtures. » Make use of down-lighters or shielded fixtures. » Make use of Low Pressure Sodium lighting or other types of low impact lighting. » Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness until the lighting is required for security or maintenance purposes.
	<ul style="list-style-type: none"> » Visual impact of the ancillary infrastructure during the operation phase on observers in close proximity to the structures. 	Low (24)	Low (24) – The impact cannot be mitigated. only best practise measures can be implemented.	<ul style="list-style-type: none"> » If specific sensitive visual receptors are identified during operation, investigate screening at the receptor site, where possible.
	<ul style="list-style-type: none"> » The potential impact on the sense of place of the region. 	Low (20)	Low (20) - The impact cannot be mitigated. only best practise measures can be implemented	
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » None 			

Activity	Impact summary	Significance (without mitigation)	Significance (with mitigation)	Proposed mitigation
	<p>Cumulative impacts:</p> <p>» The potential cumulative visual impact of the PV facility on the visual quality of the landscape.</p>	<p>Medium (42) - Overall impact of the proposed project considered in isolation</p>	<p>Low (10) - Cumulative impact of the project and other projects in the area</p>	<ul style="list-style-type: none"> » Retain/re-establish and maintain natural vegetation (if present) immediately adjacent to the development footprint where possible. » Maintain the general appearance of the facility as a whole. » Remove infrastructure not required for the post-decommissioning use. » Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications.

1.10. Assessment of Social Impacts (including Archaeology and Palaeontology) (Direct, Indirect and Cumulative)

Potential social impacts and the relative significance of the impacts associated with the construction, operation and decommissioning of the project are summarised below (refer to **Appendix D5** for more details).

Activity	Impact summary	Significance (without mitigation/enhancement)	Significance (with mitigation/enhancement)	Proposed mitigation/enhancement
Alternative 1 (preferred alternative)				
CONSTRUCTION, OPERATION AND DECOMMISSIONING				
Construction, operation and decommissioning of the Solar PV Energy Facility and its associated infrastructure, including the overhead power line, containerised/non-containerised substation, and access roads	<p>Direct impacts:</p> <p>» The creation of employment opportunities and skills development opportunities during the construction phase for the country and local economy.</p>	Low Positive (20)	Medium Positive (55)	<p>» It is recommended that a local employment policy be adopted to maximise the opportunities made available to the local labour force.</p> <p>» Becrux Solar PV Project Two (Pty) Ltd should make it a requirement for contractors to implement a 'locals first' policy, especially for semi and low skilled job categories.</p> <p>» Enhance employment opportunities for the immediate local area, i.e., Metsimaholo Local Municipality. If this is not possible, then the broader focus areas should be considered for sourcing workers.</p> <p>» Consideration must be given to women during the recruitment process.</p> <p>» It is recommended that realistic local recruitment targets be set for the construction phase.</p> <p>» Training and skills development programmes should be initiated prior to the commencement of the construction phase.</p> <p>» Becrux Solar PV Project Two (Pty) Ltd should develop a database of local companies,</p>
	<p>» Significance of the impact from the economic multiplier effects from the use of local goods and services.</p>	Medium Positive (36)	Medium Positive (60)	
	<p>» Temporary increase in safety and security concerns associated with the influx of people during the construction phase.</p>	Low Negative (27)	Low Negative (16)	

Activity	Impact summary	Significance (without mitigation/enhancement)	Significance (with mitigation/enhancement)	Proposed mitigation/enhancement
	» Temporary increase in traffic disruptions and movement patterns during the construction phase.	Medium Negative (40)	Low Negative (16)	<p>specifically Historically Disadvantaged (HD) companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work where applicable.</p> <p>» Engage with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers, where feasible.</p> <p>» Access in and out of the construction area should be strictly controlled by a security company.</p> <p>» The appointed EPC contractor must appoint a security company and appropriate security procedures are to be implemented to limit access to the site and surrounding areas.</p> <p>» The contractor must ensure that open fires on the site for heating, smoking or cooking are not allowed except in designated areas.</p> <p>» The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.</p> <p>» Have clear rules and regulations for access to the proposed site to control loitering.</p> <p>» A comprehensive employee induction programme would cover land access protocols, fire management and road safety must be prepared.</p> <p>» A Community Liaison Officer should be</p>
» Added pressure on economic and social infrastructure during construction as a result of in-migration of people.	Medium Negative (30)	Low Negative (16)		
» Nuisance impacts in terms of temporary increase in noise and dust, and the wear and tear on private farm roads for access to the site.	Medium Negative (44)	Low Negative (18)		
» The creation of employment opportunities and skills development opportunities during the operation phase for the country and local economy.	Medium Positive (33)	Medium Positive (44)		
» Development of clean, renewable energy infrastructure.	Medium Positive (48)	Medium Positive (48)		

Activity	Impact summary	Significance (without mitigation/enhancement)	Significance (with mitigation/enhancement)	Proposed mitigation/enhancement
	<p>» Visual impacts and sense of place impacts associated with the operation phase of the project.</p>	<p>Low Negative (18)</p>	<p>N.A. – Mitigation not possible.</p>	<p>appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.</p> <ul style="list-style-type: none"> » All vehicles must be road worthy, and drivers must be qualified, obey traffic rules, follow speed limits and be made aware of the potential road safety issues. » Heavy vehicles should be inspected regularly to ensure their road safety worthiness. » Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules. » Avoid heavy vehicle activity during 'peak' hours (when people are driving to and from work). » The developer and engineering, procurement and construction (EPC) contractors must ensure that any damage / wear and tear caused by construction related traffic to the roads is repaired. » Becrux Solar PV Project Two (Pty) Ltd should liaise with the MLM to address potential impacts on local services. » The movement of construction vehicles on the site should be confined to agreed access road/s. » The movement of heavy vehicles associated with the construction phase should be timed (where possible) to avoid times days of the week, such as weekends, when the volume of traffic travelling along the access roads may be higher. » Dust suppression measures should be implemented, such as wetting on a regular basis and ensuring that vehicles used to

Activity	Impact summary	Significance (without mitigation/enhancement)	Significance (with mitigation/enhancement)	Proposed mitigation/enhancement
				transport sand and building materials are fitted with tarpaulins or covers. » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible » The developer should establish vocational training programs for the local employees to promote the development of skills.
	Indirect impacts: » None			
	Cumulative impacts: » An increase in employment opportunities, skills development and business opportunities with the establishment of more than one solar energy facility.	Medium (33) - Overall impact of the proposed project considered in isolation	Medium (52) - Cumulative impact of the project and other projects in the area	» The establishment of a number of solar energy facilities in the area does have the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted and local services providers are utilised by the developers to maximise the project opportunities available to the local community.
	» Negative impacts and change to the local economy with an in-migration of labourers, businesses and jobseekers to the area.	Low (7) - Overall impact of the proposed project considered in isolation	Low (22) - Cumulative impact of the project and other projects in the area	» Develop a recruitment policy / process (to be implemented by contractors), which will ensure the sourcing of labour locally, where available. » Work together with government agencies to ensure that service provision is in line with the development needs of the local area. » Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services. » Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative A (preferred Site)

A technically viable site for the project was proposed by Becrux Solar PV Project Two (Pty) Ltd and assessed as part of the BA process. The environmental assessment of the development area (including the development footprint) was undertaken by independent specialists and their findings have informed the results of this BA Report.

The specialist findings have indicated that there are no identified environmental fatal flaws associated with the project's implementation. High sensitivity freshwater features (i.e., wetlands and their associated 30m buffer zones), which are regarded as no-go areas, were identified within the development area. Becrux Solar PV Project Two (Pty) Ltd has proposed a technically viable layout for the project and associated infrastructure, which avoids these areas of high sensitivity.

The proposed layout is therefore considered as the most appropriate from an environmental perspective and acceptable within all fields of specialist study undertaken for the project. All impacts associated with the proposed project can be mitigated to acceptable levels through implementation of the recommended mitigation measures. The layout map included as **Figure 9** is considered the preferred facility layout for the project.

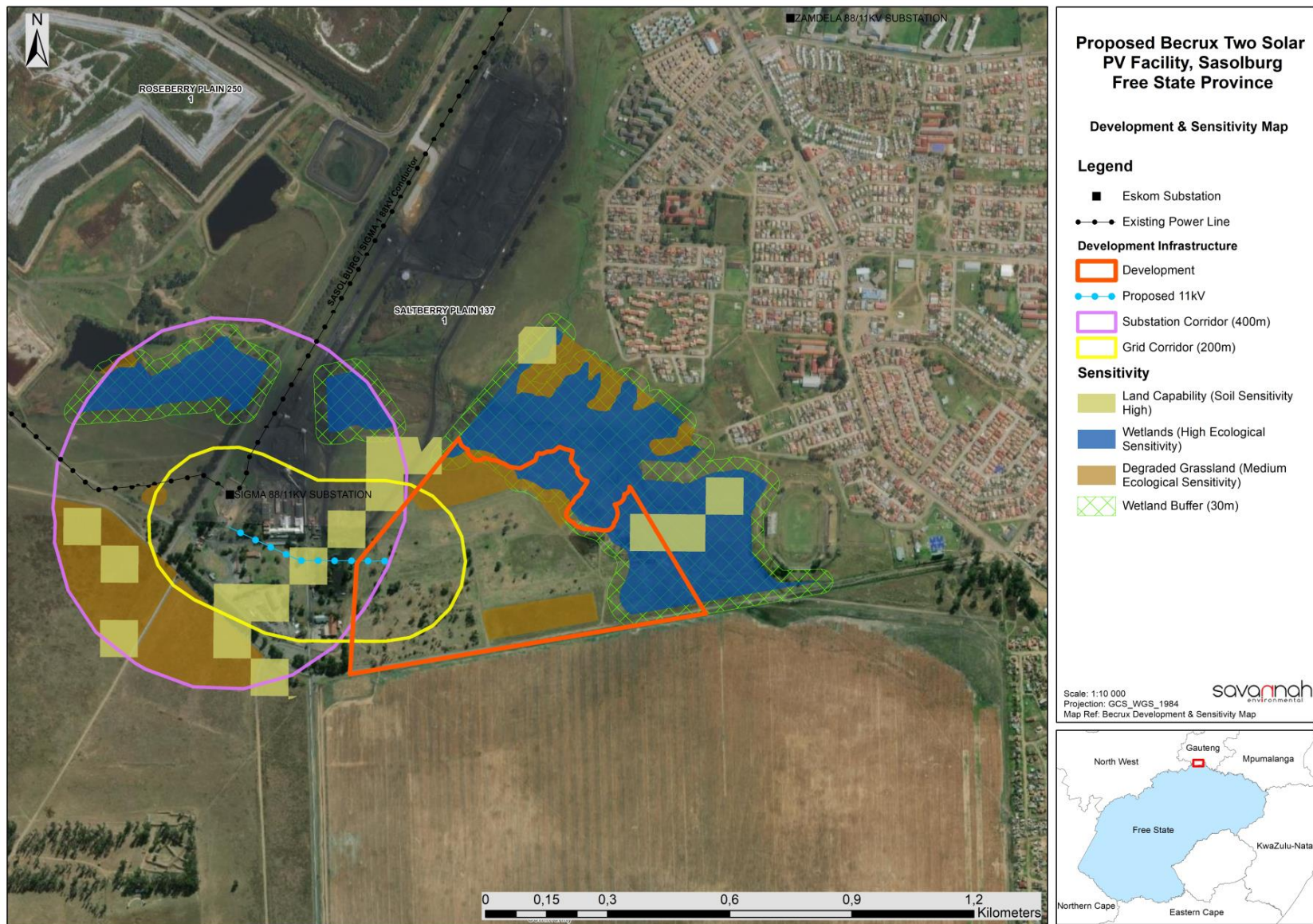


Figure 8: Sensitive environmental features identified within the project area and broader study area, overlain on the project layout

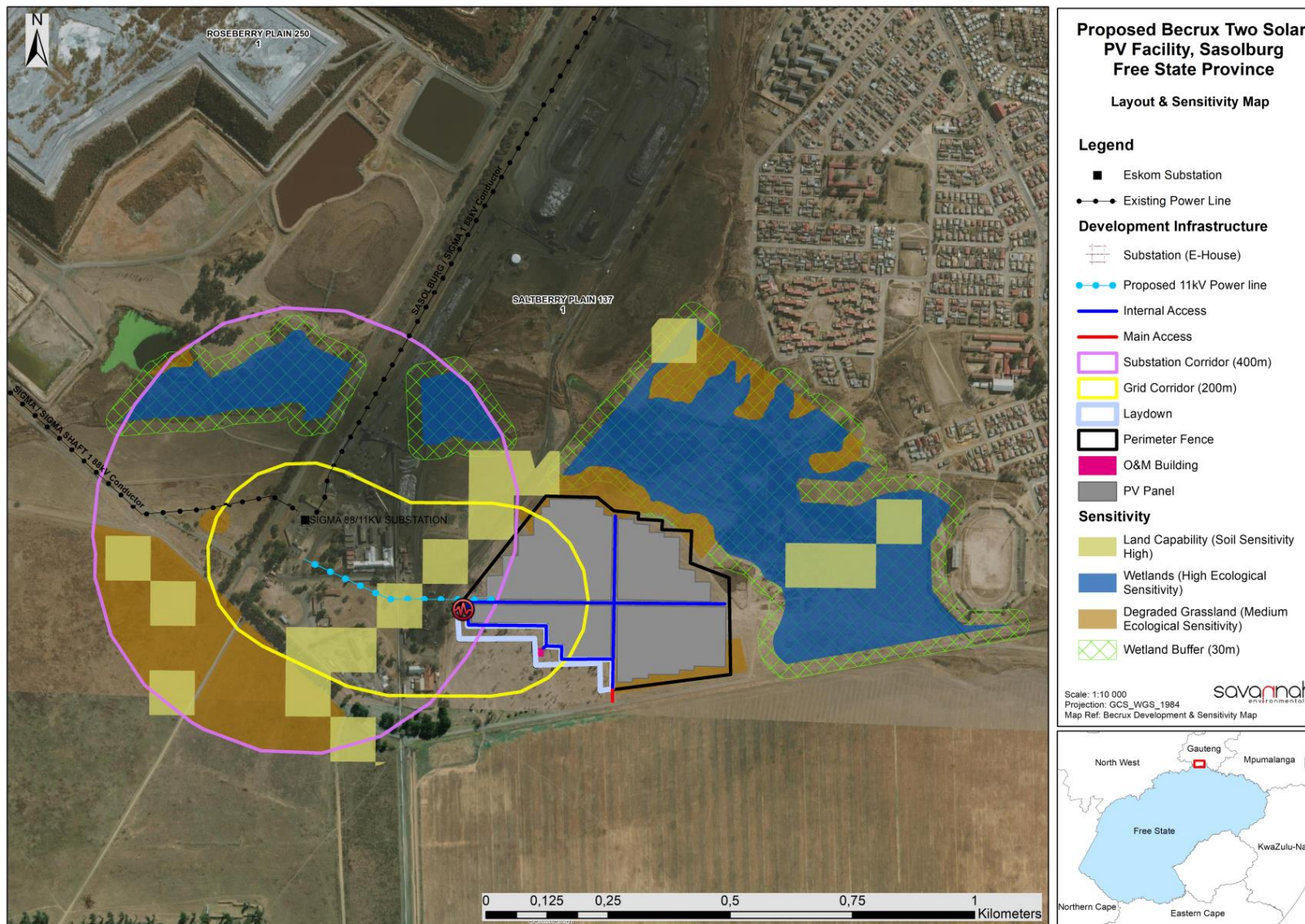


Figure 9: Environmental sensitivity map overlain with the facility layout

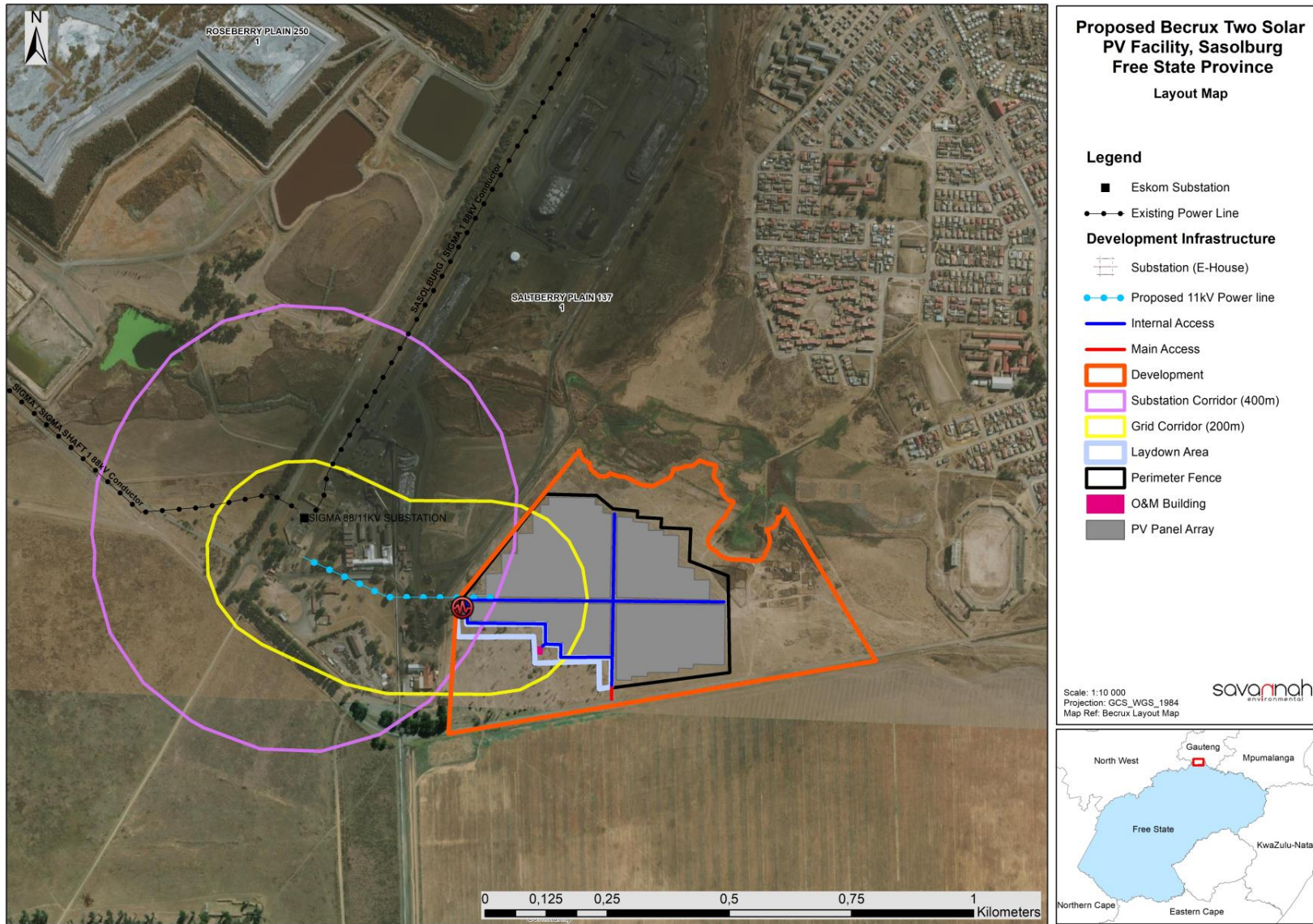


Figure 10: Facility layout proposed for authorisation

Through the assessment undertaken in this BA Report, the following can be concluded regarding the key environmental considerations in terms of the International Finance Corporation (IFC) Project Developers Guide for the project:

- » *Construction phase impacts* (i.e., OHS, temporary air emissions from dust and vehicle emissions, noise related to excavation, construction and vehicle transit, solid waste generation and wastewater generation from temporary building sites) will be local in extent and of a low magnitude. The significance of impacts associated with the construction phase will be of a low to medium rating post-mitigation.
- » *Water usage* (i.e., the cumulative water use requirements) will be kept to a minimum during the project's construction and operation. Appropriate water demand and conservation measures will be implemented.
- » *Landscape and visual impacts* (i.e., the solar panels' visibility within the wider landscape and associated impacts on landscape designations, character types and surrounding communities) for the construction and operation phases will mostly be of a medium significance due to the proximity of the site to the Zamdela residential area. It is however important to note that there are existing mining and industrial activities, and infrastructure within the region, and therefore, the visual quality of the area has already been compromised to a large degree.
- » *Land Matters* will be of low significance, as Sasol Limited, the exclusive off-taker of the power to be generated by the proposed Becrux Two Solar PV Energy Facility, is the owner of the affected properties. There will be no involuntary land acquisition / resettlement associated with this project.
- » *Ecology and natural resources* (i.e., habitat loss/fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species) will be impacted by the project. The layout of the facility has been designed to avoid areas of high sensitivity, thereby reducing impacts on these resources. It is important to note that the facility is proposed on a site that was previously disturbed by anthropogenic activities.
- » *Cultural heritage* (i.e., impacts on possible buried archaeological and palaeontological resources and the cultural landscape) is of low impact significance, and no heritage and archaeological resources of significance are associated with the development area. Based on the nature of the project, surface activities may impact the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are the correct age and type to contain fossils; however, no fossils were seen on the surface and there were no rocky outcrops that could preserve fossils. Since there is a small chance that fossils from the Vryheid Formation could occur below the surface and may be disturbed, the implementation of a Fossil Chance Find Protocol has been recommended.
- » *Transport and access* (i.e., impacts of transportation of materials and personnel) will be appropriately managed, and existing roads will be used during construction and operation. A gravel access road will be established to provide direct access to the site.
- » *Consultation and disclosure* (i.e., consulting with key authorities, statutory bodies, affected communities and other relevant stakeholders) is being undertaken for the project and documented for inclusion in the assessment of the project. All identified stakeholders and interested and affected parties (I&APs) will be afforded the opportunity to participate in a meaningful way to the BA for the project.
- » An Environmental Management Programme (EMPr) has been compiled to ensure that mitigation measures, as identified by the specialist studies undertaken, are implemented during the project lifecycle (refer to **Appendix G** of this BAR Report).

It can be concluded that the project is environmentally acceptable (subject to the implementation of the recommended mitigation and enhancement measures).

Alternative B



Alternative C



No-go alternative (compulsory)

The 'do-nothing' alternative (i.e., no-go alternative) is the option of not constructing the proposed development. Should this alternative be selected, there would be no environmental impacts on the site due to the construction and operation activities associated with the project.

Becrux Solar PV Project Two (Pty) Ltd is proposing the establishment of a Solar PV Energy Facility near Sasolburg, the purpose of which will be to reduce total carbon emissions and diversify electricity supply to the Sasol Limited's Sasolburg operations (the exclusive off-taker of the power). Should the facility not be constructed, Sasol Limited's reliance on fossil fuel-based power as a sole source of power at its Sasolburg operations will continue.

Furthermore, failure to establish an exclusive power supply source for Sasol Limited's Sasolburg operations would also result in a constant demand of power to be supplied from Eskom, adding pressure on the grid infrastructure in the region (and would require the additional consumption of fossil fuels to achieve the same level of electrical supply to the Sasol Limited). The electricity demand in South Africa is placing increasing pressure on the country's existing power generation capacity. Therefore, there is a need for additional electricity generation options to be developed throughout the country.

The support for renewable energy policy is guided by the need to address climate change. South Africa has ample solar and wind resources, and land available for the development of renewable energy facilities. Renewable applications are the least-cost energy service in most cases, particularly when social and environmental costs are considered. The generation of electricity from renewable energy in South Africa offers several socio-economic and environmental benefits, including:

- » **Exploitation of our significant renewable energy resource:** At present, valuable national resources, including biomass by-products, solar radiation, and wind power, remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio.
- » **Pollution reduction:** The releases of by-products through the burning of fossil fuels for electricity generation have a particularly hazardous impact on human health and contribute to ecosystem degradation.
- » **Climate friendly development:** The uptake of renewable energy offers the opportunity to address energy needs in an environmentally responsible manner and thereby allows South Africa to contribute towards mitigating climate change through reducing greenhouse gas (GHG) emissions. South Africa is estimated to be responsible for ~1% of global GHG emissions and is currently ranked 9th worldwide in terms of per capita CO₂ emissions.
- » **Employment creation:** The sale, development, installation, maintenance, and management of renewable energy facilities have significant potential for job creation in South Africa.

- » **Acceptability to society:** Renewable energy offers various tangible benefits to society, including reduced pollution concerns; improved human and ecosystem health; and climate friendly development.
- » **Support to a new industry sector:** The development of renewable energy offers the opportunity to establish a new industry within the South African economy.

Environmental costs identified for the project include:

- » Destruction, further loss and fragmentation of the habitats, ecosystems and vegetation community, including protected species.
- » Collection of eggs, nest destruction and poaching.
- » Collisions with PV panels, associated powerlines and connection lines and fences.
- » Electrocution by solar plant connections and powerline during the operational phase.
- » Electrocution by solar plant connections and powerline during the decommissioning phase.
- » Degradation and loss of surrounding natural vegetation arising from construction activities and dust precipitation.
- » Loss of protected plant species.
- » Displacement of faunal community due to habitat loss, direct mortalities and disturbance.
- » Continued fragmentation and degradation of habitats and ecosystems during the operational phase
- » Spread of alien and/or invasive species.
- » Loss of land capability.
- » Impacts to buried archaeological and palaeontological resources.

The costs associated with the project are anticipated to occur at a site-specific level. The significance can be largely reduced through the application of appropriate mitigation measures; and the appropriate placement of infrastructure within area of lower sensitivity identified on site. The project's benefits are expected to occur at a larger scale (i.e., national, regional, and local level); and partially offset the localised environmental costs of the project.

From the specialist studies undertaken, no environmental fatal flaws were identified to be associated with the project. All impacts associated with the project can be mitigated to acceptable levels. The 'do-nothing' alternative will not assist Sasol Limited in addressing issues such as diversifying their electricity supply at their Sasolburg operations and reducing the total carbon emissions from the operations. As detailed above, the benefits associated with the project outweigh the costs; and the project is therefore considered sustainable. The costs of the 'do-nothing' alternative are expected to outweigh the benefits and therefore, this alternative is not preferred and not proposed to be implemented for the project.

SECTION E: RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES

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

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

Considering the findings of the independent specialist studies; impacts identified, the proposed facility layout which avoids all identified no-go/highly sensitive environmental features within the development area; and the potential to further minimise the impacts to acceptable levels through mitigation, it is the reasoned opinion of the EAP that the project is acceptable within the landscape and can reasonably be authorised. The preferred facility layout is illustrated in **Figure 10**. The period for which the EA is required to remain valid is 10 years from the date of authorisation, with a period of 5 years for the design, planning, construction and commissioning of the activity to be concluded.

The authorisation for the project would include the following key infrastructure and components:

- » Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the panels.
- » 11kV onsite containerised/non-containerised substation.
- » 11kV overhead power line for the distribution of the generated power, which will be connected to the existing Sigma Substation.
- » Main access gravel road and internal gravel roads.
- » Operations and Maintenance (O&M) building, including a sewage/conservancy tank and water storage tanks.
- » Site office, workshop area, storage area, and laydown area.
- » Fire break and fencing around the site, including an access gate.

The following key conditions would be required to be included within an EA issued for the project:

- » All mitigation measures detailed within this BA Report and the specialist reports contained within **Appendices D1 to D5** are to be implemented.
- » The EMPr, as contained within **Appendix G** of this BA Report, should form part of the contract with the contractors appointed to construct and maintain project, to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of project is considered key in achieving the appropriate environmental management standards as detailed for this project.
- » The high-sensitivity wetlands and their associated buffer areas should be regarded as no-go areas for all construction activities.
- » Educate staff and relevant contractors on the location and importance of the identified wetlands

- through toolbox talks and by including them in site inductions as well as the overall master plan.
- » The proposed layout must be located within the identified development footprint. The final layout must be submitted to FSDESTEA for review and approval following a detailed design.
 - » The design of the proposed PV must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa.
 - » Consider the use of bird deterrent devices to limit collision risk.
 - » If any powerlines/connection lines from existing lines to the facility are to be placed above ground, they must be marked with industry standard bird flight diverters.
 - » The establishment of large and unnecessary concrete areas should be avoided as far as possible.
 - » The Chance Fossil Finds Procedure must be implemented for the duration of construction activities.
 - » Should any previously unrecorded archaeological and palaeontological resources or possible burials be identified during the course of construction activities, work must cease in the immediate vicinity of the find, and SAHRA must be contacted regarding an appropriate way forward.

Is an EMPr attached?

YES

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Mmakoena Mmola

NAME OF EAP

Mmola M.A.

SIGNATURE OF EAP

25/03/2022

DATE