SBPM SOLAR PV FACILITY

Limpopo Province & North West Province

Scoping Report

June 2022

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PROJECT DETAILS

Title	:	Environmental Impact Assessment Process: Scoping Report for the SBPM Solar PV Facility, Limpopo Province & North West Province
Authors	:	Savannah Environmental (Pty) Ltd Rendani Rasivhetshele Jo-Anne Thomas
Client	:	Main Street 1886 Proprietary Limited
Report Revision	:	Revision 0
Date	:	June 2022

When used as a reference this report should be cited as: Savannah Environmental (2022), Scoping Report for the SBPM Solar PV Facility, Limpopo Province & North West Province.

PURPOSE OF THE SCOPING REPORT AND INVITATION TO COMMENT

Main Street 1886 Proprietary Limited, is proposing the development of the SBPM solar photovoltaic (PV) facility and associated infrastructure on a site located approximately 6.5km west of the town of Northam within the Thabazimbi Local Municipality and the Waterberg District Municipality in the Limpopo Province (refer to **Figure 1.1**). The proposed grid connection route for the SBPM PV facility extends into the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality. The facility will have a contracted capacity of up to 100MW and will be known as the SBPM Solar PV Facility. An additional 100MW PV facility to be known as SCSC PV is being considered adjacent to the project site within Portion 4 of the Farm Grootkuil 409 and will be assessed through a separate Environmental Impact Assessment (EIA) process. The relative location of the two development areas is indicated in **Figure 1.2**. These projects are assessed through separate Environmental Impact Assessment (EIA) processes.

Main Street 1886 Proprietary Limited appointed Savannah Environmental as the independent environmental consultant to undertake the Environmental Impact Assessment (EIA) for the proposed project. The EIA process is being undertaken in accordance with the requirements of the 2014 EIA Regulations, as amended, promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

This Scoping Report represents the findings of the Scoping Phase of the EIA process and contains the following chapters:

- **Chapter 1** provides background to the SBPM solar PV facility project and the environmental impact assessment process.
- **Chapter 2** provides a description of the SBPM solar PV facility project.
- **Chapter 3** provides the site selection information and identified project alternatives.
- **Chapter 4** outlines strategic regulatory and legal context for energy planning in South Africa and the need and desirability of the SBPM solar PV facility.
- **Chapter 5** outlines the process which was followed during the scoping phase of the EIA process.
- **Chapter 6** describes the existing biophysical and social environment within and surrounding the study and development area.
- **Chapter 7** provides an identification and evaluation of the potential issues associated with the proposed solar PV facility and associated infrastructure.
- **Chapter 8** presents the conclusions of the scoping evaluation for the SBPM solar PV facility.
- **Chapter 9** describes the Plan of Study (PoS) for the EIA phase.
- **Chapter 10** provides references used to compile the Scoping Report.

The Scoping Report is available for review from **03 June 2022 – 04 June 2022** at https://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 Scoping report for the consideration of the National Department of Forestry, Fisheries and the Environment (DFFE).

Please submit your comments by **03 June 2022** to:

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Tel: 011 656 3237 / Fax: 086 684 0547
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Comments can be made as written submission via fax, post or email.

EXECUTIVE SUMMARY

Main Street 1886 Proprietary Limited is proposing the development of a commercial PV facility and associated infrastructure on a site located approximately 6.5km west of Northam. The project site falls within the Thabazimbi Local Municipality and within the Waterberg District Municipality in the Limpopo Province. The proposed grid connection route for the SBPM PV development extend to the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality.

A technically feasible project site, with an extent of ~1138ha has been identified by Main Street 1886 Proprietary Limited as a technically suitable area for the development of the SBPM Solar PV Facility. A development area[1] of approximately 574ha has been identified within the project site by the proponent for the development. The development area consists of Portion 4 of the Farm Grootkuil 409 KQ

The full extent of the development area has been considered within this Scoping Report with the aim of determining the suitability footprint from an environmental and social perspective and identifying areas that should be avoided in development planning. Within this identified development area, a development footprint[2] or facility layout will be defined for assessment in the EIA Phase. The development footprint/facility layout is estimated to require an area of approximately 240ha in extent (for the 100MW PV facility, Battery Energy Storage System (BESS), and all associated infrastructures). The extent of the development footprint will be confirmed in the EIA Phase once the layout design is available. The development area is larger than the area needed for the development footprint of a 100MW PV facility, and therefore provides the opportunity for the optimal placement of the infrastructure, ensuring avoidance of major identified environmental sensitivities or constraints identified through this Scoping and EIA process. Infrastructure associated with the solar PV facility will include:

- Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components.
- Battery Energy Storage System (BESS).
- On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
- Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- Access roads, internal distribution roads
- Grid connection solution within a 200m wide corridor to consist of the following:
    - The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:
        - two 6.6 km, 33 kV power lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA),
        - two 4.7 km, 33 kV power lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA),

[1] The development area is that identified area (located within the project site) where the SBPM Solar PV Facility facility is planned to be located. This area has been selected as a practicable option for the facility, considering technical preference and constraints. The development area is ~574ha in extent.

[2] The development footprint is the defined area (located within the development area) where the PV panel array and other associated infrastructure for SBPM Solar PV Facility is planned to be constructed. This is the actual footprint of the facility, and the area which would be disturbed.

- two 2.9 km, 33 kV power lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA)

Potential impacts associated with the development of the SBPM Solar PV are expected to occur during both the construction and operation phases. The conclusion of the findings of the Scoping Study is that the potential impacts identified to be associated with the construction and operation of the SBPM PV are anticipated to be at a site or localised level, with few impacts extending from a local to regional extent which includes both positive and negative impacts. The following provides a summary of the findings of the specialist studies undertaken:

» **Ecology**: Based on the desktop assessment it can be said that the project area is sensitive. There is a moderate-high likelihood of species of conservation concern occurring. This assumption is based on the CBA2, ESA1, NPAES (protected area), Northern Turfveld IBA and CR rivers found in and around the project area. Development in an ESA area is not as restricted as within the CBA but should be minimised and mitigation measures should be put in place that will ensure sustainable development and the highly sensitive areas within this class (ESA1) should be avoided. It is possible that the proposed projects can be mitigated to an acceptable level of residual impact. There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

» ***Freshwater Features**:* As per the DFFE screening reports the aquatic biodiversity theme sensitivity indicates Low sensitivity. Desktop information suggests the presence of Sefathlane system to the east of the project area. This system is classified as CR, and a wetland system is also located on the border of the area. The available data also suggests the presence of drainage features in the area, with an expected low sensitivity for these systems. These sensitivities will be confirmed during the impact phase of the project. There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

» ***Avifauna**:* Anthropogenic activities drive habitat destruction causing displacement of avifauna and possibly direct mortality. Land clearing destroys habitat and can lead to the loss of local breeding grounds, nesting sites and movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for avifauna species and may reduce animal populations and species compositions within the area. Portions of the project area are classified as CBA1 and ESA2. These areas also border a CR wetland and overlap with CR rivers. The importance of these areas is highlighted by the number of avifauna SCCs expected. A total of five avifauna SCCs were given a high likelihood of occurrence, while a further two were given a moderate likelihood of occurrence. Based on the desktop and initial screening assessment information it can be said that majority of the project area will have a high sensitivity rating. This will be further confirmed in the EIA phase.

» **Soils and Agricultural Potential**: Various soil forms are expected throughout the project area, of which some are commonly associated with high land capabilities. Even though the soil depth, texture and permeability of these soils ensure high land capability, the climatic capability of the area often reduces the land potential considerably. Areas characterised by "High" land potential are expected for selected areas. The agriculture theme sensitivity as indicated in the screening report indicates predominantly a combination of "Medium" and "High" sensitivities. This sensitivity is based on the screening tool and considered to be preliminary for this stage of the project. These sensitivities will be

confirmed during the impact phase of the project. There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

» **Heritage**: Heritage sensitivity relates to archaeological resources, palaeontological resources, heritage resources, and the cultural landscape. According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of zero palaeontological sensitivity. The area proposed for development has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, it was found that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. These will be confirmed during the impact phase of the project. There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint

» **Social**: The majority of social impacts associated with the project are anticipated to occur during the construction phase of the development and are typical of the type of social impacts generally associated with construction activities. These impacts will be temporary and short-term (~12 months) but could have long-term effects on the surrounding social environment if not planned or managed appropriately. The positive and negative impacts identified include direct and indirect employment opportunities, economic multiplier effects, influx of jobseekers and change in population, safety and security impacts, impacts on daily living and movement patterns, nuisance impacts, including noise and dust visual impacts and sense of place impacts

No environmental fatal flaws were identified to be associated with the development of the SBPM PV on the identified project site at this stage in the process. **Figure 1** provides an environmental sensitivity map of the scoping phase. This conclusion must be confirmed through a detailed investigation of the development footprint within the EIA Phase of the process.

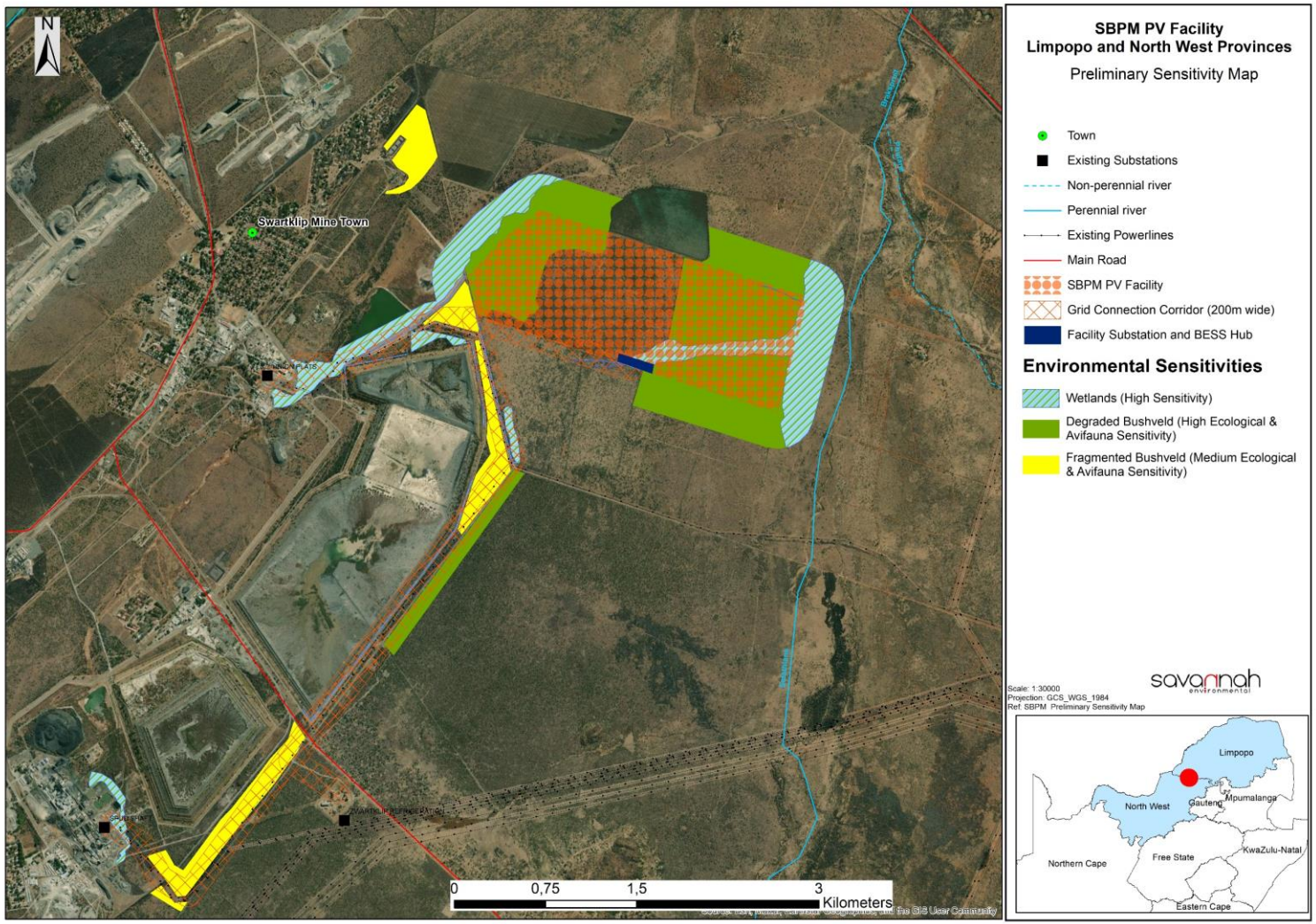

Figure 1: Environmental Sensitivity Map from the results of the scoping evaluation for the SBPM PV Facility and associated infrastructure. The sensitivity map indicates the sensitivities for the project site, as well as the SBPM PV development area.

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APPENDICES LIST

CHAPTER 1: INTRODUCTION

Main Street 1886 Proprietary Limited, is proposing the development of the SBPM solar photovoltaic (PV) facility and associated infrastructure on a site located approximately 6.5km west of the town of Northam within the Thabazimbi Local Municipality and the Waterberg District Municipality in the Limpopo Province (refer to **Figure 1.1**). The proposed grid connection route for the SBPM PV facility extends into the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality. The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Bakgatla Platinum Mine. The construction of the PV facility aims to reduce the Siyanda Bakgatla Platinum Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

The solar PV facility will comprise several arrays of PV panels and associated infrastructure and will have a contracted capacity of up to 100MW. A project site consisting of Portion 4 of the Farm Grootkuil 409 KQ (~1138ha in extent) is being considered for the SBPM solar PV facility (refer to **Figure 1.1**). The full extent of the project site is evaluated in this Scoping Report to identify sensitivities. A dedicated development area for the solar PV facility (~574ha in extent) will be demarcated to avoid the identified sensitivities. The grid connection for the facility will consist of a facility substation and transmission lines into the existing mine substations (Mortimer, Fridge and Ivan). The grid connection infrastructure is located within an assessment corridor of 200m wide located in a band along the south-west boundary of the project site and traverses Portion 4, Portion 4, Portion 5 of the Farm Grootkuil 409, Portion 1, Portion 2 of Farm Zwartklip 405, Portion 0 of Farm Spitskop 410 and Portion 0 of Farm Turfbult 404.

An additional 100MW PV facility to be known as SCSC PV is being considered adjacent to the project site within Portion 4 of the Farm Grootkuil 409 and will be assessed through a separate Environmental Impact Assessment (EIA) process. The relative location of the two development areas is indicated in **Figure 1.2**.

From a regional perspective, the Limpopo Province, and particularly the area under investigation, is considered favourable for the development of a commercial solar facility by virtue of prevailing climatic conditions, relief, the extent of the affected properties, the availability of a grid connection and the availability of land on which the development can take place.

1.1 Requirement for an Environmental Impact Assessment Process

Section 24 of South Africa's National Environmental Management Act (No. 107 of 1998) (NEMA) pertains to Environmental Authorisations (EA), and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the Competent Authority (CA). The 2014 Environmental Impact Assessment (EIA) Regulations, as amended (GNR 326) published under NEMA prescribe the process to be followed when applying for Environmental Authorisation (EA), while the Listing Notices (Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325), and Listing Notice 3 (GNR 324)) contain those activities which may not commence without EA from the CA.

As the project has the potential to impact on the environment, an Environmental Authorisation (EA) is required from the Department of Forestry, Fisheries and the Environment (DFFE). subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA), as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations, as amended (GNR 326).

The need for EA subject to the completion of a full S&EIA is triggered by the inclusion of, amongst others, Activity 1 of Listing Notice 2 (GNR 325)[3], namely:

"The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20MW or more."

[3] Refer to **Chapter 5** for a full list of applicable listed activities.

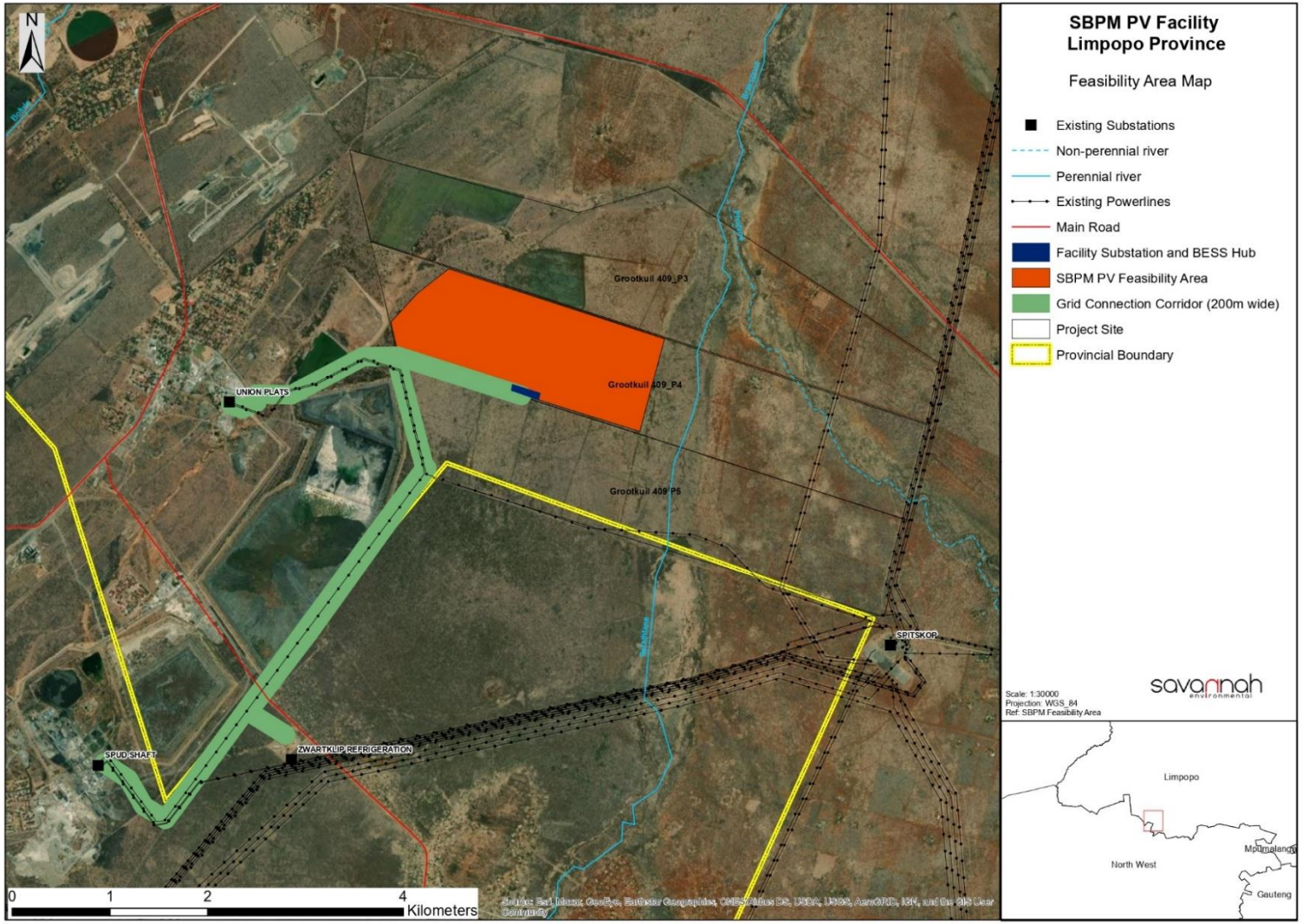


Figure 1.1: Locality map illustrating the location of the SBPM solar PV facility project site on Portion 4 Farm Grootkuil 409 (refer to **Appendix I** for A3 map).

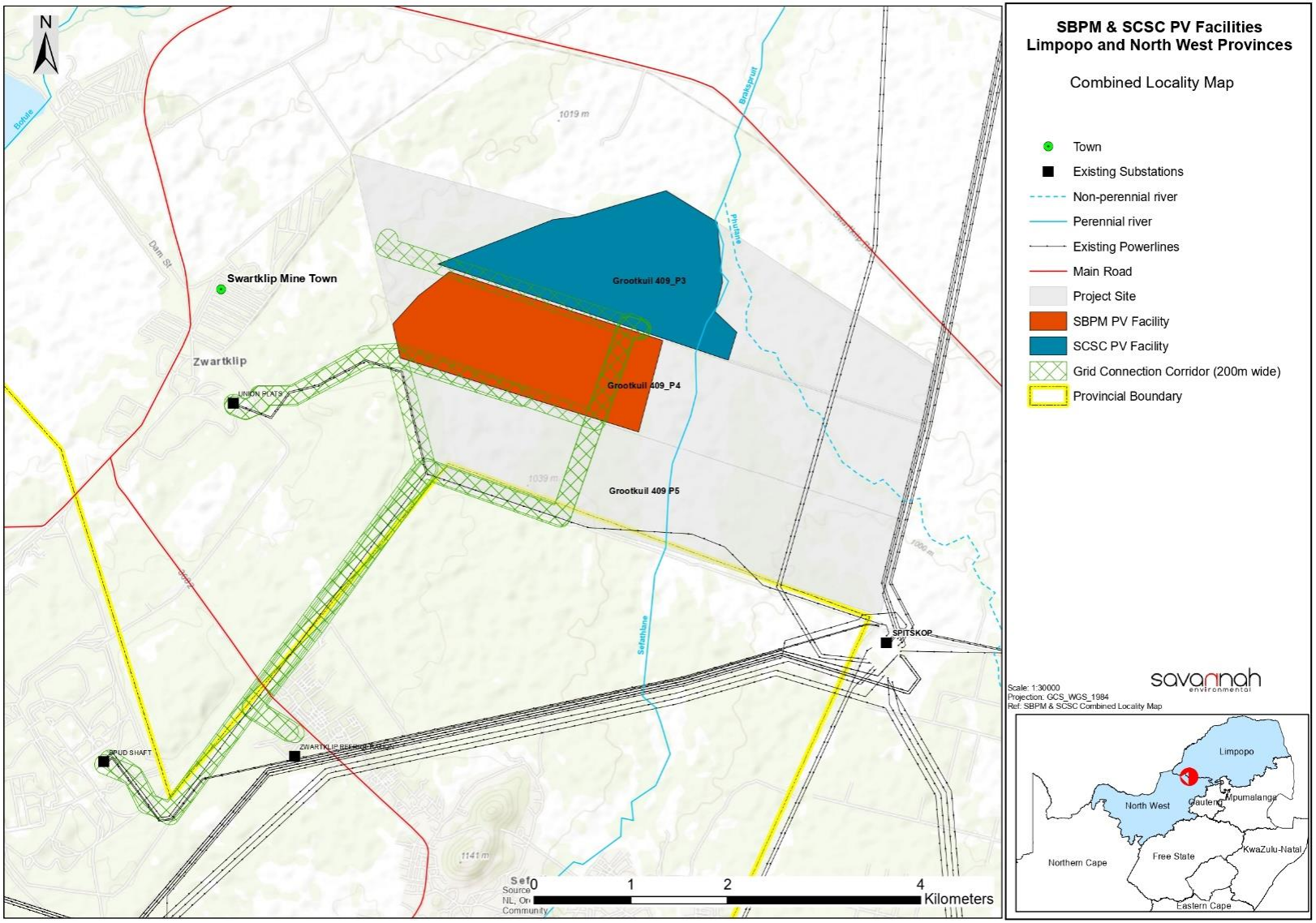


Figure 1.2: Locality map illustrating the SBPM and the SCSC solar PV facilities (refer to **Appendix I** for A3 map).

1.2 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This Scoping Report has been prepared in accordance with the requirements of the EIA Regulations published on 08 December 2014 (and amended on 07 April 2017) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998). This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of Scoping Report:

Requirement	Relevant Section
(a)(i) the details of the EAP who prepared the report and (ii) the expertise of the EAP to carry out scoping procedures; including a curriculum vitae	The details of the EAP and the expertise of the EAP have been included in **Section 1.5**. The Curriculum vitae of the Savannah Environmental team have been included as **Appendix A**.
(b) the location of the activity, including (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties	The location of the SBPM solar PV facility has been included as **Figure 1.1**. The details of the affected properties, including the property names and numbers, as well as the SG-codes are included in **Table 1.1**.
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken	A locality map illustrating the location of the SBPM solar PV facility has been included in **Figure 1.1**. The centre point co-ordinates of the project site are included in **Table 1.1**.

This Scoping Report consists of nine chapters, which include:

- **Chapter 1** provides background to the SBPM solar PV facility project and the environmental impact assessment process.
- **Chapter 2** provides a description of the SBPM solar PV facility project.
- **Chapter 3** provides the site selection information and identified project alternatives.
- **Chapter 4** outlines strategic regulatory and legal context for energy planning in South Africa and the need and desirability of the SBPM solar PV facility.
- **Chapter 5** outlines the process which was followed during the scoping phase of the EIA process.
- **Chapter 6** describes the existing biophysical and social environment within and surrounding the study and development area.
- **Chapter 7** provides an identification and evaluation of the potential issues associated with the proposed solar PV facility and associated infrastructure.
- **Chapter 8** presents the conclusions of the scoping evaluation for the SBPM solar PV facility.
- **Chapter 9** describes the Plan of Study (PoS) for the EIA phase.
- **Chapter 10** provides references used to compile the Scoping Report.

1.3 Project Overview

The project site has been identified by the applicant as a technically feasible site which has the potential for the development of the SBPM solar PV facility, including a Battery Energy Storage System (BESS).

Table 1.1: Detailed description of the project site.

Province	**Northern Cape Province**
District Municipality	Waterberg District Municipality Bojanala Platinum District Municipality
Local Municipality	Thabazimbi Local Municipality Moses Kotane Local Municipality
Ward Number (s)	Ward 5 Ward 7
Nearest town(s)	Northam (~6.5km west)
Farm name(s) and number(s) of properties affected by the Solar Facility & the grid connection corridor.	Solar PV: » Portion 4 of Farm Grootkuil 409 Grid connection: » Portion 3 of Farm Grootkuil 409 » Portion 4 of Farm Grootkuil 409 » Portion 5 of Farm Grootkuil 409 » Portion 0 of Farm Spitskop 410 » Portion 0 of Farm Turfbult 404 » Portion 1 of Farm Zwartklip 405 » Portion 2 of Farm Zwartklip 405
SG 21 Digit Code (s)	» Portion 4 of Farm Grootkuil 409 - T0KQ00000000040900000 » Portion 3 of Farm Grootkuil 409 - T0KQ00000000040900000 » Portion 4 of Farm Grootkuil 409 - T0KQ00000000040900000 » Portion 5 of Farm Grootkuil 409 - T0KQ00000000040900000 » Portion 0 of Farm Spitskop 410- T0KQ00000000041000000 » Portion 0 of Farm Turfbult 404 - T0KQ00000000040400000 » Portion 1 of Farm Zwartklip 405 - T0KQ00000000040500000 » Portion 2 of Farm Zwartklip 405 - T0KQ00000000040500000
Current zoning	Agricultural
Site Coordinates (centre of affected property)	24°56'14.18"S; 27°11'29.11"E

Infrastructure associated with the solar PV facility will include:

- » 100MW Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the project components.
- » Battery Energy Storage System (BESS).
- » On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
- » Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- » Access roads, internal distribution roads
- » Grid connection solution within a 200m wide corridor to consist of the following:
- The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:
  - two 6.6 km, 33 kV transmission lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA),
  - two 4.7 km, 33 kV transmission lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA),

- two 2.9 km, 33 kV transmission lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA)

The key infrastructure components proposed as part of the SBPM solar PV facility are described in greater detail in Chapter 2 of this Scoping Report.

The overarching objective for the SBPM solar PV facility is to maximise electricity production through exposure to the available solar resource, while minimising infrastructure, operational and maintenance costs, as well as potential social and environmental impacts in accordance with the principles of sustainable development. The full extent of the development area has been considered within this Scoping Report through site-specific specialist studies with the aim of determining the suitability from an environmental and social perspective and identifying areas that should be avoided in development planning. The exact location of the development area within the project site for the SBPM solar PV facility is not defined at this stage of the process. In order to evaluate the project, the following is considered through this Scoping/EIA process:

Project site	Portion 4 of the Farm Grootkuil 409 (~574ha in extent).
Development area	that identified area (to be located within the project site) where the SBPM solar PV facility is planned to be positioned. This area will be selected as a practicable location option for the facility, considering technical preference and environmental constraints. The development area is ~574ha in extent and will be demarcated as a result of the findings of the Scoping phase.
Development footprint (facility layout)	the defined area (located within the development area) where the PV panel array and other associated infrastructure for the SBPM solar PV facility is planned to be constructed. This is the facility footprint, and the area which would be disturbed by project-related infrastructure. The development footprint will be ~240ha in extent, this will be confirmed in the EIA Phase

The development footprint/facility layout for the 100MW PV facility, including a BESS, and all associated infrastructure, will be confirmed in the EIA Phase once the layout design is available. The development area is larger than the area needed for the development footprint of a 100MW PV facility, and therefore provides the opportunity for the optimal placement of the infrastructure, ensuring avoidance of environmental sensitivities or constraints identified through this Scoping and EIA process.

1.4 Overview of this Environmental Impact Assessment (EIA) Process

An EIA is an effective planning and decision-making tool for the project developer as it allows for the identification and management of potential environmental impacts. It provides the opportunity for the developer to be forewarned of potential environmental issues and allows for the resolution of the issues reported on in the Scoping and EIA reports as well as dialogue with interested and affected parties (I&APs).

The EIA process comprises of two (2) phases (i.e. Scoping and Impact Assessment) and involves the identification and assessment of potential environmental impacts through the undertaking of independent specialist studies, as well as public participation. The processes followed in these two phases is as follows:

» The **Scoping Phase** includes the identification of potential issues associated with the project through a desktop study (considering existing information), limited field work, and consultation with interested and affected parties and key stakeholders. This phase considers the broader project site in order to identify and delineate any environmental fatal flaws, no-go and / or sensitive areas. Following a

public review period of the Scoping report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA to the CA for consideration and acceptance.

» The **EIA Phase** involves a detailed assessment of the potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase. This phase considers a proposed development footprint within the project site and includes detailed specialist investigations as well as public consultation. Following a public review period of the EIA Report, this phase culminates in the submission of a final EIA Report and an Environmental Management Programme (EMPr), including recommendations of practical and achievable mitigation and management measures, to the CA for final review and decision-making.

1.5 Details of Environmental Assessment Practitioner and Expertise to conduct the S&EIA Process

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), the applicant has appointed Savannah Environmental (Pty) Ltd as the independent environmental consultant responsible for managing the Application for EA and supporting Scoping and Environmental Impact Assessment (S&EIA) process; inclusive of comprehensive, independent specialist studies. The application for EA and S&EIA process will be managed in accordance with the requirements of NEMA, the 2014 EIA Regulations (GNR 326), and all other relevant applicable legislation.

Neither Savannah Environmental nor any of its specialists are subsidiaries or are affiliated to the applicant. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed facility.

Savannah Environmental is a specialist environmental consulting company providing a holistic environmental management service, including environmental assessment, 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 for this project includes:

» ***Rendani Rasivhetshele,*** the principle EAP on this project is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA -2019/1729), and she holds a Bachelor of Science Honours in Environmental Management. She has experience in conducting Environmental Impacts Assessments, public participation, and Environmental Management Programme for a wide range of projects including renewable energy projects. She is responsible for overall compilation of the report, this includes specialists' engagements, reviewing specialists reports and incorporating specialist studies into the Environmental Impact Assessment report and its associated Environmental Management.

» ***Jo-Anne Thomas,*** the principle EAP on this project, is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA - 2019/726). She provides technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Her key focus is on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management

solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures.

» ***Nondumiso Bulunga*** is a Social, GIS and Stakeholder Engagement Specialist at Savannah Environmental. Nondumiso has eight (8) years working experience in project management and facilitation in various industries such as environmental services field including but not limited to recycling, industrial, energy, mining, and agriculture. Working for small and large organisations, Nondumiso has gained exposure in research, collection of data, critical analysis, GIS, and environmental solutions. Nondumiso has worked on projects in South Africa and Malawi. Nondumiso is very well versed in the IFC Environmental and Social Performance Standards (including IFC PS 2012) and the associated Equator Principles, which have informed the approach and standard for projects regarding ESIA. Nondumiso is skilled at organising and driving effective project teams at a scale relevant to the project's requirements. She has technical experience and can quickly identify the most pertinent issues of a particular project whilst focussing on driving project success by rigorously implementing project management tools.

In order to adequately identify and assess potential environmental impacts associated with the proposed SBPM Solar PV facility, the following specialist sub-consultants have provided input into this scoping report:

Specialist	Area of Expertise
Lindi Steyn of The Biodiversity Company (Pty) Ltd and reviewed by Andrew Husted.	Ecology, Freshwater, soils and Avifauna
Nondumiso Bulunga of Savannah Environmental and peer reviewed by Dr Neville Bews of Dr Neville Bews & Associates.	Social
Jenna Lavin of CTS Heritage	Heritage (including Archaeology Palaeontology and Cultural Landscape)

Appendix A includes the curricula vitae for the environmental assessment practitioners from Savannah Environmental and the specialist consultants.

CHAPTER 2 PROJECT DESCRIPTION

This Chapter provides an overview of the SBPM solar PV facility and details the project scope which includes the planning/design, construction, operation, and decommissioning activities required for the development. It must be noted that the project description presented in this Chapter may change to some extent based on the outcomes and recommendations of detailed engineering and other technical studies, the findings and recommendations of the EIA and supporting specialist studies, and any licencing, permitting, and legislative requirements.

2.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
3(b) the location of the activity including (i) the 21-digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The location of the proposed project is detailed in Chapter 1, **Table 1.1**, as well as section 2.2.1 below.
3(d)(ii) a description of the scope of the proposed activity, including a description of the activities to be undertaken including associated structures and infrastructure	A description of the activities to be undertaken with the development of project is included in **Table 2.1** and **Table 2.2**.

2.2 Nature and Extent of the SBPM Solar PV facility

Main Street 1886 Proprietary Limited is proposing the development of a commercial solar facility and associated infrastructure to generate electricity for exclusive use by the Siyanda Bagatla Platinum Mine. The construction of the PV facility aims to reduce the Siyanda Bagatla Platinum Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint. The SBPM solar PV facility will be developed in a single phase and will have a contracted capacity of up to 100MW. The project will make use of fixed-tilt, single-axis tracking, and/or double-axis tracking PV technology. Monofacial or bifacial panels are both considered within this Scoping Report.

The SBPM solar PV facility will comprise solar panels which, once installed, will stand less than 6m above ground level. The solar panels will include centralised inverter stations, or string inverters mounted above ground. If centralised inverter stations are used, Mega Volt (MV) distribution transformers are located internally, whereas string inverters are containerised with switchgear. The main transformer capacity varies according to detailed design and project-specific requirements.

2.2.1 Overview of the Project Site

The project is to be developed on a site located approximately 6.5km west of Northam. The project site falls within the Thabazimbi Local Municipality and within the Waterberg District Municipality in the Limpopo Province. The proposed grid connection route for the SBPM PV development extend to the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality The full extent of the project site (~1138ha) has been considered within this Scoping Phase of the EIA process, within which the SBPM solar PV facility will be appropriately located from a technical and environmental sensitivity perspective. The development area is located on Portion 4 of farm Grootkuil 409.

The project site within which the PV facility is proposed is situated ~6km south-east to the R510 provincial road. Access to the project site is via the Swartklip Road which branches off the R510 provincial road on the south-eastern side of the SBPM development area (refer to **Figure 2.1**).

Figure 2.1: Location of the R510 and the Swartklip Road in relation to the SBPM solar PV development area (development area in blue).

The grid connection for the facility will consist of a facility substation and transmission lines into the existing mine substations (Mortimer, Fridge and Ivan). The grid connection infrastructure is located within an assessment corridor of 200m wide located in a band along the south-west boundary of the project site and traverses Portion 3, Portion 4, Portion 5 of the Farm Grootkuil 409, Portion 1, Portion 2 of Farm Zwartklip 405, Portion 0 of Farm Spitskop 410 and Portion 0 of Farm Turfbult 404. A portion of this grid connection route extends into the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality.

2.2.2 Components of the SBPM Solar PV facility.

The project site is proposed to accommodate both the PV panels, as well as most of the associated infrastructure, which is required for such a facility, and will include:

» Solar PV array comprising PV modules and mounting structures.
» Inverters and transformers.
» Cabling between the project components.
» Battery Energy Storage System (BESS).
» On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
» Site offices, Security office, operations and control, and maintenance and storage laydown areas.
» Access roads, internal distribution roads
» Grid connection solution within a 200m wide corridor to consist of the following:
  - The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:
    - two 6.6 km, 33 kV power lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA),
    - two 4.7 km, 33 kV power lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA),
    - two 2.9 km, 33 kV power lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA)

A summary of the details and dimensions of the planned infrastructure associated with the project is provided in **Table 2.1**

Table 2.1: Details or infrastructures proposed as part of SBPM Solar PV facility. Specific details to be confirmed in the EIA phase.

Infrastructure	Footprint and dimensions
Number of Panels	250 000 - 300 000
Panel Height	Up to 6m
Number of inverters and Height	1000 inverters, Height = 0.7 m
Technology	Use of fixed-tilt, single-axis tracking, and/or double-axis tracking PV technology. Monofacial or bifacial panels are both considered.
Battery Energy Storage System (BESS)	Lithium-Ion Battery technology Approximately 2ha
Other infrastructures	Site office = 20 x 20m, height = 2.5 m Security office = 20 x 20m, height = 2.5 m Operations and control = 50 x 50m, height = 5 m Maintenance and storage = 50 x 50m, height = 5 m
Area occupied by laydown area	To be determined in the EIA Phase
Contracted Capacity	Up to 100MW
Area occupied by the solar array	To be determined in the EIA phase
Area occupied by the on-site facility substation	~0.5ha

Infrastructure	Footprint and dimensions
Capacity of on-site facility substation	100MVA
Access and internal roads	Wherever possible, existing access roads or jeep tracks will be utilised to access the project site and development area. It is unlikely that access roads will need to be upgraded as part of the proposed development. Internal access roads (gravel) of 8m in width exist and extend into the site area from the west, north and east side via the Swartklip Road.
Grid connection	The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows: » two 6.6 km, 33 kV power lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA), » two 4.7 km, 33 kV power lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA), » two 2.9 km, 33 kV power lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA)
Temporary infrastructure	Temporary infrastructure, including laydown areas, hardstand areas and a concrete batching plant, will be required during the construction phase. All areas affected by temporary infrastructure will be rehabilitated following the completion of the construction phase, where it is not required for the operation phase.

Table 2.2 overleaf provides details regarding the requirements and the activities to be undertaken during the SBPM solar PV facility development phases (i.e., construction phase, operation phase and decommissioning phase). **Section 2.3** provides details of technology considered for the solar energy facility and the generation of electricity.

2.2.3 *Project Development Phases Associated with the SBPM Solar PV facility*

Table 2.2: Details of the SBPM Solar PV facility project development phases (i.e., construction, operation, and decommissioning)

Construction Phase	
Requirements	» Project receives Environmental Authorisation from the DFFE. » Expected to be 15-18 months for SBPM solar PV facility. » Create direct construction employment opportunities. Approximately 55 employment opportunities will be created. » No on-site labour camps. Employees to be accommodated in the nearby towns such as Northam and transported to and from site on a daily basis. » Overnight on-site worker presence would be limited to security staff. » Waste removal and sanitation will be undertaken by a suitably qualified sub-contractor. Waste containers, including containers for hazardous waste, will be located at easily accessible locations on site when construction activities are undertaken. » Electricity required for construction activities will be generated by a generator. Where low voltage connections are possible, these will be considered. » Water required for the construction phase will be supplied by the municipality. In addition, where possible. Should water availability at the time of construction be limited, water will be transported to site via water tanks. Water will be used for sanitation and potable water on site as well as construction works.
Activities to be undertaken	
Conduct surveys prior to construction	» Including, but not limited to: a geotechnical survey, site survey and confirmation of the panel micro-siting footprint, and survey of the on-site collector substation site to determine and confirm the locations of all associated infrastructure.
Establishment of access roads to the Site	» Internal access roads within the site will be established at the commencement of construction. » Existing access roads will be utilised, where possible, to minimise impact. It is unlikely that access roads will need to be upgraded as part of the proposed development. » Access roads to be established for construction and/or maintenance activities within the development footprint. » Internal service road alignment will be approximately 8m wide. Location is to be determined by the final micro-siting or positioning of the PV panels.
Undertake site preparation	» Including the clearance of vegetation at the footprint of PV panel supports, establishment of the laydown areas, the establishment of internal access roads and excavations for foundations. » Stripping of topsoil to be stockpiled, for use during rehabilitation. » Vegetation clearance to be undertaken in a systematic manner to reduce the risk of exposed ground being subjected erosion. » Include search and rescue of floral species of concern (where required) and the identification and excavation of any sites of cultural/heritage value (where required).
Establishment of laydown areas and batching plant on site	» A laydown area for the storage of PV panels components and civil engineering construction equipment. » The laydown will also accommodate building materials and equipment associated with the construction of buildings.

	» No borrow pits will be required. Infilling or depositing materials will be sourced from licenced borrow pits within the surrounding areas. » A temporary concrete batching plant of 50m x 50m in extent to facilitate the concrete requirements for foundations, if required.
Construct foundation	» Excavations to be undertaken mechanically. » For PV array installation vertical support posts will be driven into the ground. » Depending on geological conditions, the use of alternative foundations may be considered (e.g., screw pile, helical pile, micropile or drilled post/piles).
Transport of components and equipment to and within the site	» The components for the solar PV facility and onsite substation will be transported to site by road. Transportation will take place via appropriate National and Provincial roads, and the dedicated access/haul road to the site. » Some of the components (i.e. substation transformer) may be defined as abnormal loads in terms of the Road Traffic Act (Act No. 29 of 1989) by virtue of the dimensional limitations. » Typical civil engineering construction equipment will need to be brought to the site (e.g. excavators, trucks, graders, compaction equipment, cement trucks, etc.) as well as components required for the mounting of the PV support structures, construction of the substation and site preparation.
Erect PV Panels and Construct Substation, Invertors and BESS	» The construction phase involves installation of the solar PV panels and the structural and electrical infrastructure to make the plant operational. In addition, preparation of the soil and improvement of the access roads would continue for most of the construction phase. » For array installation, typically vertical support posts are driven into the ground. Depending on the results of the geotechnical study a different foundation method, such as screw pile, helical pile, micro-pile or drilled post/pile could be used. The posts will hold the support structures (tables) on which PV arrays would be mounted. Brackets attach the PV modules to the tables. » Trenches are dug for the underground AC and DC cabling and the foundations of the inverter enclosures and transformers are prepared. While cables are being laid and combiner boxes are being installed, the PV tables are erected. » Wire harnesses connect the PV modules to the electrical collection systems. » Underground cables and overhead circuits connect the Power Conversion Stations (PCS) to the on-site AC electrical infrastructure and ultimately the project's on-site substation. This process also involves the installation of the BESS facility.
Connection of PV panels to the substation	» PV arrays to be connected to the on-site substation via underground electrical cables. » Excavation of trenches is required for the installation of the cables. Trenches will be approximately 1.5m deep. » Underground cables are planned to follow the internal access roads, as far as possible. » Onsite substation to be connected to the collector substation via underground cables.
Establishment of ancillary infrastructure	» Site offices and maintenance buildings, including workshop areas for maintenance and storage will be required. » Establishment will require the clearing of vegetation, levelling, and the excavation of foundations prior to construction.
Connect substation to the power grid	» Two 6.6 km, 33 kV power lines will run from the on-site substation and tie into the existing Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA). » Two 6.6 km, 33 kV power lines will run from the on-site substation and tie into the existing Fridge substation with two step down transformers (33/6.6 kV; 10 MVA).

	» Two 6.6 km, 33 kV power lines will run from the on-site substation and tie into the existing Ivan substation with two step down transformers (33/6.6 kV; 10 MVA).
Undertake site rehabilitation	» Commence with rehabilitation efforts once construction completed in an area, and all construction equipment is removed. » On commissioning, access points to the site not required during the operation phase will be closed and prepared for rehabilitation.
Operation Phase	
Requirements	» Duration will be 20-30 years. » Requirements for security and maintenance of the project. » Employment opportunities relating mainly to operation activities and maintenance. Approximately 15 - 20 full-time employment opportunities will be available during the operation of the solar facility.
Activities to be undertaken	
Operation and Maintenance	» Full time security, maintenance, and control room staff. » All PV panels will be operational except under circumstances of mechanical breakdown, inclement weather conditions, or maintenance activities. » Solar PV to be subject to periodic maintenance and inspection. » It is anticipated that the PV panels will be washed twice a year during operation using clean water with no cleaning products, or non-hazardous biodegradable cleaning products. » Disposal of waste products (e.g., oil) in accordance with relevant waste management legislation. » Areas which were disturbed during the construction phase to be utilised, should a laydown area be required during operation.
Decommissioning Phase	
Requirements	» Decommissioning of the SBPM solar PV facility infrastructure at the end of its economic life. » Potential for repowering of the facility, depending on the condition of the facility at the time. » Expected lifespan of approximately 20 - 30 years (with maintenance) before decommissioning is required. » Decommissioning activities to comply with the legislation relevant at the time.
Activities to be undertaken	
Site preparation	» Confirming the integrity of site access to the site to accommodate the required decommissioning equipment. » Preparation of the site (e.g., laydown areas and construction platform). » Mobilisation of construction equipment.
Disassemble and remove PV panels	» Components to be reused, recycled, or disposed of in accordance with regulatory requirements. » Much of the above ground wire, steel, and PV panels of which the system is comprised are recyclable materials and would be recycled to the extent feasible. » Concrete will be removed to a depth as defined by an agricultural specialist and the area rehabilitated. Cables will be excavated and removed, as may be required

It is expected that the areas of the project site affected by the solar facility infrastructure (development footprint) will revert back to its original land-use once the SBPM solar PV facility has reached the end of its economic life and all infrastructure has been decommissioned.

2.3 Technology considered for the Solar Energy Facility and the Generation of Electricity

SBPM solar PV facility will have a contracted capacity of 100MW and will make use of PV technology. Solar energy facilities, which utilise PV technology, use the energy from the sun to generate electricity through a process known as the Photovoltaic Effect. This effect refers to photons of light colliding with electrons, and therefore placing the electrons into a higher state of energy to create electricity (refer to **Figure 2.3**).

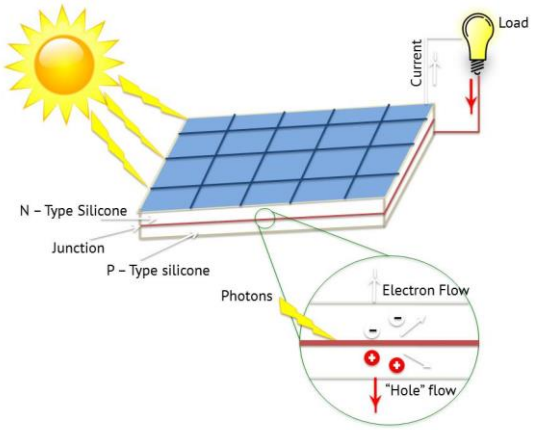


Figure 2.3: Diagram illustrating the Photovoltaic Effect (Source: Centre for Sustainable Energy)

The Photovoltaic Effect is achieved through the use of the following components:

Photovoltaic Cells

A PV cell is made of silicone that acts as a semi-conductor used to produce the Photovoltaic Effect. PV cells are arranged in multiples / arrays and placed behind a protective glass sheet to form a PV panel (refer to **Figure 2.4**). Each PV cell is positively charged on one side and negatively charged on the opposite side, with electrical conductors attached to either side to form a circuit. This circuit captures the released electrons in the form of an electric current (i.e. Direct Current (DC[4])).

[4] DC (direct current) is the unidirectional flow or movement of electric charge carriers (which are usually electrons). The intensity of the current can vary with time, but the general direction of movement stays the same at all times. As an adjective, the term DC is used in reference to voltage whose polarity never reverses. In a DC circuit, electrons emerge from the negative, or minus, pole and move towards the positive, or plus, pole. Nevertheless, physicists define DC as traveling from plus to minus. (sourced from https://whatis.techtarget.com/definition/DC-direct-current).

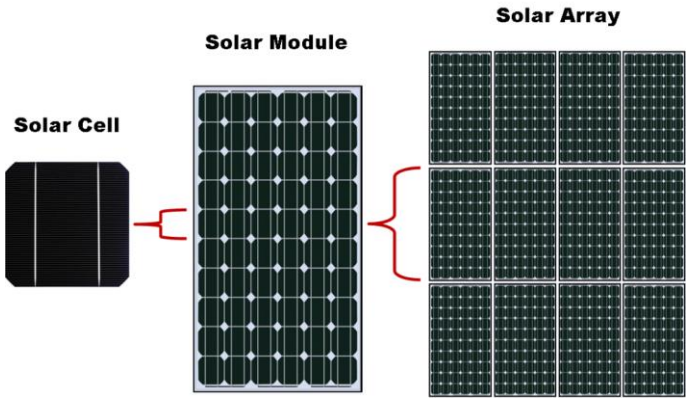


Figure 2.4: Overview of a PV cell, module and array / panel (Source: pveducation.com)

Support Structures

PV panels will be fixed to a support structure. PV panels can either utilise fixed/static support structures, or single or double axis tracking support structures (refer to **Figure 2.5**). PV panels which utilise fixed/static support structures are set at an angle (fixed-tilt PV system) so as to optimise the amount of solar irradiation. With fixed/static support structures the angle of the PV panel is dependent on the latitude of the proposed development and may be adjusted to optimise for summer and winter solar radiation characteristics. PV panels which utilise tracking support structures track the movement of the sun throughout the day so as to receive the maximum amount of solar irradiation.

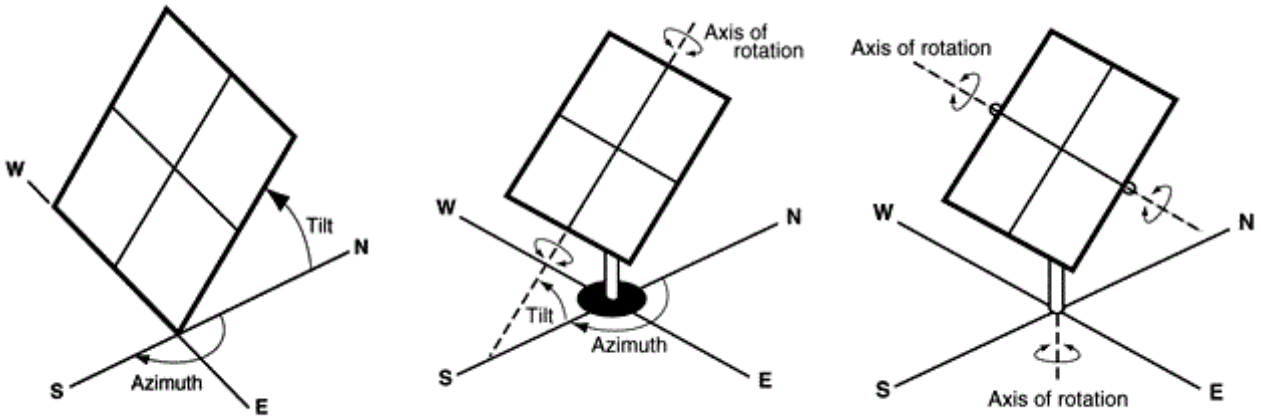


Figure 2.5: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).

PV panels are designed to operate continuously for more than 25 years, mostly unattended and with low maintenance.

Bifacial Solar Panel Technology

Main Street 1886 Proprietary Limited is considering the use of bifacial tracking technology. Bifacial ("two-faced") modules produce solar power from both sides of the panel. Traditional solar panels capture sunlight on one light-absorbing side. The light energy that cannot be captured is simply reflected away. Bifacial solar panels have solar cells on both sides, which enables the panels to absorb light from the back and the front

(refer to Figure 2.6). Practically speaking, this means that a bifacial solar panel can absorb light reflected off the ground or another material. In general, more power can be generated from bifacial modules for the same area, without having to increase the development footprint.

The optimum tilt for a bifacial module has to be designed so as to capture a big fraction of the reflected irradiation. Use of trackers is recommended so the modules can track the sun's movement across the sky, enabling them to stay directed to receive the maximum possible sunlight to generate power.

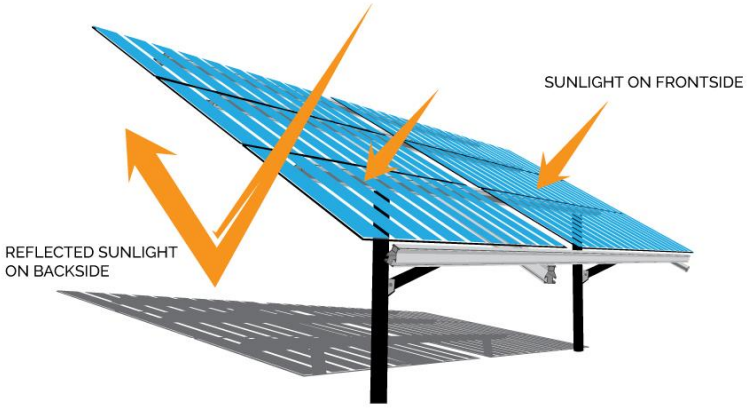


Figure 2.6: Diagram showing how bifacial Solar PV panels work (Source: https://sinovoltaics.com/learning-center/solar-cells/bifacial-solar-modules/)

Battery Energy Storage System (BESS)

The need for a BESS stem from the fact that electricity is only produced by the Renewable Energy Facility while the sun is shining, while the peak demand may not necessarily occur during the daytime. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- Store and integrate a greater amount of renewable energy from the Solar PV Facilities into the electricity grid;
- This will assist with the objective to generate electricity by means of renewable energy to supply SBPM mine with power, or potential wheel power back to grid for an alternative private offtaker.
- Proposed footprint of battery storage area: Up to ~5ha
- Proposed preferred technology to be used: Three main technologies to be considered, either separately or in combination:
  - Lithium-ion batteries (LFP/NMC or others) (Li-Ion)
  - Lithium capacitors/Electrochemical capacitors (LiC)
  - Redox-flow batteries (RFB)

Photographs of the construction phase of a solar facility similar to those proposed

CHAPTER 3: CONSIDERATION OF ALTERNATIVES

This Chapter provides an overview of the various alternatives considered for SBPM Solar PV Facility as part of the Scoping Process.

3.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report.

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
3(g) a motivation for the preferred site, activity, and technology alternative	The identification and motivation for the preferred project site, the development area within the project site, the proposed activity and the proposed technology is included in sections 3.3.1, 3.3.3 and 3.3.4.
3(h)(i) details of the alternative considered	The details of all alternatives considered as part of the SBPM Solar PV are included in sections 3.3.1 – 3.3.5.
3(h)(ix) the outcome of the site selection matrix	The site selection process followed by the developer in order to identify the preferred project site and development area is described in section 3.3.1.
3(h)(x) if no alternatives, including alternative locations for the activity were investigation, the motivation for not considering such	Where no alternatives have been considered, motivation has been included. This is included in section 3.3.

3.2 Alternatives Considered during the BA Process

In accordance with the requirements of Appendix 2 of the 2014 Environmental Impact Assessment (EIA) Regulations (GNR 326), reasonable and feasible alternatives including but not limited to site and technology alternatives, as well as the "do-nothing" alternative should be considered.

The DFFE Guideline for determining alternatives states that the key criteria for consideration when identifying alternatives are that they should be "practicable", "feasible", "relevant", "reasonable" and "viable". Essentially there are two types of alternatives:

» Incrementally different (modifications) alternatives to the project.
» Fundamentally (totally) different alternatives to the project.

In this instance, 'the project' refers to SBPM Solar PV facility, a solar energy facility with capacity of up to 100MW and associated infrastructure proposed to be developed in order to generate electricity for exclusive use by the Siyanda Mine. The construction of the PV facility aims to reduce the Siyanda Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

3.2.1 Consideration of Fundamentally Different Alternatives

Fundamentally different alternatives are usually assessed at a strategic level and, as a result, project specific EIAs are therefore limited in scope and ability to address fundamentally different alternatives. At a strategic level, electricity generating alternatives have been addressed as part of the DMRE's current Integrated Resource Plan for Electricity 2010 – 2030 (IRP)[5], and will continue to be addressed as part of future revisions. In this regard, the need for renewable energy power generation from solar PV facilities has been identified as part of the technology mix for power generation in the country for the next 20 years. The IRP includes provision for distributed generation capacity for own use. The threshold for distributed generation was raised to 100 MW in August 2021. Project developers are exempted from applying for a license but are required to register with the National Energy Regulator of South Africa (NERSA) and comply with the relevant grid code(s).

The fundamental energy generation alternatives were assessed and considered within the development of the IRP and the need for the development of renewable energy projects has been defined. Therefore, fundamentally different alternatives to the proposed project are not considered within this EIA process.

3.2.2 Consideration of Incrementally Different Alternatives

Incrementally different alternatives relate specifically to the project under investigation. "Alternatives", in relation to a proposed activity, means different ways of meeting the general purposes and requirements of the activity, which may include alternatives for:

» The property on which, or location where the activity is proposed to be undertaken.
» The type of activity to be undertaken.
» The design or layout of the activity.
» The technology to be used in the activity.
» The operational aspects of the activity.

In addition, the option of not implementing the activity (i.e. the "do-nothing" alternative) must also be considered.

The sections below describe the incrementally different alternatives being considered as part of the SBPM solar PV facility. Where no alternative is being considered, a motivation has been provided as required by the EIA Regulations, 2014.

3.3 Project Alternatives under Consideration for the SPBM Solar PV facility

3.3.1 Property or Location Alternatives

The SBPM solar PV facility is located ~6.5km west of the town of Northam. The preferred project site for the development of the SBPM solar PV facility was identified based on a number of factors, including:

» Solar resource characteristics (latitude, air temperature, occurrence of clouds, terrain elevation, atmospheric aerosol concentration and atmospheric moisture content and Global Horizontal Irradiation (GHI);

[5] The Integrated Resource Plan (IRP) is legislated policy which regulates power generation planning.

- Proximity to the Siyanda Mine;
- Land availability and suitability;
- Geographical and topographical considerations;
- Site accessibility; and
- Environmental and social aspects.

- **Solar resource**: Solar resource is the first main driver of site selection and property viability when considering the development of Solar PV facilities. 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 Horizon Irradiation (GHI) for the study area is in the region of approximately 2120 kWh/m^2/annum. This is considered feasible for the developemnt of a solar PV facility. Based on the solar resource availble, no alternative locations are considered (refer to Figure 3.1).

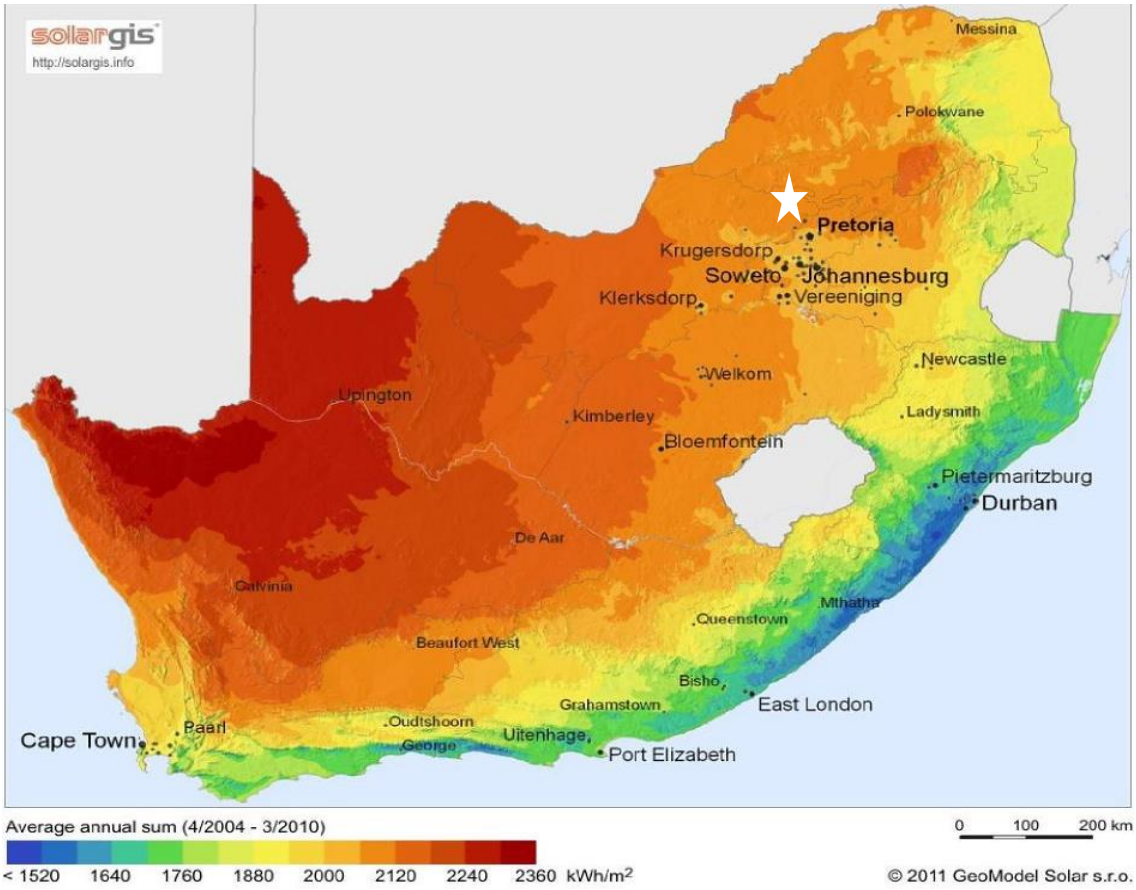


Figure 3.1: Solar irradiation map for South Africa; the proposed SBPM solar PV facility position is shown by the white star on the map (Source: adapted from GeoModel Solar, 2011).

- **Proximity to the Siyanda Mine:** The development area is located in close proximity to the Siyanda Bakgatla Platinum Mine, the exclusive user of the generated power, and is therefore preferred for development of the proposed PV Facility. Furthermore, there are existing available substations that are considered as possible grid connection points in order to be able to evacuate the generated power from the PV facility to the Siyanda Bakgatla Platinum Mine. The existing Mortimer substation and Fridge substation are located south-west of the site and the Ivan subsattion is located on the north-west of the project site. These substations were identified as the preferred grid connection points for the project. No other location alternatives are considered for the development.

» **Land availability and suitability**: In order to develop the SBPM solar PV facility and the associated grid connection with a contracted capacity of up to 100MW, sufficient space is required. The properties included in the project site were identified considering the feasible solar resource and are deemed technically feasible by the project developer for such development to take place. The project site is currently owned by the Siyanda Bakgatla Platinum Mine and has an extent of ~1138ha, which was considered by the developer as sufficient for the development of the Solar PV facility. A preferred development area of ~574ha will be demarcated within this larger project site for the location of the SBPM solar PV facility. An exact development footprint within the development area for the placement of infrastructure will be identified and assessed as part of the EIA Phase considering environmental constraints and sensitivities.

  The broader project site is currently used for mining purposes. The areas identified for the PV facility although on mining land will not impact on the mining activities. The development of the solar PV facility on this property will ensure the continuation of an economically viable land use. 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 development area fits this criterion.

» **Geographical and Topographical Considerations:** The topography in the wider area is characterised by a slope percentage between 0 and 10%, with some smaller patches within the project area characterised by a slope percentage in excess of 40%. This relatively uniform topography is feasible for the development of a PV facility such as that proposed.

» **Site access**: The project site is situated ~6km south-east of the R510 provincial road. Main access to the project site is via the Swartklip Road which branches off the R510 provincial road on the south-eastern side of the SBPM development area. The site is therefore easily accessible for both construction and operation.

» **Environmental Screening and consideration of sensitive environmental features** – Following the identification of the potential site based on the above-mentioned factors, the developer commenced with the environmental screening of the site, to evaluate the main constraints and opportunities and determine whether or not there were any potential fatal flaws or significant no-go areas within the site that might compromise or limit the development of the PV facility and the potential for generating 100MW. The screening exercise took place prior to the commencement of the EIA process and included specialist investigations of the broader project site. This included field investigations by specialist consultants, as well as desk-top consideration of environmental constraints. The purpose of this phase of the process was to identify sensitive and no go areas, as well as determination of appropriate buffers to be considered within the development of the project layout. The outcomes of this screening study informed the location of the development area within the project site. This is a common approach in the development of renewable energy projects in order to inform the placement of infrastructure for further investigation in the EIA process.

Based on the above considerations, the SBPM solar PV project site was identified by the developer as being the most technically feasible and viable project site within the broader area for further investigation in support of an application for authorisation. As a result, no property/location alternatives are proposed as part of this Scoping and EIA process.

3.3.2. Design and Layout Alternatives

The overall aim of the facility layout (i.e. development footprint) is to maximise electricity production through exposure to the solar resource, while minimising infrastructure, operation, and maintenance costs, and social and environmental impacts. The findings of the specialist scoping assessments will assist the developer in selecting the optimum position for the PV arrays and associated infrastructures including, but not limited to, access roads, and laydown areas.

An overall environmental scoping sensitivity map has been provided in order to illustrate the sensitive environmental features located within the project site which needs to be considered and, in some instances completely avoided by the development footprint (refer to Chapter 8). Once more detailed information is available from an environmental and planning perspective for the broader site, a detailed micro-siting exercise will be undertaken to effectively 'design' the solar facility layout within the project site, which will be known as the development footprint. Through the process of determining constraining factors and environmentally sensitive areas, the layout of the PV facility footprint and infrastructure will be planned and adjusted if necessary to ensure the avoidance of no-go areas and mitigation of sensitive environmental features. A detailed facility layout will be developed and will be made available for assessment and ground-truthing by the independent specialists in the EIA phase. Where further conflicts are predicted, a mitigation strategy will be developed to meet the objectives of the mitigation hierarchy (avoid, minimise, mitigate).

3.3.3. Activity Alternatives

The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Bakgatla Platinum Mine. The construction of the PV facility aims to reduce the Siyanda Bakgatla Platinum Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint. The only activity considered for implementation on the identified site is therefore power generation from solar PV and storage of power in batteries.

3.3.4. Technology Alternatives

Few technology options are available for solar PV 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 to be the most suitable renewable energy technology for this area, based on the site location, ambient conditions and energy resource availability.

When considering PV as a technology choice, several types of panels are available, including *inter alia*:

- 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).

The primary difference between PV technologies available relate to the extent of the facility, as well as the height of the facility, however the potential for environmental impacts remains similar in magnitude. Fixed mounted PV systems are able to 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 to be acceptable for implementation from an environmental perspective.

3.4 The 'Do-Nothing' Alternative

The 'Do-Nothing' alternative is the option of not constructing the SBPM Solar PV Facility. Should this alternative be selected, there would be no environmental impacts or benefits as a result of construction and operation activities associated with the solar PV facility. This alternative will be assessed within the EIA Phase of the process.

CHAPTER 4: POLICY, LEGISLATIVE CONTEXT AND NEED AND DESIRABILITY

This Chapter provides an overview of the policy and legislative context within which the development of a solar energy facility such as the SBPM Solar PV Facility and its associated infrastructure is proposed. It identifies environmental legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process which may be applicable to or have bearing on the proposed project. It also provides information which supports the need and justification for the project, as discussed in **Section 4.7** and provides a description of the need and desirability of the SBPM Solar PV Facility at the project site considered to be reasonable and feasible by the project developer.

4.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter of the EIA Report includes the following information required in terms of Appendix 2: Content of Scoping Reports:

Requirement	Relevant Section
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	A description of the policy and legislative context within which the SBPM Solar PV Facility is proposed is included and considered within this chapter.
3(f) a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.	The need and desirability of the SBPM Solar PV Facility is included and discussed as a whole within this chapter. The need and desirability for the development of the facility has been considered from an international, national, regional, and site-specific perspective.

4.2 Strategic Electricity Planning in South Africa

The need to expand electricity generation capacity in South Africa is based on national policy and informed by on-going strategic planning undertaken by the Department of Mineral Resources and Energy (DMRE). The policies or plans that have relevance to the development of the SBPM solar PV facility are discussed in more detail in the following sections. Even though the facility is proposed for the use by the Siyanda Bakgatla Platinum Mine, it is still important to demonstrate how this proposed project fits within this policy framework.

The South African energy industry is evolving rapidly, with regular changes to legislation and industry role-players. The regulatory hierarchy for an energy generation project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels. As the proposed solar energy development fall within two provinces various statutory bodies are likely to be involved in the approval process of a solar energy project and the related statutory environmental assessment process.

At **National Level**, the main regulatory agencies are:

- **National Energy Regulator of South Africa (NERSA):** NERSA is responsible for regulating all aspects of the electricity sector and will ultimately issue licenses for projects to generate electricity. Schedule 2 of the Electricity Regulation Act provides for exemptions from the obligation in the Act to apply for (and hold) a licence from National Energy Regulator (NERSA). In terms of this schedule, the threshold for distributed generation was raised to 100MW in August 2021. Project developers are exempted from applying for a license but are required to register with NERSA and comply with the relevant grid code(s).
- **Department of Forestry, Fisheries and the Environment (DFFE):** This Department is responsible for environmental policy and is the controlling authority in terms of NEMA and the EIA Regulations, 2014 (GN R326) as amended. As the proposed project crosses provincial boundaries, the DFFE is the Competent Authority for this project. The DFFE is also responsible for issuing permits for impacts on protected trees.
- **The South African Heritage Resources Agency (SAHRA):** SAHRA is a statutory organisation established under the National Heritage Resources Act (No. 25 of 1999) (NHRA), as the national administrative body responsible for the protection of South Africa's cultural heritage.
- **South African National Roads Agency Limited (SANRAL):** This Agency is responsible for the regulation and maintenance of all national road routes.
- **Department of Water and Sanitation (DWS):** This Department is responsible for effective and efficient water resources management to ensure sustainable economic and social development. This Department is also responsible for evaluating and issuing licenses pertaining to water use (i.e. Water Use Licenses (WUL) and General Authorisation).
- **The Department of Agriculture, Rural Development and Land Reform (DARDLR):** This Department is the custodian of South Africa's agricultural resources and is primarily responsible for the formulation and implementation of policies governing the agriculture sector. Furthermore, the Department is also responsible for issuing permits for the disturbance or destruction of protected tree species listed under Section 15 (1) of the National Forest Act (No. 84 of 1998) (NFA).

At **Provincial Level**, the main regulatory agencies are:

- **Provincial Government of Limpopo – Limpopo Department Economic Development, Environment and Tourism (LDEDET):** This Department is the commenting authority for the EIA process for the project in terms of NEMA and the EIA Regulations, 2014 (GN R326) as amended.
- **Limpopo Department of Transport and Community Safety:** This Department provides effective co-ordination of crime prevention initiatives, provincial police oversight, traffic management and road safety towards a more secure environment.
- **The Limpopo Provincial Heritage Resources Authority (LIHRA):** This Department identifies, conserves and manages heritage resources throughout the Limpopo Province.

- **Provincial Government of the North West – North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT):** This Department is the commenting authority for the EIA process for the project and is responsible for issuing of biodiversity and conservation-related permits. DEDECT's involvement relates specifically to sustainable resource management, conservation of protected species and land care.
- **North West Department of Public Works and Roads (NW DPWR):** NW DPWR is responsible for roads and the granting of exemption permits for the conveyance of abnormal loads on public roads.
- **North West Provincial Heritage Resources Agency (NW PHRA):** NW PHRA, the North West Provincial Heritage Resources Authority is responsible for the identification, conservation and management of heritage resources, as well as commenting on heritage related issues within the province.

» **North West Department of Community Safety and Transport Management (NW DCSTM):** This Department provides effective co-ordination of crime prevention initiatives, provincial police oversight, traffic management and road safety towards a more secure environment.

At the **Local Level,** the local and district municipal authorities are the principal regulatory authorities responsible for planning, land use and the environment. Both the local and district municipalities play a role. The local municipality includes the **Thabazimbi Local Municipality** which forms part of the **Waterberg District Municipality** and the **Moses Kotane Local Municipality** which forms part of the **Bojanala platinum District Municipality**. In terms of the Municipal Systems Act (No. 32 of 2000), it is compulsory for all municipalities to go through an Integrated Development Planning (IDP) process to prepare a five-year strategic development plan for the area under their control.

4.3 International Policy and Planning Context

A brief review of the most international policies relevant to the establishment of the SBPM Solar PV Facility is provided below in **Table 4.1**. The SBPM Solar PV Facility is considered to be aligned with the aims of these policies, even if contributions to achieving the goals therein are only minor.

Table 4.1: International policies relevant to the SBPM Solar PV Facility

Relevant policy	Relevance to the SBPM Solar PV Facility
United Nations Framework Convention on Climate Change (UNFCCC) and Conference of the Party (COP)	The Conference of the Parties (COP), established by Article 7 of the UNFCCC, is the supreme body and highest decision-making organ of the Convention. It reviews the implementation of the Convention and any related legal instruments and takes decisions to promote the effective implementation of the Convention. The Conference of the Parties (COP) 21 was held in Paris from 30 November to 12 December 2015. From this conference, an agreement to tackle global warming was reached between 195 countries. South Africa signed the Agreement in April 2016 and ratified the agreement on 01 November 2016. The Agreement was assented to by the National Council of Provinces on 27 October 2016, and the National Assembly on 1 November 2016. The Paris Agreement set out that every 5 years countries must set out increasingly ambitious climate action. This meant that, by 2020, countries needed to submit or update their plans for reducing emissions, known as nationally determined contributions (NDCs). The COP26 summit held on 2021 brought parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. On 13 November 2021, COP26 concluded in Glasgow with all countries agreeing the Glasgow Climate Pact to keep 1.5˚C alive and finalise the outstanding elements of the Paris Agreement. South Africa's National Climate Change Response Policy (NCCRP) establishes South Africa's approach to addressing climate change, including adaptation and mitigation responses. The NCCRP formalises Government's vision for a transition to a low carbon economy, through the adoption of the 'Peak, Plateau and Decline' (PPD) GHG emissions trajectory whereby South Africa's emissions should peak between 2020 and 2025, plateau for approximately a decade, and then decline in absolute terms thereafter, and based on this the country has pledged to reduce emissions by 34% and 42% below Business As Usual (BAU) emissions in 2020 and 2025, respectively.

Relevant policy	Relevance to the SBPM Solar PV Facility
	The policy provides support for the SBPM Solar PV Facility which will contribute to managing climate change impacts and assist in reducing GHG emissions in a sustainable manner.
The Equator Principles III (June 2013, as amended in June 2020)	The Equator Principles (EPs) III constitute a financial industry benchmark used for determining, assessing, and managing a project's environmental and social risks. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. In addition, these principles are used to ensure that projects financed by the Equator Principles Financial Institutions (EPFI) are developed in a manner that is socially responsible and reflects sound environmental management practices. The EPs are applicable to infrastructure projects (such as the SBPM Solar PV Facility) and apply globally to all industry sectors. Such an assessment should propose measures to minimise, mitigate, and offset adverse impacts in a manner relevant and appropriate to the nature and scale of the SBPM Solar PV Facility. In terms of the EPs, South Africa is a non-designated country (as at 4 March 2020), and as such the assessment process for projects located in South Africa evaluates compliance with the applicable IFC Performance Standards on Environmental and Social Sustainability, and Environmental Health and Safety (EHS) Guidelines. The SBPM Solar PV Facility is currently being assessed in accordance with the requirements of the 2014 EIA Regulations, as amended, published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA), which is South Africa's national legislation providing for the authorisation of certain controlled activities. Through this assessment, all potential social and environmental risks are identified and assessed, and appropriate mitigation measures proposed.
International Finance Corporation (IFC) Performance Standards and Environmental and Social Sustainability (January 2012)	The International Finance Corporation's (IFC) Performance Standards (PSs) on Environmental and Social Sustainability were developed by the IFC and were last updated on 1 January 2012. Performance Standard 1 requires that a process of environmental and social assessment be conducted, and an Environmental and Social Management System (ESMS) appropriate to the nature and scale of the project, and commensurate with the level of its environmental and social risks and impacts be established and maintained. The above-mentioned standard is the overarching standard to which all the other standards relate. Performance Standards 2 through 8 establish specific requirements to avoid, reduce, mitigate or compensate for impacts on people and the environment, and to improve conditions where appropriate. While all relevant social and environmental risks and potential impacts should be considered as part of the assessment, the standards 2 and 8 describe potential social and environmental impacts that require particular attention specifically within emerging markets. Where social or environmental impacts are anticipated, the developer is required to manage them through its ESMS consistent with Performance Standard 1. Given the nature of the SBPM Solar PV Facility, it is anticipated (at this stage of the process) that Performance Standards 1, 2, 3, 4, 6, and 8 may be applicable to the project (see box 1 below).

Relevant policy	Relevance to the SBPM Solar PV Facility
	• Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts • Performance Standard 2: Labour and Working Conditions • Performance Standard 3: Resource Efficiency and Pollution Prevention • Performance Standard 4: Community Health, Safety and Security • ~~Performance Standard 5: Land Acquisition and Involuntary Resettlement~~ - N/A • Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources • ~~Performance Standard 7: Indigenous Peoples~~ – N/A • Performance Standard 8: Cultural Heritage

4.4 National Policy and Planning Context

A brief review of the most relevant national policies is provided below in **Table 4.2**. The development of the SBPM Solar PV Facility is considered to align with the aims of these policies, even where contributions to achieving the goals therein are only minor.

Table 4.2: National policies relevant to the SBPM Solar PV Facility

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
Constitution of the Republic of South Africa, 1996	Section 24 of the Constitution pertains specifically to the environment. It states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for previously disadvantaged individuals who are most at risk to environmental impacts. The undertaking of an EIA process for the proposed project in terms of the requirements of the EIA Regulations, 2014 (as amended) aims to minimise any impacts on the natural and social environment.
National Environmental Management Act (No. 107 of 1998) (NEMA)	This piece of legislation is South Africa's key piece of environmental legislation and sets the framework for environmental management in South Africa. NEMA is founded on the principle that everyone has the right to an environment that is not harmful to their health or well-being as contained within the Bill of Rights. The national environmental management principles state that the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment. The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
White Paper on the Energy Policy of the Republic of South Africa (1998)	The White Paper on Energy Policy places emphasis on the expansion of energy supply options to enhance South Africa's energy security. This can be achieved through increased use of renewable energy and encouraging new entries into the generation market. The policy states that the advantages of renewable energy include, minimal environmental impacts during operation in comparison with traditional supply technologies, generally lower running costs, and high labour intensities. Disadvantages include higher capital costs in some cases, lower energy densities, and lower levels of availability, depending on specific conditions, especially with sun and wind-based systems. Nonetheless, renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future.
White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)	The White Paper on Renewable Energy Policy supplements Government's predominant policy on energy as set out in the White Paper on the Energy Policy of the Republic of South Africa (DME, 1998). The policy recognises the potential of renewable energy and aims to create the necessary conditions for the development and commercial implementation of renewable energy technologies. The White Paper on Renewable Energy sets out Government's vision, policy principles, strategic goals, and objectives for promoting and implementing renewable energy in South Africa. The country relies heavily on coal to meet its energy needs due to its abundant, and fairly accessible and affordable coal resources. However, massive renewable energy resources that can be sustainable alternatives to fossil fuels, have so far remained largely untapped. The development of additional renewable energy projects will promote the use of the abundant South African renewable energy resources and contribute to long-term energy security and diversification of the energy mix.
The Electricity Regulation Act (No. of 2006)	The Electricity Regulation Act of 2006, replaced the Electricity Act (No. 41 of 1987), as amended, except for Section 5B, which provides funds for the energy regulator for the purpose of regulating the electricity industry. The Act establishes a national regulatory framework for the electricity supply industry and introduces the National Energy Regulator (NERSA) as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licences and registration as the manner in which the generation, transmission, distribution, trading, and import and export of electricity are regulated. Schedule 2 of the Electricity Regulation Act provides for exemptions from the obligation in the Act to apply for (and hold) a licence from National Energy Regulator (NERSA). In terms of this schedule, the threshold for distributed generation was raised to 100MW in August 2021. Project developers are exempted from applying for a license but are required to register with NERSA and comply with the relevant grid code(s).
National Development Plan 2030	The National Development Plan (NDP) 2030 is a plan prepared by the National Planning Commission in consultation with the South African public which is aimed at eliminating poverty and reducing inequality by 2030. In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes: » Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	» Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households. » Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change. In formulating its vision for the energy sector, the NDP took the IRP 2010 as its point of departure. Therefore, although electricity generation from coal is still seen as part of the energy mix within the NDP, the plan sets out steps that aim to ensure that, by 2030, South Africa's energy system will look very different to the current situation: coal will contribute proportionately less to primary-energy needs, while gas and renewable energy resources – especially wind, solar, and imported hydroelectricity – will play a much larger role. The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy. The development of SBPM Solar PV Facility supports the NDP through the development of energy-generating infrastructure which will not lead to the generation of GHGs and will result in economic development and growth of the area surrounding the development area.
Integrated Energy Plan (IEP), November 2016	The purpose and objectives of the Integrated Energy Plan (IEP) are derived from the National Energy Act (No. 34 of 2008). The IEP takes into consideration the crucial role that energy plays in the entire economy of the country and is informed by the output of analyses founded on a solid fact base. It is a multi-faceted, long-term energy framework which has multiple aims, some of which include: » To guide the development of energy policies and, where relevant, set the framework for regulations in the energy sector. » To guide the selection of appropriate technologies to meet energy demand (i.e., the types and sizes of new power plants and refineries to be built and the prices that should be charged for fuels). » To guide investment in and the development of energy infrastructure in South Africa. » To propose alternative energy strategies which are informed by testing the potential impacts of various factors such as proposed policies, introduction of new technologies, and effects of exogenous macro-economic factors. A draft version of the IEP was released for comment on 25 November 2016. The purpose of the IEP is to provide a roadmap of the future energy landscape for South Africa which guides future energy infrastructure investments and policy development. The development of the IEP is an ongoing continuous process. It is reviewed periodically to take into account changes in the macroeconomic environment, developments in new technologies and changes in national priorities and imperatives, amongst others. The 8 key objectives of the integrated energy planning process are as follows: » Objective 1: Ensure security of supply. » Objective 2: Minimise the cost of energy. » Objective 3: Promote the creation of jobs and localisation. » Objective 4: Minimise negative environmental impacts from the energy sector. » Objective 5: Promote the conservation of water. » Objective 6: Diversify supply sources and primary sources of energy.

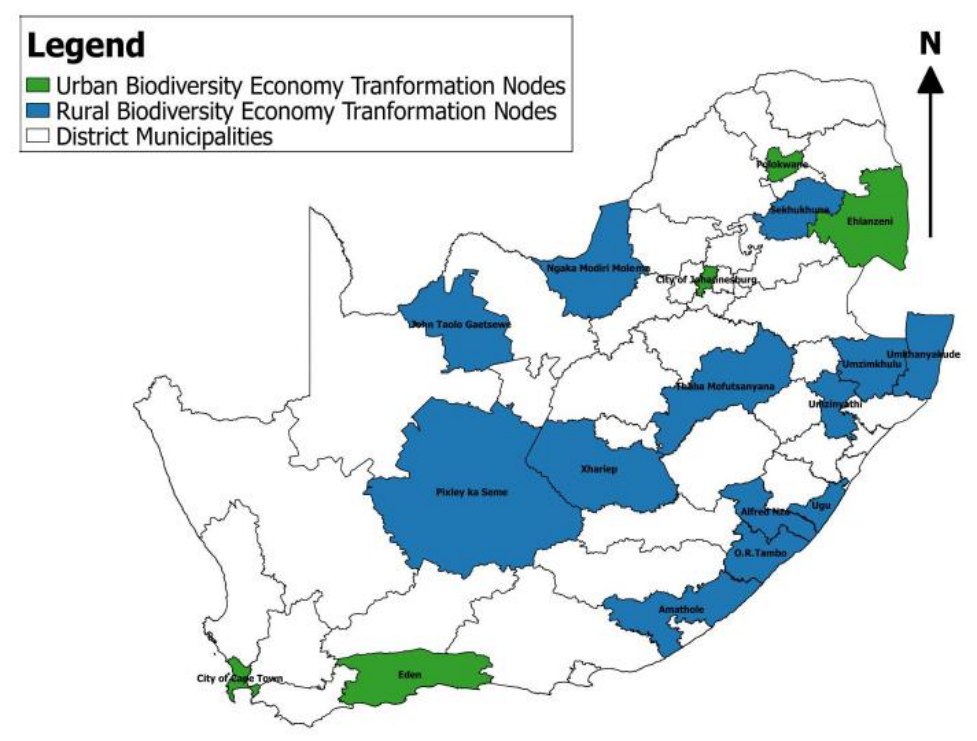
Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	» Objective 7: Promote energy efficiency in the economy. » Objective 8: Increase access to modern energy.
Integrated Resource Plan for Electricity (IRP) 2010-2030	The Integrated Resource Plan (IRP) for Electricity 2010 – 2030 is a subset of the IEP and constitutes South Africa's National electricity plan. The primary objective of the IRP is to determine the long-term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing, and cost. The IRP also serves as input to other planning functions, including amongst others, economic development and funding, and environmental and social policy formulation. The promulgated IRP 2010–2030 identified the preferred generation technology required to meet expected demand growth up to 2030. It incorporated government objectives such as affordable electricity, reduced greenhouse gas (GHG) emissions, reduced water consumption, diversified electricity generation sources, localisation and regional development. The need for a Just Transition to a sustainable, low carbon and equitable energy system is also recognised. Following the promulgation of the IRP 2010–2030, implementation followed in line with Ministerial Determinations issued under Section 34 of the Electricity Regulation (Act No. 4) of 2006. The Ministerial Determinations give effect to planned infrastructure by facilitating the procurement of the required electricity capacity. According to the IPP Procurement Programme overview report (2021), as at 31 March 2021,a total of 6 422MW has been procured under the REIPPP Programme from 112 IPPs in seven bid rounds, with 5 078MW being currently operational and made available to the grid. IPPs have commissioned 1005MW from two (2) Open Cycle Gas Turbines (OCGT) peaking plants. Under the Eskom Build Programme, 1 332MW has been procured from the Ingula Pumped Storage Project, 1 588MW and 800MW from the Medupi and Kusile power stations and 100MW from the Sere Wind Farm. Provision has been made for the following new capacity by 2030: » 1 500MW of coal » 2 500MW of hydro » 6 000MW of solar PV » 14 400MW of wind » 1 860MW of nuclear » 2 088MW of storage » 3 000MW of gas/diesel » 4 000MW from other distributed generation, co-generation, biomass and landfill technologies Of relevance to the proposed project is the provision for distributed generation capacity for own use. Therefore, the development of the SBPM solar PV facility is supported by the IRP 2019.
New Growth Path (NGP) Framework, 23 November 2010	The purpose of the New Growth Path (NGP) Framework is to provide effective strategies towards accelerated job-creation through the development of an equitable economy and sustained growth. The target of the NGP is to create 5 million jobs by 2020; with economic growth and employment creation as the key indicators identified in the NGP. The framework seeks to identify key structural changes in the

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	economy that can improve performance in terms of labour absorption and the composition and rate of growth. To achieve this, government will seek to, amongst other things, identify key areas for large-scale employment creation, as a result of changes in conditions in South Africa and globally, and to develop a policy package to facilitate employment creation in these areas.
National Climate Change Bill, 2018	On 08 June 2018, the Minister of Environmental Affairs published the National Climate Change Bill ("the Bill") for public comment. The Bill provides a framework for climate change regulation in South Africa aimed at governing South Africa's sustainable transition to a climate resilient, low carbon economy and society. The Bill provides a procedural outline that will be developed through the creation of frameworks and plans. The SBPM Solar PV Facility is a renewable energy generation facility and would not result in the generation or release of emissions during its operation.
National Climate Change Response Policy, 2011	South Africa's National Climate Change Response Policy (NCCRP) establishes South Africa's approach to addressing climate change, including adaptation and mitigation responses. The NCCRP formalises Government's vision for a transition to a low carbon economy, through the adoption of the 'Peak, Plateau and Decline' (PPD) GHG emissions trajectory whereby South Africa's emissions should peak between 2020 and 2025, plateau for approximately a decade, and then decline in absolute terms thereafter, and based on this, the country has pledged to reduce emissions by 34% and 42% below Business As Usual (BAU) emissions in 2020 and 2025, respectively. As an integral part of the policy, a set of near-term priority flagship programmes will be implemented to address the challenges of climate change, one of which includes the Renewable Energy Flagship Programme. This flagship programme includes a scaled-up renewable energy programme, based on the current programme specified in the IRP 2010, and using the evolving South African Renewables Initiative led by the Department of Public Enterprise and Department of Trade and Industry (DTI), as a driver for the deployment of renewable energy technologies. The programme will be informed by enhanced domestic manufacturing potential and the implementation of energy efficiency and renewable energy plans by local government. The development of the SBPM Solar PV Facility is aligned with the Renewable Energy Flagship Programme identified under South Africa's NCCRP and could therefore be argued to be aligned with the country's approach to addressing climate change.
National Climate Change Response Strategy for South Africa, 2004	The need for a national climate change policy for South Africa was identified as an urgent requirement during the preparations for the ratification of the UNFCCC in 1997. A process to develop such a policy was thus instituted under the auspices of the National Committee for Climate Change (NCCC), a non-statutory stakeholder body set up in 1994 to advise the Minister on climate change issues and chaired by the then Department of Environmental Affairs and Tourism (DEAT). It was determined that a national climate change response strategy will promote integration between the programmes of the various government departments involved to maximise the benefits to the country as a whole, while minimising negative impacts. Further, as climate change response actions can potentially act as a significant factor in boosting sustainable economic and social development, a national strategy specifically

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	designed to bring this about is clearly in the national interest, supporting the major objectives of the government, including poverty alleviation and the creation of jobs. A number of principles and factors guided the conception of the strategy and are required to be implemented. These are: » Ensuring that the strategy is consistent with national priorities, including poverty alleviation, access to basic amenities including infrastructure development, job creation, rural development, foreign investment, human resource development and improved health, leading to sustainable economic growth. » Ensuring alignment with the need to consistently use locally available resources. » Ensuring compliance with international obligations. » Recognizing that climate change is a cross cutting issue that demands integration across the work programmes of other departments and stakeholders, and across many sectors of industry, business, and the community. » Focussing on those areas that promote sustainable development. » Promoting programmes that will build capacity, raise awareness, and improve education in climate change issues. » Encouraging programmes that will harness existing national technological competencies. » Reviewing the strategy constantly in the light of national priorities and international trends. » Recognizing that South Africa's emissions will continue to increase as development is realised. The strategy was devised through an integrated approach and considers policies and programmes of other government departments and the fact that South Africa is a developing country. This will ensure that the principles of sustainable development are adequately served and do not conflict with existing development policies.
National Biodiversity Economy Strategy (NBES) (March 2016)	The biodiversity economy of South Africa encompasses the businesses and economic activities that either directly depend on biodiversity for their core business or that contribute to conservation of biodiversity through their activities. The commercial wildlife and the bioprospecting industries of South Africa provide cornerstones for the biodiversity economy and are the focus of this strategy. Both the wildlife and bioprospecting sub-sectors of the biodiversity economy have already demonstrated the potential for significant future development and growth. In the study commissioned on the situational analysis of the biodiversity economy, the contribution of the biodiversity economy to the national economy can be measured in terms of Gross Domestic Product (GDP), with the wildlife and bioprospecting industries contributing approximately R3 billion to GDP in 2013. Growth in the wildlife and bioprospecting industries can make a significant impact on the national economy, while contributing to national imperatives such as job creation, rural development and conservation of our natural resources. The Wildlife Industry value chain is centred on game and wildlife farming/ranching activities that relate to the stocking, trading, breeding, and hunting of game, and all the services and goods required to support this value chain. The key drivers of this value chain include domestic hunters, international hunters and a growing retail market demand for wildlife products such as game meat and taxidermy products. This

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	sector is therefore characterised by an interesting combination of agriculture, eco-tourism and conservation characteristics. Over the period 2008-2013, the total Wildlife Industry market grew by more than 14% per year. This growth comprised an average annual growth exceeding 6% in domestic hunting, a decrease in international hunting, and an exponential growth in live auction sales. It is considered likely that the consolidated Wildlife Industry has the potential to experience a weighted average annual growth rate of between 4 %-14 % per year up to 2030. In order for the wildlife and bioprospecting sub-sectors of the biodiversity economy to achieve its full potential, a strategic partnership between the state, private sector and communities is required. To this end, a National Biodiversity Economy Strategy (NBES) is required to guide the sustainable growth of the wildlife and bioprospecting industries and to provide a basis for addressing constraints to growth, ensuring sustainability, identifying clear stakeholder's responsibilities and monitoring progress of the Enabling Actions. The Vision of NBES is to optimise the total economic benefits of the wildlife and bioprospecting industries through its sustainable use, in line with the Vision of the Department of Environmental Affairs. The purpose of NBES is to provide a 14-year national coordination, leadership and guidance to the development and growth of the biodiversity economy. NBES has set an industry growth goal stating that by 2030, the South African biodiversity economy will achieve an average annualised GDP growth rate of 10% per annum. This envisioned growth curve extends into the year 2030 and is aligned to the efforts of the country's National Development Plan, Vision 2030. The NBES seeks to contribute to the transformation of the biodiversity economy in South Africa through inclusive economic opportunities, reflected by a sector which is equitable - equitable access to resources, equitable and fair processes and procedures and equitable in distribution of resources (i.e. business, human, financial, indigenous species, land, water) in the market. To address these transformation NBES imperatives, NBES has the principles of: » Conservation of biodiversity and ecological infrastructure » Sustainable use of indigenous resources » Fair and equitable beneficiation » Socio-economic sustainability » Incentive driven compliance to regulation » Ethical practices » Improving quality and standards of products. The NBES provides the opportunity to redistribute South Africa's indigenous biological/ genetic resources in an equitable manner, across various income categories and settlement areas of the country. The NBES has prioritised nodes in the country for biodiversity economy transformation, referred to as BET nodes. NBES prioritises 18 BET nodes, 13 rural and 5 urban districts across the nine provinces of the country, with communities having been prioritised for development of small and medium size enterprises and community-based initiatives which sustainably use of indigenous

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	biological and/or genetic resources. The municipalities within which the project is proposed is not identified as a priority area.



4.5 Provincial Policy and Planning Context

A brief review of the most relevant provincial policies is provided below in **Table 4.3**. The proposed development is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
Limpopo Spatial Development Framework (LSDF) 2015	The LSDF is used as a tool for forward planning to direct decisions within the domain of land development throughout the province. In broad terms, the LSDF: » Indicates the spatial implications of the core development objectives outlined in the PGDS; » Serves as a spatial plan that facilitates local economic development (LED); » Lays down strategies, proposals and guidelines as these relate to overall sustainable development. » Facilitates cross-boundary co-operation between municipalities and provinces; » Serves as a manual for integration and standardisation of the planning frameworks across all spheres of provincial government; and » Informs district municipalities within the province regarding the location and nature of the physical development.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	Some of the key development determinants (factors) for future development in the Limpopo as listed in the LSDF are as follows: » Land (e.g. availability of land, ownership of land and the use of land); » Population (e.g. distribution and concentration of population – settlement hierarchy, growth of the population, migration and the impact of illegal immigration, etc); » Social infrastructure and social factors (e.g. provision of social facilities such as education and health, welfare initiatives, the provision of housing, AIDS/HIV virus, and the perception and traditions of people with specific reference to tradition and customs, specifically in the tribal areas); » Physical infrastructure (e.g. roads, transportation, provision of water and sewerage, electricity, telecommunication, etc.); and » Institutional infrastructure (capacity of local government structures, legislation and policy formulation).
Limpopo Development Plan (2015-2019)	The Limpopo Development Plan (2015-1019) is based on lessons learnt from previous Limpopo Strategies and Plans, on the National Development Plan (NDP), the MTSF Outcomes, the State of the Nation and Province Addresses. The National Planning Commission believes that the following capital investment are relevant to Limpopo, and should be prioritised: » The upgrading of informal settlements; » Public transport infrastructure and systems; » The construction of a new coal line to unlock coal deposits in the Waterberg; » Development of a number of key new water schemes to supply urban and industrial centres; and » Procuring about 20 000 MW of renewable electricity by 2030.
North West Provincial Development Plan (PDP), 2013 (updated 2017/2022)	The North West Provincial Development Plan (PDP) 2013 (updated 2017/2022) states that the overarching objective, is to overcome certain obstacles relating to the current infrastructure by introducing renewable energy together with energy conservation and efficiency strategies. Furthermore, this will craft a better tomorrow and ensure that underdevelopment, poverty, and inequality is fully addressed in the North West Province. The overall energy objective for the province also includes promoting the development of renewable energy supply schemes which are considered to be strategically important for increasing the diversity of domestic energy supply and avoiding energy imports, while also minimising the detrimental environmental impacts. The implementation of sustainable renewable energy is also to be promoted within the province through appropriate financial and fiscal instruments.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
North West Province Spatial Development Framework (SDF) (2016) – Published 2017	The Spatial Development Framework (SDF) addresses the need for spatial planning, socio-economic development, infrastructure and conservation of natural resources. Key socio-economic issues which would require strategic planning provision include: employment (including youth and women); poverty eradication; attracting investment; economic growth; HIV / AIDS and other diseases; food security; physical infrastructure (including availability of industrial land); illiteracy; tourism development; population growth, urbanization and migration. Natural resource issues include inadequate water resources for future development; bush encroachment and alien invasive species; land and soil degradation; and overgrazing. With regard to spatial planning, the legacies of Apartheid-era policy is identified as a key issue and residents of the North West are consequently extremely underdeveloped. As per the North West Provincial Spatial Development Framework (PSDF) (2017) electricity within the province is primarily provided by Eskom to re-distributors – mainly municipalities (10%), commercial (5%), agriculture (5%), mining (30%), industrial (30%) and Residential (20%). According to the North West PSDF the proposed project site is located within the Mahikeng Distribution Area, which is characterised by minor developments, including Commercial, Industrial, and Major Electrification; and has a projected growth of 125MW (Eskom, 2015). Eskom's Transmission Development Plan 2015 – 2024 represents the transmission network infrastructure investment requirements over the 10 year period between 2015 and 2024. Projects proposed for the North West Province for the next 10 years include the introduction of 400kV power lines and transformation to support or relieve the existing networks. Five transmission power corridors have been identified as critical to providing a flexible and robust network that could respond to meet the needs of future IPPs and IRP requirements. The development of the proposed PV facility and its associated grid connection infrastructure will contribute to economic growth and development, which will in turn help eradicate poverty through job creation and skills development in the region which will be in line with the North West SDF.
Renewable Energy Strategy for the North West Province (2012)	In 2012 the North West Province's then Department of Economic Development, Environment, Conservation and Tourism (DEDECT) developed the Renewable Energy Strategy for the North West Province. The strategy was developed in response to the need of the North West Province to participate meaningfully within South Africa's RE sector. The RE strategy aims to improve the North West Province's environment, reduce its contribution to climate change, and alleviate

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	energy poverty, while promoting economic development and job creation whilst developing its green economy. According to the strategy the North West Province consumes approximately 12% of South Africa's available electricity, and is rated as the country's fourth largest electricity consuming province. This is mainly due to the high demand of the electrical energy-intensive mining and related industrial sector, with approximately 63% of the electricity supplied to the province being consumed in its mining sector. While the strategy recognises that South Africa has an abundance of RE resources available, it is cognisant of the fact that the applicability of these RE resources depend on a number of factors and as a result are not equally viable for the North West Province. The RE sources that were identified to hold the most potential and a competitive strength for the North West Province are Solar Energy (photovoltaic as well as solar water heaters), Municipal Solid Waste, hydrogen and fuel cell technologies, bio-mass, and energy efficiency. The advantages and benefits for the North West Province associated with the implementation and use of RE technologies include: » Provision of energy for rural communities, schools and clinics that are far from the national electricity grid. » Creation of an environment where access to electricity provides rural communities with the opportunity to create an economic base via agricultural and home-based industries and Small, Medium and Micro Enterprises (SMMEs) in order to grow their income-generating potential. » The supply of water within rural communities. » It would result in less time taken for the collection of wood and water, thus improving the quality of life within communities and specifically for women. » Improved health through the reduced use of fuelwood as energy source for cooking and heating that causes respiratory and other hazards. » Solar water heating for households in urban and rural settings, reducing the need for either electricity (in urban settings) and fuelwood (in rural settings) to heat water, thus lowering our National peak demand and conservation of woodlands in a sustainable manner. » Large-scale utilisation of renewable energy will also reduce the emissions of carbon dioxide, thus contributing to an improved environment. » The fact that RE go hand-in-hand with energy efficiency, it will result in additional financial benefit and the need for smaller RE systems.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	» The development of a strong localised RE industry within the NWP holds substantial potential for Black Economic Empowerment (BEE) and job creation within the Province. » The establishment of a strong RE base in the North West Province, especially in the manufacturing of fuel cells could stimulate the market for Platinum Group Metals (PGM), which would in turn help the local mining sector. This is due to RE sources having considerable potential for increasing security of supply by diversifying the energy supply portfolio and increasingly contributes towards a long-term sustainable energy future. In terms of environmental impacts, RE results in the emission of less GHGs than fossil fuels, as well as fewer airborne particulates, and other pollutants. Furthermore, RE generation technologies save on water consumption in comparison with coal-fired power plants.

4.6 Local Policy and Planning Context

The local tiers of government within which the SBPM Solar PV Facility is located within the Thabazimbi Local Municipality which falls within the jurisdiction of the Waterberg District Municipality and the Moses KotaneLocal Municipality which falls within the jurisdiction of the Bojanala Platinum District Municipality. The development instruments or policies at both the district and local level contain objectives which are in line with the development of the SBPM Solar PV Facility. These include, economic growth, job creation, community upliftment and poverty alleviation.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
Integrated Development Plan (IDP) of the Waterberg District Municipality 2020-2021	The Waterberg Municipality seeks to be the best energy hub and ecotourism destination in Southern Africa. The key economic sectors with the Waterberg District Municipality are mining, electricity/water, services, trade/catering and agriculture, with mining making the biggest contribution to the GDP. The land use pattern is fairly natural within the district, with most of the mining operations concentrated on the periphery, whereas the central area is mostly characterised by the tourism and game industry. Waterberg District Municipality adopted a 2020/21 IDP Review Framework and Process Plan, which informed all 5 local municipality's process plans and it was adopted by the Municipal Council. The main purpose of the process plan is to integrate all the processes and activities, institutional arrangements and time frames of the various sector departments, NGOs, parastatal etc. The Framework/Process plan was adopted by Council in 2019. The process plan will guide the municipality in terms f Legislative requirements and the timeframes Process plans should: » Guide decision making in respect of service delivery and public sector investment » Inform budgets and service delivery programs of various government departments and service agencies » Coordinate the activities of various service delivery agencies within Waterberg District Municipality.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
Integrated Development Plan (IDP) of the Thabazimbi Local Municipality 2019/2020	The IDP states the following as priority development issues for the municipal area: » Unemployment » Poverty alleviation » Services delivery » HIV/AIDS » Local Economic Development » Good governance » Institutional Development » Skills Development » Financial Viability Municipal has Local Economic Development project such as : » Support to small-scale mining » Poultry projects » Development of market stalls for informal traders at Northam and Thabazimbi » Establishment of a database of local SMMEs
Bojanala Platinum District IDP (2022-2027)	Despite the poor state of the municipality, Bojanala Platinum District Municipality has a massive potential of economic prosperity through its mines, tourism and agriculture. the challenge in the district has been how to tap into these economic activities as municipalities and communities in the area. There is existing mining, tourism and agricultural opportunities which include game reserves, some of which are owned and shared by communities including hotels and guest houses. The district still experiences high levels of unemployment, poverty and inequality mainly amongst the youth, women and people with disabilities. As per the IDP, Bojanala still remains focused on ensuring the following: » Promote democratic and accountable local government; » Ensure the provision of services to communities in a sustainable manner; » Promote social and economic development through job creations; » Promote a safe and healthy environment; and » We encourage the involvement of communities and community organizations in the matters of local government within our district The SBPM Solar PV Facility will, where possible, assist in enhancing economic development through job creation, skills development, as well as support the SMMEs Enterprises.
Moses Kotane local municipality IDP (2017/2018-2021-2022)	The IDP for the Moses Kotane Local Municipality identifies the following six Key Performance Areas: » Key Performance Area 1: Basic Service Delivery and infrastructure Development Infrastructure and Technical Services * To develop and maintain infrastructure to provide basic services * To develop and improve community infrastructure facilities, public safety, disaster emergencies and healthy environment » Key Performance Area 2: Municipal Transformation and Organisational Development. * To promote Accountability, efficiency and professionalism within the organization » Key Performance Area 3: Local Economic Development * To create an enabling environment for social development and economic growth.

Relevant legislation or policy	Relevance to the SBPM Solar PV Facility
	» Key Performance Area 4: Spatial Rationale ∗ To establish economically, socially and environmentally integrated sustainable land use and human settlement » Key Performance Area 5: Good Governance and Public Participation ∗ To ensure ethical and transparent governance that is responsive to community needs and encourage Public Participation » Key Performance Area 6: Municipal Financial Viability and Management ∗ To provide an Anti-Coruption Strategy ∗ To provide a effective and efficient financial systems and procedure The SBPM Solar PV Facility supports the Moses Kotane Local Municipality IDP as it will contribute towards economic development by creating job creation.

4.7 Need and Desirability of the Proposed Development

Appendix 2 of the 2014 EIA Regulations (GNR 326), as amended requires that a Scoping Report include a motivation for the need and desirability of the proposed development, including the need and desirability of the activity in the context of the preferred location. The need and desirability of the development needs to consider whether it is the right time and the right place for locating the type of land-use/activity being proposed. The need and desirability of a proposed development is, therefore, associated with the wise use of land, and should be able to respond to questions such as, but not limited to, what the most sustainable use of the land may be.

4.7.1 Need and Desirability of the SBPM Solar PV Facility

The need and desirability from the perspective of the local community as reflected in the IDP and SDF for the area has been considered in the Scoping process. In the South African context, developmental needs (community needs) are often determined through the above planning measures (IDP and SDF). Although the renewable energy sector is not explicitly identified as a sector or initiative in all current municipal policy and planning documents as outlined above, it could contribute positively to the needs of the local community, including development, social services, education, and employment opportunities in this area through sustainable provision of energy to the Siyanda Mine. The SBPM Solar PV Facility will create employment and business opportunities during the construction and operation phases, as well as the opportunity for skills development for the local community. In addition, indirect benefits and spend in the local area will benefit the local community.

The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Bakgatla Platinum Mine while decreasing the mine's carbon footprint. The SBPM PV facility will help to reduce the mine's dependency on direct supply of electricity from Eskom's national grid for mining activities. The mine is moving towards green energy supply due to growing concerns associated with climate change and the on-going exploitation of non-renewable resources.

4.7.2 Receptiveness of and desirability of the project site to develop the SBPM Solar PV Facility

The placement of a PV facility is strongly dependent on several factors including climatic conditions (solar resource), topography, the location of the site, land availability and suitability, the extent of the site and the need and desirability for the project. From a local level perspective, the project site and development area

have specifically been identified by the proponent as being highly desirable from a technical perspective for the development of a PV facility due to the following site characteristics:

» **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 development area is approximately 2120 kWh/m^2/annum. This is considered feasible for the development of a solar PV facility. Based on the solar resource available, no alternative locations are considered.

» **Proximity to the Siyanda Mine:** The development area is located in close proximity to the Siyanda Bakgatla Platinum Mine, the exclusive user of the generated power, and is therefore preferred for development of the proposed PV Facility. Furthermore, there are existing available substations that are considered as possible grid connection points in order to be able to evacuate the generated power from the PV facility to the Siyanda Bakgatla Platinum Mine. The existing Mortimer substation and Fridge substation are located south-west of the site and the Ivan subsattion is located on the north-west of the project site. These substations were identified as the preferred grid connection points for the project.

» **Geographical and Topographical Consideration** – The topography in the wider area is characterised by a slope percentage between 0 and 10%, with some smaller patches within the project area characterised by a slope percentage in excess of 40%. This relatively uniform topography is feasible for the development of a PV facility such as that proposed.

» **Land Availability and Suitability** – In order to develop the SBPM solar PV facility and the associated grid connection with a contracted capacity of up to 100MW, sufficient space is required. The properties included in the project site were identified considering the feasible solar resource and are deemed technically feasible by the project developer for such development to take place. The project site is currently owned by the Siyanda Bakgatla Platinum Mine and has an extent of ~1138ha, which was considered by the developer as sufficient for the development of the Solar PV facility. A preferred development area of ~574ha has been demarcated within this larger project site for the location of the SBPM solar PV facility. An exact development footprint within the development area for the placement of infrastructure will be identified and assessed as part of the EIA Phase considering environmental constraints and sensitivities defined through the Scoping Study.

The broader project site is currently used for mining purposes. The areas identified for the PV facility although on mining land will not impact on the mining activities. The development of the solar PV facility on this property will ensure the continuation of an economically viable land use and will support the long-term operation of the mine. 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 development area fits this criterion.

» **Proximity *to Towns with a Need for Socio-Economic Upliftment:*** The proposed project is located near the towns of Northam and Swartklip, within the Waterberg District Municipality and the Thabazimbi Local Municipality in the Limpopo Province; and the Bojanala Platinum District Municipality and the Moses Kotane Local Municipality. As per the Integrated Development Planning detailed in Section 4.6, these districts still experience high levels of unemployment, poverty and inequality mainly amongst the youth, women and people with disabilities. Main access to the project site is via the Swartklip Road which branches off the R510 provincial road on the south-eastern side of the SBPM development area. The site

is therefore easily accessible for both construction and operation. With the development of the SBPM Solar PV Facility, secondary social benefits can be expected in terms of additional spend in the nearby towns due to the increased demand for goods and services. Considering the above, it is clear that a need for employment opportunities and skills development is present within the area.

Taking into consideration the solar resource, proximity to the mine, land availability and suitability, geographical and topographical location, access to road infrastructure and proximity to towns with a need for socio-economic upliftment, the development of the SBPM Solar PV Facility within the proposed project site is considered to be desirable.

4.7.3 Benefits of Renewable Energy and the Need and Desirability in the South African Context

The generation of electricity from renewable energy resources offers a range of potential socio-economic and environmental benefits for South Africa. These benefits include:

Socio-economic upliftment of local communities: The SBPM Solar PV Facility has the potential to create much needed employment for unskilled locals during the construction phase. Where possible, training opportunities will also be afforded to qualified local people who can be upskilled to undertake certain roles during the construction and operation phases. Some of the challenges facing the Local and District municipalities, as detailed in the IDPs include high rates of unemployment and high levels of poverty. The Local and District municipalities are therefore in need of economic development, sustainable employment opportunities and growth in personal income levels. A study undertaken by the DMRE, National Treasury and the Development Bank of Southern Africa (DBSA) in June 2017 found that employment opportunities created during the construction phase of renewable energy projects implemented to date had created 40% more jobs for South African citizens than anticipated. The study also found that significantly more people from local communities were employed during construction than was initially planned, confirming the potential benefits for local communities associated with the implementation of renewable energy projects.

Resource saving: It is estimated that the achievement of the targets in the Renewable Energy White Paper will result in water savings of approximately 16.5 million kilolitres per annum. As an already water-stressed nation, it is critical that South Africa engages in a variety of water conservation measures, particularly due to the detrimental effects of climate change on water availability. Renewable energy also translates into revenue savings, as fuel for renewable energy facilities is free, while compared to the continual purchase of fuel for conventional power stations.

Exploitation of significant renewable energy resource: At present, valuable renewable resources, including biomass by-products, solar irradiation and wind power remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio in South Africa.

Economics: As a result of the excellent resource and competitive procurement processes, both wind power and solar PV power are now proven in South Africa as cheaper forms of energy generation than coal power. They offer excellent value for money to the economy and citizens of South Africa while benefitting society as a whole through the development of clean energy.

Pollution reduction: The release of by-products through the burning of fossil fuels for electricity generation has a particularly hazardous impact on human health and contributes to ecosystem degradation. The use

of solar irradiation or wind for power generation is a non-consumptive use of a natural resource which produces zero emissions during its operation.

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 the reduction of GHG emissions. South Africa is estimated to currently be responsible for approximately 1% of global GHG emissions (and circa half of those for which Africa is responsible) and is currently ranked 9th worldwide in terms of per capita carbon dioxide emissions. The development of SBPM Solar PV Facility and the associated electricity generated as a result of the facility, will result in considerable savings on tons of CO_2 emissions.

Support for international agreements: The effective deployment of renewable energy provides a tangible means for South Africa to demonstrate its commitment to its international agreements under the Kyoto Protocol and the Paris Agreement, and for cementing its status as a leading player within the international community.

Employment creation: The development, procurement, installation, maintenance and management of renewable energy facilities have significant potential for job creation and skills development in South Africa. The construction phase will create temporary employment opportunities and the operation phase will create limited full-time employment opportunities.

Acceptability to society: Renewable energy offers a number of 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, which will create jobs and skill local communities which have potential for further renewable energy projects.

Protecting the natural foundations of life for future generations: Actions to reduce our disproportionate carbon footprint can play an important part in ensuring our role in preventing dangerous anthropogenic climate change, thereby securing the natural foundations of life for generations to come; this is the basis of sustainable development.

CHAPTER 5: APPROACH TO UNDERTAKING THE SCOPING PHASE

In terms of the EIA Regulations of December 2014 (as amended) published in terms of the NEMA (Act No. 107 of 1998) as amended, the construction and operation of SBPM Solar PV Facility is a listed activity requiring Environmental Authorisation (EA). The application for EA is required to be supported by a Scoping & Environmental Impact Assessment (EIA) process based on the contracted capacity of the facility being 100MW and Activity 1 of Listing Notice 2 (GNR 325) being triggered.

An EIA process refers to the process undertaken in accordance with the requirements of the relevant EIA Regulations (the 2014 EIA Regulations (GNR 326), as amended), which involves the identification and assessment of direct, indirect, and cumulative environmental impacts associated with a proposed project or activity. The EIA process comprises two main phases: i.e. **Scoping** and **EIA Phase,** and is illustrated in Figure 5.1 Public Participation forms an important component of the process and is undertaken throughout both phases.

Figure 5.1: The Phases of an Environmental Impact Assessment (EIA) Process

Chapter 2 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(d)(i) a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for and (ii) a description of the activities to be undertaken, including associated structures and infrastructure.	All listed activities triggered and applied for are included in **Section 5.2**.

Requirement	Relevant Section
(g)(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	The public participation process followed throughout the EIA process of SBPM Solar PV Facility is included in **Section 5.5.2** and copies of the supporting documents and inputs are included in **Appendix C**.
(g)(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	The main issues raised through the undertaking of the public participation process including consultation with I&APs are included in the Comments and Responses Report in **Appendix C8**.
(g)(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives are included in **Section 5.5.3**.

5.2 Relevant legislative permitting requirements

The legislative permitting requirements applicable to SBPM Solar PV Facility, as identified at this stage in the process and considered within this EIA process, are described in more detail under the respective sub-headings. Additional permitting requirements applicable to the project are detailed within **Section 5.6**.

5.2.1 National Environmental Management Act (No. 107 of 1998) (NEMA)

NEMA (No. 107 of 1998) is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant Environmental Authorisation (EA). As the proposed project crosses provincial boundaries, the National Department of Forestry, Fisheries and the Environment (DFFE) has been determined as the Competent Authority (CA). The Limpopo Department Economic Development, Environment and Tourism (LDEDET) and the North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT) are the Commenting Authorities on the project.

The need to comply with the requirements of the EIA Regulations published under NEMA ensures that developers are provided the opportunity to consider the potential environmental impacts of their activities early in the project development process, and also allows for an assessment to be made as to whether environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the Competent Authority with sufficient information in order for an informed decision to be taken regarding the Application for EA.

The EIA process being conducted for SBPM Solar PV Facility is being undertaken in accordance with Section 24(5) of the NEMA, which defines the procedure to be followed in applying for EA, and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the competent authority. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental effect on the environment, and which may not commence without an EA from the competent authority subject to the completion of an environmental assessment process (either a Basic Assessment (BA) or full Scoping and EIA).

Error! Reference source not found. details the listed activities in terms of the EIA Regulations, 2014 (as mended) that apply to the SBPM Solar PV, and for which an application for Environmental Authorisation has been submitted to the DFFE. The table also includes a description of the specific project activities that relate to the applicable listed activities.

Table 5.1: Listed activities identified in terms of the Listing Notices (GNR 327, 325 and 324).

Notice Number	Activity Number	Description of listed activity
Listing Notice 1 (GNR 327) 08 December 2014 (as amended)	11 (i)	The development of facilities or infrastructure for the transmission and distribution of electricity – (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275kV or more. ***Internal electrical infrastructure required to connect the PV facility to the grid connection infrastructure will consist of an onsite substation and power lines of more than 33kV.***
Listing Notice 1 (GNR 327) 08 December 2014 (as amended)	12(ii)(a)(c)	The development of – (ii) Infrastructure or structures with a physical footprint of 100 square metres or more Where such development occurs- (a) within a watercourse; or (c) within 32 metres of a watercourse. ***The construction and operation of the SBPM PV facility and associated infrastructure will occur within rivers, as well as within 32m of watercourses. The infrastructure will have a physical footprint of more than 100 square metres.***
Listing Notice 1 (GNR 327) 08 December 2014 (as amended)	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 project will require the construction and operation of facilities and infrastructure for the storage and handling of dangerous goods (combustible and flammable liquids, such as oils, lubricants, solvents) associated with the on-site substation where such storage will occur inside containers with a combined capacity exceeding 80 cubic meters but not exceeding 500 cubic meters.***
Listing Notice 1 (GNR 327) 08 December 2014 (as amended)	24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; ***Access roads will be developed during the construction phase of the projects. These will exceed 8m in width.***
Listing Notice 1 (GNR 327) 08 December 2014 (as amended)	56(ii)	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre (ii) where no reserve exists, where the existing road is wider than 8 metres.

Notice Number	Activity Number	Description of listed activity
		Existing farm roads within the project site may require widening, and access roads will be widened by more than 6 metres.
Listing Notice 2 (GNR 325) 08 December 2014 (as amended)	1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, ***The project comprises a renewable energy generation facility, which will utilise solar power technology and will have a generating capacity of up to 100MW.***
Listing Notice 2 (GNR 325) 08 December 2014 (as amended)	15	The clearance of an area of 20ha or more of indigenous vegetation[6]. ***The project will result in the clearance of indigenous vegetation within an area in excess of 20ha for the development infrastructure.***
Listing Notice 3 (GNR 324) 08 December 2014 (as amended	4(e)(i)(ee) 4(h)(iv)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **e. Limpopo** (i) Outside urban areas ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority. **h. North West** iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; ***Some parts of the development area are located within a CBA and will require the construction of new access roads wider than 4m.***
Listing Notice 3 (GNR 324) 08 December 2014 (as amended	10(e)(i)	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 **e. Limpopo** **(i)** All areas ***The development of the PV facility and associated infrastructures will require the storage and handling of dangerous goods with a capacity of 80 cubic meters within CBA areas.***
Listing Notice 3 (GNR 324) 08 December 2014 (as amended	12(e)(ii)	The clearance of an area of 300 square metres or more of indigenous vegetation **e. Limpopo**

[6] "Indigenous vegetation" as defined by the 2014 EIA Regulations (GNR 326) refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

Notice Number	Activity Number	Description of listed activity
		ii. Within critical biodiversity areas identified in bioregional plans; or ***The development of the SBPM Solar PV facility will require the clearance of more than 300 square meters of indigenous vegetation within areas classified as CBA.***
Listing Notice 3 (GNR 324) 08 December 2014 (as amended	14(ii)(a)(c)(e)(i)(dd) 14(ii)(a)(c)(h)(iv)	The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; or (c) within 32 metres of a watercourse, measured from the edge of a watercourse. **e. Limpopo** i. Outside urban areas: (dd) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. **h. North West** (iv) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. ***The construction and operation of the SBPM PV facility and associated infrastructure will occur within rivers, as well as within 32m of watercourses. The infrastructure will have a physical footprint of more than 100 square metres..***
Listing Notice 3 (GNR 324) 08 December 2014 (as amended	18(e)(i)(ee) 18(h)(v)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. **e. Limpopo** (i) Outside urban areas (ee) Within critical biodiversity areas identified in systematic biodiversity plan adopted by the competent authority or in bioregional plans **h. North West** (v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority. ***Existing farm roads within the project site may require widening, and access roads will be widened by more than 6 metres.***

5.2.2 National Water Act (No. 36 of 1998) (NWA)

In accordance with the provisions of the National Water Act (No. 36 of 1998) (NWA), all water uses must be licensed with the Competent Authority (i.e., the Regional Department of Water and Sanitation (DWS) or the relevant Catchment Management Agency (CMA)). Water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

In terms of the NFEPA (2011) shows the project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers.

Error! Reference source not found. contains Water Uses associated with the proposed project and identified i n terms of the NWA which require licensing either in the form of a General Authorisation (GA), or in the form of a Water Use License (WUL). The table also includes a description of those project activities which relate to the applicable Water Uses.

Table 5.2: List of Water Uses published under Section 21 of NWA, as amended.

Notice No.	Activity No.	Description of Water Use
NWA (No. 36 of 1998)	Section 21 (c)	Impeding or diverting the flow of water in a watercourse ***The development area considered for the establishment of the SBPM Solar PV facility has no wetlands located within the extent of the project area, however the project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers. This will be confirmed during the EIA phase.***
NWA (No. 36 of 1998)	Section 21 (i)	***The development area considered for the establishment of the SBPM Solar PV facility has no wetlands located within the extent of the project area, however project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers. This will be confirmed during the EIA phase***

In the event that the flow of water in the watercourses is affected and the bed, banks or course characteristics are altered then a water use authorisation would be required. This will need to be in accordance with the requirements of the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (GN R267), or a GA registered in accordance with the requirements of Revision of General Authorisation. The process of applying for a WUL or GA registration will only be completed once a positive EA has been received. This is in line with the requirements of the Department of Water and Sanitation (DWS).

5.2.3 National Heritage Resources Act (No. 25 of 1999) (NHRA)

The National Heritage Resources Act (No. 25 of 1999) (NHRA) provides an integrated system which allows for the management of national heritage resources, and to empower civil society to conserve heritage resources for future generations. Section 38 of NHRA provides a list of activities which potentially require the undertaking of a Heritage Impact Assessment.

Section 38: Heritage Resources Management

1). Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as –

a. the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

b. the construction of a bridge or similar structure exceeding 50m in length;

c. any development or other activity which will change the character of a site –

i). exceeding 5 000m² in extent; or

ii). involving three or more existing erven or subdivisions thereof; or

iii). involving three or more erven or divisions thereof which have been consolidated within the past five years; or

iv). the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

Must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed development, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the South African Heritage Resources Agency (SAHRA) Permit Regulations (GNR 668).

5.3 Overview of the Scoping and EIA (S&EIA) Process being undertaken for SBPM Solar PV Facility

In terms of NEMA, the 2014 EIA Regulations (GNR 326), and Listing Notices (Listing Notice 1 (GNR 327) and Listing Notice 2 (GNR 325) the development of SBPM Solar PV Facility requires EA from DFFE subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA), as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326). The need for a full S&EIA process to be conducted in support of the application for EA is based on listed activities triggered which are contained within Listing Notice 2 (GNR 325).

The S&EIA process is to be undertaken in two phases as follows (refer to **Figure 5.2**):

» The **Scoping Phase** includes the identification and description of potential issues associated with the project through a desktop study and consultation with I&APs and key stakeholders through a Public Participation process. The entire development area and development envelope are considered within this process. Through this study, areas of sensitivity within the broader site are identified and delineated in order to identify any environmental fatal flaws, and environmentally sensitive, or no-go areas which need to be considered. In accordance with Regulation 21(1) of the 2014 EIA Regulations (GNR 326) this Scoping Report prepared for the project will be subject to a 30-day review and comment period during which any Interested and Affected Party (I&AP) or Authority are invited to review and provide comment on the findings. Following the completion of this review period, a Final Scoping Report which incorporates all comments received during the 30-day public review and comment period, will be

prepared and submitted to DFFE for its consideration. Following its receipt of the Final Scoping Report DFFE has 43 days within which to either accept the Scoping Report, and advise the applicant to proceed or continue with the tasks contemplated in the Plan of Study for EIA, or refuse the Application for EA in the event that the proposed activity is in conflict with a prohibition contained in legislation, or the Scoping Report does not substantially comply with Appendix 2 of the 2014 EIA Regulations (GNR 326).

» The **EIA Phase** involves a detailed assessment of potentially significant positive and negative direct, indirect, and cumulative impacts identified during the Scoping Phase. This phase includes detailed specialist investigations and a Public Participation process, and results in the compilation of an EIA Report and Environmental Management Programme (EMPr). In accordance with Regulation 23(1)(a) of the 2014 EIA Regulations (GNR 326) the EIA Report and EMPr prepared for the project will also be subject to a 30-day public review and comment period during which members of the public, I&APs, and authorities will be invited to review and provide comment on the EIA Report and EMPr. Following the conclusion of this review period a Final EIA Report and EMPr which incorporates all comments received during the 30-day review and comments period, will be prepared and submitted to DFFE for its consideration. Following its receipt of the Final EIA Report and EMPr, DFFE has 107 days within which to either grant or refuse the EA.

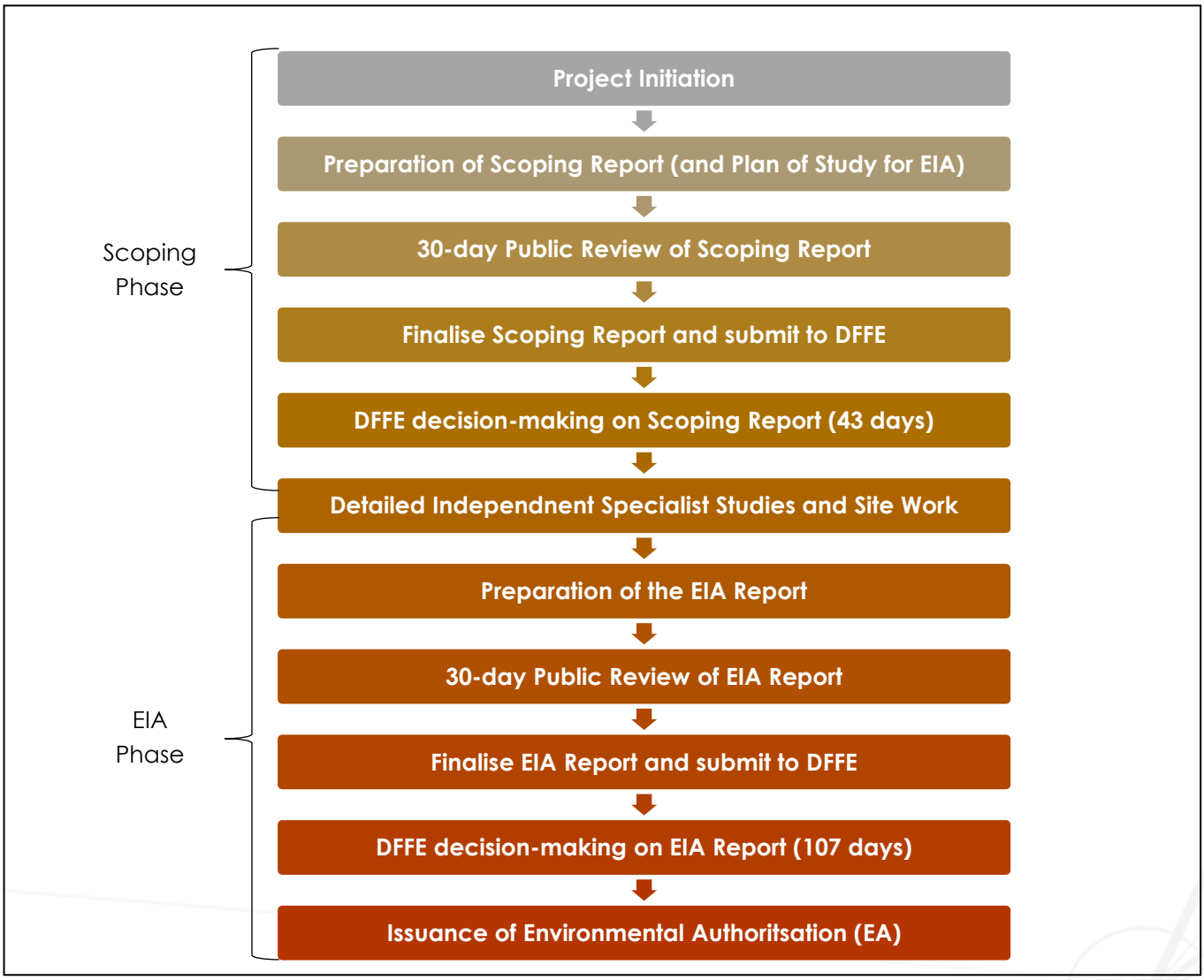


Figure 5.2: Regulated timeframe of an Environmental Impact Assessment (EIA) Process

5.4 Objectives of the Scoping Phase

This Scoping Report documents the evaluation of potential environmental impacts of SBPM Solar PV Facility and forms part of the EIA process being conducted in support of an Application for EA for the project. The Scoping Phase has been conducted in accordance with the requirements of the 2014 EIA Regulations (GNR 326), and therefore aims to:

- Identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction, operation and decommissioning) within the broader project site and development area through a review of existing baseline data, including specialist studies which were undertaken within the project area.
- Identify potentially sensitive environmental features and areas within the broader project site and development area in order to inform the preliminary design process of the facility.
- Define the scope of studies to be undertaken during the EIA process.
- Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA Phase, as well as regarding the scope and extent of specialist studies that will be required to be undertaken.

The following objectives of the Scoping Phase (in accordance with Appendix 2 of the 2014 EIA Regulations (GNR 326)) have been met, through the undertaking of a consultative process.

- The identification of relevant policies and legislation regarding the activities to be undertaken have been identified and considered within this Scoping Report.
- Activities to be undertaken for the development of SBPM Solar PV Facility have been identified and motivated in terms of the need and desirability for the activities to take place.
- Potential impacts associated with the undertaking of the identified activities and technology have been identified and described.
- Identification of areas of high sensitivity to be avoided by the preferred development envelope.
- Preferred areas for the development in the form of a development envelope, which are areas associated with low to medium environmental sensitivity, have been identified within the development area through a desktop level impact assessment process and on-going consultative process. Areas of high sensitivity (i.e. the north, north-western and southern portions of the development area) have been avoided by the development envelope which will be assessed within the EIA Phase, within which the development footprint will be placed.
- Key issues associated with the project to be addressed during the EIA Phase for further detailed study and ground-truthing have been identified and listed within this Scoping Report.
- The level of assessment, expertise and the extent of further consultation to be undertaken in the EIA Phase of the process, with the aim of determining the extent of impacts associated with the activities through the life cycle of the project (i.e. construction, operation and decommissioning), have been identified and included within this Scoping Report.

5.5 Overview of the Scoping Phase

Key tasks undertaken within the Scoping Phase include:

- Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).

- Submission of the completed Application for EA to the competent authority (DFFE) in terms of Regulations 5 and 16 of the 2014 EIA Regulations (GNR 326).
- Undertaking a public participation process (in line with the approved public participation plan submitted to DFFE) in accordance with Chapter 6 of GNR326, and the Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa (hereinafter referred to as "the Guidelines") in order to identify issues and concerns associated with the proposed project.
- Undertaking of independent specialist studies in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR326), as amended, and the requirements of the Specialist Protocols published in Regulation GNR 320, issued 20 March 2020 and GNR 1150 of 30 October 2020, where relevant, as well as other relevant guidelines.
- Preparation of a Scoping Report and Plan of Study for EIA in accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326).
- Preparation of a Comments and Response (C&R) Report detailing all comments raised by I&APs and responses provided as part of the Scoping Phase.
- Submission of a Final Scoping Report, including a Plan of Study for the EIA, to DFFE for review and approval.

5.5.1 Authority Consultation and Application for Authorisation in terms of the 2014 EIA Regulations (as amended)

As the proposed project crosses provincial boundaries, the National DFFE has been determined as the competent authority. LDEDET and NW DEDECT are the Commenting Authorities on the project. Consultation with these authorities is being undertaken throughout the Scoping Phase. To date, this consultation has included the following:

- Submission of a pre-application meeting request form to the DFFE via email on **03 May 2022**. Following submission of the pre-application form, a case officer has been allocated, and no pre-application meeting was considered necessary (refer to **Appendix B**).
- Submission of the Application for Environmental Authorisation to the DFFE via the use of the DFFE Novell Filr System.
- Submission of the Scoping Report for review and comment by:
  - The competent and commenting authorities.
  - State departments that administer laws relating to a matter affecting the environment relevant to an Application for EA.
  - Organs of State which have jurisdiction in respect of the activity to which the application relates.

The submissions, as listed above, were undertaken electronically, as required by the DFFE. A record of all authority correspondence undertaken during the Scoping Phase is included in **Appendix B**.

5.5.2 Public Participation Process

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations 41 to 44 of the EIA Regulations 2014 (GN R326) (as amended). The purpose of public participation is clearly outlined in Regulation 40 of the EIA Regulations 2014 (GN R326) (as amended) and is being followed for this proposed project.

The Public Participation Process for SBPM Solar PV Facility has been undertaken concurrently to that for SCSC Solar PV Facility, located adjacent to the site. The benefit to the stakeholder is that all information relevant to all related applications has been made available for review together, and not only for comments to be raised across the two applications at one time, but also provided a complete picture of the potential for impacts and/or benefits related to the suite of projects located in close proximity to one another.

The sharing of information forms the basis of the public participation process and offers the opportunity for I&APs to become actively involved in the EIA process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner. The public participation process affords I&APs opportunities to provide input into and receive information regarding the EIA process in the following ways:

» During the **Scoping Phase**:
  * provide an opportunity to submit comments regarding the project;
  * assist in identifying reasonable and feasible alternatives, where required;
  * identify issues of concern and suggestions for enhanced
  * contribute relevant local information and knowledge to the environmental assessment;
  * allow registered I&APs to verify that their comments have been recorded, considered and addressed, where applicable, in the environmental investigations;
  * foster trust and co-operation;
  * generate a sense of joint responsibility and ownership of the environment;
  * comment on the findings of the Scoping Phase results; and
  * Identify issues of concern and suggestions for enhanced benefits.

» During the **EIA Phase**:
  * contribute relevant local information and knowledge to the environmental assessment;
  * verify that issues have been considered in the environmental investigations as far as possible as identified within the Scoping Phase;
  * comment on the findings of the environmental assessments; and
  * attend a Focus Group Meeting to be conducted for the project.

» During the **decision-making phase**:
  * to advise I&APs of the outcome of the competent authority's decision, and how and by when the decision can be appealed.

The Public Participation process therefore aims to ensure that:
» Information containing all relevant facts in respect of the application is made available to potential stakeholders and I&APs for their review;
» The information presented during the public participation process is presented in such a manner, i.e. local language and technical issues, that it avoids the possible alienation of the public and prevents them from participating;
» Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project;
» A variety of mechanisms are provided to I&APs to correspond and submit their comments i.e. fax, post, email, telephone, text message (SMS and WhatsApp); and
» An adequate review period is provided for I&APs to comment on the findings of the Scoping and EIA Reports.

In terms of the requirement of Chapter 6 of the EIA Regulations of December 2014, as amended, the following key public participation tasks are required to be undertaken:

- Fix a notice board 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.
- Give written notice to:
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  - (vii) any other party as required by the competent authority.
- Place an advertisement in one local newspaper.
- Open and maintain a register of I&APs and Organs of State.
- Release of a Scoping Report for a 30-day review and comment period.
- Prepare a Comments and Responses (C&R) report which documents the comments received on the EIA process and during the 30-day review and comment period of the Scoping Report and the responses provided by the project team.

i. Stakeholder identification and Register of Interested and Affected Parties

42. A proponent or applicant must ensure the opening and maintenance of a register of I&APs and submit such a register to the competent authority, which register must contain the names, contact details and addresses of –
    (a) All persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;
    (b) All persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and
    (c) All organs of state which have jurisdiction in respect of the activity to which the application relates.

I&APs have been identified through a process of networking and referral, obtaining information from Savannah Environmental's existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. Key stakeholders and affected and surrounding landowners have been identified and registered on the project database. Other stakeholders are required to formally register their interest in the project through either directly contacting the Savannah Environmental Public Participation team via phone, text message (SMS and WhatsApp), email or fax, or registering their interest via the online stakeholder engagement platform. An initial list of key stakeholders identified and registered is listed in **Table 5.3**.

Table 5.3: Initial list of Stakeholders identified for the inclusion in the project database during the public participation process for SBPM Solar PV Facility

Organs of State
National Government Departments
Department Forestry, Fisheries and the Environment (DFFE)
Department of Mineral Resources and Energy (DMRE)
Department of Agriculture, Land Reform, and Rural Development (DALRRD)
Department of Water and Sanitation (DWS)
Department of Communications and Digital Technologies
Government Bodies and State-Owned Companies
Eskom Holdings SOC Limited
National Energy Regulator of South Africa (NERSA)
Air Traffic Navigation Services (ATNS)
South African Civil Aviation Authority (CAA)
South African Heritage Resources Agency (SAHRA)
South African National Roads Agency Limited (SANRAL)
Telkom SA SOC Limited
Transnet SA SOC Limited
Provincial Government Departments
North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDCT)
Provincial Government of Limpopo – Limpopo Department Economic Development, Environment and Tourism (LDEDET)
North West Department of Public Works and Roads (NW DPWR)
Limpopo Department of Transport and Community Safety
North West Provincial Heritage Resources Agency ((NW PHRA) – provincial Heritage Authority
The Limpopo Provincial Heritage Resources Authority (LIHRA)
North West Department of Community Safety and Transport Management (NW DCSTM)
Local Government Departments
Waterberg and Bojanala Platinum District Municipality
Thabazimbi Local and Moses Kotane Local Municipality
Commenting Stakeholders
BirdLife South Africa
Endangered Wildlife Trust (EWT)
Wildlife and Environment Society of South Africa (WESSA)
Landowners
Affected landowners, tenants and occupiers
Neighbouring landowners, tenants and occupiers

As per Regulation 42 of the EIA Regulations, 2014 (as amended), all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix C1** for a listing of the recorded parties). In addition to the above-mentioned EIA Regulations, point 4.1 of the Public Participation Guidelines has also been followed. The register of I&APs contains the names[7] of:

[7] Contact details and addresses have not been included in the I&AP database as this information is protected by the Protection of Personal Information Act (No 4 of 2013).

- all persons who requested to be registered on the database through the use of the online stakeholder engagement platform or in writing and disclosed their interest in the project.
- all Organs of State which hold jurisdiction in respect of the activity to which the application relates; and
- all persons who submitted written comments or attended virtual meetings (or in-person consultation where sanitary conditions can be maintained) and viewed the narrated presentations on the Savannah Environmental online platform during the public participation process.

I&APs have been encouraged to register their interest in the EIA process from the onset of the project, and the identification and registration of I&APs will be on-going for the duration of the EIA process. The database of I&APs will be updated throughout the EIA process and will act as a record of all I&APs involved in the public participation process.

ii. Advertisements and Notifications

40.(2)(a)	Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of – (i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and (ii) Any alternative site.
40.(2)(b)	Giving written notice, in any of the manners provided for in section 47Dof the Act, to – (i) The occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken; (ii) Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken; (iii) The municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area; (iv) The municipality which has jurisdiction in the area; (v) Any organ of state having jurisdiction in respect of any aspect of the activity; and (vi) Any other party as required by the competent authority.
40.(2)(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;
40.(2)(d)	Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district 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 paragraph (c)(ii); and
40.(2)(e)	Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to – (i) Illiteracy; (ii) Disability; or (iii) Any other disadvantage.

The EIA process was announced with an invitation to the Organs of State, potentially affected and neighbouring landowners and general public to register as I&APs and to actively participate in the process. This was achieved via the following:

- Compilation of a background information document (BID) (refer to **Appendix C3**) providing technical and environmental details on the project and how to become involved in the EIA process. The BID and the process notification letter announcing the EIA process, notifying Organs of State, potentially affected and neighbouring landowners, as well as registered stakeholders/IAPs of SBPM Solar PV Facility, and providing background information of the project and inviting I&APs to register on the project's database were distributed via email on **10 May 2022.** The evidence of the distribution is contained in **Appendix C** of the Scoping Report. The BID is also available electronically on the Savannah Environmental website (http://www.savannahsa.com/public-documents/energy-generation/).
- Placement of site notices announcing the EIA process at visible points along the boundary of the development area (i.e. the boundaries of the affected property), in accordance with the requirements of the EIA Regulations on **11 May 2022**. Photographs and the GPS co-ordinates of the site notices are contained in **Appendix C2** of the Scoping Report.
- Placement of the process advert in The Rustenburg Herald Newspaper on **15 April 2022** announcing the proposed SBPM Solar PV facility development.
- Placement of an advertisement in the Platinum Bushveld Newspaper (in English) on **03 June 2022** at the commencement of the EIA process. This advert:
  - Announced the project and the associated EIA process.
  - Provided details of how I&APs can become involved in the EIA process, including details of the public participation consultant.
  - Provided all relevant details to access the Savannah Environmental online stakeholder engagement platform.
- A copy of the newspaper advert, as sent to the newspaper and the newspaper advert tear sheet is included in **Appendix C2** of the Scoping Report.
- The Scoping Report has been made available for review by I&APs for a 30-day review and comment period from **03 June 2022** to **04 June 2022**. The full Scoping Report is available on the Savannah Environmental website. The evidence of distribution of the Scoping Report will be included in the Final Scoping Report, which will be submitted to the DFFE.

iii. Public Involvement and Consultation

In order to accommodate the varying needs of stakeholders and I&APs within the surrounding area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 5.4: Public involvement for SBPM Solar PV Facility

Activity	Date
Announcement of the EIA process in one local newspaper: Platinum Bushveld Newspaper and Rustenburg Herald (English advertisement)	03 June 2022 & 15 April 2022, respectively
Distribution of the BID, process notification letters and stakeholder reply form announcing the EIA process and inviting I&APs to register on the project database. The BID and electronic reply form was also made available on the online stakeholder engagement platform.	10 May 2022
Placement of site notices at the project site	11 May 2022

Announcement of the availability of the Scoping Report for a 30-day review and comment period, including details on how to access the Scoping Report via the online stakeholder engagement platform.	03 June 2022
Distribution of notification letters announcing the availability of the Scoping Report for a 30-day review and comment period. These letters were distributed to Organs of State, Government Departments, Ward Councillors, landowners within the surrounding area (including neighbouring landowners) and key stakeholder groups.	03 June 2022
30-day review and comment period of the Scoping Report.	03 June 2022- 04 June 2022
Virtual meetings through the use of virtual platforms as determined through discussions with the relevant stakeholder group: » Landowners » Authorities and key stakeholders (including Organs of State, local municipality and official representatives of community-based organisations). » Where an I&AP does not have access to a computer and/or internet to participate in a virtual meeting telephonic discussions (including WhatsApp video call) will be set-up and minuted for inclusion. The preferred language of the I&AP has been considered when setting up these discussions. » Direct in-person consultation will only take place in limited numbers and where sanitary conditions can be maintained at all times.	To be held during the 30-day review and comment period
On-going consultation (i.e. telephone liaison; e-mail communication) with all I&APs.	Throughout the EIA process

iv. Registered I&APs entitled to Comment on the Scoping Report

43.(1) A registered I&AP is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

(2) In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.

44.(1) The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.

(2) Where a person desires but is unable to access written comments as contemplated in subregulation (1) due to –

(a) A lack of skills to read or write;

(b) Disability; or

(c) Any other disadvantage;

Reasonable alternative methods of recording comments must be provided for.

I&APs registered on the database have been notified by means of a notification letter of the release of the Scoping Report for a 30-day review and comment period, invited to provide comment on the Scoping Report, and informed of the manner in which, and timeframe within which such comment must be made. The report has been made available in soft copies to I&APs . Hard copies can be made available on request where sanitary conditions can be maintained.

The Scoping Report has also been made available on the Savannah Environmental website (https://savannahsa.com/public-documents/energy-generation/). The notification was distributed prior to commencement of the 30-day review and comment period, on **03 June 2022**. Where I&APs are not able to provide written comments (including SMS and WhatsApp), other means of consultation, such as telephonic discussions are used to provide the I&APs with a platform to verbally raise their concerns and comments on the proposed development.

All comments raised as part of the discussions and written comments submitted during the 30-day review and comment period will recorded and included in **Appendix C6** and **Appendix C7** of the Scoping Report.

v. Identification and Recording of Comments

Comments raised by I&APs over the duration of the Scoping Phase will be synthesised into a Comments and Responses (C&R) Report which will be included in **Appendix C8** of the Final Scoping Report. These will include comments raised through the use of the Savannah Environmental online stakeholder engagement platform and any other written comments received. The C&R Report will include detailed responses from members of the EIA project team and/or the project proponent to the issues and comments raised during the public participation process.

Meeting notes of all the telephonic discussions and virtual meetings conducted during the 30-day review and comment period of the Scoping Report will be included in **Appendix C7**.

5.5 Outcomes of the 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 (included as **Appendix H** of the Scoping Report) for the SBPM Solar PV is applicable as it triggers Regulation 19 of the EIA Regulations, 2014, as amended. **Table 5.5** 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 development area under consideration.

Table 5.5: Sensitivity ratings from the DFFE's web-based online Screening Tool associated with the development of the SBPM Solar PV facility

Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Project Team Response
Agricultural Impact Assessment	Very high	The scoping study is included in this Scoping Report as **Appendix D**. Based on the outcome of the desktop analysis of available data, it has been concluded that the the impacts to soils and agriculture will be further assessed during the EIA phase.
Landscape/Visual Impact Assessment	Very high	The project site is located in an area that has a distinct rural and agricultural character. The Swartklip mine town which was built around the Siyanda Bakgatla Platinum Mine is located ~1km

Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Project Team Response
		from the project site. Tirammogo lodge is located adjacent (south-east) of the proposed SBPM Solar PV facility site. Although numerous mining related structures and activities dominate the landscape of the greater area (particularly the western portion of the site area closer to the existing Union Section Mine and the Siyanda Bakgatla Platinum Mine, there are a number of overhead power lines and substations in close proximity to the project area. The Ivan, Fridge and the Mortimer substations are located in the northwest of the project site. The visual impact is not expected to be of high significance due to the fact that the proposed development is located within an industrial/mining area. Therefore, no visual impact assessment has been included in this report.
Archaeological and Cultural Heritage Impact Assessment	Low	A Heritage Screening is included in this Scoping Report as **Appendix F**. Heritage impacts will be further assessed during the EIA phase.
Palaeontology Impact Assessment	Medium	A Heritage Screening (which covers palaeontological aspects of the project site) is included in this Scoping Report as **Appendix F**. Paleontological impacts will be further assessed during the EIA phase.
Terrestrial Biodiversity Impact Assessment	Very high	An Ecological scoping study (including flora and fauna) has been undertaken for the PV facility and is included as **Appendix D** of the Scoping Report. A detailed assessment will be undertaken in the EIA Phase of the process.
Aquatic Biodiversity Impact Assessment	Very high	An Aquatic scoping study has been undertaken for the PV facility and is included as **Appendix D** of the Scoping Report. A detailed assessment will be undertaken in the EIA Phase of the process.
Civil Aviation Assessment	Medium	The Civil Aviation Authority (CAA) and Air Traffic Navigation Services (ATNS) will be consulted throughout the Scoping/EIA process to obtain input.
Defence Assessment	Low	A defence of military base is not located within close proximity to the PV facility.
RFI Assessment	Medium	The project site under consideration for the development of the SBPM Solar PV is located within an area that as classified as having medium sensitivity for telecommunication. The Telkom will however be consulted during the 30-day review and comment period of the Scoping Report to provide written comment on the proposed development.
Geotechnical Assessment	The screening report does not indicate a rating for this theme.	A geotechnical study will be undertaken by the applicant as part of the technical studies for the project design.
Socio Economic Assessment	The screening report does not indicate a rating for this theme.	A Social Scoping Assessment has been undertaken and is included in the Scoping Report as **Appendix G**. A detailed assessment will be undertaken in the EIA Phase of the process.
Plant Species Assessment	Low	An Ecological scoping study (including flora and fauna) has been undertaken for the PV facility and is included as A**ppendix**

Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Project Team Response
Animal Species Assessment	Medium	**D** of the Scoping Report. Based on the outcomes of the desktop study and available data, it has been indicated that the development area falls within the areas identified as Low to Medium-Low Sensitivity. The impacts will be further assessed during the EIA phase.
Avian theme	Low	An Avifaunal Scoping Assessment has been undertaken and is included in the Scoping Report as **Appendix E**. A detailed assessment will be undertaken in the EIA Phase of the process.

5.5.3 Evaluation of Issues Identified through the Scoping Process

Direct, indirect, and cumulative environmental impacts associated with the project identified during the Scoping Phase have been evaluated through consideration of existing information available for the SBPM Solar PV Facility development area.

In order to evaluate issues and assign an order of priority, the following methodology was used to identify the characteristics of each potential issue/impact:

» The ***nature***, which includes a description of what causes the impact, 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 or national.
» Identify ***sensitive receptors*** that may be impacted on by the proposed development and the types of impacts that are most likely to occur.
» The ***significance*** of potential impacts in terms of the requirements of the 2014 EIA Regulations (including (nature, significance, consequence, extent, duration and probability of the impacts, the degree to which these impacts:
  (a) Can be reversed;
  (b) May cause irreplaceable loss of resources; and
  (c) Can be avoided, managed or mitigated.
» Identify the potential impacts that will be considered further in the EIA Phase through detailed investigations.

The evaluation of the proposed project resulted in a description of the nature, significance, consequence, extent, duration and probability of the identified issues, as well as recommendations regarding further studies required within the EIA Phase.

5.5.4 Finalisation of the Scoping Report

The final stage of the Scoping Phase entails the recording and capturing of comments received from stakeholders and I&APs on the Scoping Report in order to finalise the Scoping Report for submission to DFFE for decision-making. All written comments received will be addressed within the C&R Report (**Appendix C8**).

Chapter 3 5.6 Assumptions and Limitations of the EIA Process

The following assumptions and limitations are applicable to the EIA process of SBPM Solar PV Facility:

» All information provided by the developer and I&APs to the environmental team was correct and valid at the time it was provided.
» It is assumed that the development area for the solar PV facility identified by the developer represents a technically suitable site for the establishment of SBPM Solar PV Facility which is based on the design undertaken by technical consultants for the project.
» The development footprint (the area that will be affected during the operation phase) will include the footprint for the PV facility and associated infrastructure (i.e. internal access roads, and the BESS).
» The Scoping Phase evaluation of impacts has been largely based on desktop studies as well as the findings of studies which have been completed previously for this specific site. This information has been used to inform this Scoping report and will be verified by specialists in the EIA phase to assess the project development footprint for SBPM Solar PV Facility.

Chapter 4 5.7 Legislation and Guidelines that have informed the preparation of this Scoping Report

The following legislation and guidelines have informed the scope and content of this Scoping Report:

» National Environmental Management Act (Act No. 107 of 1998);
» EIA Regulations of December 2014, published under Chapter 5 of NEMA (as amended);
» Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations.
» Department of Environmental Affairs (2017), Integrated Environmental Management Guideline: Guideline on Need and Desirability.
» Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation; and
» International guidelines – the Equator Principles, the IFC Performance Standards, the Sustainable Development Goals, World Bank Environmental and Social Framework, and the and World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines).

Several other Acts, standards or guidelines have also informed the project process and the scope of issues addressed and assessed in this Scoping Report. A review of legislative requirements applicable to the proposed project is provided in **Table 5.6**.

Table 5.6: Relevant legislative permitting requirements applicable to SBPM Solar PV Facility

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Legislation			
Constitution of the Republic of South Africa (No. 108 of 1996)	In terms of Section 24, the State has an obligation to give effect to the environmental right. The environmental right states that: "*Everyone has the right –* » *To an environment that is not harmful to their health or well-being, and* » *To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:* ∗ *Prevent pollution and ecological degradation,* ∗ *Promote conservation, and* ∗ *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*."	Applicable to all authorities	There are no permitting requirements associated with this Act. 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 the use of natural resources and ecologically sustainable development.
National Environmental Management Act (No 107 of 1998) (NEMA)	The 2014 EIA Regulations have been promulgated in terms of Chapter 5 of NEMA. Listed activities which may not commence without EA are identified within the Listing Notices (GNR 327, GNR 325 and GNR 324) which form part of these Regulations (GNR 326). In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. Considering the capacity of the proposed SBPM Solar PV Facility project (i.e. contracted capacity of 100MW) and the triggering of Activity 1 of Listing Notice 2 (GNR 325) a full	DFFE – Competent Authority Limpopo (DEDET) – Commenting Authority North West (DEDECT) – Commenting Authority	The listed activities triggered by the proposed project have been identified and are being assessed as part of the EIA process currently underway for the project. The EIA process will culminate in the submission of a Final EIA Report to DFFE for review and decision-making.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	Scoping and EIA process is required in support of the Application for EA.		
National Environmental Management Act (No 107 of 1998) (NEMA)	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 degradation of the environment 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 environment. In terms of 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.	DFFE Limpopo (DEDET) – Commenting Authority North West (DEDECT) – Commenting Authority	While no permitting or licensing requirements arise directly by virtue of the proposed project, this section finds application through the consideration of potential cumulative, direct, and indirect impacts. It will continue to apply throughout the life cycle of the project.
Environment Conservation Act (No. 73 of 1989) (ECA)	The Noise Control Regulations in terms of Section 25 of the ECA contain regulations applicable for the control of noise in the Provinces of Limpopo, North West, Mpumalanga, Northern Cape, Eastern Cape, and KwaZulu-Natal Provinces. The Noise Control Regulations cover the powers of a local authority, general prohibitions, prohibitions of disturbing noise, prohibitions of noise nuisance, use of measuring instruments, exemptions, attachments, and penalties. In terms of the Noise Control Regulations, no person shall make, produce or cause a disturbing noise, or allow it to be made, produced or caused by any person, machine, device or apparatus or any combination thereof (Regulation 04).	DFFE Limpopo (DEDET) – Commenting Authority North West (DEDECT) – Commenting Authority Thabazimbi Local Municipality Moses Kotane Local Municipality	Noise impacts are expected to be associated with the construction phase of the project. Considering the location of the development area 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 the legislation.
National Water Act (No. 36 of 1998) (NWA)	A water use listed under Section 21 of the NWA must be licensed with the Regional DWS, unless it is listed in Schedule 1 of the NWA (i.e. is an existing lawful use), is permissible under	Regional Department of Human Settlement, Water and Sanitation	The project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers as identified in the Scoping Assessment

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	a GA, or if a responsible authority waives the need for a licence. 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 detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. Consumptive water uses may include taking water from a water resource (Section 21(a)) and storing water (Section 21(b)). Non-consumptive water uses may include impeding or diverting of flow in a water course (Section 21(c)), and altering of bed, banks or characteristics of a watercourse (Section 21(i)).		(**Appendix D**). As a result, a water use authorisation for the project may be required from the DWS. The process to be undertaken will only be confirmed and completed once a positive EA has been received. This is in line with the requirements from the DWS.
Minerals and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA)	In accordance with the provisions of the MPRDA a mining permit is required in accordance with Section 27(6) of the Act where a mineral in question is to be mined, including the mining of materials from a borrow pit.	Department of Mineral Resources and Energy (DMRE)	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 required to be obtained.
	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.		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.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM:AQA)	The National Dust Control Regulations (GNR 827) published under Section 32 of NEM:AQA prescribe the general measures for the control of dust in all areas and provide a standard for acceptable dustfall rates for residential and non-residential areas. In accordance with the Regulations (GNR 827) 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 03 must, upon receipt of a notice from the air quality officer, implement a dustfall monitoring programme. Any person who has exceeded the dustfall standard set out in Regulation 03 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.	Limpopo (DEDET) North West (DEDECT / Waterberg District Municipality / Bojanala Platinum District	In the event that the project results in the generation of excessive levels of dust the possibility could exist that a dustfall monitoring programme would be required for the project, in which case dustfall monitoring results from the dustfall monitoring programme would need to be included in a dust monitoring report, and a dust management plan would need to be developed.
National Heritage Resources Act (No. 25 of 1999) (NHRA)	Section 07 of the NHRA stipulates assessment criteria and categories of heritage resources according to their significance. Section 35 of the NHRA provides for the protection of all archaeological and palaeontological sites, and meteorites. Section 36 of the NHRA provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority. Section 38 of the NHRA lists activities which require developers or any person who intends to undertake a listed activity to notify the responsible heritage resources authority and furnish	South African Heritage Resources Agency (SAHRA) The Limpopo Provincial Heritage Resources Authority (LIHRA) North West Provincial Heritage Resources Agency (NW PHRA)	A Heritage Impact Assessment will be undertaken for the project as per the requirements Section 38 of the NHRA. The Heritage Impact Assessment will be made available in the EIA Phase. Should a heritage resource be impacted upon, a permit may be required from SAHRA or The Limpopo Provincial Heritage Resources Authority (LIHRA) and North West Provincial Heritage Resources Agency (NW PHRA) in accordance with of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668).

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	it with details regarding the location, nature, and extent of the proposed development. Section 44 of the NHRA requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction.		
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA)	Section 53 of NEM:BA provides for the MEC / Minister to identify any process or activity in such a listed ecosystem as a threatening process. Three government notices have been published in terms of Section 56(1) of NEM:BA as follows: » Commencement of TOPS Regulations, 2007 (GNR 150). » Lists of critically endangered, vulnerable and protected species (GNR 151). » TOPS Regulations (GNR 152). It 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, the criteria used to identify listed ecosystems, the 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 37596, GNR 324), 29 April 2014).	DFFE Limpopo (DEDET) North West (DEDECT)	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. An Ecological Impact Assessment will be undertaken as part of the EIA Phase to identify the presence of any listed protected species present on site which will require a permit.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEM:BA)	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 alien species 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. Applicable, and exempted alien and invasive species are contained within the Alien and Invasive Species List (GNR 864).	DFFE Limpopo (DEDET) North West (DEDECT)	An Ecological Impact Assessment will be undertaken as part of the EIA Phase to identify the presence of any alien and invasive species present on site.
Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)	Section 05 of CARA provides for the prohibition of the spreading of weeds. Regulation 15 of GN R1048 published under CARA provides for the classification of categories of weeds and invader plants, and restrictions in terms of where these species may occur. Regulation 15E of GN R1048 published under CARA provides requirement and methods to implement control measures for different categories of alien and invasive plant species.	Department of Agriculture, Land Reform and Rural Development (DALRD)	CARA will find application throughout the life cycle of the project. 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. In terms of Regulation 15E (GN R1048) where Category 1, 2 or 3 plants occur a land user is required to control such plants by means of one or more of the following methods: » 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.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
			» 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 to the extent that the agents are destroyed or become ineffective.
National Forests Act (No. 84 of 1998) (NFA)	According to this Act, 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 National Forests Act (No. 84 of 1998) was published in GNR 734. The prohibitions provide that "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".	Department of Agriculture, Land Reform and Rural Development (DALRD)	A licence is required for the removal of protected trees. It is therefore necessary to conduct a survey that will determine the number and relevant details pertaining to protected tree species present in the development footprint for the submission of relevant permits to authorities prior to the disturbance of these individuals. An Ecological Impact Assessment will be undertaken as part of the EIA Phase to identify the presence of any protected trees present on site which will require a permit.
National Veld and Forest Fire Act (No. 101 of 1998) (NVFFA)	Chapter 4 of the NVFFA 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. Provision is also made for the making of firebreaks on the international boundary of the Republic of South Africa. The applicant must ensure that firebreaks are wide and long enough to have a reasonable chance of preventing a	DFFE	While no permitting or licensing requirements arise from this legislation, this Act will be applicable during the construction and operation of SBPM Solar PV Facility, in terms of the preparation and maintenance of firebreaks, and the need to provide

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	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. Chapter 5 of the Act 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, and ensure that in his or her absence responsible persons are present on or near his or her land who, in the event of fire, will extinguish the fire or assist in doing so, and take all reasonable steps to alert the owners of adjoining land and the relevant fire protection association, if any.		appropriate equipment and trained personnel for firefighting purposes.
Hazardous Substances Act (No. 15 of 1973) (HAS)	This Act regulates the control of substances that may cause injury, or 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 for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger, to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. » Group I and II: Any substance or 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 » Group IV: any electronic product, and » Group V: any radioactive material.	Department of Health (DoH)	It is necessary to identify and list all Group I, II, III, and IV hazardous substances that may be on site and in what operational context they are used, stored or handled. If applicable, a license would be required to be obtained from the DoH.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		
National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA)	The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. In terms of the Regulations published in terms of NEM:WA (GNR 912), a BA or EIA is required to be undertaken for identified listed activities. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in » Any other way rendered unlit 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 » Pollution of the environment and harm to health are prevented.	DFFE – Hazardous Waste Limpopo (DEDET) & North West (DEDECT) – General Waste	No waste listed activities are triggered by SBPM Solar PV Facility; therefore, no Waste Management License is required to be obtained. 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.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Road Traffic Act (No. 93 of 1996) (NRTA)	The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. 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. 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 National Road Traffic Act and the relevant Regulations.	South African National Roads Agency (SANRAL) – national roads Limpopo Department of Transport and Community Safety (LDTCS) North West Department of Community Safety and Transport Management (NW DCSTM):	An abnormal load / vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits required 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 substation and BESS components may not meet specified dimensional limitations (height and width) which will require a permit.
Provincial Policies / Legislation			
Bophuthatswana Nature Conservation Act. No. 3 of 1973.	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project:	North West (DEDECT)	A collection/destruction permit must be obtained from Limpopo (DEDET) & North West (DEDECT) for the removal of any protected plant or animal species found on site. Should these species be confirmed within the development footprint during any phase of the project, permits will be required. An Ecological Impact Assessment will be undertaken as part of the EIA Phase to identify

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; Aquatic habitats may not be destroyed or damaged; The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species; The Act provides lists of protected species for the Province.		the presence of any listed species present on site which will require a permit.
Limpopo Environmental Management Act No 7 of 2003	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; Aquatic habitats may not be destroyed or damaged; The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species; The Act provides lists of protected species for the Province.	Limpopo (DEDET)	A collection/destruction permit must be obtained from Limpopo (DEDET) for the removal of any protected plant or animal species found on site. Should these species be confirmed within the development footprint during any phase of the project, permits will be required. An Ecological Impact Assessment will be undertaken as part of the EIA Phase to identify the presence of any listed species present on site which will require a permit.

5.7.1 Best Practice Guidelines Birds & Solar Energy (2017)

The Best Practice Guidelines Birds & Solar Energy (2017) proposed by the Birds and Renewable Energy Specialist Group (BARESG) (convened by BirdLife South Africa and the Endangered Wildlife Trust) contain guidelines for assessing and monitoring the impact of solar generation facilities on birds in Southern Africa. The guidelines recognise the impact that solar energy may have on birds, through for example the alteration of habitat, the displacement of populations from preferred habitat, and collision and burn mortality associated with elements of solar hardware and ancillary infrastructure; and the fact that the nature and implications of these effects are poorly understood.

The guidelines are aimed at Environmental Assessment Practitioners (EAPs), avifaunal specialists, developers and regulators and propose a tiered assessment process, including:

(i) Preliminary avifaunal assessment – an initial assessment of the likely avifauna in the area and possible impacts, preferably informed by a brief site visit and by collation of available data; also including the design of a site-specific survey and monitoring project should this be deemed necessary.
(ii) Data collection – further accumulation and consolidation of the relevant avian data, possibly including the execution of baseline data collection work (as specified by the preliminary assessment), intended to inform the avian impact study.
(iii) Impact assessment – a full assessment of the likely impacts and available mitigation options, based on the results of systematic and quantified monitoring if this was deemed a requisite at preliminary assessment.
(iv) Monitoring – repetition of baseline data collection, plus the collection of mortality data. This helps to develop a complete before and after picture of impacts, and to determine if proposed mitigation measures are implemented and are effective, or require further refinement. Monitoring may only be necessary for projects with the potential for significant negative impacts on birds (i.e. large area affected and / or vulnerable species present).

In terms of the guidelines the quantity and quality of baseline data required to inform the assessment process at each site should be set in terms of the size of the site and the predicted impacts of the solar technology in question, the anticipated sensitivity of the local avifauna (for example, the diversity and relative abundance of priority species present, proximity to important flyways, wetlands or other focal sites) and the amount of existing data available for the area.

Data collection could vary from a single, short field visit (Regime 1, for e.g. at a small or medium sized site with low avifaunal sensitivity), to a series of multi-day survey periods, including the collection of various forms of data describing avian abundance, distribution and movement and spread over 12 months (Regime 3, for e.g. at a large developments located in a sensitive habitat, or which otherwise may have significant impacts on avifauna). **Table 5.7** is taken from the best practise guidelines and provides a summary of the recommended assessment regimes in relation to proposed solar energy technology, project size, and likely risk).

Table 5.3: Recommended avian assessment regimes in relation to proposed solar energy technology, project size, and known impact risks.

Type of technology*	Size**	Avifaunal Sensitivity***		
		Low	Medium	High
All except CSP power tower	Small (< 30ha)	Regime 1	Regime 1	Regime 2
	Medium (30 – 150ha)	Regime 1	Regime 2	Regime 2
	Large (> 150ha)	Regime 2****	Regime 2	Regime 3
CSP power tower	All	Regime 3		

Regime 1: One site visit (peak season); minimum 1 – 5 days.
Regime 2: Pre- and post-construction; minimum 2 – 3 x 3 – 5 days over 6 months (including peak season); carcass searches.
Regime 3: Pre- and post-construction; minimum 4 – 5 x 4 – 8 days over 12 months, carcass searches.

* Different technologies may carry different intrinsic levels of risk, which should be taken into account in impact significance ratings

** For multi-phased projects, the aggregate footprint of all the phases should be used. At 3ha per MW, Small = < 10MW, Medium = 10 – 50MW, Large = > 50MW.

*** The avifaunal sensitivity is based on the number of priority species present, or potentially present, the regional, national or global importance of the affected area for these species (both individually and collectively), and the perceived susceptibility of these species (both individually and collectively) to the anticipated impacts of development. For example, an area would be considered to be of high avifaunal sensitivity if one or more of the following is found (or suspected to occur) within the broader impact zone:

1) Avifaunal habitat (e.g. a wetlands, nesting or roost sites) of regional or national significance.
2) A population of a priority species that is of regional or national significance.
3) A bird movement corridor that is of regional or national significance.
4) A protected area and / or Important Bird and Biodiversity Area.

An area would be considered to be of medium avifaunal sensitivity if it does not qualify as high avifaunal sensitivity, but one or more of the following is found (or suspected to occur) within the broader impact zone

1) Avifaunal habitat (e.g. a wetland, nesting or roost sites) of local significance.
2) A locally significant population of a priority species.
3) A locally significant bird movement corridor.

An area would be considered to be of low avifaunal sensitivity if it is does not meet any of the above criteria.

**** Regime 1 may be applied to some large sites, but only in instances where there is abundant existing data to support the assessment of low sensitivity.

Bird distribution patterns fluctuate widely in response to environmental conditions (e.g. local rainfall patterns, nomadism, migration patterns, seasonality), meaning that a composition noted at a particular moment in time will differ during another time period at the same locality. For this reason, the PV transects are counted 4 times in Spring and then again 4 times in Autumn. The spring survey has already been conducted and the findings has been used to inform the avifauna scoping report completed for the scoping phase. The result from the Autumn season bird monitoring will be used to inform both the development footprint as well as Avifauna Impact Assessment report to be completed for the EIA phase.

5.7.2 The IFC Environmental Health and Safety (EHS) Guidelines

The IFC EHS Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). The following IFC EHS Guidelines have relevance to the proposed project:

» IFC EHS General Guidelines

» IFC Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants

The General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines, however no Industry Sector EHS Guidelines have been developed for PV solar power to date. The application of the General EHS Guidelines should be tailored to the hazards and risks associated with a project and should take into consideration site-specific variables which may be applicable, such as host country context, assimilative capacity of the environment, and other project factors. In instances where host country regulations differ from the standards presented in the EHS Guidelines, whichever is the more stringent of the two in this regard should be applied.

The General EHS Guidelines include consideration of the following:

» Environmental:
  * Air Emissions and Ambient Air Quality
  * Energy Conservation
  * Wastewater and Ambient Water Quality
  * Water Conservation
  * Hazardous Materials Management
  * Waste Management
  * Noise
  * Contaminated Land
» Occupational Health and Safety:
  * General Facility Design and Operation
  * Communication and Training
  * Physical Hazards
  * Chemical Hazards
  * Biological Hazards
  * Radiological Hazards
  * Personal Protective Equipment (PPE)
  * Special Hazard Environments
  * Monitoring
» Community Health and Safety:
  * Water Quality and Availability
  * Structural Safety of Project Infrastructure
  * Life and Fire Safety (L&FS)
  * Traffic Safety
  * Transport of Hazardous Materials
  * Disease Prevention
  * Emergency Preparedness and Response
» Construction and Decommissioning:
  * Environment
  * Occupational Health & Safety
  * Community Health & Safety

5.7.3 IFC's Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants (2015)

While no Industry Sector EHS Guidelines have been developed for PV Solar Power, the IFC has published a Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants (IFC, 2015). Chapter 8 of the Project Developer's Guide pertains to Permits, Licensing and Environmental Considerations, and states that in order to deliver a project which will be acceptable to international lending institutions, environmental and social assessments should be carried out in accordance with the requirements of the key international standards and principles, namely the Equator Principles and IFC's Performance Standards (IFC PS).

Some of the key environmental considerations for solar PV power plants contained within the Project Developer's Guide include:

- 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 and worker accommodation).
- Water usage (i.e. the cumulative water use requirements).
- Land matters (i.e. land acquisition procedures and the avoidance or proper mitigation of involuntary land acquisition / resettlement).
- Landscape and visual impacts (i.e. the visibility of the solar panels within the wider landscape and associated impacts on landscape designations, character types and surrounding communities).
- Ecology and natural resources (i.e. habitat loss / fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species).
- Cultural heritage (i.e. impacts on the setting of designated sites or direct impacts on below-ground archaeological deposits as a result of ground disturbance during construction).
- Transport and access (i.e. impacts of transportation of materials and personnel).
- Drainage / flooding (i.e. flood risk associated with the site).
- Consultation and disclosure (i.e. consultating with key authorities, statutory bodies, affected communities and other relevant stakeholders as early as possible).
- Environmental and Social Management Plan (ESMP) (i.e. compile an ESMP to ensure that mitigation measures for relevant impacts are identified and incorporated into project construction procedures and contracts).

CHAPTER 6: DESCRIPTION OF THE RECEIVING ENVIRONMENT

This chapter provides a description of the local environment. This information is provided in order to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by, or could affect, SBPM Solar PV Facility have been described. This information has been sourced from both existing information available for the area as well as collected field data by specialist consultants and aims to provide the context within which this EIA process is being conducted.

6.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(g)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The environmental attributes associated with the development of SBPM Solar PV Facility is included as a whole within this chapter. The environmental attributes that are assessed within this chapter includes the following:
	» The regional setting of the broader study area indicates the geographical aspects associated with SBPM Solar PV Facility. This is included in **Section 6.2**.
	» The climatic conditions for the Richmond area have been included in **Section 6.3**.
	» The biophysical characteristics of the project site and the surrounding areas are included in **Section 6.4**. The characteristics considered are topography and terrain, geology, soils and agricultural potential and the ecological profile which includes the vegetation patterns, listed plant species, critical biodiversity areas and broad-scale processes, freshwater resources, terrestrial fauna and avifauna.
	» The heritage and cultural aspects (including archaeology, cultural landscape and palaeontology) has been included in **Section 6.5**.
	» The social and socio-economic characteristics associated with the broader study area and the project site has been included in **Section 6.6**
	» The visual quality, land-use and settlement patterns of the affected environment has been included in **Section 6.7**
	» The current traffic conditions for the area surrounding the project have been included in **Section 6.8**

A more detailed description of each aspect of the affected environment is included within the specialist Scoping Reports contained within **Appendices D - G**.

6.2. Regional Setting

The SBPM Solar PV Facility development area is located approximately 6.5km west of the town of Northam, within the Thabazimbi Local Municipality and the Waterberg District Municipality in the Limpopo Province. The proposed grid connection routes for the PV facility extend to the North West Province within the Moses Kotane Local Municipality and the Bojanala Platinum District Municipality.

6.2.1 Limpopo Province

Limpopo, South Africa's northern-most province, borders onto Mozambique, Zimbabwe and Botswana. It also borders the Mpumalanga, Gauteng and North West provinces. Named after the Limpopo River, which flows along its northern border, it is a region of contrasts, from true Bushveld country to majestic mountains, primeval indigenous forests, unspoiled wilderness and patchworks of farmland. In the eastern region lies the northern half of the magnificent Kruger National Park. Limpopo ranks fifth in South Africa in both surface area and population, covering an area of 125 754km² and being home to a population of 5 779 090. The capital is Polokwane (previously Pietersburg). Other major cities and towns include Bela-Bela (Warmbad), Lephalale (Ellisras), Makhado (Louis Trichardt), Musina (Messina), Thabazimbi and Tzaneen.

Mining is the primary driver of economic activity. Limpopo is rich in mineral deposits, including platinum-group metals, iron ore, chromium, high and middle-grade coking coal, diamonds, antimony, phosphate and copper, as well as mineral reserves such as gold, emeralds, scheelite, magnetite, vermiculite, silicon and mica. The province is a typical developing area, exporting primary products and importing manufactured goods and services.

The climatic conditions in the province allow for double harvesting seasons, which results in it being the largest producer of various crops in the agricultural market. Sunflowers, cotton, maize and peanuts are cultivated in the Bela-Bela–Modimolle area. Bananas, litchis, pineapples, mangoes and pawpaw's, as well as a variety of nuts, are grown in the Tzaneen and Makhado areas. Extensive tea and coffee plantations create many employment opportunities in the Tzaneen area. The Bushveld is cattle country, where controlled hunting is often combined with ranching.

Limpopo is divided into five district municipalities, namely, Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg and which are further subdivided into 22 local municipalities (**refer to Figure 6.1**). The capital city of the Limpopo Province is Polokwane.

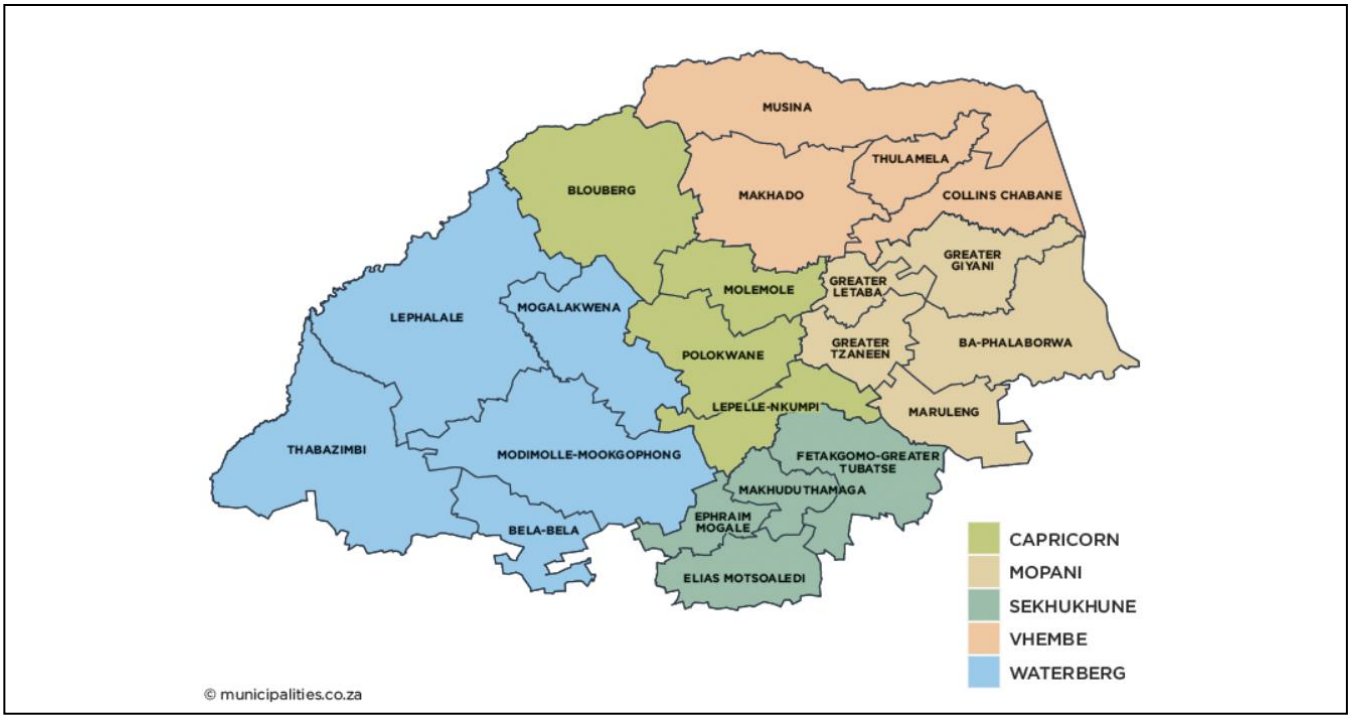


Figure 6.1: District municipalities of the Limpopo Province (Source: www.municipalities.co.za).

The Waterberg District Municipality is a Category C municipality located in the western part of the Limpopo Province. It is strategically located in sharing its borders with Capricorn District Municipality in the north and Sekhukhune District Municipality in the east. The south-western boundary abuts the North West, while the Gauteng Province lies on the south-eastern side.

The municipality is the biggest district in the province, making up just more than a third of its geographical area. It shares five-border control points with Botswana, namely Groblersbrug, Stockpoort, Derdepoort, Zanzibar and Platjan. It is comprised of five local municipalities: Bela-Bela, Lephalale, Modimolle-Mookgophong, Mogalakwena and Thabazimbi.

The region, as we know it today, is more than three million years old. With its great variety of wildlife, birds and scenic splendour. It is one of South Africa's prime ecotourism destinations.

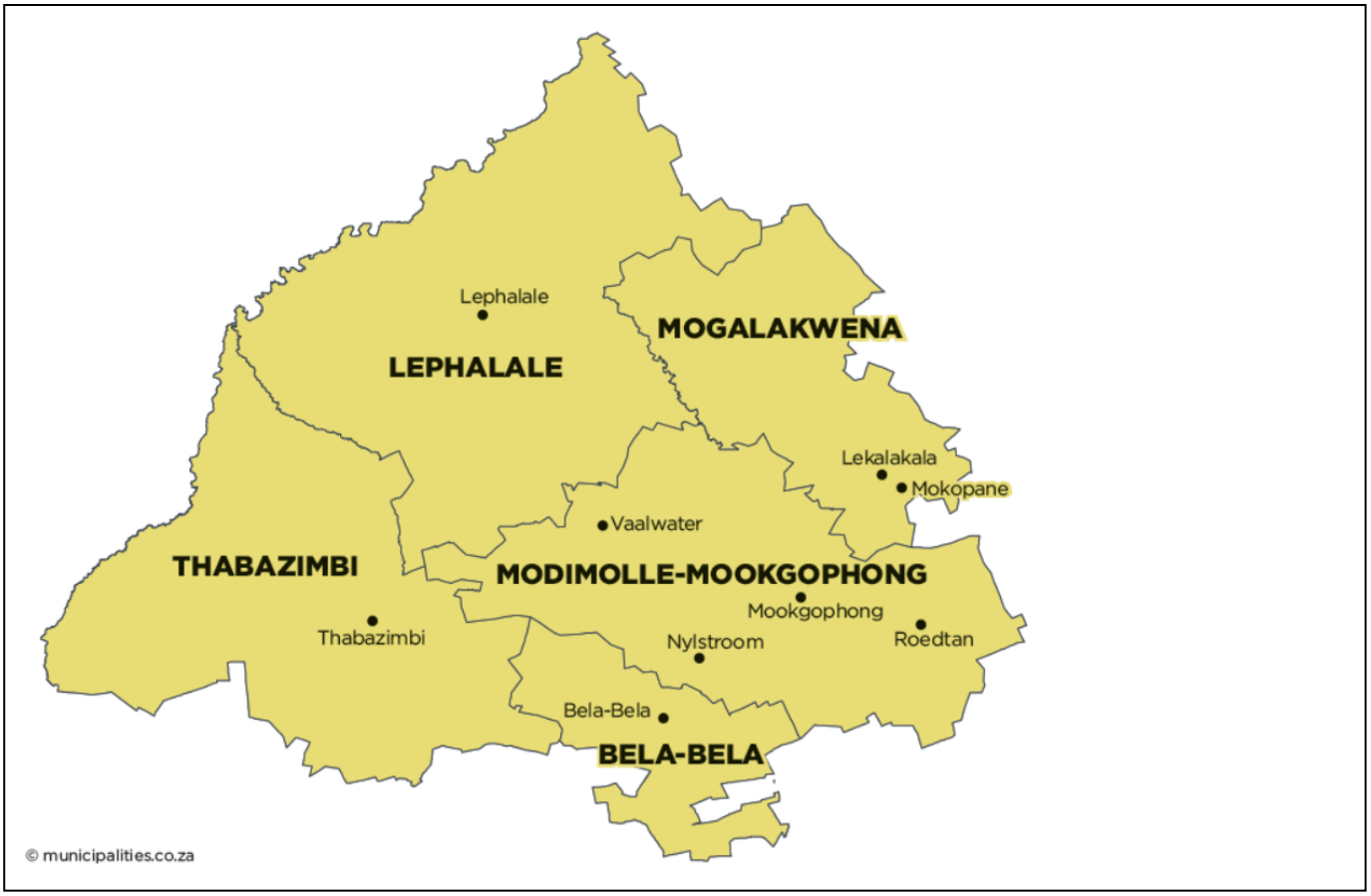


Figure 6.2: Map showing the Thabazimbi Local Municipality of the Waterberg DM (Source: www.municipalities.co.za).

The broader project site for the establishment of the SBPM Solar PV Facility and associated infrastructure is located within the Thabazimbi Local Municipality. The Thabazimbi Local Municipality is a Category B municipality within the Waterberg District in the south-western part of the Limpopo Province. It has Botswana as its international neighbour and is a mere two-hour drive from Pretoria. It is one of five municipalities in the district. Thabazimbi is known as 'mountain of iron', which is a Setswana name referring to the highly lucrative iron ore reef first discovered in the municipality in 1919. The Marakele National Park, which is a subsidiary of the National Parks Board, and in the same standard as the Kruger National Park and Mapungube is located within this municipality. Thabazimbi Municipality is surrounded by platinum-producing areas. Other minerals produced in the area include andalusite.

Agriculture has also proven to be a strong economic sector in the municipality. Agricultural commodities produced are wheat, beans and maize. The municipality's goals are aligned with those of the Provincial Growth and Development Strategy in Limpopo. This will ensure that the growth trajectory also addresses the objective of poverty eradication through job creation and business opportunity stimulation.

6.2.2 North West Province

The North West Province is situated in the central-northern extent of South Africa. The province is bordered by Northern Cape Province to the west, and south-west; Free State Province to the south; Gauteng Province

to the east; Limpopo Province to the north-east; and Botswana to the north. It occupies an area of land approximately 104 882km² in extent, making it South Africa's 6th largest in terms of area; and has a population of 3 509 953 (2011) and population density of 33/km² (2011), making it South Africa's 7th most densely populated Province.

The North West Province is characterised by altitudes ranging from 920 - 1782m amsl, which makes it one of the provinces with the most uniform terrain. The central and western extents of the province are characterised by gently undulating plains, while the eastern extent is characterised as mountainous, and includes the Magaliesberg mountain range. Ancient igneous rock formations dominate the north-eastern and north-central extent of the province; and the Gatsrand between Potchefstroom and Carletonville is considered to be one of the most ancient, preserved landscapes in the world. The geology of the province is significant given its mineral resources which are rich in platinum, gold, uranium, iron, chrome, manganese, and diamonds.

In terms of land use patterns, approximately 69% of the North West Province is in a natural, or near-natural state; while 31% of the province is irreversibly modified as a result of croplands (25.6%), urban (3.5%), and mining (0.7%) activities. The province is predominantly rural with the main economic activities comprising mining and agriculture. The North West Province comprises 4 Districts, namely Bojanala Platinum, Ngaka Modiri Molema, Dr Ruth Segomotsi Mompati, and Dr Kenneth Kaunda (**refer to Figure 6.3**)

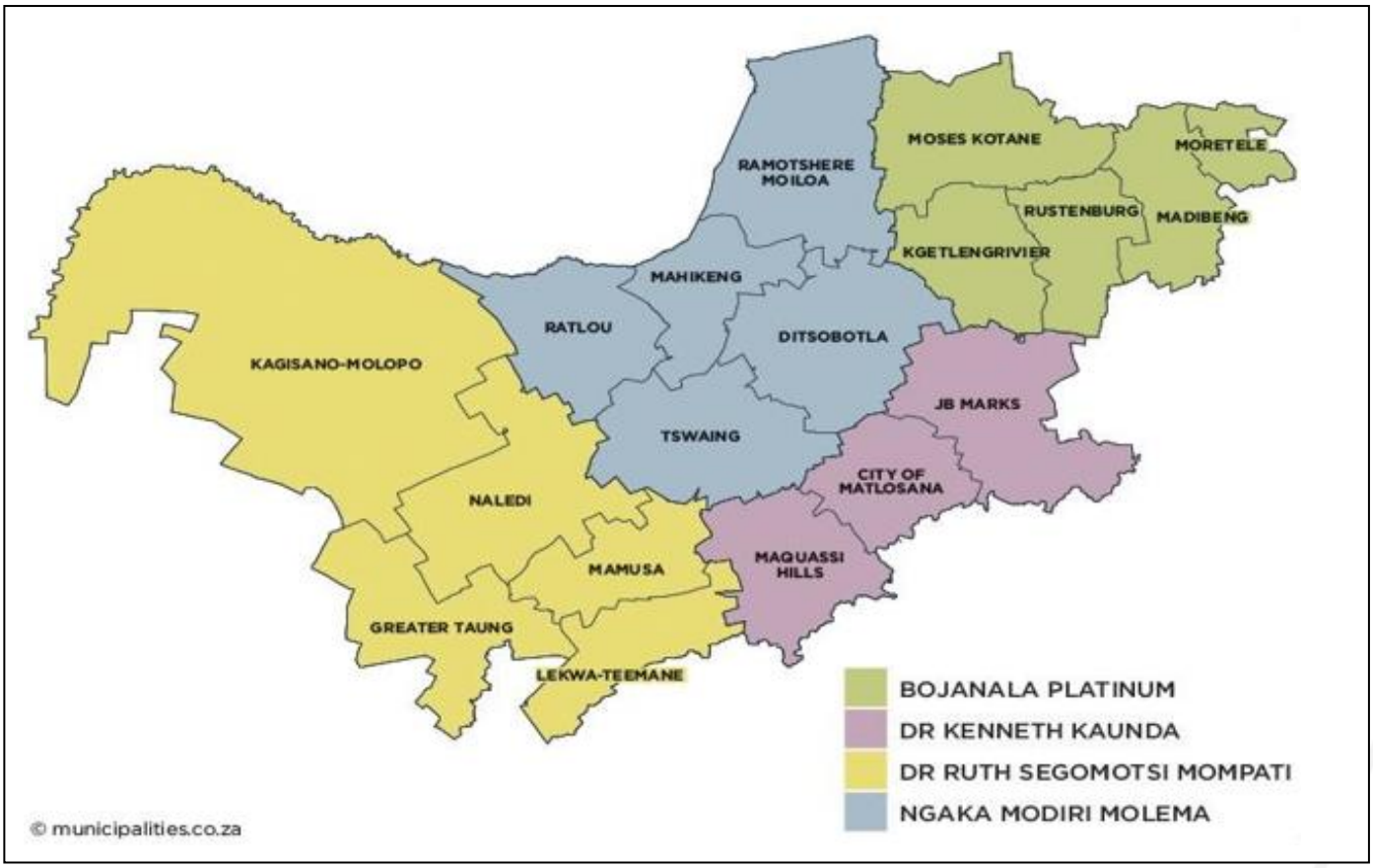


Figure 6.3: Map showing the municipalities of the North West (Source: www.municipalities.co.za).

Bojanala Platinum District Municipality is situated in the North West province. It is one of the four district municipalities in the province and comprises the five local municipalities of (1) Kgetlengrivier, (2) Madibeng, (3) Moses Kotane, (4) Moretele and (5) Rustenburg. It is bordered by Waterberg District Municipality to the north, City of Tshwane to the east, West Rand District Municipality to the south-east, Dr Kenneth Kaunda District Municipality to the south and Ngaka Modiri Molema District Municipality to the west. Main centres are Brits, Derby, Hartbeesfontein, Hartbeespoort, Koster, Madikwe, Marikana, Mooinooi, Phatsima, Rustenburg, Swartruggens, Tlhabane.

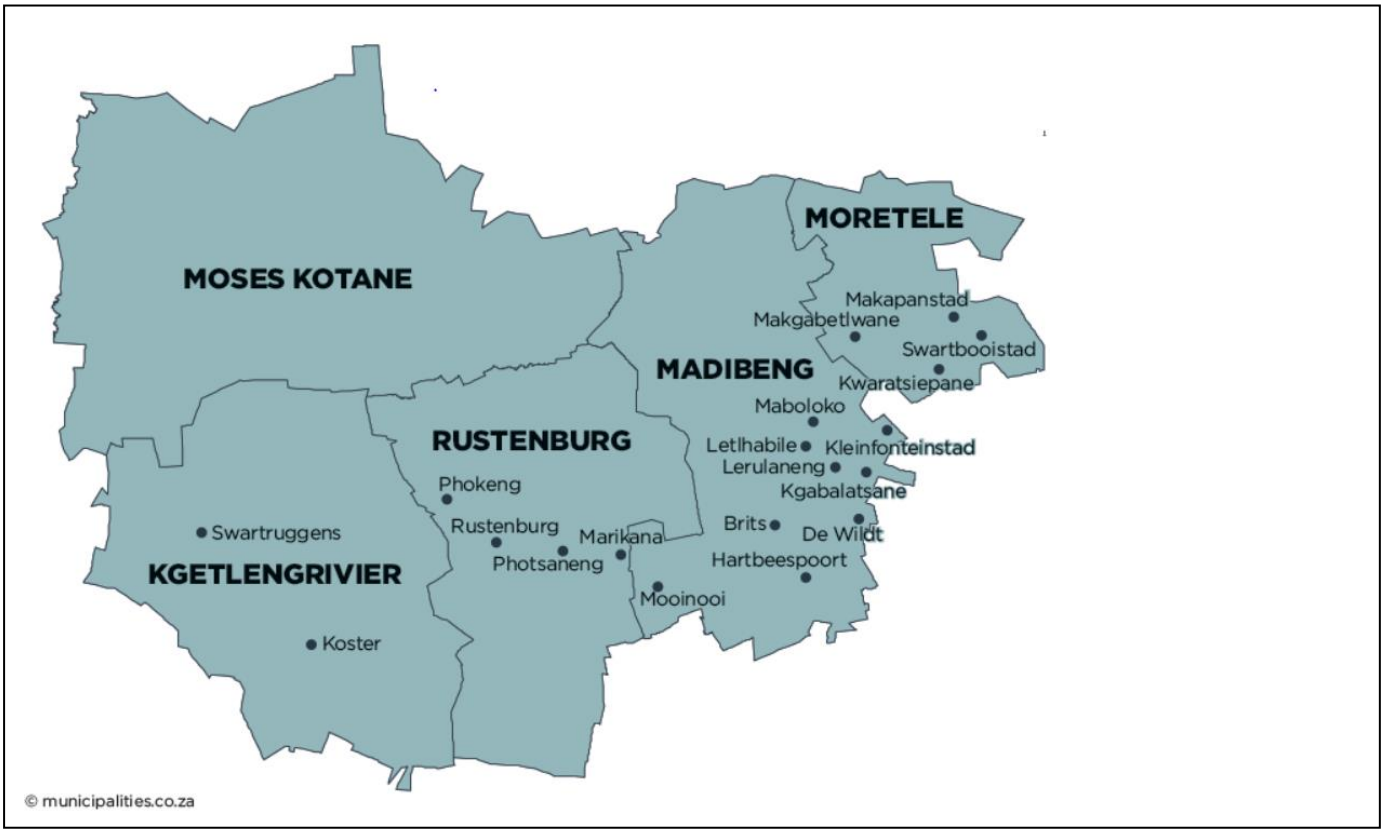


Figure 6.4: Map showing the Moses Kotane Local Municipality of the Bojanala Platinum DM (Source: www.municipalities.co.za).

The proposed grid connection routes for the PV development extend into the Moses Kotane Local Municipality. The Moses Kotane Local Municipality (MKLM) is a category B4 local municipality, which refers to a municipality that is mainly rural with communal tenure. The municipality covers an area of approximately 5,738 km² (31.3% of the Municipality is an EXCO-type with 31 Wards. It is led by Council, made up of 75 Councillors comprising Dikgosi, Ward and PR Councillors. The joint senior political leadership, commonly referred to as TROIKA, consists of the Speaker, Mayor and the Single Whip. The mayor is the head of a 10-member Executive Committee (EXCO), who head various Portfolio Committees. The Municipality consists of 107 villages and 2 formal towns (Mogwase and Madikwe). The N4 Corridor which is the east-west bound road connecting Rustenburg and Pretoria runs to the south of Moses Kotane Local Municipality. The R510 north south bound road connect the Municipality to the north.

6.3. Climatic Conditions

According to the Köppen-Geiger classification of climate zones (Köppen 1936) the project area falls within the climate classified as Bsh = Hot semi-arid climates, this climate is characterized by hot summers, mild

winters, and low precipitation levels. The area is characteristically warm with erratic and extremely variable rainfall, ranging from 450 to 750 mm per year, with an average of 620 mm. The rainfall in the area is exclusively due to thunderstorms that occur during the summer months (October to March); whilst winter months are normally dry. Hail, which is often associated with thunderstorms occurs during the sizzling summer months. Given the project area's proximity to Swartklip, the climate should be similar. Swartklip has a semi-arid climate prevailing. The highest average temperature in Swartklip is 29°C in January and the lowest is 19°C in June. The average annual temperature for Swartklip is 25°C and there is about 353 mm of rain in a year. It is dry for 215 days a year with an average humidity of 52% and a UV index of five.

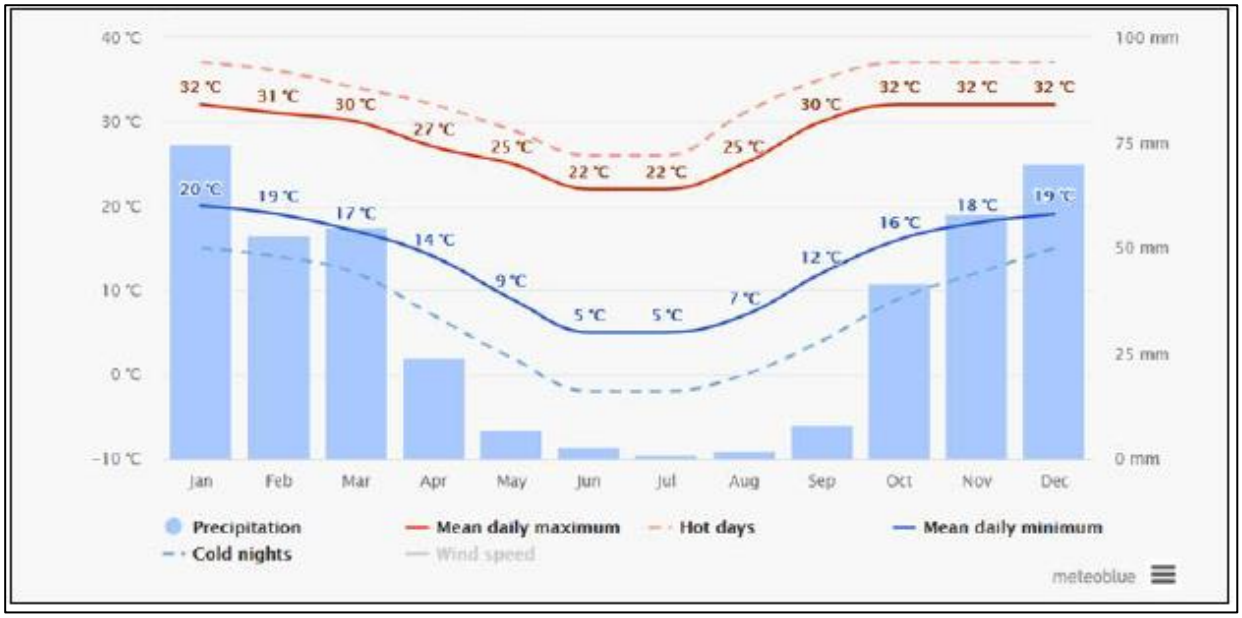


Figure 6.5: Climate graph for the project area, within which the proposed project site is located (source: Meteoblue 2021)

6.4. Biophysical Characteristics of the Study Area and Development Area

The following section provides an overview and description of the biophysical characteristics of the study area and has been informed by specialist studies (**Appendix D-G**) undertaken for this Scoping Report.

6.4.1. Topography and Terrain

The slope of the entire project site is relatively even (flat). The slope percentage of the development area and immediate surrounds was determined and is illustrated in **Figure 6.6**. The slope percentage ranges from 0 to 10%, with some small patches within the development area characterised by a slope percentage in excess of 40%. The study area occurs on land that ranges in elevation from approximately 977m to 1 059m. The terrain of the site is predominantly flat.

Most of the development area is characterised by a slope percentage between 0 and 10%, with some small patches within the development area characterised by a slope percentage in excess of 40% (refer to **Figure 6.6**).

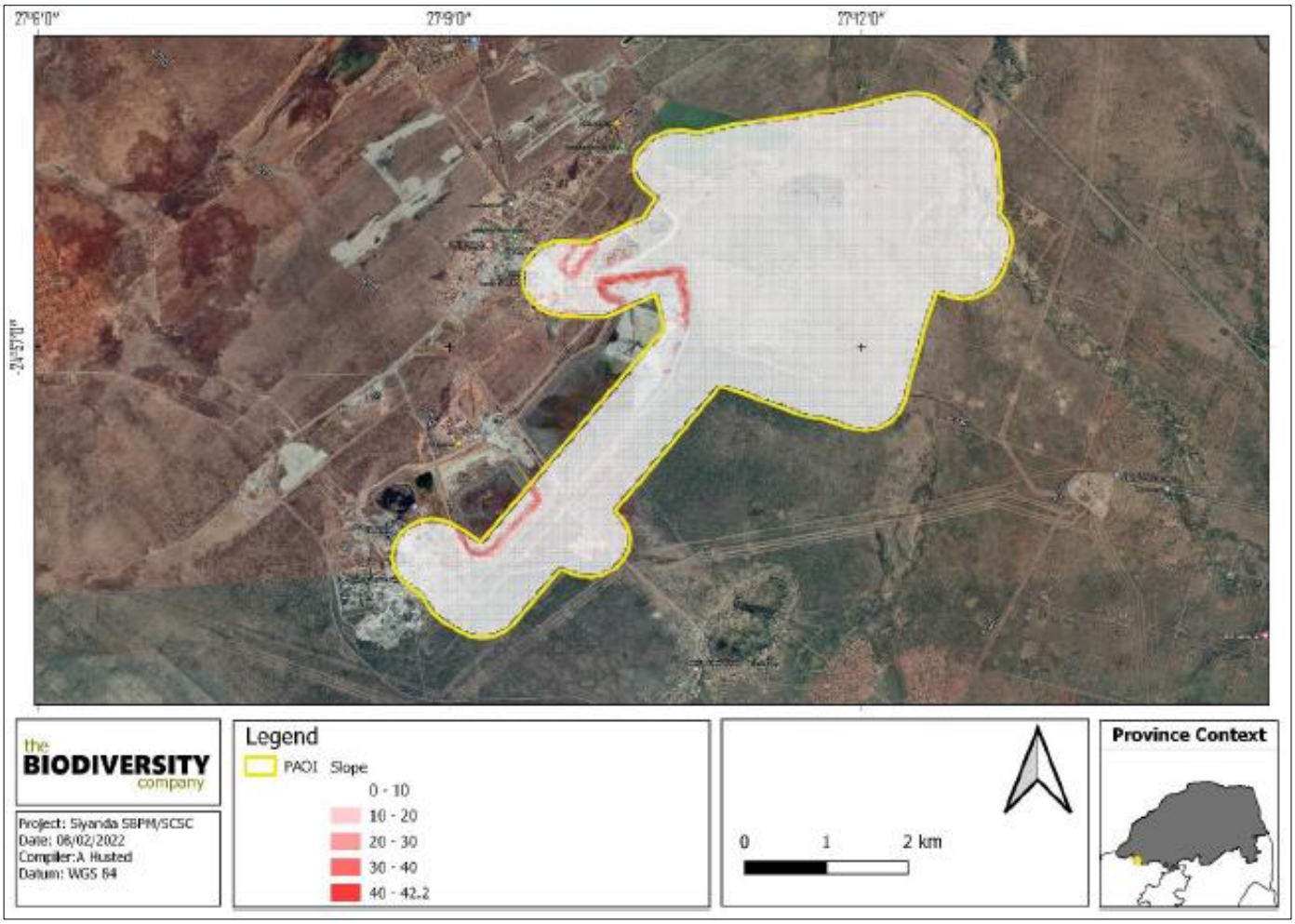


Figure 6.6: Slope percentage calculated for the development area within which the SBPM Solar PV and associated grid connection is proposed

6.4.2. Geology, Soils and Agricultural Potential

Geology Setting of the Project Site

The geology of the project area is characterised by predominantly norite and pyroxenite of the Bushveld Complex, and red syenite of the Pilanesberg Complex in places. The area is characterised by vertic black ultramafic clays which developed from norite and gabbro, also locally in small depressions along streams, and some areas have less clay (Mucina and Rutherford, 2006).

Soil Forms, Land Capability and Agricultural Potential of the Project Site

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project infrastructure is located in the Ea 70 land type. The Ea land type consists of one or more of the following soils: Vertic, Melanic, and red structured diagnostic horizons, of which these soils are all undifferentiated. The land terrain unit for the featured land type is illustrated from **Figure 6.7** with the expected soils listed in **Table 6.1.**

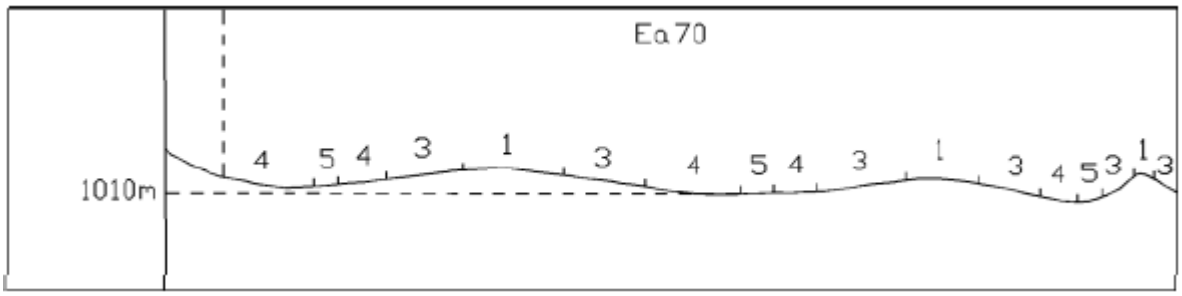


Figure 6.7: Illustration of land type Ea 70 terrain unit (Land Type Survey Staff, 1972 - 2006)

Table 6.1: Soils expected at the respective terrain units within the Da 76-land type (land Type Survey Staff, 1972 – 2006)

Terrain Units							
1(20%)		3(40%)		4(31%)		4(9%)	
Rocks	13%	Arcadia	74%	Arcadia	76%	Arcadia	33%
Arcadia	60%	Shortlands	9%	Shortlands	6%	Valsrivier	5%
Shortlands	7%	Hutton	5%	Hutton	5%	Rensburg	34%
Hutton	8%	Glenrosa	4%	Valsrivier	11%	Oakleaf	22%
Glenrosa	7%	Milkwood	2%	Bonheim	2%	Bonheim	6%
Milkwood	5%						

The land capability was determined by using the guidelines described in "The farming handbook" (Smith, 2006). Land capability is divided into eight classes, and these may be divided into three capability groups. The land capabilities for the development area, are described in **Table 6.2**.

Table 6.2: Land capability for the soils within the development area

Land capability class	**Increased Intensity of Use**									
I	W	F	LG	MG	IG	LC	MC	IC	VIC	Arable Land
II	W	F	LG	MG	IG	LC	MC	IC		
III	W	F	LG	MG	IG	LC	MC			
IV	W	F	LG	MG	IG	LC				
V	W	F	LG	MG						Grazing Land
VI	W	F	LG	MG						
VII	W	F	LG							
VIII	W									Wildlife

W- Wildlife	**F- Forestry**	**LG-Light Grazing**
MG-Moderate Grazing	IG- Intensive Grazing	LC – Light Cultivation
MC- Moderate Cultivation	IC- Intensive Cultivation	VIC – Very Intensive Cultivation

Land capability has been classified into 15 different categories by the DAFF (2017) which indicates the national land capability category and associated sensitivity related to soil resources. The land potential classes are determined by combining the land capability results and the climate capability of a region as shown in Table **6.3**. The final land potential results are then described in **Table 6.4**. These land potential classes

are regarded as the final delineations subject to sensitivity, given the comprehensive addition of climatic conditions as those relevant to the DAFF (2017) land capabilities. The main contributors to the climatic conditions as per Smith (2006) is that of MAP, Mean Annual Potential Evaporation (MAPE), mean September temperatures, mean June temperatures and mean annual temperatures. These parameters will be derived from Mucina and Rutherford (2006) for each vegetation type located within a relevant project area. This will give the specialist the opportunity to consider micro-climate, aspect, topography etc.

Table 6.3: The combination table for land potential classification

Land capability class	**Climate capability class**							
	C1	C2	C3	C4	C5	C6	C7	C8
I	L1	L1	L2	L2	L3	L3	L4	L4
II	L1	L2	L2	L3	L3	L4	L4	L5
III	L2	L2	L3	L3	L4	L4	L5	L6
IV	L2	L3	L3	L4	L4	L5	L5	L6
V	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei
VI	L4	L4	L5	L5	L5	L6	L6	L7
VII	L5	L5	L6	L6	L7	L7	L7	L8
VIII	L6	L6	L7	L7	L8	L8	L8	L8

Table 6.4: The land potential classes

LC	**Very high potential: No limitations. Appropriate contour protection must be implemented and inspected.**
L2	High potential: Very infrequent and/or minor limitations due to soil, slope, temperatures or rainfall. Appropriate contour protection must be implemented and inspected
L3	Good potential: Infrequent and/or moderate limitations due to soil, slope, temperatures or rainfall. Appropriate contour protection must be implemented and inspected.
L4	Moderate potential: Moderately regular and/or severe to moderate limitations due to soil, slope, temperatures or rainfall. Appropriate permission is required before ploughing virgin land.
L5	Restricted potential: Regular and/or severe to moderate limitations due to soil, slope, temperatures or rainfall.
L6	Very restricted potential: Regular and/or severe limitations due to soil, slope, temperatures or rainfall. Non-arable
L7	Low potential: Severe limitations due to soil, slope, temperatures or rainfall. Non-arable
L8	Very low potential: Very severe limitations due to soil, slope, temperatures or rainfall. Non-arable

6.4.3. Land Use

The current land use of the site is characterised by existing and historical cropping activities, livestock grazing and game farms. Mining activities and infrastructure are also evident in the region. Furthermore, the properties affected by the grid route are characterised by grazing and irrigated and rainfed production of grain crops and livestock farming.

6.4.4. Ecological Profile of the Study Area and the Development Area

i. Broad-Scale Vegetation Patterns

The project site is situated within the Dwaalboom Thornveld vegetation type **Figure 6.8**. The SBPM Solar PV is mapped as overlapping within the Dwaalboom Thornveld vegetation type.

Dwaalboom Thornveld

Dwaalboom Thornveld is restricted to, and is distributed in, the Limpopo and North-West Provinces within flats north of the Dwarsberge and associated ridges mainly west of the Crocodile River in the Dwaalboom area but including a patch around Sentrum. South of the ridges it extends eastwards from the Nietverdiend area, north of the Pilanesberg to the Northam area at an altitude range of between 900 and 1,200m AMSL. Its main vegetation and landscape features include plains with a layer of scattered, low to medium high, deciduous microphyllous trees and shrubs with a few broad-leaved tree species. There is almost a continuous herbaceous layer dominated by grass species.

Important Plant Taxa in Dwaalboom Thornveld:
Based on Mucina and Rutherford's (2006) vegetation classification, important plant taxa are those species that have a high abundance, a frequent occurrence (not being particularly abundant) or are prominent in the landscape within a particular vegetation type.

Important Taxa:

- **Trees:** *Vachellia erioloba*, *Vachellia erubescens*, *Vachellia nilotica*, *Vachellia tortilis* subsp *heteracantha, Senegalia fleckii, Senegalia burkei, Searsia lancea* (Mucina & Rutherford, 2006).
- **Shrubs:** *Diospyros lycioides* subsp. *lycioides, Grewia flava, Mystroxylon aethiopicum* subsp. *burkenum, Agathisanthemum bojeri* (Mucina & Rutherford, 2006).
- **Graminoids:** *Aristida bipartite, Bothriochloa insculpta, Digitaria eriantha* subsp *eriantha, Ischaemum afrum, Panicum maximum* and *Cymbopogon pospischilii* (Mucina & Rutherford, 2006).

According to Mucina and Rutherford (2006) Dwaalboom Thornveld is classified as Least Threatened. Although the target for conservation is 19%, only 6%of this vegetation type is currently under statutory conservation in reserves such as the Madikwe Game Reserve (approximately 150km west of the project area). Cultivation and to a lesser extend urbanisation have resulted in the transformation of approximately 14% of Dwaalboom Thornveld and exotic invasive plants are present. Incidences of erosion are low to very low (Mucina & Rutherford, 2006).

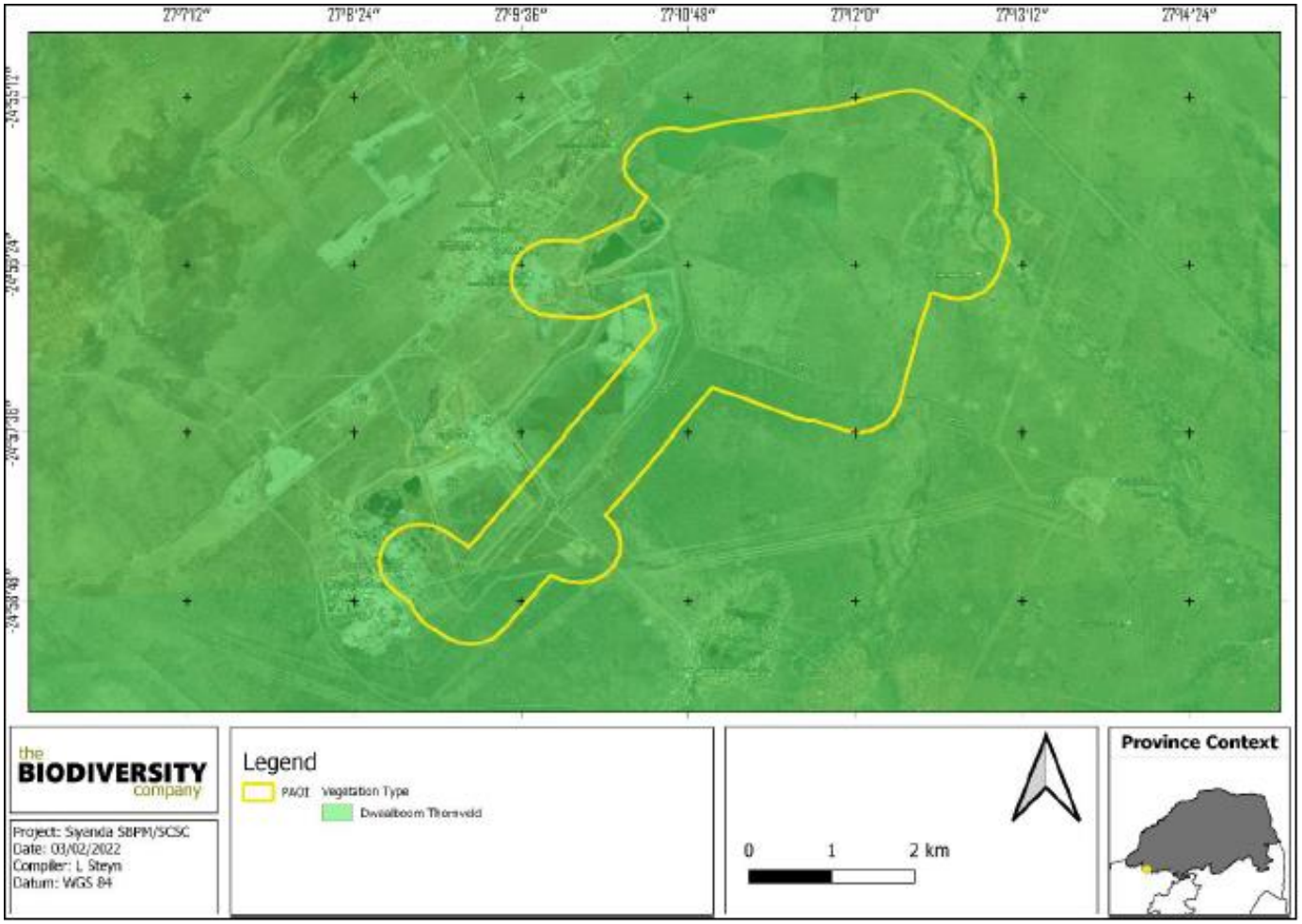


Figure 6.8: Vegetation map of the project site showing that the SBPM Solar PV Facility falls within the Dwaalboom Thornveld vegetation type.

ii. Listed Plant Species

The POSA database indicates that 428 species of indigenous plants are expected to occur within the project area (The full list of species will be provided in the final report). One (1) SCC based on their conservation status could be expected to occur within the project area and are provided in below. It is believed that additional SCC will be recorded in the assessment.

Table 6.5: Threatened flora species that may occur within the project area.

Family	Taxon	Author	IUCN	Ecology
Apocynaceae	*Stenostelma umbelluliferum*	Schltr.) Bester & Nicholas	NT	Indigenous; Endemic

iii. Protected tree species

During the screening assessment a number of protected Vachellia erioloba (Camel thorn) trees were recorded within the SCSC feasibility area. This is a nationally protected tree.

iv. Critical Biodiversity Areas

The key output of a systematic biodiversity plan is a map of biodiversity priority areas. The map delineates Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Other Natural Areas (ONAs), Protected Areas (PAs), and areas that have been irreversibly modified from their natural state. The provincial CBA spatial data for the North West province indicates that the project does not traverse any CBA nor Ecological Support Areas (ESAs) and Other Natural Areas (ONAs). Based on the Limpopo Conservation Plan the SBPM project site traverses ESA1 and NNR areas, whereas the SBPM feasibility area traverses ESA1, NNR and ONA area. **Figure 6.9** shows the development area superimposed on the Terrestrial CBA map.

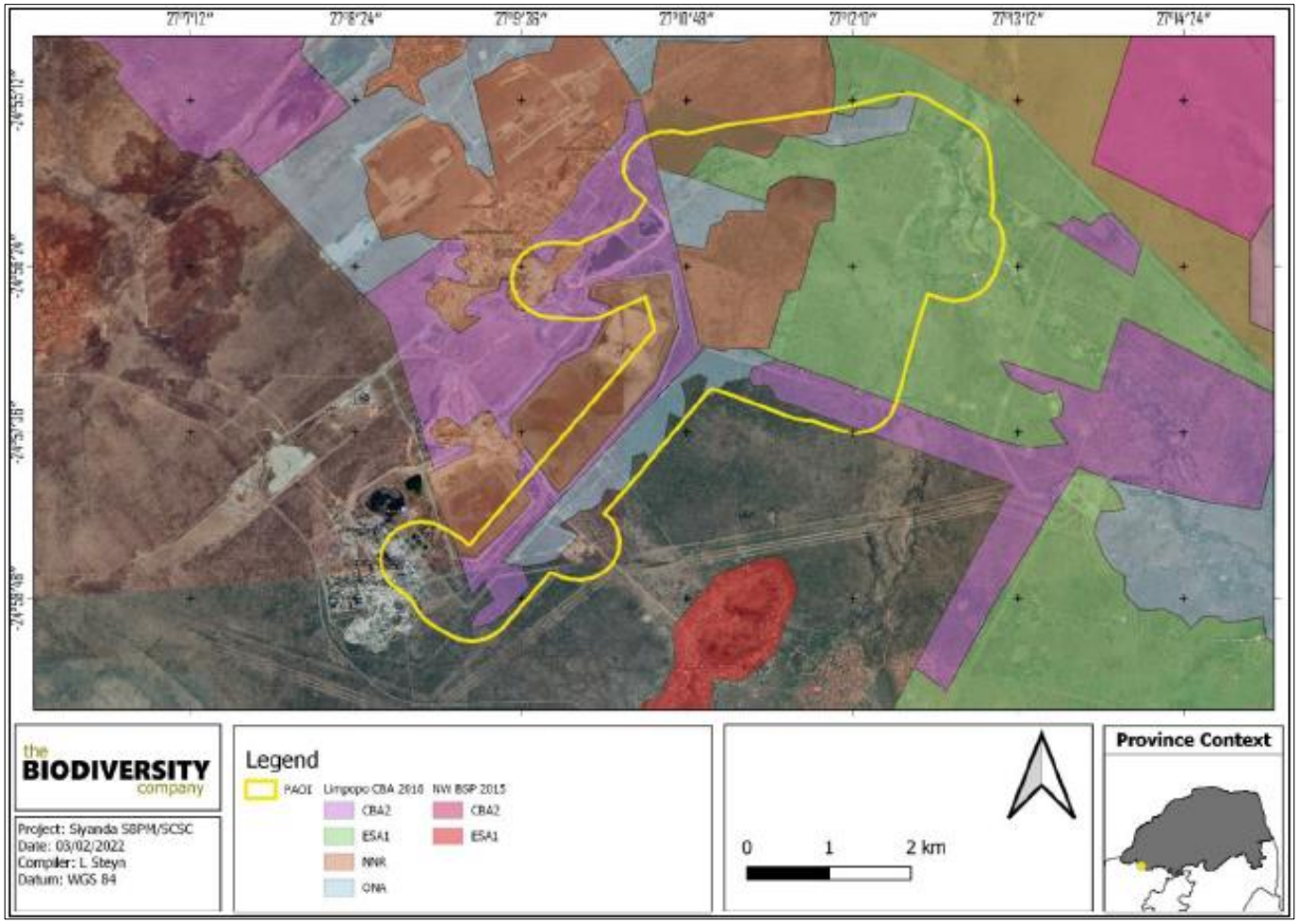


Figure 6.9: Critical Biodiversity Areas (CBAs), as per the North West CBA spatial data and the Limpopo C-Plan map, located within the SBPM PV project site

vi. Ecosystem Threat Status and Protection Level

The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed project overlaps with a LC ecosystem (refer to **Figure 6.10**).

The Ecosystem Protection Level is an indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each

ecosystem type that is included within one or more protected areas. NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems. The proposed project overlaps with a MP ecosystem (refer to **Figure 6.11**).

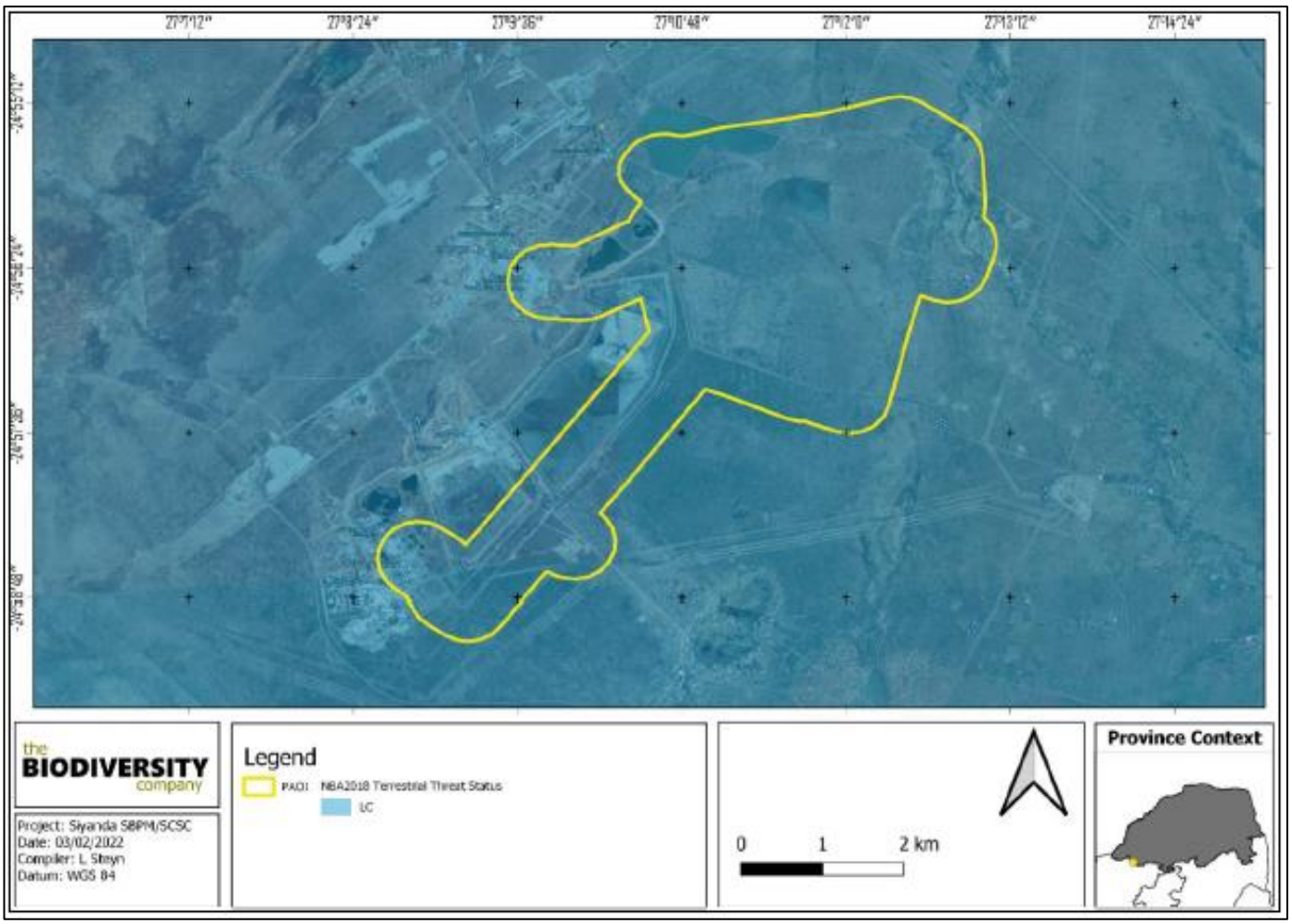


Figure 6.10: Map illustrating that the development area falls within a Least Concern ecosystem

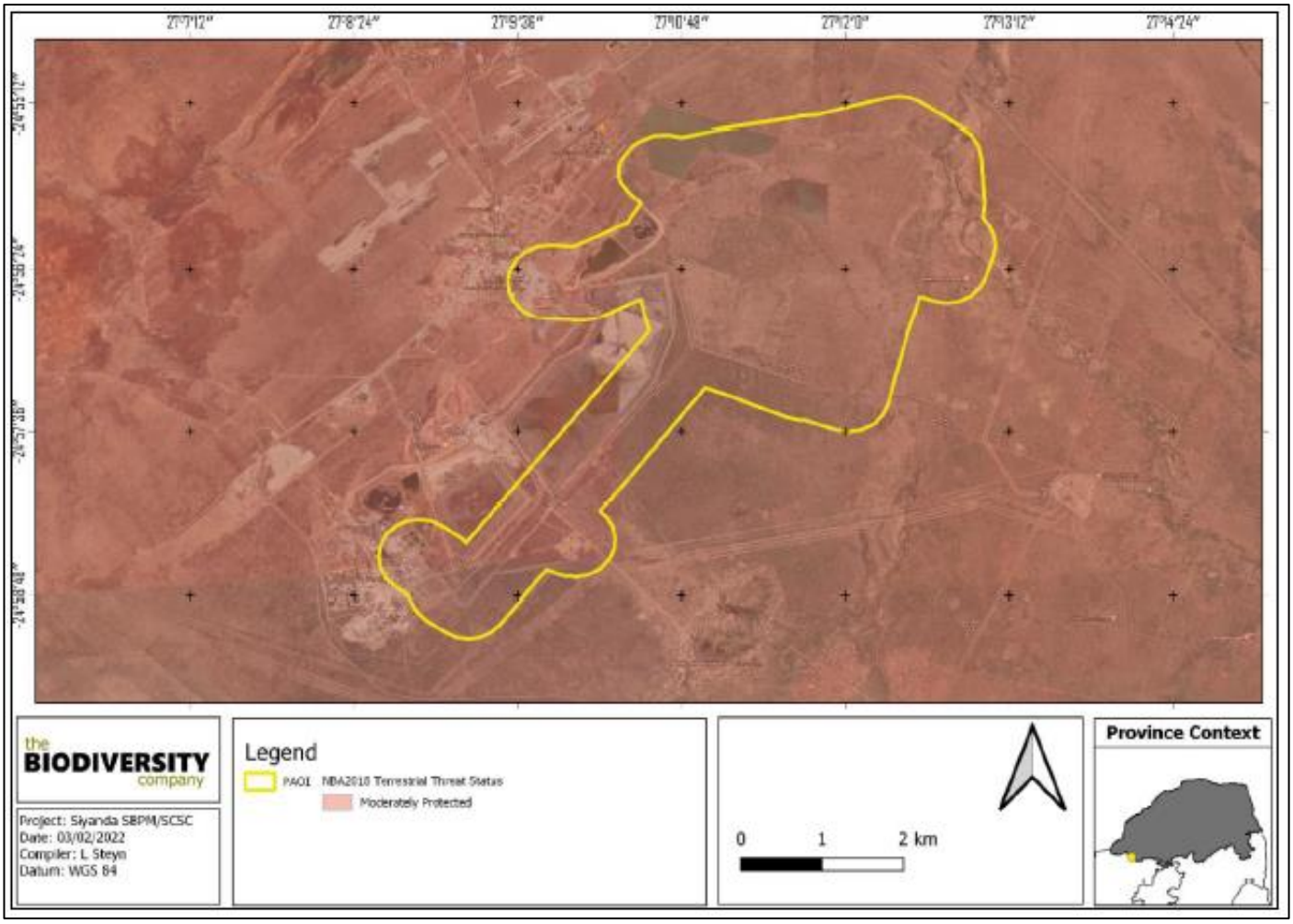


Figure 6.11: Map illustrating that the development area falls within an ecosystem that is moderately Protected

vii. Conservation/ Protected Areas within the Broader Project Site

According to the protected area spatial datasets from SAPAD (2021), the project area overlaps with the Rustenburg Platinum Mines (Union Section) Private Nature Reserve (**Figure 6.12**). From the imagery, and confirmed by the site visit, the portion of the reserve in which the project area is located is comprised of an old tailings dam in various stages of rehabilitation and is therefore not considered ecologically sensitive. Several additional private nature reserves are in close proximity to the project area. These are the Leopard Hills, Animalia, Youngs and Leeuwkopje private nature reserves. All of these reserves are within 5km of the project area which means that the project area is within the buffer zone of the nature reserves.

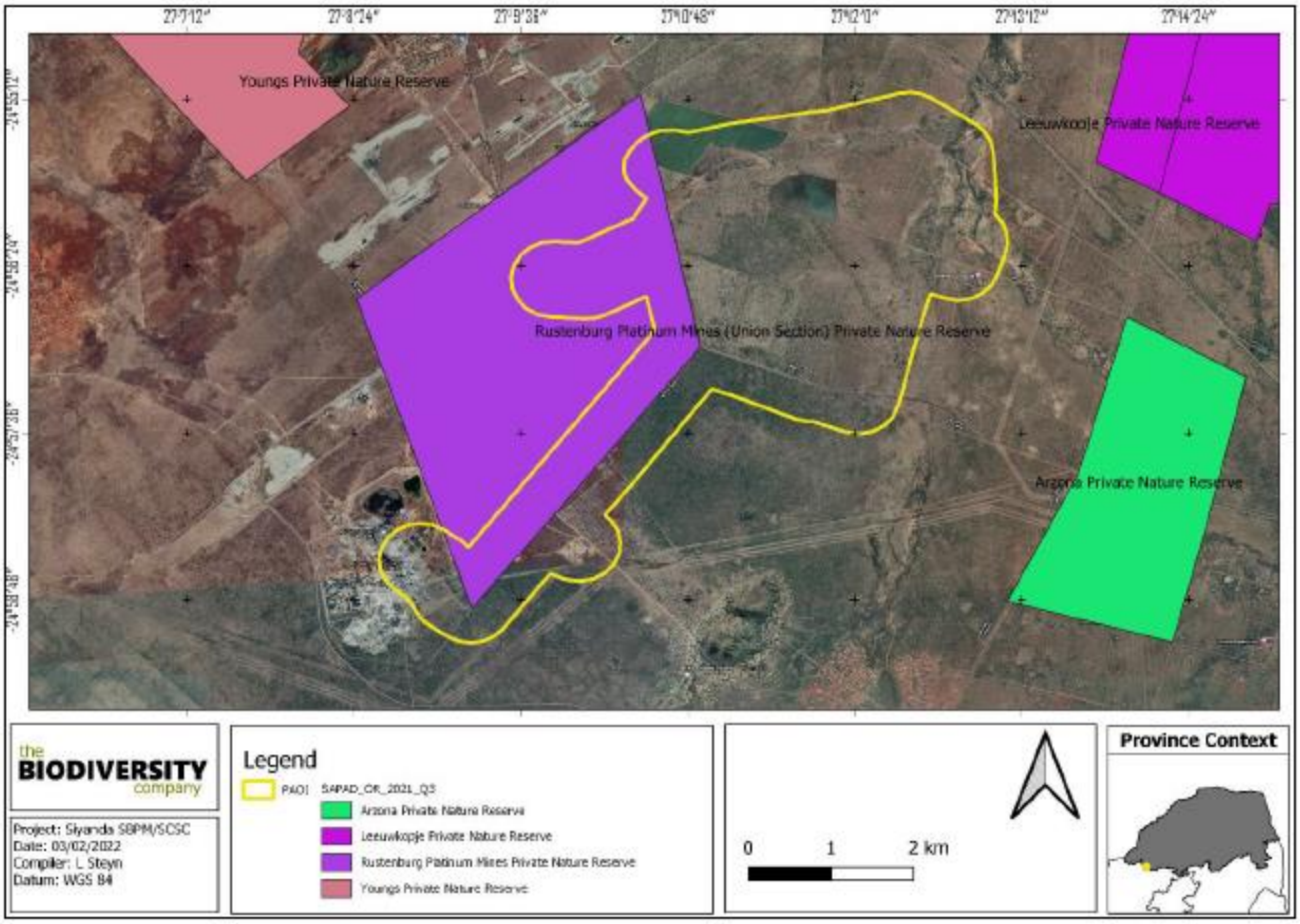


Figure 6.12: The project area in relation to the protected areas

National Protected Area Expansion Strategy 2016 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with a strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2016). The project area overlaps with an NPAES protected area (**Figure 6.13**)

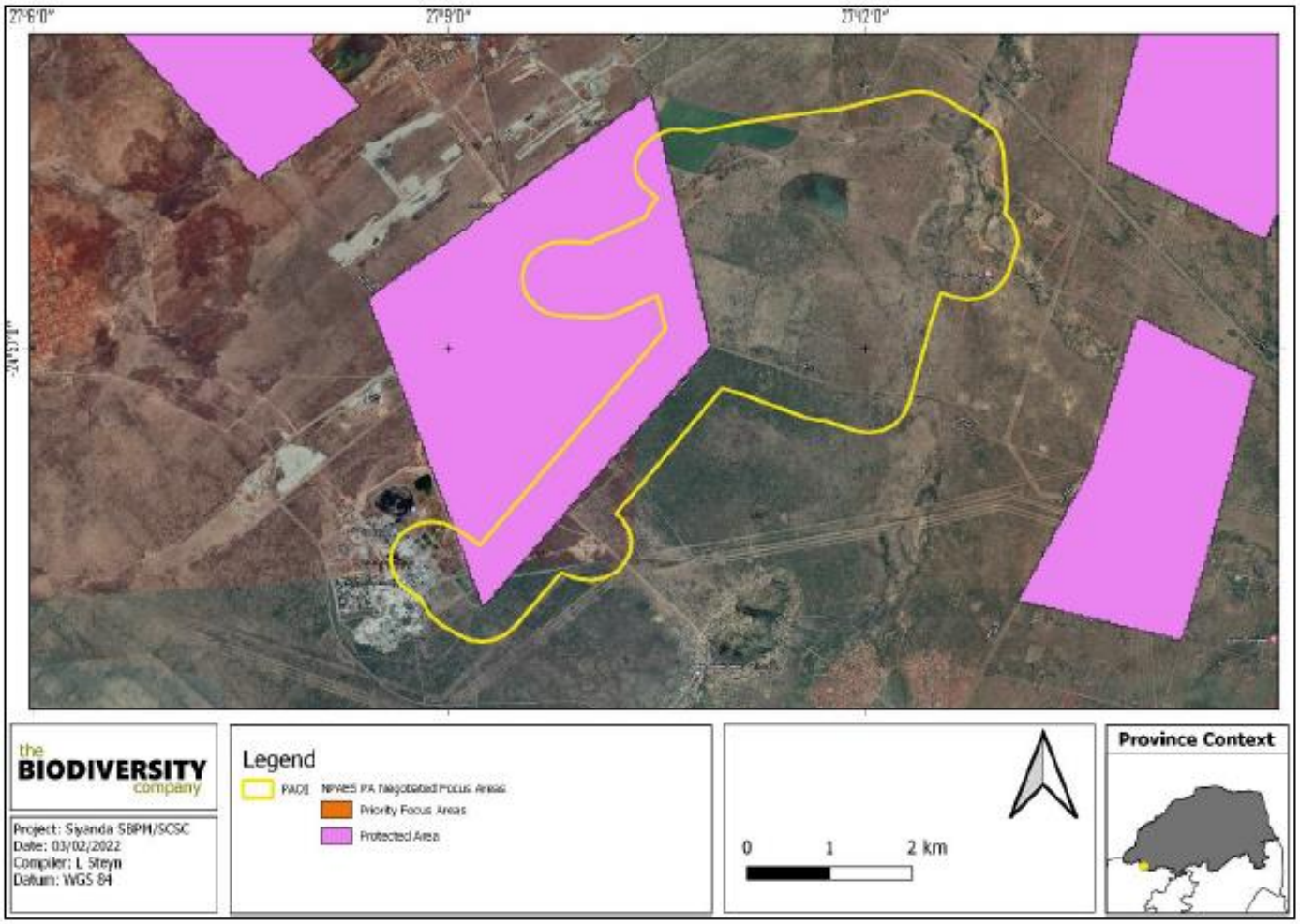


Figure 6.13: The project area in relation to the National Protected Area Expansion Strategy

viii. Wetlands and Freshwater Resources

Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was released with the National Biodiversity Assessment NBA 2018. Ecosystem threat status (ETS) of river and wetland ecosystem types are based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as CR, EN, VU or LT, with CR, EN and VU ecosystem types collectively referred to as 'threatened'. The project area overlaps with Critically Endangered (CR) NBA rivers and borders on a CR wetland (**Figure 6.14**).

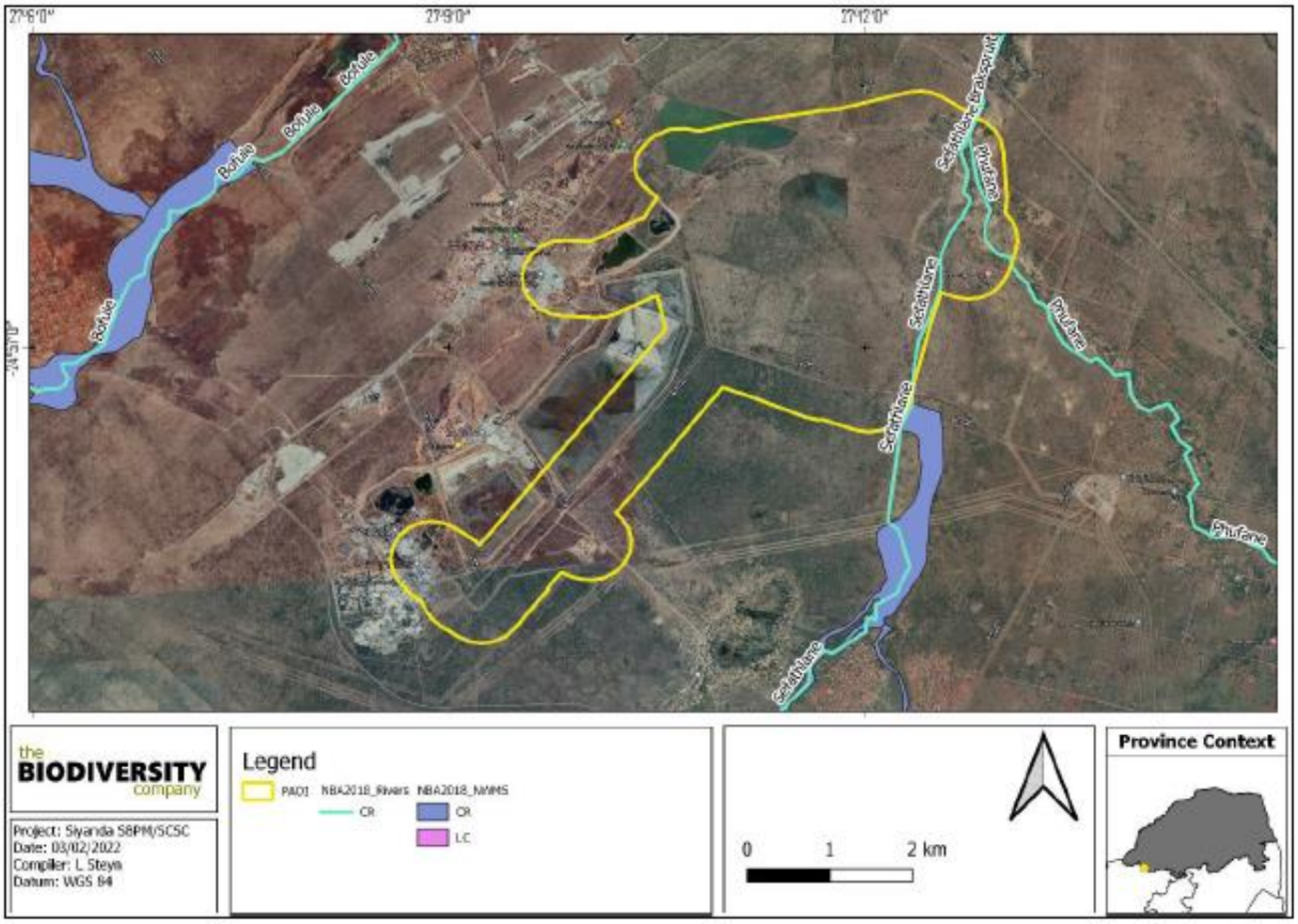


Figure 6.14: Map showing ecosystem threat status of rivers and wetlands ecosystem in the project area

In an attempt to better conserve aquatic ecosystems, South Africa has categorised its river systems according to set ecological criteria (i.e., ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs). The FEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's (NEM:BA) biodiversity goals.

Figure 6.15 shows the location of the project site in relation to wetland FEPAs. Based on this information, the project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers.

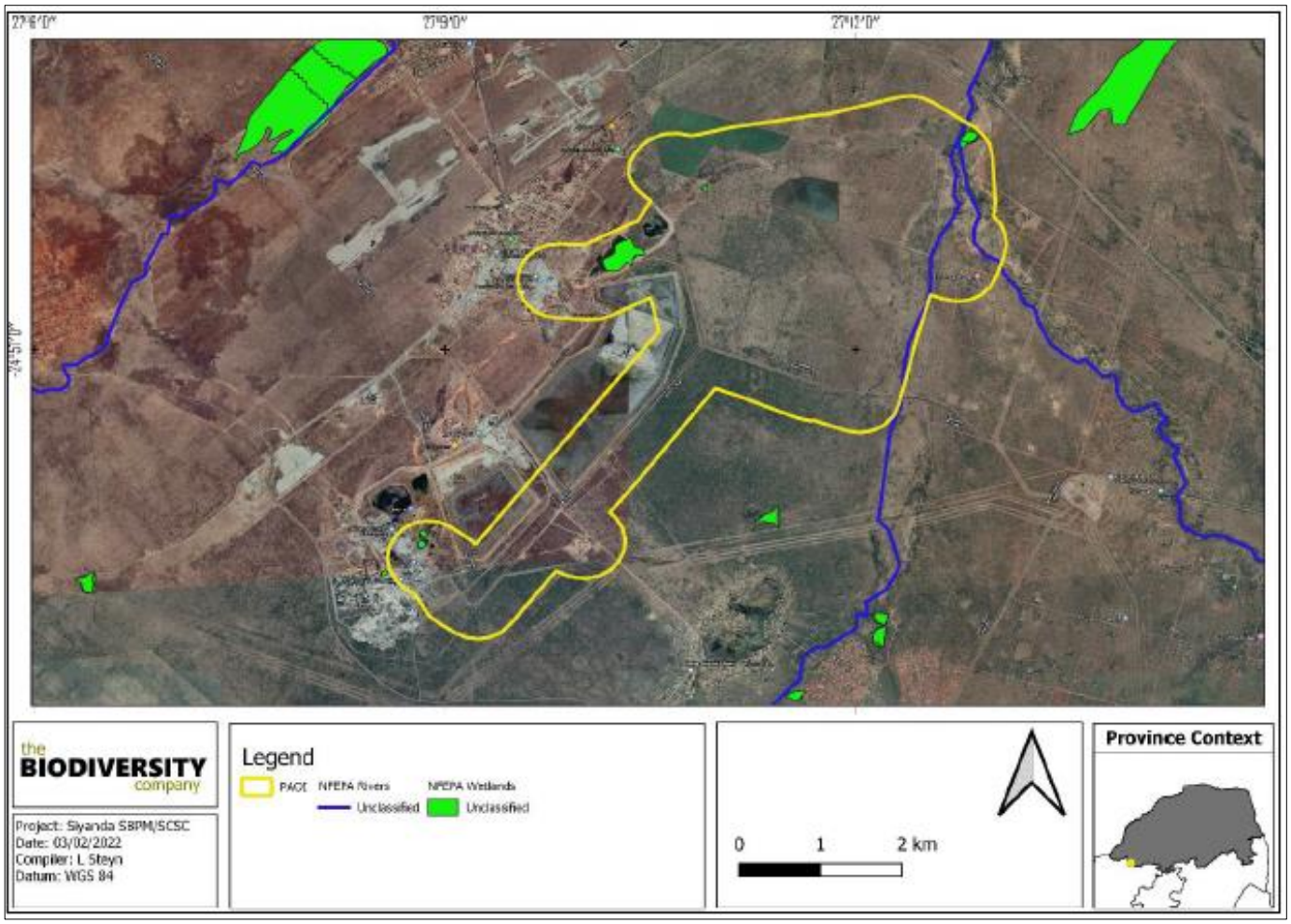


Figure 6.15: The location of NFEPA wetlands in relation to the project site

ix. Terrestrial Fauna Communities

Mammals

The IUCN Red List Spatial Data lists 85 mammal species that could be expected to occur within the area (The full list will be provided in the final assessment). This list includes large mammal species that are normally restricted to protected areas, as these were observed during the screening assessment. Twelve (12) (smaller non protected area restricted species) of these expected species are regarded as threatened (**Table 5.6**), five of these have a low likelihood of occurrence based on the lack of suitable habitat and food sources in the project area.

Table 6.6: Threatened mammal species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Aonyx capensis	Cape Clawless Otter	NT	NT	High
Atelerix frontalis	South Africa Hedgehog	NT	LC	Moderate
Cloeotis percivali	Short-eared Trident Bat	EN	LC	High

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Crocidura mariquensis	Swamp Musk Shrew	NT	LC	High
Crocuta crocuta	Spotted Hyaena	NT	LC	Low
Felis nigripes	Black-footed Cat	VU	VU	Moderate
Leptailurus serval	Serval	NT	LC	High
Panthera pardus	Leopard	VU	VU	Low
Parahyaena brunnea	Brown Hyaena	NT	NT	Confirmed
Poecilogale albinucha	African Striped Weasel	NT	LC	Low
Redunca fulvorufula	Mountain Reedbuck	EN	LC	Low
Smutsia temminckii	Temminck's Ground Pangolin	VU	VU	Low

» Aonyx capensis (Cape Clawless Otter):
The most widely distributed otter species in Africa (IUCN, 2017). This species is predominantly aquatic, and it is seldom found far from water. This species has a high likelihood of occurrence based on the presence of the two rivers in the project area.

» Atelerix frontalis (South African Hedgehog)
Has a tolerance to a degree for habitat modification and occurs in a wide variety of semi-arid and sub-temperate habitats (IUCN, 2017). Based on the Red List of Mammals of South Africa, Lesotho and Swaziland (2016), A. frontalis populations are decreasing due to the threats of electrocution, veld fires, road collisions, predation from domestic pets and illegal harvesting. Suitable grasslands occur in the project area, although somewhat disturbed, that can function as habitat for this species, as such the likelihood of occurrence is rated as moderate.

» *Cloeotis percivali* (Short-eared Trident Bat)
Occurs in savanna areas where there is sufficient cover in the form of caves and mine tunnels for day roosting (IUCN, 2017). It feeds exclusively on moths and appears to be very sensitive to disturbance. Suitable habitat and roosting area can be found around the project area and therefore the likelihood of finding this species is rated as high.

» *Crocidura maquassiensis* (Maquassie Musk Shrew)
Listed as VU on a regional basis and is known to be found in rocky, mountain habitats. It may tolerate a wider range of habitats and individuals have been collected in Kwa-Zulu Natal from a garden, and in mixed bracken and grassland alongside a river at 1,500 m (IUCN, 2017). This species has a high likelihood of occurring based on the rocky habitat found in the project area.

» *Felis nigripes* (Black-footed cat)
Endemic to the arid regions of southern Africa. This species is naturally rare, has cryptic colouring, is small in size and is nocturnal. These factors have contributed to a lack of information on this species. The highest densities of this species have been recorded in the more arid Karoo region of South Africa. The

habitat in the project area can be considered to be somewhat suitable for the species and the likelihood of occurrence is therefore rated as moderate.

» *Leptailurus serval* (Serval)
Occurs widely through sub-Saharan Africa and is commonly recorded from most major national parks and reserves (IUCN, 2017). The Serval's status outside reserves is not certain, but they are inconspicuous and may be common in suitable habitat as they are tolerant of farming practices provided there is cover and food available. In sub-Saharan Africa they are found in habitat with well-watered savanna long-grass environments and are particularly associated with reedbeds and other riparian vegetation types. Suitable habitat is present for this species in the project area, as such the likelihood of occurrence is rated as high.

» *Parahyaena brunnea* (Brown Hyaena)
Endemic to southern Africa. This species occurs in dry areas, generally with annual rainfall less than 100 mm, particularly along the coast, semi-desert, open scrub and open woodland savanna. Given its known ability to persist outside of formally protected areas the likelihood of occurrence of this species in the project area is moderate to good. This species was confirmed during the screening assessment.

Amphibians
Based on the IUCN Red List Spatial Data and AmphibianMap, 30 amphibian species are expected to occur within the area (The full list will be provided in the final assessment). One (1) are regarded as threatened (Table 5-3).

Table 6.7: Threatened amphibian species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Pyxicephalus adspersus	Giant Bullfrog	NT	LC	Moderate

Giant Bull Frog (*Pyxicephalus adspersus*) is a species of conservation concern that will possibly occur in the project area, especially in the area with the wetlands. The Giant Bull Frog is listed as near threatened on a regional scale. It is a species of drier savannas where it is fossorial for most of the year, remaining buried in cocoons. They emerge at the start of the rains, and breed in shallow, temporary waters in pools, pans and ditches (IUCN, 2017).

Reptiles
Based on the IUCN Red List Spatial Data and the ReptileMAP database, 91 reptile species are expected to occur within the area (The full list will be provided in the final assessment). Three (3) are regarded as threatened (**Table 6.5**).

Table 6.5: Threatened reptile species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Crocodylus niloticus	Nile Crocodile	VU	VU	Moderate

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Lygodactylus waterbergensis	Waterberg Dwarf Gecko	NT	NT	Moderate
Pseudocordylus transvaalensis	Northern Crag Lizard	NT	NT	Moderate

» *Crocodylus niloticus* (Nile Crocodile)
Listed as VU on a regional basis. The Nile crocodile is quite widespread throughout sub-Saharan Africa, in different types of aquatic environments such as lakes, rivers, and marshlands. The species has a moderate likelihood of occurrence based on the rivers in the project area.

» *Lygodactylus waterbergensis* (Waterberg Dwarf Gecko)
Classified as NT both regionally and internationally. This species is endemic to Limpopo Province, where it is found in rocky areas of the grassland and savannas. The likelihood of occurrence is moderate as rocky habitat is present in the project area.

» *Pseudocordylus transvaalensis* (Northern Crag Lizard)
Categorised as NT on both a regional and a global scale. This species is threatened by the pet trade and is listed on CITES. The likelihood of occurrence in the project area is high because of the moderately correct habitat present for this species.

x. Avifauna

The Northern Turf IBA, is located adjacent to the development area (**refer to Figure 6.16**).

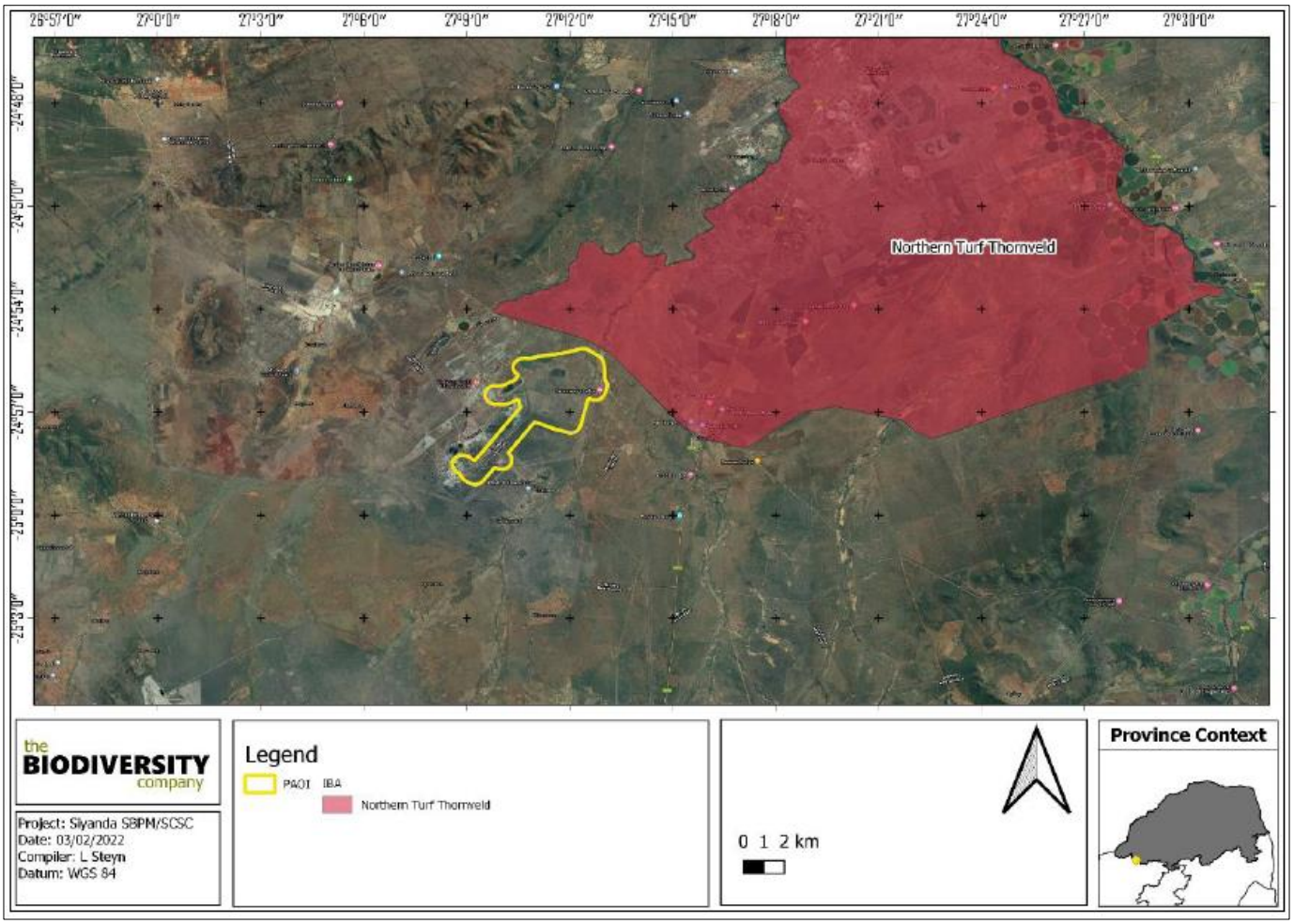


Figure 6.16: The project area in relation to the Northern turf thornveld IBA

The SABAP2 Data lists 306 avifauna species that could be expected to occur within the area. Ten (10) of these expected species are regarded as threatened (refer to **Table 6.6**). Three (3) species have a low likelihood of occurrence based on the lack of suitable habitat.

Table 6.6: Threatened avifauna species that are expected to occur within the project site

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Ardeotis kori	Bustard, Kori	NT	NT	Low
Ciconia nigra	Stork, Black	VU	LC	Low
Coracias garrulus	Roller, European	NT	LC	Moderate
Falco biarmicus	Falcon, Lanner	VU	LC	High
Glareola nordmanni	Pratincole, Black-winged	NT	NT	Low
Mycteria ibis	Stork, Yellow-billed	EN	LC	Moderate
Polemaetus bellicosus	Eagle, Martial	EN	EN	High
Pterocles gutturalis	Sandgrouse, Yellow-throated	NT	LC	High

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Sagittarius serpentarius	Secretarybird	VU	EN	High
Tyto capensis	Grass-owl, African	VU	LC	High

» *Coracias garrulous* (European Roller)
A winter migrant from most of South-central Europe and Asia occurring throughout sub-Saharan Africa (IUCN, 2017). The European Roller has a preference for bushy plains and dry savannah areas (IUCN, 2017). There is a moderate chance of this species occurring in the project area as they prefer to forage in open areas.

» *Falco biarmicus* (Lanner Falcon)
Native to South Africa and inhabits a wide variety of habitats, from lowland deserts to forested mountains (IUCN, 2017). They may occur in groups up to 20 individuals but have also been observed solitary. Their diet is mainly composed of small birds such as pigeons and francolins. The likelihood of incidental records of this species in the project area is rated as high due to the natural veld condition and the presence of many bird species on which Lanner Falcons may predate.

» *Mycteria ibis* (Yellow-billed Stork)
Listed as EN on a regional scale and LC on a global scale. This species is migratory and has a large distributional range which includes much of sub-Saharan Africa. It is typically associated with freshwater ecosystems, especially wetlands and the margins of lakes and dams (IUCN, 2017). The presence of some water bodies within the project area creates a high possibility that this species may occur there.

» *Polemaetus bellicosus* (Martial Eagle)
Listed as EN on a regional scale and on a global scale. This species has an extensive range across much of sub-Saharan Africa, but populations are declining due to deliberate and incidental poisoning, habitat loss, reduction in available prey, pollution and collisions with power lines (IUCN, 2017). It inhabits open woodland, wooded savanna, bushy grassland, thornbush and, in southern Africa, more open country and even sub-desert (IUCN, 2017). Suitable foraging and breeding area is found in the project area.

» *Sagittarius serpentarius* (Secretarybird)
Occurs in sub-Saharan Africa and inhabits grasslands, open plains, and lightly wooded savanna. It is also found in agricultural areas and sub-desert (IUCN, 2017). The likelihood of occurrence is rated as high due to the extensive grasslands and wetland areas present in the project area.

» *Tyto capensis* (African Grass-owl)
Rated as VU on a regional basis. The distribution of the species includes the eastern parts of South Africa. The species is generally solitary, but it does also occur in pairs in moist grasslands where it roosts (IUCN, 2017). This species specifically has a preference for nesting in dense stands of the grass species *Imperata cylindrica*. Wetlands with suitable habitat can be found in the project area therefore the likelihood of occurrence is rated as high.

First monitoring survey

A first field assessment was conducted 4-8 April 2022, during this survey the 134 bird species were recorded of which three were SCCs. The SCCs recorded were Lanner Falcon (*Falco biarmicus*) (VU- regionally), White-backed Vulture (*Gyps africanus*) (CR-regionally and internationally) and Yellow-throated Sandgrouse (*Pterocles gutturalis*) (NT- regionally). These species were recorded on numerous occasions spread throughout the project area. Of the 134 species 18 species (**table 6.7**) were identified that would be at risk for powerline collisions, electrocutions or habitat loss due to the development.

Table 6.7: Species at risk for Collison, electrocution and habitat loss

Common Name	Scientific Name	RD (Regional, Global)	Collision	Electrocution	Habitat Loss
African Darter	*Anhinga rufa*		x		x
African Fish Eagle	*Haliaeetus vocifer*		x	x	
African Hawk Eagle	*Aquila spilogaster*		x	x	
Black-chested Snake Eagle	*Circaetus pectoralis*			x	
Black-headed Heron	*Ardea melanocephala*		x	x	
Egyptian Goose	*Alopochen aegyptiaca*		x	x	
Gabar Goshawk	*Micronisus gabar*		x		
Glossy Ibis	*Plegadis falcinellus*		x	x	
Green-backed (Striated) Heron	*Butorides striata*		x		
Hadeda (Hadada) Ibis	*Bostrychia hagedash*		x	x	
Hamerkop	*Scopus umbretta*		x		
Helmeted Guineafowl	*Numida meleagris*			x	
Lanner Falcon	*Falco biarmicus*	VU, LC	x		x
Marsh Owl	*Asio capensis*		x	x	x
Spur-winged Goose	*Plectropterus gambensis*		x	x	
White-backed Vulture	*Gyps africanus*	CR, CR	x	x	x
White-faced Whistling Duck	*Dendrocygna viduata*		x	x	
Yellow-throated Sandgrouse	*Pterocles gutturalis*	NT, LC			x

6.5. Integrated Heritage including Archaeology, Palaeontology and the Cultural Landscape

The area proposed for the SBPM Solar PV Facility is located approximately west of Northam. The town of Swartklip is a mining town, with a population of 3,517 people and it was built around the Siyanda Bakgatla Platinum Mine.

6.5.1. Cultural Landscape

The proposed site is characterised by the rural and mining landscape character. There are no cultural landscape elements that have been noted. This will be further confirmed during the EIA phase.

6.5.2. Archaeology

Several archaeological and heritage impact assessments have been conducted in the area. Van Schalkwyk and colleagues conducted a high coverage archaeological survey 5 km away from the area proposed for development (2003, SAHRIS ID 5706). These practitioners reported several Late Iron Age stone-walled sites with faunal and cultural remains, including pottery. They suggested that these sites were likely associated with the Tswana people. The report did not mention the exact number of Iron Age sites that Van Schalkwyk, and colleagues encountered during the survey. As for the Stone Age, Van Schalkwyk and colleagues documented only isolated Middle and Later Stone Age specimens. Conversely, other reports (Pistorius 2002, SAHRIS ID 5725; Roodt 2007, SAHRIS ID 50057; Kruger 2014, SAHRIS ID 318678), reported no Stone Age remains. Interestingly, surveys pertaining to the immediate vicinity of the proposed development report minimal amounts of archaeology. Kruger (2014) surveyed the Grootkuil farm (part of portion 5 of the farm) and documented one historical structure that constituted the original Grootkuil farmhouse.

Kruger also mentioned the presence of dense vegetation coverage at the farm that would lower the probability of discovering sub-surface cultural remains. Pistorius (2002) surveyed a narrow strip for the Eskom power line on a neighbouring farm called Spitskop and reported several ex-situ potsherds. As significant archaeological heritage has been documented in the broader region, it is possible that similar archaeological heritage exists within the site. **Figure 6.17** shows the heritage resources previously identified within the study area.

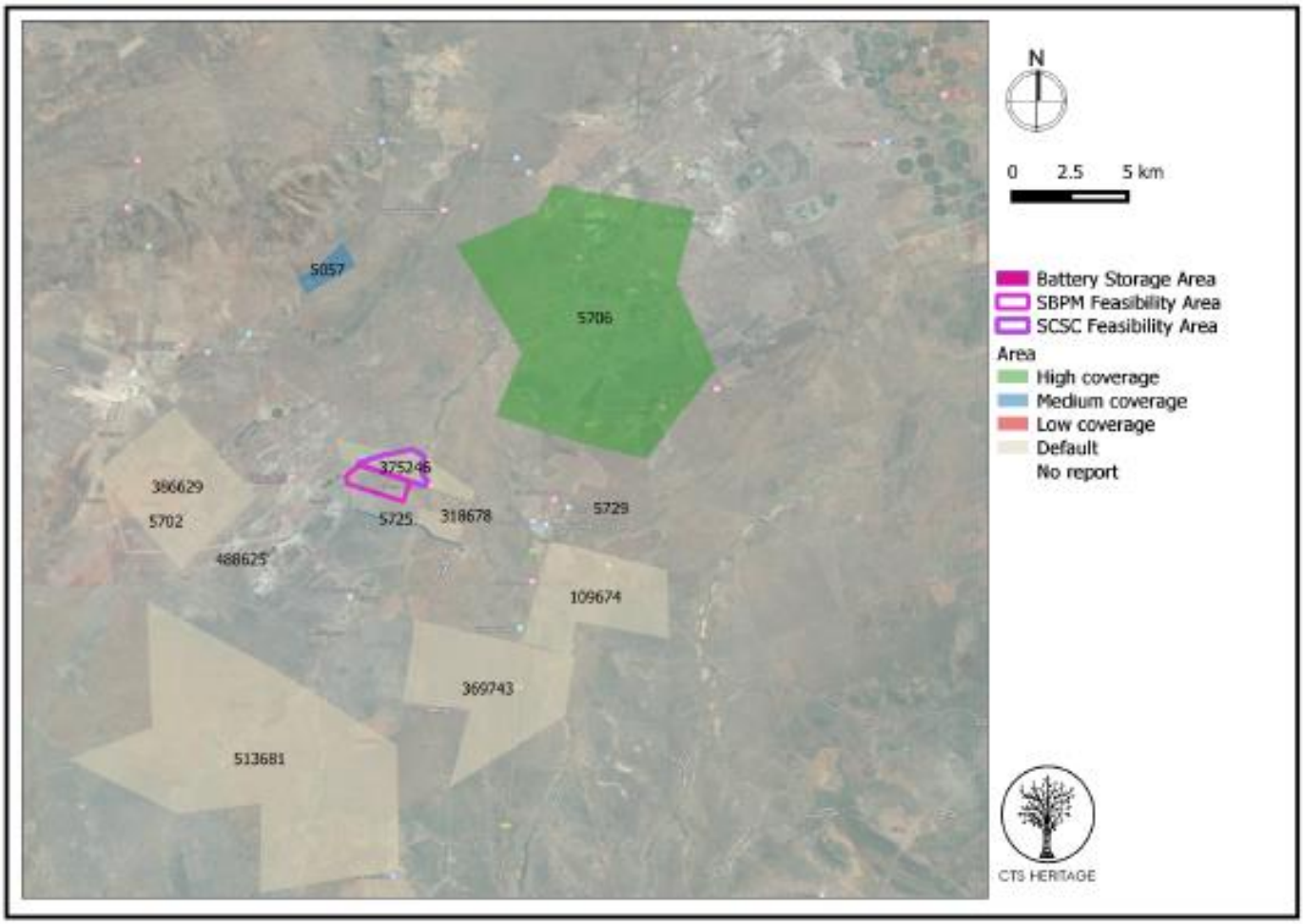


Figure 6.17: Heritage resources previously identified within the study area

6.5.3. Palaeontology

According to the SAHRIS Palaeosensitivity Map (**Figure 6.18**), the area proposed for development is underlain by sediments of zero paleontological sensitivity. The area proposed for the development has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, Rubidge proposed that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. Rubidge, hence, recommended that if fossils were exposed as a result of development activities, that a qualified palaeontologist should be contacted to assess the exposure for fossils before further development took place so that the necessary rescue operations were implemented. This recommendation is reiterated for this project.

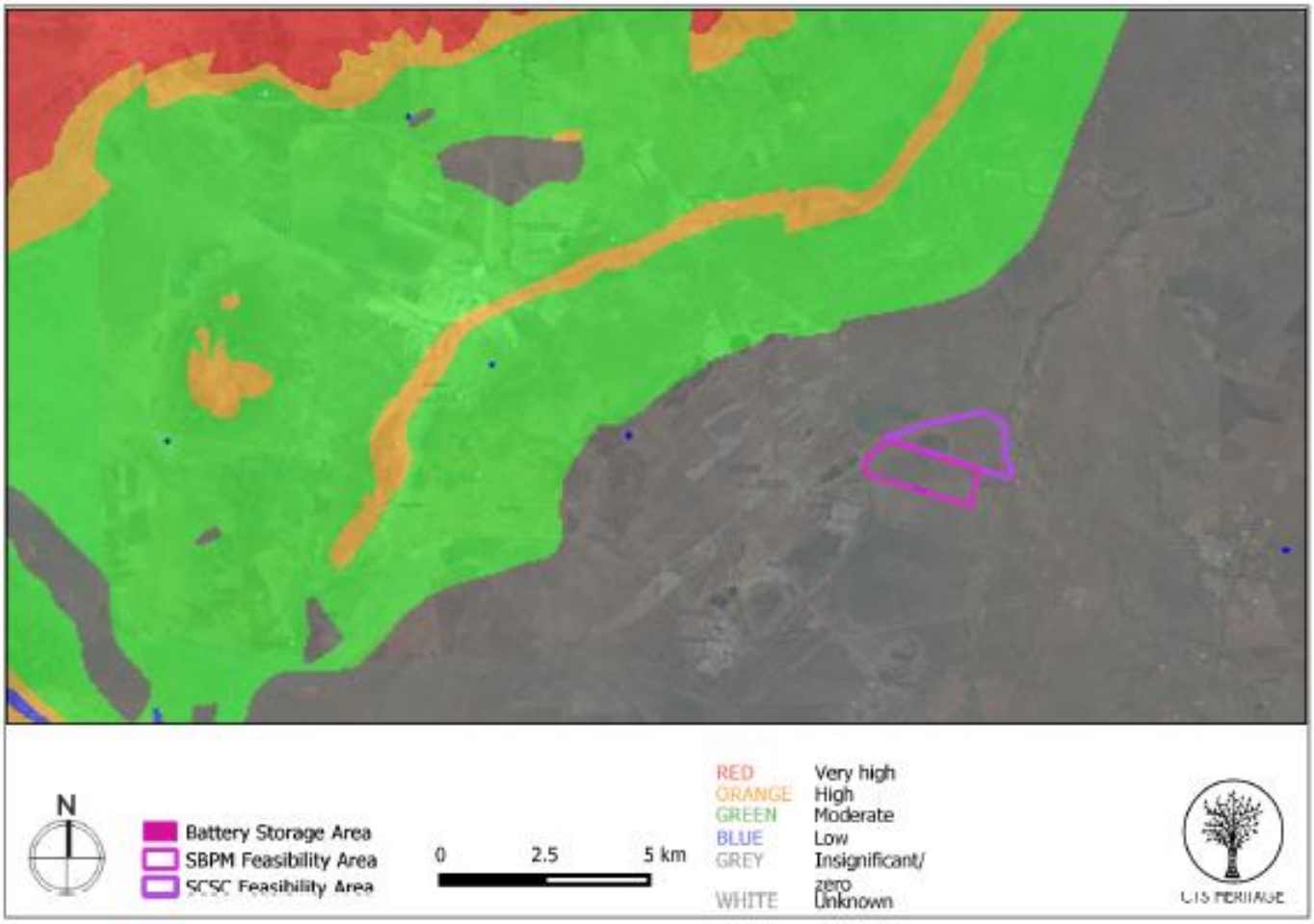


Figure 6.18: Palaeosensitivity map indicating fossil sensitivity underlying the study area.

6.6 Visual Quality

The project site is located in an area that has a distinct rural and agricultural character. The Swartklip mine town which was built around the Siyanda Bakgatla Platinum Mine is located ~1km from the project site. Tirammogo lodge is located adjacent (south-east) of the proposed SBPM Solar PV facility site. Although numerous mining related structures and activities dominate the landscape of the greater area (Particularly the western portion of the site area closer to the existing Union Section Mine and the Siyanda Bakgatla Platinum Mine, there are a number of overhead power lines and substations in close proximity to the project area. The Ivan, Fridge and the Mortimer substations are located in the north west of the project site (**refer to Figure 6.19**).

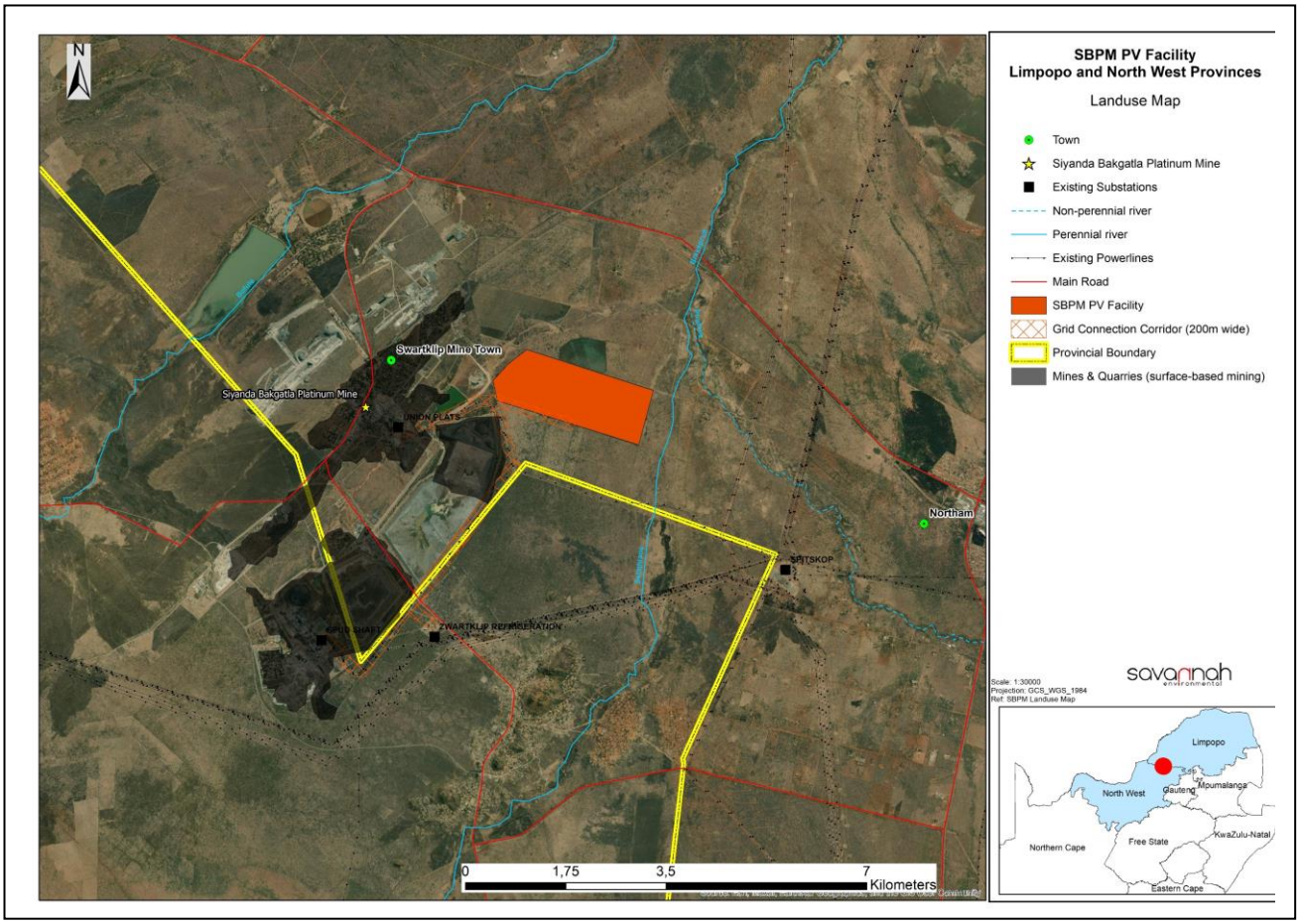


Figure 6.19: Land cover and broad land use patters within the project area

6.7 Social Profile

i Profile of the Broader Area

Table 6.4 provides a baseline summary of the socio-economic profile of the Thabazimbi Local Municipality within which the SBPM Solar PV Facility is located. In order to provide context against which the LM's socio-economic profile can be compared, the socio-economic profiles of the Waterberg District Municipality, Limpopo Province, and South Africa as a whole have also been considered. The data presented in this section have been derived from the 2011 Census, the Local Government Handbook South Africa 2019, Limpopo Spatial Development Framework (LSDF) 2015, Limpopo Development Plan (2015-2019), and the Waterberg District Municipality and Thabazimbi Local Municipality IDPs[15].

Table 6.2: Baseline description of the socio-economic characteristics of the area within which the SBPM Solar PV Facility project is proposed

Location characteristics

[15] While information was derived from the Local Government Handbook South Africa 2019, Limpopo SDF, Waterberg DM and Thabazimbi LM IDPs, these sources largely make use of statistical information derived from the Census 2011. The information presented in this Chapter may therefore be somewhat outdated, but is considered sufficient for the purposes of this assessment (i.e. to provide an overview of the socio-economic characteristics against which impacts can be identified and their significance assessed).

- The project is proposed within the Limpopo Province, which covers the area that lies Northern most in South Africa, just South of Zimbabwe.
- The project is proposed within the Thabazimbi LM of the Waterberg DM.
- The Thabazimbi LM is approximately 11214.4km² in extent, whilst Waterberg is 45315.6km² in extent.

Population characteristics

- According to the Statistics SA Thabazimbi had a population intercensal growth rate of 0.028% for the period 2011-2016.
- Thabazimbi population for the year 2016 (Community Survey) was 96 232.
- The Waterberg District Municipality (WDM) population constitutes 12.6% of the total provincial population with an average household size of 3.5.
- The Thabazimbi Local Municipality (TLM) constitutes approximately 12.5% of the total population of the WDM with an average household size that is lower than he above-mentioned at 2.8.
- Between 2001 and 2011, the population growth rate was 0.8% at the Provincial level followed by 1,2% at the district level and the TLM has the highest rate of 2,6%
- The majority of the population in Limpopo, WDM and TLM (59,8%, 64,3% and 63%, respectively) is within the working age group (15 to 64 years).
- There is a notably higher percentage at the District and Local Municipality levels, probably linked with in-migration in search of employment opportunities
- Dependency ratios in Limpopo, WDM and TLM are estimated to be 67,35, 55,5% and 30,8% respectively; the significant difference in dependency is likely to reflect high number o migrants in the TLM.

Economic, education and household characteristics

- Over 17% of the working age population (15 to 64 years) in LP has no formal education and only 22,4% has obtained a grade 12/matric education (Census, 2011).
- The WDM closely follows the province with 12,5% of the working age population having no formal education and 23,3% having obtained a grade 12/matric education.
- Both the Province and District have 9% of the working age population with tertiary level education.
- Although TLM cannot be considered to have high levels of education, its population has higher education levels as compared to the Province and District, this is most likely due to the number of qualified employees working at the various mining operations.
- Nearly 9% of the working age population has no formal education, 56,4% has obtained a grade 12/matric education and 8% have higher educational training.
- According to Waterberg District IDP Report (2012/13), there are 333 schools in the WDM and 67 of them are based within the TLM.
- According to WDM IDP Report (2013), mining plays an important role in LP's economy, it is currently the most dominant contributor to the Province's Gross Geographic Product (GGP) at 29,4%.
- The sectors with the smallest contribution to the GGP are manufacturing, agriculture, forestry and fishing and the construction industry at 2.5% each.
- WDM's main GDP contribution comes from mining (47,4%) and agriculture (21%); another significant contributor is tourism (WDM IDP, 2011/12).
- Mining activities in WDM include minerals such as platinum, iron ore, coal and diamonds.
- WDM is home to a world-renowned biosphere and as a result, tourism plays a major role in the economy.
- The WDM's agricultural activities comprise 30% of the province's agricultural activities, contributing over 4% to the Districts GGP.
- These activities include crop, cattle and game farming.
- Similar to the Province and District, TLM's economy is driven by three pillars: mining, agriculture and tourism (Thabazimbi Local Municipality Agriculture Strategy Report, 2012).
- Although mining constitutes the lowest land use in the TLM, statistics indicate that it contributes significantly to the Gross Domestic Product (GDP) and employment rates.
- TLM contributes 36% to the District's GDP.

- According to TLM IDP Report (2015), mining has been instrumental through its recruitment practices in driving significantly in migration into the municipal area, thereby contributing significantly to the current population profile.
- Agriculture and eco-tourism also contribute fairly significantly to the economy; agricultural activities constitute 40% of the district's agricultural activities. According to WDM IDP Report (2013) maize, sorghum, sunflowers, wheat, soya beans, groundnuts, paprika, potatoes, tomatoes, onions, cabbage and citrus fruits are commonly grown in TLM.
- Cattle farming including cattle ranches and poultry and pig production are also common in TLM. Game farming activities within TLM include auctioning of animals, hunting and processing food items.

Services

- The majority of the WDM and TLM population (87,6% and 77,9%) live in formal dwellings and a greater percentage than the province lives in informal dwellings (11,2% and 20,6)
- Approximately 2% of the population reside in traditional dwellings and 1,2% in WDM.
- Cattle farming including cattle ranches and poultry and pig production are also common in TLM. Game farming activities within TLM include auctioning of animals, hunting and processing food items.
- The most dominant source of energy for lighting in Limpopo is electricity at ~ 88%.
- Considerably few people in the WDM and TLM make use of electricity compared to the province
- In TLM, only 35% of the population use electricity for lighting, 33,5% for cooking and 31% for heating purposes, respectively.
- WDM and TLM have the highest percentage of households with access to piped water at ~94% and ~95%, respectively.
- At the ward level in TLM, fewer people have access to piped water as compared to the Local Municipality
- Approximately 68% of households in Limpopo use pit toilets, ~45% in WDM and 21% in the TLM.
- In terms of flush toilets, 68% of households in TLM have flush toilets, ~48% in WDM, followed by the province with ~22%.
- Refuse collection in the broad Project area is poor. Limpopo Province has particularly low levels of formal weekly refuse removal at 21% as compared to ~46% in TLM and 63% in WDM.

CHAPTER 7: SCOPING OF POTENTIAL ISSUES

This chapter serves to describe environmental issues and potential impacts (direct, indirect, and cumulative impacts) that have been identified to be associated with the development of the SBPM Solar PV and associated infrastructure, and to make recommendations for further studies required to be undertaken in the EIA Phase. The scoping process has involved the review of existing information (including previous detailed studies undertaken in the area), limited field work, input from the project proponent and specialist consultants.

Environmental issues associated with construction and decommissioning activities of the project may include, among others, impacts on biodiversity (fauna, flora, and ecological integrity), loss of habitat, soil erosion, and impacts on, and/or benefits to the social environment and current land use. Environmental issues specific to the operation of a solar PV could include avian mortality resulting from collisions with solar panels; and mortality, injury, and disturbance to faunal species (e.g., bat mortality due to barotrauma). Benefits during both the construction and operation phases include the creation of employment and business opportunities, and the opportunity for skills development and on-site training, improvement in energy security and support towards the renewable sector, benefits for local landowners, and benefits associated with socio-economic contributions to community development.

The development area considered for the proposed SBPM PV includes Portion 4 of Farm Grootkuil 409, and Portion 1 of Farm Rondavel 85 that comprises an area of approximately 1138ha ha in extent, which has been investigated during this Scoping Phase to determine the environmental suitability of the site. The grid connection infrastructure is located within an assessment corridor of 200m wide located in a band along the south-west boundary of the project site and traverses Portion 3, Portion 4, Portion 5 of the Farm Grootkuil 409, Portion 1, Portion 2 of Farm Zwartklip 405, Portion 0 of Farm Spitskop 410 and Portion 0 of Farm Turfbult 404. The scoping study has considered the full extent of the project site and grid connection corridor. This will provide an indication of the areas of sensitivity that the developer would need to take into considering in the planning of the located of the proposed SBPM PV within the development footprint.

Section 7.2 provides a summary of the findings of the desktop scoping study undertaken for the construction, operation and decommissioning phases of the SBPM PV. Those impacts associated with construction can also be expected to be associated with the decommissioning phase (however, to a lesser extent as the development footprint would have previously undergone transformation and disturbance during construction). More detail regarding potential impacts is included in the specialist scoping reports included in Appendix **D**-**G**.

A summary of the potential cumulative impacts that may be associated with the project is provided in **Section 7.3**. These impacts are associated with the scale of the project when considered together with other similar developments within the region and will be confirmed and assessed within the EIA Phase of the project.

7.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter serves to identify the potential environmental impacts associated with the development of the SBPM Solar PV Facility from a desktop level. This chapter includes the following information required in terms of the EIA Regulations, 2014 - Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(g)(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts (aa) can be reversed (bb) may cause irreplaceable loss of resources and (cc) can be avoided, managed or mitigated.	The impacts and risks identified to be associated with the construction and operation phase of SBPM Solar PV Facility have been included in **Section 7.2.** Impact tables have been included for each field of study which considers the nature, significance, consequence, extent, duration and probability of the impacts, as well the reversibility of the impacts, the loss of resources and avoidance, management or mitigation, as expected at this stage in the EIA process.
(g)(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The positive and negative impacts associated with the SBPM Solar PV Facility have been included in **Section 7.2.**
(g)(viii) the possible mitigation measures that could be applied and level of residual risk	Possible mitigation (specifically relating to the avoidance of sensitive areas) has been included in **Section 7.2** where possible to provide such recommendations at this stage in the EIA process**.**

7.2 Evaluation of Potential Impacts associated with the Construction Phase, Operation and Decommissioning phases

7.2.1 Impacts on ecology (including flora and fauna)

Anthropogenic activities drive habitat destruction causing displacement of fauna and flora and possibly direct mortality. Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area.

The terrestrial habitat expected in the project area consists of Dwaalboom Thornveld, which based on the screening assessment contains a number of protected *Vachellia erioloba* (Camel thorn) trees. It is also believed that due to the mostly natural state of the area that additional flora SCCs will be recorded. Portions of the project area are classified as CBA2 and ESA1, these areas also border a Critically Endangered wetland and overlap with CR rivers. The importance of these areas is highlighted by the number of fauna SCCs expected. A total of nine fauna SCCs were given a high likelihood of occurrence, while a further eight were given a moderate likelihood of occurrence. During the screening assessment one NT mammal SCC, the Brown Hyena were recorded. A den of this species was also found. Based on the desktop and initial screening assessment infrastructure placement, within the Secondary Bushveld habitat unit which has a low sensitivity.

Sensitivity Analysis of the Site

Based on the desktop assessment it can be said that the project area is sensitive, this will be further confirmed in the EIA phase. There is a moderate-high likelihood of species of conservation concern occurring. This assumption is based on the CBA2, ESA1, NPAES (protected area), Northern Turfveld IBA and CR rivers found in and around the project area. Development in an ESA area is not as restricted as within the CBA but should be minimised and mitigation measures should be put in place that will ensure sustainable development and the highly sensitive areas within this class (ESA1) should be avoided. It is possible that the impacts associated with the proposed project can be mitigated to an acceptable level of residual impact.

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance
Wetlands	High	High	High	Medium	High
Degraded Bushveld	High	High	High	Medium	High
Disturbed Bushveld	Low	Low	Low	Medium	Low
Fragmented Bushveld	Medium	Medium	Medium	Medium	Medium
Transformed	Very Low	Very Low	Very Low	High	Very Low

Issue	Nature of Impact	Extent of Impact	No-Go Areas

Destruction, fragmentation and degradation of habitats (vegetation) and ecosystems	Direct impacts: » Disturbance / degradation / loss to vegetation and habitats » Ecological corridors are disrupted » Habitat fragmentation Indirect impacts: » Erosion risk increases » Fire risk increases » Increase in invasive alien species	Local	None identified
Spread and/or establishment of alien and/or invasive species	Direct impacts: » Loss of vegetation and habitat due to increase in alien species Indirect impacts: » Creation of infrastructure suitable for breeding activities of alien and/or invasive species » Spreading of potentially dangerous diseases due to invasive and pest species	Local	None identified
Direct mortality of fauna	Direct impacts: » Loss of SCC species » Loss of fauna diversity Indirect impacts: » Loss of diversity and species composition in the area. » Possible impact on the food chain	Regional	None identified
Reduced dispersal/migration of fauna	Direct impacts: » Loss of genetic diversity » Isolation of species and groups leading to inbreeding Indirect impacts: » Reduced seed dispersal » Loss of ecosystem services	Local	None identified
Environmental pollution due to water runoff, spills from vehicles and erosion	Direct impacts: » Pollution in watercourses and the surrounding environment » Faunal mortality (direct and indirectly) Indirect impacts: » Ground water pollution	Local	None identified

	» Loss of ecosystem services		
Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution.	Direct impacts: » » Disruption/alteration of ecological life cycles due to noise » Reduced pollination and growth of vegetation due to dust » Faunal mortality due to light pollution (nocturnal species becoming more visible to predators) » Heat radiation could lead to the displacement of species Indirect impacts: » Loss of ecosystem services	Local	None identified
Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals	Direct impacts: » Loss of SCCs or TOPS species Indirect impacts: » Loss of ecosystem service » Loss of genetic diversity	Local	None identified

Description of expected significance of impact

The development of the area could result in the loss or degradation of the habitat and vegetation, dominated by Mixed Bushveld, with small portions of Transformed habitat as well as Secondary Bushveld. The construction of the solar facility could also lead to the displacement/mortalities of the fauna and more specifically SCC fauna species. The operation of the facility could result in the disruption of ecological life cycles. This could be as a result of a number of things, but mainly due to dust, noise, light pollution and heat radiation. The disturbance of the soil/vegetation layer will allow for the establishment of flora alien invasive species, the new infrastructure in turn will provide refuge for invasive/feral fauna species. Erosion is another possible impact that could result from the disturbance of the topsoil and vegetation cover. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to influence the associated biota.

Gaps in knowledge

» This scoping study is completed at a desktop level only.

Recommendations for further study

» Identification and descriptions of habitats during site survey.
» Identification of the Site Ecological Importance, identification of SCCs
» Determine a suitable buffer width for the identified features.
» Field surveys to prioritise the development areas

7.2.2 Impacts on avifauna

Anthropogenic activities drive habitat destruction causing displacement of avifauna and possibly direct mortality. Land clearing destroys habitat and can lead to the loss of local breeding grounds, nesting sites and movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for avifauna species and may reduce animal populations and species compositions within the area.

Portions of the project area are classified as CBA1 and ESA2, these areas also border a CR wetland and overlap with CR rivers. The importance of these areas is highlighted by the number of avifauna SCCs expected. A total of five avifauna SCCs were given a high likelihood of occurrence, while a further two were given a moderate likelihood of occurrence. Based on the desktop and initial screening assessment information it can be said that majority of the project area will have a high sensitivity rating.

Sensitivity Analysis of the Site
Pre-liminary sensitivities were compiled for the avifauna study based on only the first survey (**Figure 7.1**). The sensitivities of the habitat types delineated are illustrated in Figure

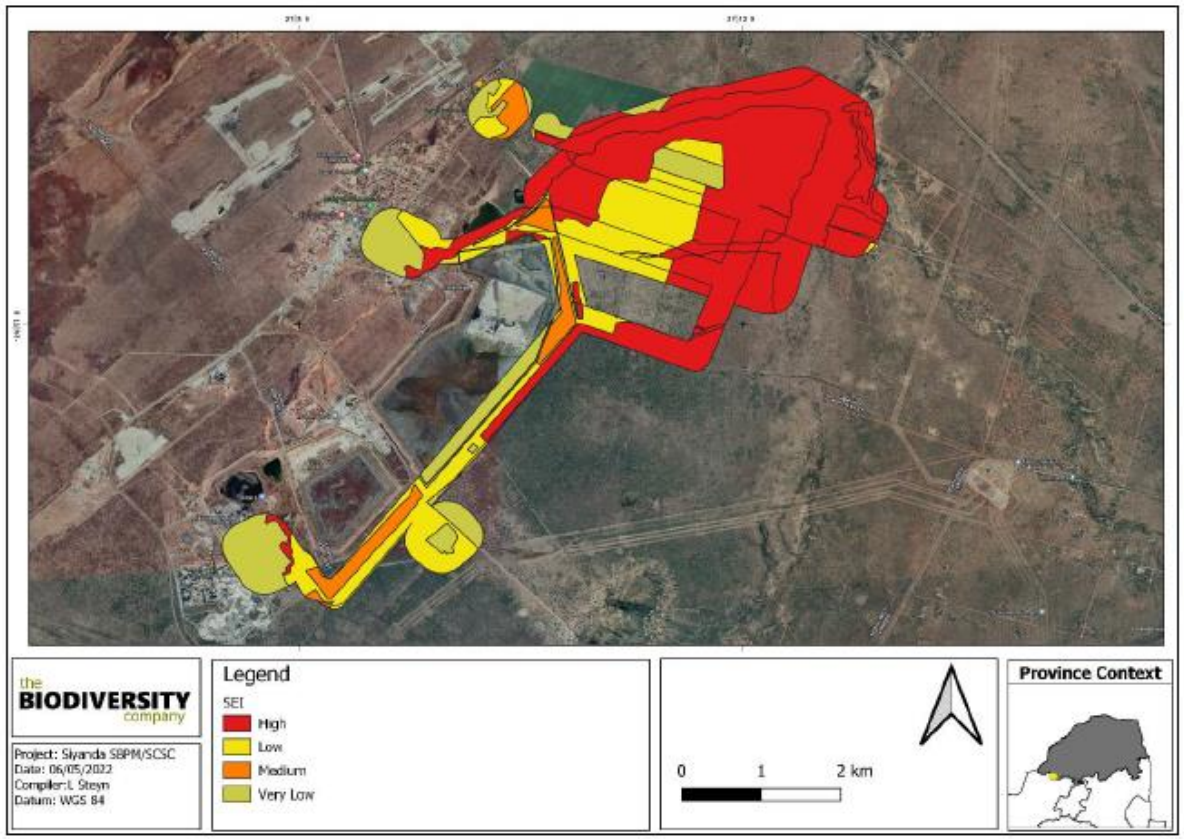


Figure 7.1: Preliminary Avifaunal sensitivities (based on the first avifauna survey undertaken for the site.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Loss of intact habitat and subsequent displacement of bird species due to the footprint required for transformation for the facility and associated infrastructure.	Vegetation clearing will potentially lead to the loss of avifaunal species, habitats and ecosystems as birds are displaced from their habitat.	Local	None identified at this stage
Mortality of avifauna and avian electrocution from collisions with plant	Mortality among the local avifauna may result due to direct collisions with solar panels, making use the facility	Local	None identified at this stage

Issue	Nature of Impact	Extent of Impact	No-Go Areas
infrastructure including overhead power lines and/or disturbance of avifauna due to general operation activities.	infrastructure for nesting sites, or entrapment along the fenced boundaries of the facility.		
Description of expected significance of impact » The impact significance is expected to be acceptable once the proposed mitigation is implemented.			
Gaps in knowledge » This scoping study is completed at a desktop level only. **Recommendations for further study** » Fieldwork to be undertaken during the wet season period. » Avifauna assessment field work to be conducted over two seasons to ensure migratory species are considered.			

7.2.3 Impacts on Freshwater Features

Impacts on Freshwater features

A key consideration for the impact assessment is the presence of the Sefathlane system to the east of the project area. This system is classified as CR, and a wetland system is also located on the border of the area (**Figure 7.2**). The available data also suggests the presence of drainage features in the area, with an expected low sensitivity for these systems.

The following potential main impacts on the wetlands were considered for the construction phase of the proposed project:

- Construction could result in the encroachment into water resources and result in the loss or degradation of these system, most of which are functional and provide ecological services.
- Water resources are also likely to be traversed by roads and other linear infrastructure which might create a barrier to flow and biotic movement across the systems.
- These disturbances could also result in the infestation and establishment of alien vegetation would affect the functioning of the systems.
- During construction earthworks will expose and mobilise earth materials which could result in sedimentation of the receiving systems.
- A number of machines, vehicles and equipment will be required for the phase, aided by chemicals and concrete mixes for the project.
- Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to have an effect on the associated biota.
- During the operational phase an increase in stormwater runoff is anticipated due to the hardened surfaces, resulting in an increase in run-off volume and velocities due to the altered flow regimes. The changes could result in physical changes to the receiving systems caused by erosion, run-off and also sedimentation, and the functional

changes could result in changes to the vegetative structure of the systems. The reporting of surface run-off to the systems could also result in the contamination of the systems, transporting (in addition to sediment) diesel, hydrocarbons and soil from the operational areas.

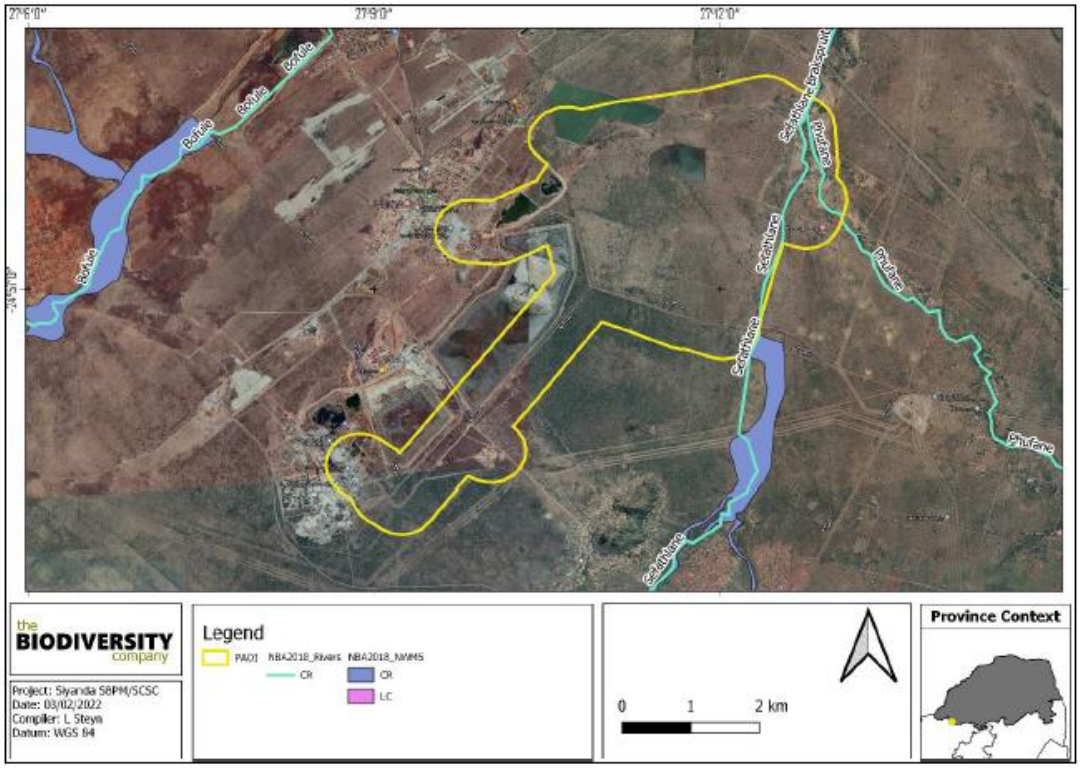


Figure 7.2: Map illustrating ecosystem threat status of rivers and wetland ecosystems in the project area

Sensitivity Analysis of the Site

The aquatic biodiversity theme sensitivity as indicated in the screening report indicates low sensitivity (**Figure 7.3**). This sensitivity is based on the screening tool and considered to be preliminary for this stage of the project. These sensitivities will be confirmed during the impact phase of the project.

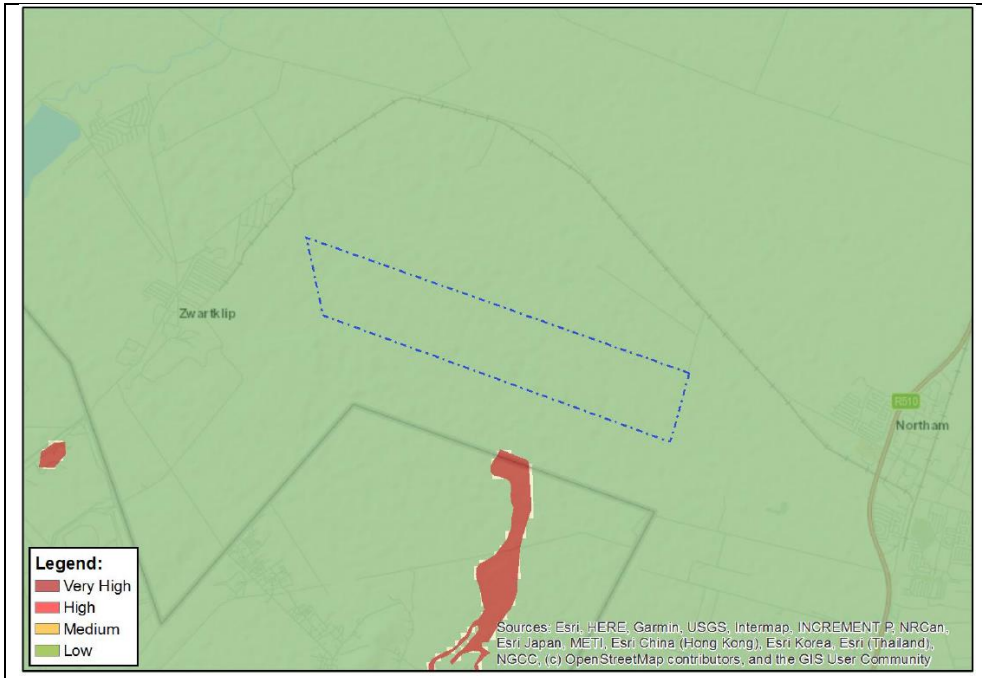


Figure 7.3: The aquatic biodiversity theme sensitivity classification and the threat status for local river systems within the development area for the SBPM Solar PV facility

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Disturbance / degradation / loss to wetland soils or vegetation due to the construction of the facility and associated infrastructure, such as crossings	Direct impacts: » Disturbance / degradation / loss to wetland soils or vegetation Indirect impacts: » Loss of ecosystem services	Local	Water resources and buffer area
Increased erosion and sedimentation & contamination of resources	Direct impacts: » Erosion and structural changes to the systems Indirect impacts: » Sedimentation & contamination of downstream reaches	Local	None identified at this stage
Description of expected significance of impact » Field assessment will determine the significance of the impacts. Impacts can be minimised through the implementation of appropriate mitigation measures.			
Gaps in knowledge & recommendations for further study			

- This study is completed at a desktop level only.
- Identification, delineation and characterisation of water resources.
- Undertake a functional assessment of systems where applicable.
- Determine a suitable buffer width for the resources.

Recommendations with regards to general field surveys

- Field surveys to prioritise the development areas, but also consider the 500 m regulation area.
- Beneficial to undertake fieldwork during the wet season period.

7.3.5 Impacts on Soils, Geology, Agricultural Potential

Construction could result in the encroachment into areas characterised by high land potential properties (such as Hutton soil forms), which can ultimately result in the loss of land capability. These disturbances could also result in the infestation and establishment of alien vegetation, which in turn can have a detrimental impact on soil resources. During construction earthworks will expose and mobilise earth materials which could result in compaction and/or erosion. A number of machines, vehicles and equipment will be required for the phase, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of soil resources, which could affect the salinity or pH of the soil, which can render the fertility of the soil unable to provide nutrition to plants.

Sensitivity Analysis of the Site

The agriculture theme sensitivity as indicated in the screening report indicates predominantly a combination of "Medium" and "High" sensitivities (**Figure 7.5**). This sensitivity is based on the screening tool and considered to be preliminary for this stage of the project. These sensitivities will be confirmed during the impact phase of the project.

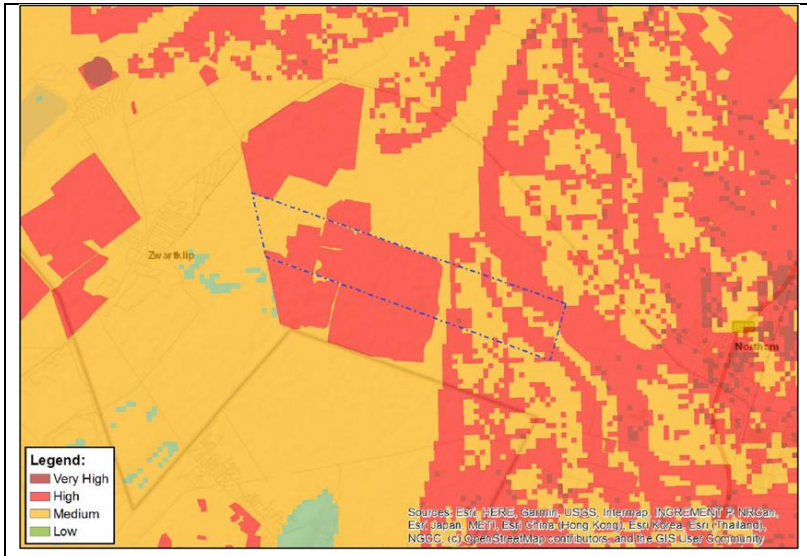


Figure 7.4: The agriculture theme sensitivity

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Compaction/soil stripping/transformation of land use which leads to loss of land capability	Direct impacts: » Loss of soil / land capability Indirect impacts: » Loss of land capability	Local	None identified at this stage
Erosion and loss of soil resources	Direct impacts: » Erosion and loss of soil resources Indirect impacts: Changes to topography and cultivated areas	Local	None identified at this stage
Description of expected significance of impact » Field assessment will determine the significance of the impacts. Impacts can be minimised through the implementation of appropriate mitigation measures.			
Gaps in knowledge & recommendations for further study » This study is completed at a desktop level only. » Identification and delineation of soil forms. » Determine of soil sensitivity.			

Recommendations with regards to general field surveys

» Field surveys to prioritise the development areas.

» *7.3.6 Impacts on Heritage (Archaeology and Palaeontology)*

Heritage (archaeological and palaeontological resources)

Archaeology

Several archaeological and heritage impact assessments have been conducted in the area. Van Schalkwyk and colleagues conducted a high coverage archaeological survey 5 km away from the area proposed for development (2003, SAHRIS ID 5706). These practitioners reported several Late Iron Age stone-walled sites with faunal and cultural remains, including pottery. They suggested that these sites were likely associated with the Tswana people. The report did not mention the exact number of Iron Age sites that Van Schalkwyk, and colleagues encountered during the survey. As for the Stone Age, Van Schalkwyk and colleagues documented only isolated Middle and Later Stone Age specimens. Conversely, other reports (Pistorius 2002, SAHRIS ID 5725; Roodt 2007, SAHRIS ID 50057; Kruger 2014, SAHRIS ID 318678), reported no Stone Age remains. Interestingly, surveys pertaining to the immediate vicinity of the proposed development report minimal amounts of archaeology. Kruger (2014) surveyed the Grootkuil farm (part of portion 5 of the farm and documented one historical structure that constituted the original Grootkuil farmhouse. Kruger also mentioned the presence of dense vegetation coverage at the farm that would lower the probability of discovering sub-surface cultural remains.

Palaeontology

According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of zero palaeontological sensitivity. The area proposed for development has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, Rubidge proposed that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. Rubidge, hence, recommended that if fossils were exposed as a result of development activities, that a qualified palaeontologist should be contacted to assess the exposure for fossils before further development took place so that the necessary rescue operations were implemented. This recommendation is reiterated for this project.

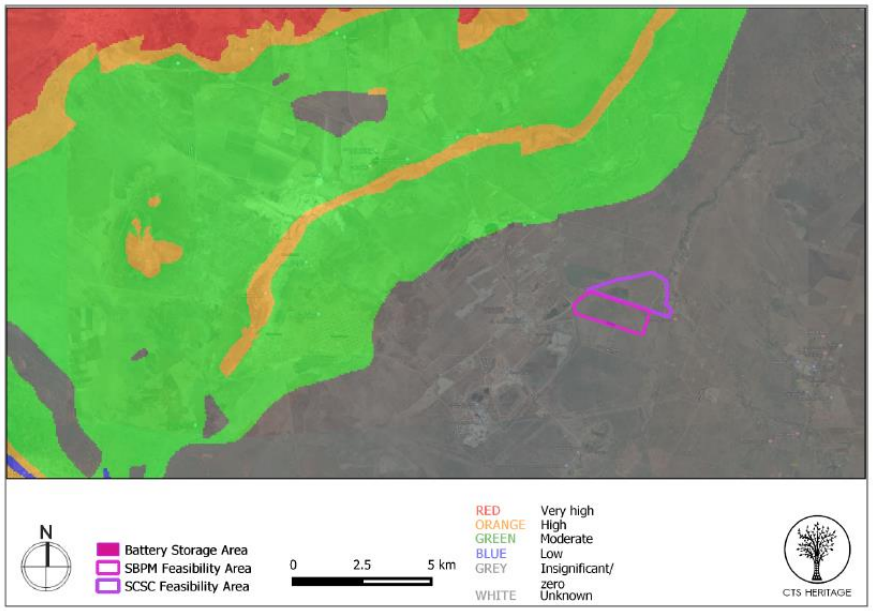


Figure 7.5: Palaeosensitivity Map indicating fossil sensitivity underlying the study area.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Destruction of archaeological heritage	Impact to significant archaeological resources such as Stone Age artefact scatters, remnants of Iron Age settlements, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase is possible.	Local	None identified at this stage
Negative impact to significant cultural landscapes	There is the potential for the proposed solar energy facility to negatively impact the cultural landscape due to a change in the landscape character from rural and mining to semi-industrial, however, due to the density of mining activities in the area, the impact on the experience of the cultural landscape is not foreseen to be significant.	Regional	None identified at this stage
Destruction of palaeontological heritage	Impacts to palaeontological resources are unlikely.	Local	None identified at this stage
Description of expected significance of impact			

» Field assessment will determine the significance of the resources likely to be impacted. Impacts can be minimised through the implementation of appropriate mitigation measures.

Gaps in knowledge

» The heritage resources in the area proposed for development are not yet sufficiently recorded.

Recommendations with regards to general field surveys

» Based on the available information, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that further heritage studies are required in terms of section 38 of the NHRA with specific focus on impacts to archaeological heritage.

7.3.7 Social Impacts

The majority of social impacts associated with the project are anticipated to occur during the construction phase of the development and are typical of the type of social impacts generally associated with construction activities. These impacts will be temporary and short-term (~12 months) but could have long-term effects on the surrounding social environment if not planned or managed appropriately. It is therefore necessary that the detailed design phase be conducted in such a manner so as not to result in permanent social impacts associated with the ill-placement of project components or associated infrastructure or result in the mis-management of the construction phase activities.

The positive and negative social impacts identified and assessed for the construction phase includes:

» Direct and indirect employment opportunities
» Economic multiplier effects
» Influx of jobseekers and change in population
» Safety and security impacts
» Impacts on daily living and movement patterns
» Nuisance impacts, including noise and dust
» Visual impacts and sense of place impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Construction of the project will result in the creation of a number of direct and indirect employment opportunities, which will assist in addressing unemployment levels within the area	Positive – the creation of employment opportunities will assist to an extent in alleviating unemployment levels within the area.	The impact will occur at a local, regional and national level.	No no-go areas have been identified to date.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
and aid in skills development of communities in the area.			
Economic multiplier effects from the use of local good and services during the construction phase.	Positive – There are likely to be opportunities for local businesses to provide goods and services during the construction phase.	Local -Regional	No no-go areas have been identified to date.
Increased pressure on infrastructure and basic services, and social conflicts during construction as a result of in-migration of people.	Negative – The in-migration of job seekers to the area could result in increased pressure being placed on infrastructure and basic services, and a rise in social conflicts.	Local	No no-go areas have been identified.
Temporary increase in safety and security concerns associated with the influx of people during the construction phase.	Negative – The in-migration of job seekers to the area could be perceived to result in increased criminal activity	Local	No no-go areas have been identified.
Temporary increase in traffic disruptions and movement patterns during construction	Negative – An increase in traffic due to construction vehicles and heavy vehicles could create short-term disruptions and safety hazards for current road users.	Local	No no-go areas have been identified to date.
Nuisance impacts in terms of temporary increase in noise and dust, and wear and tear on access roads to the site.	Negative – The impact will negatively impact sensitive receptors and could cause disruptions for neighbouring properties.	Local	No no-go areas have been identified to date.
Intrusion impacts from construction activities will have an impact on the area's "sense of place".	Low Negative – The project could alter the area's sense of place which could impact on sensitive receptors.	Local	No no-go areas have been identified to date.
Creation of direct and indirect employment and skills development opportunities and skills development as a result of the operation of the project.	Positive – The creation of employment opportunities and skills development will assist to an extent in alleviating unemployment levels within the area.	Local-International	No no-go areas have been identified to date.
Sense of place impacts from a social perspective associated with the operation phase of the solar energy facility and associated infrastructure.	Negative – The project could alter the areas sense of place which could negatively impact on sensitive receptors.	Local-Regional	No no-go areas have been identified to date.
Description of expected significance of impact			

Issue	Nature of Impact	Extent of Impact	No-Go Areas

- At its peak, the construction is likely to result in the creation of approximately 300 – 400 employment opportunities. Of those employment opportunities available, approximately 60% will comprise opportunities for low skilled workers, 25% for semi-skilled workers, and 15% for skilled workers. Skills developed through experience in the construction of the facility will be retained by the community members involved. The impact is likely to be positive, local to national in extent, short-term, and of medium significance.
- Economic multiplier effects from the use of local goods and services opportunities include but are not limited to, the provision of construction materials and equipment, and workforce essentials such as services, safety equipment, ablution, accommodation, transportation and other goods. The increase in demand for goods and services may stimulate local business and local economic development (however locally sourced materials and services may be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses. The impact is likely to be positive, local to regional in extent, short-term, and of medium significance.
- An influx of jobseekers into an area, could lead to a temporary increase in the level of crime, cause social disruption and put pressure on basic services. It could also potentially create conflict between locals and outsiders due to potential differences in racial, cultural and ethnic composition. A further negative impact that could result due to an influx of jobseekers into an area is an increase in unemployment levels due to an oversupply of available workforce, particularly with respect to semi- and unskilled workers.
- The commencement of construction activities can be associated with an increase in crime within an area. The perceived loss of security during the construction phase of a project due to an influx of workers and / or outsiders to the area (as in-migration of newcomers, construction workers or jobseekers are usually associated with an increase in crime), may have indirect effects such as increased safety and security concerns for neighbouring properties, damage to property, increased risk of veld fire, stock theft, poaching, crime and so forth. The labour force will not permanently reside within the construction site.
- Increased traffic due to construction vehicles and heavy vehicles could cause disruptions to road users and increase safety hazards. The use of local roads and transport systems may cause road deterioration and congestion. The impact is likely to be negative, local in extent, short-term, and of low significance given the proximity of the project to existing mining operations within the area.
- Nuisance impacts associated with construction related activities include noise, dust, and possible disruption to adjacent properties. Site clearing activities increase the risk of dust and noise being generated, which can in turn negatively impact on adjacent properties. The movement of heavy construction vehicles and construction activities and equipment also have the potential to create noise, as well as impacts on travellers travelling along the via the Swartklip Road which branches off the R510 provincial road on the south-eastern side of the SBPM development area. The primary sources of noise during construction would be from construction equipment, vehicle and truck traffic. Noise levels can be audible over a large distance although are generally short in duration. Dust would be generated from construction activities as well as trucks / vehicles driving on gravel access roads. This impact will negatively impact sensitive receptors. The impact of noise and dust on sensitive receptors can be reduced through the application of appropriate mitigation measures.
- Intrusion impacts such as aesthetic pollution (i.e. building materials, construction vehicles, etc.), noise and light pollution will impact the "sense of place" for the local community. Construction related activities have the potential to negatively impact a local area's "sense of place". Such an impact is likely to be present during the construction phase.
- During operation a number of direct full time employment opportunities will be created. Of those employment opportunities created approximately 70% will comprise opportunities for low-skilled workers, 25% will comprise opportunities for semi-skilled workers, and approximately 5% will comprise opportunities for skilled workers. Employment

Issue	Nature of Impact	Extent of Impact	No-Go Areas

opportunities include safety and security staff, operation and monitoring, and maintenance crew. Maintenance activities will be carried out throughout the lifespan of the project, and will include washing of solar panels, vegetation control, and general maintenance around the solar energy facility. The impact is likely to be positive, local to national in extent, long-term, and of medium significance.

» An area's sense of place is created through the interaction of various characteristics of the environment, including atmosphere, visual resources, aesthetics, climate, lifestyle, culture, and heritage. An area's sense of place is however subjective and largely dependent on the demographics of the population residing within the area and their perceptions regarding trade-offs. For example, while some individuals may prefer not to see any form of infrastructure development, others may be interested in large-scale infrastructure, or engineering projects and consider the impact to be less significant. Such a scenario may be true given that one of the main economic sectors within the area is mining which has altered the landscape from natural to industrial.

Gaps in knowledge

» Collection on exact direct and indirect employment opportunities and skills development opportunities.
Collection of information on local hospitality and services sector, community challenges and needs, information on existing crime levels within the area, number of vehicle trips anticipated during construction, impact of noise and dust on surrounding landowners, collection of information on location of existing farming and hospitality operations and activities.

Recommendations with regards to general field surveys

» Site visits and interviews with representatives from local municipality, hospitality and services sector, local chamber of commerce, community representative, mine representatives, representatives from geoscience council, local farmers and representatives from local municipality and farming and hospitality associations etc.

» Potential sensitive visual receptors need to be identified as part of the social impact assessment.

7.3 Evaluation of Potential Cumulative Impacts Associated with the project

Impacts of a cumulative nature place the direct and indirect impacts of the proposed project into a regional and national context, particularly in view of similar or resultant developments and activities in the region. Potential cumulative impacts associated with the SBPM PV facility are described below and will be assessed in detail as part of the subsequent EIA phase to be conducted for the project.

Cumulative impacts, in relation to an activity, refer to the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited to effects that can be evaluated meaningfully (DEAT, 2004). It is important to explore the potential for cumulative impacts as this will lead to a better understanding of these impacts and the potential for mitigation that may be required. The scale at which the cumulative impacts are assessed is important. For example, the significance of the cumulative impact on the regional or national economy will be influenced by solar PV facility developments throughout South Africa, while the significance of the cumulative impact on the visual amenity may only be influenced by solar PV facility developments that are in closer proximity to each other. For practical purposes a sub-regional scale of 30km is considered for the evaluation of cumulative impact of PV facilities.

The cumulative impacts associated with SBPM PV have been viewed from two perspectives within this Scoping Report:

- Cumulative impacts associated with the scale of the project (one 100MW PV Facility on the project site); and
- Cumulative impacts associated with other relevant planned, approved or existing solar developments within a 30km radius of the project site (multiple PV facilities in the proximity of the site).

Cumulative effects are commonly understood as the impacts which combine from different projects, and which result in significant change, which is larger than the sum of all the impacts (DEAT, 2004). The complicating factor is that the projects that need to be considered are from past, present, and reasonably foreseeable future development. Cumulative effects can be characterised according to the pathway they follow. One pathway could be the persistent additions from one process. Another pathway could be the compounding effect from one or more processes. Cumulative effects can therefore occur when impacts are:

- Additive (incremental);
- Interactive.
- Sequential; or
- Synergistic.

Canter and Sadler (1997) describe the following process for addressing cumulative effects in an EIA:

- Delineating potential sources of cumulative change (i.e. GIS to map the relevant renewable energy facilities in close proximity to one another);

» Identifying the pathways of possible change (direct impacts);
» Indirect, non-linear or synergistic processes; and
» Classification of resultant cumulative changes.

The site for the proposed development (Portion 4 of the Farm Grootkuil 409 is located within 30km from several other authorised solar PV facilities. These projects include the following (refer to **Figure 7.6**):

Project Name	Affected Properties	Contracted Capacity	Project Status
Platinum Solar Park (75MW)	Portion 3 of the farm Grootkuil 409 Approved for 200ha on Grootkuil portion 3 below the SBPM site.	75MW	Authorised
Liverpool Solar Energy Plant (10MW)	Portion 2 of the Farm Liverpool 543	10MW	Authorised
Spitskop Solar Park (75MW)	Portion 10 of the farm Wildebeestlaagte 411	75MW	In Process
Northam Solar Facility (10MW)	Portion 2 of the Farm Zondereinde 384	10MW	In Process

In addition to the renewable energy facilities listed above, one additional new renewable energy facility proposed adjacent to the SBPM Solar PV facility, namely:

Project Name	Affected Properties	Contracted Capacity	Project Status
SCSC Solar PV Facility	Portion 3 of Farm Grootkuil 409	100MW	In process

The cumulative impacts that have the potential to be compounded through the development of the solar PV facility and its associated infrastructure in proximity to other similar developments include impacts such as those listed below. The role of the cumulative assessment is to test if such impacts are relevant to the SBPM PV facility within the development area being considered for the development:

» Unacceptable loss of threatened or protected vegetation types, habitat or species through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning.
» Unacceptable risk to freshwater features through disturbance associated with construction activities and increased runoff and erosion during the operation phase.
» Unacceptable risk to avifauna through habitat loss, displacement and collision with PV panels.
» Unacceptable loss of high agricultural potential areas presenting a risk to food security and increased soil erosion.
» Unacceptable loss of heritage resources (including palaeontological and archaeological resources);
» Unacceptable impact to social factors and components.

Summary of the nature, significance, consequence, extent, duration and probability of the impacts

» The above-mentioned impacts are considered to be probable, although it is anticipated that the extent, duration, and magnitude of these impacts can be minimised to levels where this impact can be regarded as having low significance through the implementation of appropriate mitigation measures. » The operational lifespan of the project and other solar energy facilities within the surrounding areas is expected to be long-term (i.e. a minimum of 20 years) and subsequently the impact is also expected to be long-term. » The impact associated with the proposed development is expected to be local, affecting mainly the immediate environment and surrounding areas, as well as other renewable energy facilities within the vicinity.
Gaps in knowledge & recommendations for further study: » Each specialist study will consider and assess the cumulative impacts of proposed, approved and authorised renewable projects in the area. » Cumulative impacts will be fully assessed and considered in the EIA phase.

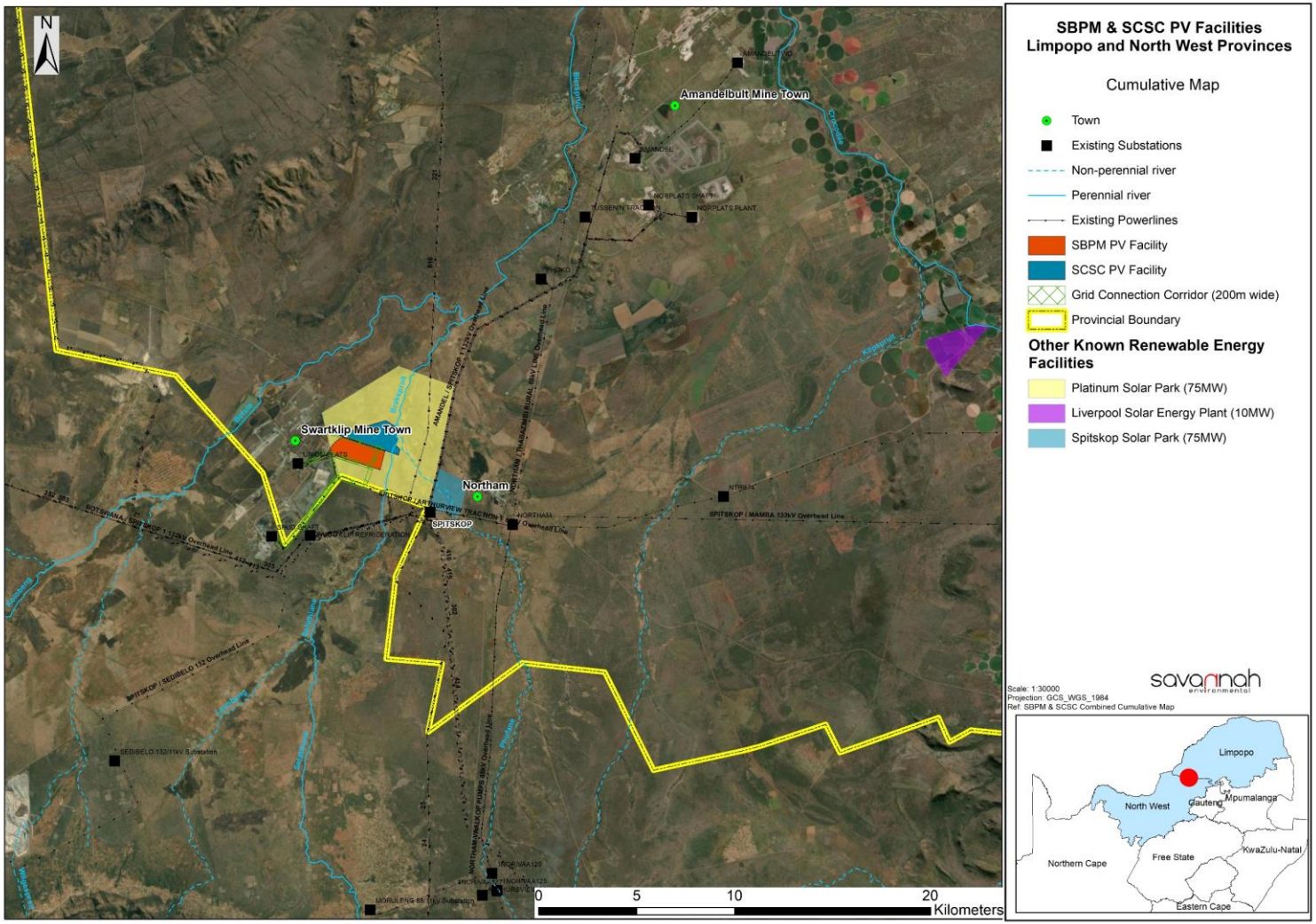


Figure 7.6: Cumulative map illustrating other approved and/or constructed PV facilities located within the vicinity of the SBPM Solar PV Facility project site (**Appendix I**).

CHAPTER 8: CONCLUSIONS

This Scoping Report is aimed at detailing the nature and extent of the proposed development, identifying and describing potential issues associated with developing the SBPM solar PV and associated infrastructure on the identified site, potential environmental fatal flaws and/or areas of sensitivity, and defining the extent of studies required to be undertaken as part of the detailed EIA phase. This was achieved through an evaluation of the proposed project, involving the project proponent, and specialist consultants. This Scoping Report has been compiled in terms of the 2014 EIA Regulations (GNR 326) published in terms of Section 24(5) of NEMA.

A summary of the conclusions of the evaluation of the potential impacts identified to be associated with the project is provided in **Section 8.2**. Recommendations regarding investigations required to be undertaken within the detailed EIA phase are provided within the Plan of Study for EIA (**Chapter 9**).

8.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(g)(xi) a concluding statement indicating the preferred alternatives, including the preferred location of the activity.	An overall conclusion and fatal flaw analysis regarding the SBPM PV facility is included within this chapter as a whole.

8.2 Overview of the SBPM PV facility

This Scoping Report documents the procedure for determining the extent of, and approach to, the Environmental Impact Assessment (EIA) Phase. The Scoping Phase included the following key tasks:

- Involvement of relevant authorities and Interested and Affected Parties (I&APs) through the Public Involvement Process.
- Consideration of feasible alternatives to be assessed during the EIA Phase.
- Identification of potential impacts (positive and negative) associated with feasible project alternatives to be assessed during the EIA Phase.
- Defining Terms of Reference for any specialist studies required to inform the EIA Phase (Plan of Study (PoS) for the Environmental Impact Assessment Report.

The SBPM PV facility is proposed on a site located approximately 6.5km west of the town of Northam. The project site falls within Ward 5 of the Thabazimbi Local Municipality and within the Waterberg District Municipality in the Limpopo Province and in Ward 7 of the Moses Kotane Local Municipality and within the Bojanala Platinum District Municipality in the North West Province on the following affected properties:

Solar PV facility:

- Portion 4 of Farm Grootkuil 409

Grid connection:

- Portion 3 of Farm Grootkuil 409
- Portion 4 of Farm Grootkuil 409
- Portion 5 of Farm Grootkuil 409
- Portion 0 of Farm Spitskop 410
- Portion 0 of Farm Turfbult 404
- Portion 1 of Farm Zwartklip 405
- Portion 2 of Farm Zwartklip 405

The SBPM PV facility project site is proposed to accommodate the following infrastructure which will enable the PV facility to supply a contracted capacity of up to 100MW:

- Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components.
- Battery Energy Storage System (BESS).
- On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
- Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- Access roads, internal distribution roads

To evacuate the generated power to the Siyanda Mine, the grid connection solution consisting of the following is proposed:

The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:

- Two 6.6 km, 33 kV power lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA).
- Two 4.7 km, 33 kV power lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA).
- Two 2.9 km, 33 kV power lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA).

The Scoping study included the identification of potential impacts associated with the project through specialist inputs and consultation with affected parties and key stakeholders. A preliminary evaluation of the extent and expected significance of potential impacts associated with the development of the SBPM PV facility have been detailed in Chapter 7. These will be assessed in detail through the EIA Phase assessment, which will include independent specialist assessments.

This scoping study has identified sensitive areas within the development area and grid connection corridor to assist in focussing the location of the development footprint for the SBPM PV facility and associated grid connection in order to minimise the potential for environmental impact. The extent of the project site for the PV facility is ~1138ha. A development area of ~574ha was demarcated for the placement of the PV facility within the project site, and a grid connection corridor of 200m was identified for consideration in the Scoping Study. The consideration of these larger areas allows an adequate footprint for the installation of a PV energy facility with a contracted capacity of up to 100MW and the proposed grid connection, while

allowing for the avoidance of environmental site sensitivities. The size of the development footprint within the development area will be confirmed in the EIA phase once the facility layout is available for assessment.

The majority of potential impacts identified to be associated with the construction of the SBPM PV facility and associated infrastructure are anticipated to be localised and restricted to the development area itself, while operation phase impacts/benefits range from local to regional. No environmental fatal flaws were identified to be associated with the development area.

The potentially significant issues related to the construction and operation of the SBPM PV facility include:

- Disturbance/destruction to and loss of vegetation and fauna and associated habitats
- Introduction and/or spread of declared weeds and alien invasive plants.
- Disturbance / degradation / loss of agricultural soils.
- Increased erosion and sedimentation & contamination of soil and water resources.
- Mortality of priority bird species due to collision with panels and electrocution and collisions with medium voltage power lines within the facility.
- Displacement of priority bird species.
- Loss of land with agricultural capability.
- Destruction of archaeological and palaeontological heritage.
- Social impacts, both positive and negative (job creation and business opportunities, impacts associated with construction workers in the area, and economic benefits).

8.3 Sensitivity Analysis for the SBPM PV facility

This section considers the sensitive features located within the development area, as identified by the independent specialists within each respective field, and also indicates the locations of the sensitive features within the development area.

The potentially sensitive areas which have been identified through the environmental scoping study are listed below and illustrated in **Figure 8.1**. The detail is based on the desktop review of available baseline information for the project site, as well as the sensitivity data from specialist studies undertaken during the scoping phase, which included field surveys. During the site and desktop surveys, the affected area was investigated in sufficient detail in order to provide definitive insight into the potential for constraining factors on the site. The sensitivity map must be used as a tool by the developer to avoid any areas flagged to be of higher risk or sensitivity and inform the location/layout of the development footprint for the facility and associated infrastructure. The development footprint is the area which will be assessed further in detail in the EIA Phase, in order to provide an assessment of environmental acceptability and suitability of the facility layout of the SBPM PV Facility.

8.3.1 Ecological Sensitive Features

Based on the desktop assessment it can be said that the project area is sensitive. There is a moderate-high likelihood of species of conservation concern occurring. This assumption is based on the CBA2, ESA1, NPAES (protected area), Northern Turfveld IBA and CR rivers found in and around the project area. Development in an ESA area is not as restricted as within the CBA but should be minimised and mitigation measures should be put in place that will ensure sustainable development and the highly sensitive areas within this class (ESA1)

should be avoided. It is possible that the proposed projects can be mitigated to an acceptable level of residual impact.

There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

8.3.2 Freshwater Sensitive Features

As per the DFFE screening reports the aquatic biodiversity theme sensitivity indicates Low sensitivity. Desktop information suggests the presence of Sefathlane system to the east of the project area. This system is classified as CR, and a wetland system is also located on the border of the area. The available data also suggests the presence of drainage features in the area, with an expected low sensitivity for these systems. These sensitivities will be confirmed during the impact phase of the project.

There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

8.3.4 Avifaunal Sensitive Features

Anthropogenic activities drive habitat destruction causing displacement of avifauna and possibly direct mortality. Land clearing destroys habitat and can lead to the loss of local breeding grounds, nesting sites and movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for avifauna species and may reduce animal populations and species compositions within the area.

Portions of the project area are classified as CBA1 and ESA2. These areas also border a CR wetland and overlap with CR rivers. The importance of these areas is highlighted by the number of avifauna SCCs expected. A total of five avifauna SCCs were given a high likelihood of occurrence, while a further two were given a moderate likelihood of occurrence. Based on the desktop and initial screening assessment information it can be said that majority of the project area will have a high sensitivity rating. This will be further confirmed in the EIA phase.

8.3.5 *Soils and Agricultural Potential Sensitive Features*

Various soil forms are expected throughout the project area, of which some are commonly associated with high land capabilities. Even though the soil depth, texture and permeability of these soils ensure high land capability, the climatic capability of the area often reduces the land potential considerably. Areas characterised by "High" land potential are expected for selected areas**.**

The agriculture theme sensitivity as indicated in the screening report indicates predominantly a combination of "Medium" and "High" sensitivities. This sensitivity is based on the screening tool and considered to be preliminary for this stage of the project. These sensitivities will be confirmed during the impact phase of the project.

There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

8.3.6 *Heritage sensitive features, the cultural landscape (incl. archaeology, palaeontology, and cultural landscape)*

Heritage sensitivity relates to archaeological resources, palaeontological resources, heritage resources, and the cultural landscape. According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments of zero palaeontological sensitivity. The area proposed for development has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, it was found that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. These will be confirmed during the impact phase of the project.

There are no areas identified within the development area and the grid connection corridor which are required to be excluded from the proposed development footprint.

8.4 Overall Conclusion and Fatal Flaw Analysis

The findings of the desktop Scoping Study indicate that no environmental fatal flaws are associated with the SBPM PV project site. While some impacts of potential significance do exist, it is anticipated that the implementation of appropriate mitigation measures would assist in reducing the significance of such impacts to acceptable levels. It is however recommended, that the development area for the development of the facility be considered outside of the potential sensitive areas as far as possible in order to ensure that the development does not have a detrimental impact on the environment. This forms part of the 'funnel-down approach' for the identification of an appropriate development footprint within the project site.

With an understanding of which areas within the project site are considered sensitive to the development of the proposed facility, the Applicant can prepare the detailed infrastructure layout for consideration within the EIA Phase. During the EIA phase, more detailed environmental studies will be conducted in line with the Plan of Study for EIA contained in **Chapter 9** of this Scoping Report. These studies will consider the detailed layouts produced by the Applicant and make recommendations for the implementation of avoidance strategies (if required), and mitigation and management measures to ensure that the final assessed layout retains an environmental impact within acceptable limits. The sensitivity map will be further refined in the EIA phase on the basis of these specialist studies, in order to provide an assessment of environmental acceptability of the final design of the facility.

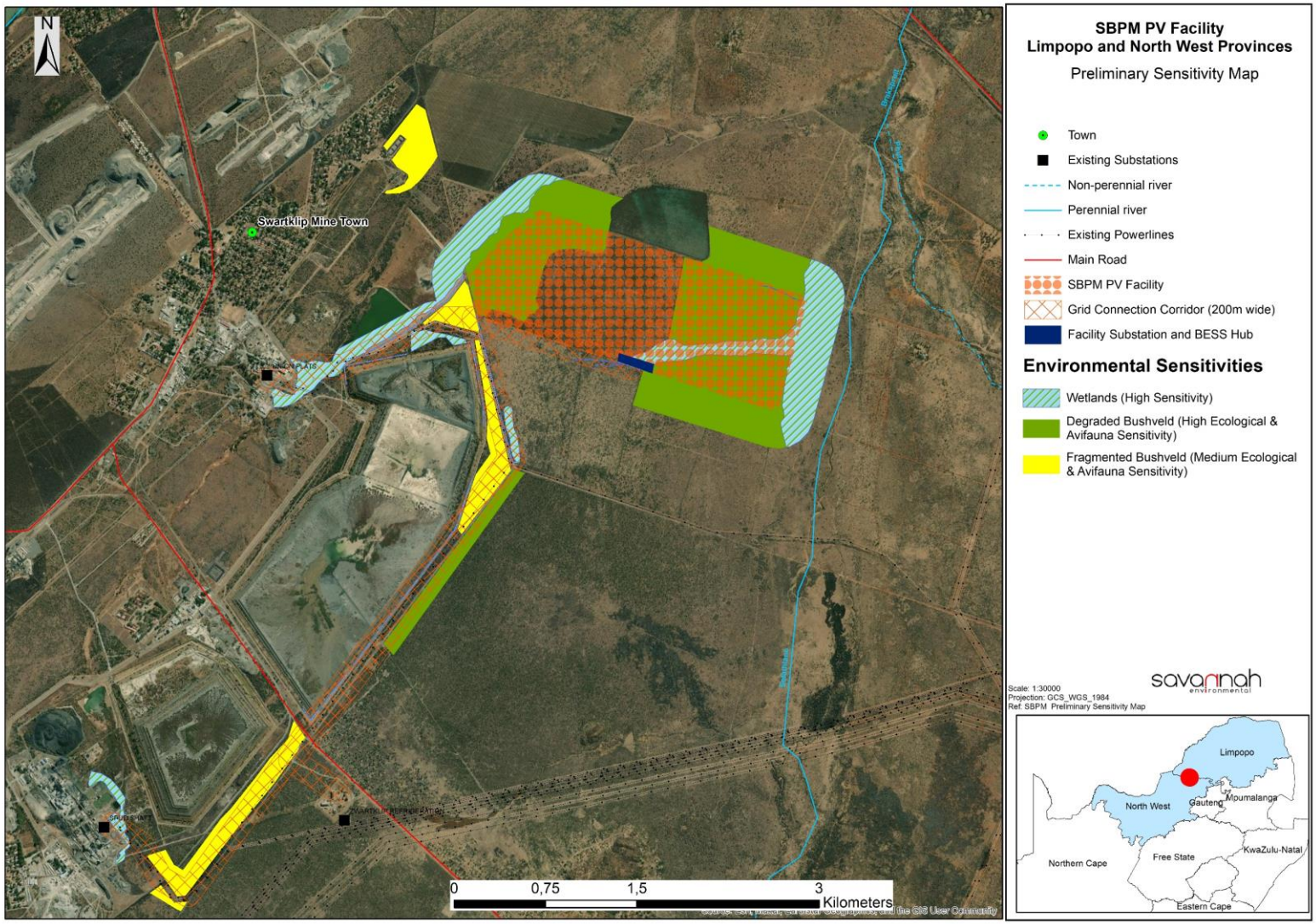


Figure 8.1: Environmental Sensitivity Map from the results of the scoping evaluation for the SBPM PV and do not contain any areas considered to be no-go areas)

CHAPTER 9: PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

One of the key objectives of the Scoping Phase is to determine the level of assessment to be undertaken within the EIA Phase of the process. This will include the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken. This is to determine the impacts and risks a particular activity will impose on a preferred site through the life of the activity (including the nature, significance, consequence, extent, duration and probability of the impacts) to inform the location of the development footprint within the preferred site.

This Chapter contains the Plan of Study for the EIA for the SBPM PV facility, which describes how the EIA Phase will proceed, and includes details of the independent specialist studies required to be undertaken to assess the significance of those impacts identified within the Scoping Study to be of potential significance.

9.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the Undertaking of a Scoping Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including - (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; (ii) a description of the aspects to be assessed as part of the environmental impact assessment process; (iii) aspects to be assessed by specialists; (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists; (v) a description of the proposed method of assessing duration and significance: (vi) an indication of the stages at which the competent authority will be consulted; (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process; (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	A Plan of Study for the undertaking of the EIA Phase for the SBPM PV facility is included within this chapter as a whole.

9.2 Objectives of the EIA Phase

The EIA Phase to be undertaken for the SBPM PV facility and associated infrastructure will aim to achieve the following:

» Provide an overall description and detailed assessment of the social and biophysical environment affected by the development of the SBPM PV facility and associated infrastructure.
» Assess potentially significant impacts (direct, indirect, and cumulative, where required) associated with the PV facility.
» Identify and recommend appropriate avoidance strategies and mitigation measures for potentially significant environmental impacts.
» Undertake a fully inclusive public involvement process to ensure that I&APs are afforded the opportunity to participate, and that their comments are recorded.

The EIA will assess potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with each phase of the development including design, construction, operation and decommissioning; and will aim to provide the Competent Authority with sufficient information to make an informed decision regarding the proposed development. The site layout being proposed for the SBPM PV facility will be assessed through detailed independent specialist studies. As required in terms of the 2014 EIA Regulations (GNR 326), as amended, the assessment will include consideration of the 'do nothing' alternative.

9.3 Consideration of Alternatives

The following project alternatives will be investigated in the EIA:

Nature of Alternatives Considered	Description of the Alternatives relating to the SBPM PV facility
Site-specific and Layout Alternatives	One preferred project site has been identified for the development of the SBPM PV facility due to site specific characteristics such as the solar resource, land availability, topographical considerations, proximity to a viable grid connection and environmental features. The project site is ~1138ha in extent which is considered to be sufficient for the development of a SBPM PV facility with a contracted capacity of up to 100MW. A development area of ~574ha has been identified by the proponent within the project site for the development. A development footprint within this development area will be provided by the applicant for consideration in the EIA phase studies.
Activity Alternatives	Only the development of a renewable energy facility is considered by Main Street 1886 Proprietary Limited. Due to the location of the project site and the suitability of the solar resource, only the development of a PV facility is considered feasible considering the natural resources available to the area.
Technology Alternatives	Only the development of a Solar PV facility is considered due to the characteristics of the site, including the natural resources available. The use of solar PV for the generation of electricity is considered to be the most efficient technology for the project site. Use of fixed-tilt, single-axis tracking, and/or double-axis tracking PV technology is to be considered. Monofacial or bifacial panels are both to be considered.
'Do-nothing' Alternative	This is the option to not construct the SBPM PV facility. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within the project site or the surrounds with the implementation of this option. The opportunities associated with the development of the solar PV for the affected area and other surrounding towns in the area will not be made available.

9.4 Description of project to be assessed during the EIA Phase

9.4.1 Project description

The aspects or nature and extent of the project to be assessed as part of the EIA are detailed in **Table 9.1** below. A more detailed description of the activities associated with the construction and operation of the project is included in Chapter 2 of this Scoping Report.

Table 9.1: Activities and associated infrastructure to be assessed in the EIA

Infrastructure	Footprint and dimensions
Number of Panels	250 000 - 300 000
Panel Height	Up to 6m
Number of inverters and Height	1000 inverters, Height = 0.7 m
Technology	Use of fixed-tilt, single-axis tracking, and/or double-axis tracking PV technology. Monofacial or bifacial panels are both considered.
Contracted Capacity	Up to 100MW
Area occupied by the solar array	To be confirmed in the EIA phase
Area occupied by the on-site facility substation	~0.5ha
Capacity of on-site facility substation	100MVA
Other infrastructure	Site office = 20 x 20m, height = 2.5 m Security office = 20 x 20m, height = 2.5 m Operations and control = 50 x 50m, height = 5 m Maintenance and storage = 50 x 50m, height = 5 m
Battery Energy Storage System (BESS)	Technology: Lithium-Ion Battery technology Capacity: 100MW Footprint: 2ha Height: 3m
Underground cabling between the PV array and the onsite substation	Underground cabling will be installed to connect the PV array to the on-site facility substation. The cabling will have a capacity of up to 35kV.
Cabling from the onsite substation to the 132kV collector substation	Underground cabling will be installed at a depth of up to 1.5m to connect the on-site substation to the 132kV collector substation. The cabling will have a capacity of up to 33kV.
Access and internal roads	Wherever possible, existing access roads will be utilised to access the project site and development area. It is unlikely that access roads will need to be upgraded as part of the proposed development. Internal access roads (gravel) of 8m in width exist and extend into the site area from the west, north and east side via the Swartklip Road.
Grid connection	The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows: » two 6.6 km, 33 kV power lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA).

Infrastructure	Footprint and dimensions
	» two 4.7 km, 33 kV power lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA). » two 2.9 km, 33 kV power lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA).
Temporary infrastructure	Temporary infrastructure, including laydown areas, hardstand areas and a concrete batching plant, will be required during the construction phase. All areas affected by temporary infrastructure will be rehabilitated following the completion of the construction phase, where it is not required for the operation phase.

» *9.4.2. Scope of the EIA phase and EIA report*

The EIA Report will be compiled in terms of the requirements of the EIA Regulations and include the information as required in Appendix 3 of GNR 326. The results of the specialist studies and other available information will be integrated, synthesised, and presented in the EIA Report by the Savannah Environmental project team. The EIA report will assess the overall environmental impacts associated with the development, consider mitigation measures as may be required, and make recommendations regarding the best development alternative. The EIA Report will also identify mitigation measures and provide management recommendations to minimise negative impacts and enhance benefits. The EIA Report will include:

- The details and expertise of the **EAP** who prepared the report.
- The **location** of the development footprint of the activity and a locality map illustrating the location of the proposed activity.
- A **description** of the scope of the proposed activity including all listed activities triggered and a description of associated structures and infrastructure.
- The **policy and legislative** context within which the development is located and an explanation of how the development complies and responds to the legislation and policy context.
- The **need and desirability** of the proposed development of the activity in the context of the preferred location.
- A motivation for the **preferred development footprint** within the approved site as contemplated in the accepted scoping report.
- A description of the **process** followed to reach the proposed development footprint within the approved site, including:
  - details of the development footprint considered;
  - details of the public participation process undertaken in terms of Regulation 41 of the 2014 EIA Regulations, including copies of supporting documents;
  - a summary of issues raised by interested and affected parties and the manner in which the issues were incorporated;
  - the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the impacts and risks identified including the nature, significance, consequence extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
  - the methodology used for determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks;

- positive and negative impacts that the activity and alternatives will have on the environment and the community;
- possible mitigation measures to be applied and the level of residual risk;
- a motivation for not considering alternative development locations;
- a concluding statement indicating the location of the preferred alternative development location; and
- a full description of the process followed to identify, assess and rank impacts of the activity and associated infrastructure on the preferred location including all environmental issues and risks that have been identified and an assessment of the significance of each issue and risk and the extent to which the issue/risk can be avoided or mitigated.

» An **assessment** of the identified potentially significant impacts and risks.
» A summary of the **findings and recommendations** of any specialist report and an indication as to how these findings and recommendations have been included.
» An **environmental impact assessment** containing a summary of key findings, an environmental sensitivity map and a summary of the positive and negative impacts and risks of the proposed activity.
» An **Environmental Management Programme** (EMPr), as per Appendix 4 of GNR326, containing the recommendations from specialists, the impact management **objectives,** and the impact management **outcomes**.
» The final **alternatives** which respond to the impact management measures, avoidance and mitigation measures identified.
» Any aspects which were **conditional** to the findings of the assessment.
» Description of the assumptions, uncertainties and gaps in knowledge relating to the assessment and mitigation measures proposed.
» An **opinion** as to whether the proposed activity should or should not be authorised and the conditions thereof.
» An undertaking under **affirmation** by the EAP in relation to the correctness of the information, the inclusion of comments and inputs from stakeholders and interested and affected parties, the inclusion of inputs and recommendations from the specialists and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.

The EIA Report will be released to the public, registered I&APs, relevant stakeholders, Organs of State and Authorities for a 30-day review and comment period. Comments received will be captured within a Comments and Responses Report, which will be included within the Final EIA Report, for submission to DFFE for decision-making.

9.5 Exclusion of specialist studies during the EIA Phase for the SBPM Solar PV Facility

Palaeontology

Based on the heritage screening report (refer to **Appendix F**), which included palaeontology, The area proposed for development is underlain by sediments of zero palaeontological sensitivity.

The area proposed for development is underlain by sediments of zero palaeontological sensitivity. The area proposed for development has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, Rubidge proposed that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. Rubidge, hence, recommended that if fossils were exposed as a result of development activities, that a qualified palaeontologist should be contacted to assess the exposure for fossils before further development took place so that the necessary rescue operations were implemented. **This recommendation is reiterated for the SBPM project**

9.6 Specialist Assessments to be undertaken during the EIA Phase

A summary of the aspects which require further investigation within the EIA Phase through specialist studies, as well as the proposed activities to be undertaken in order to assess and ground truth the significance of the potential impacts is provided within **Table 9.2**. The specialists proposed to undertake detailed studies in the EIA Phase are also reflected within this table. These specialist studies will consider the development footprint proposed for the PV facility and all associated infrastructure, as well as feasible and reasonable alternatives identified for the project.

Table 9.2: Aspects requiring further investigation by specialists during the EIA Phase and terms of reference to assess the significance of the potential impacts relevant to the SBPM PV facility

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
Ecology (Fauna and Flora)	<u>The following site-specific assessments are recommended for the EIA Phase:</u> » A detailed ecological assessment in accordance with the protocols and procedures of GN 320 of 2020. » Field surveys to prioritise the development areas. » More detailed flora and fauna surveys of main footprint areas in order to document composition, especially of protected species. <u>Assessment of Impacts for the EIA</u> The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. <u>Environmental Management Programme</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	Lindi Steyn of the Biodiversity Company
Freshwater resources (including all waterbodies and wetlands)	<u>The EIA Phase will include the following activities:</u> Freshwater resources located within the development area will be further assessed during the EIA Phase in accordance with the protocols and procedures of GN 320 of 2020 as well as the requirements of the Department of Water and Sanitation Risk Assessment Matrix. The following activities will be undertaken: » Identify, delineate, and characterise water resources. » Undertake a functional assessment of systems, where applicable. » Determine a suitable buffer width for the resources. » Undertake a field survey during the wet season period that prioritises the development areas, but also considers the 500m regulated area. <u>Assessment of Impacts for the EIA:</u>	Lindi Steyn of the Biodiversity Company

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. <u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Avifauna	<u>The EIA Phase will include the following activities:</u> » An avifauna impact assessment will be undertaken in accordance with the protocols and procedures of GN 320 of 2020 as well as the Best Practice Guidelines for Solar Developments and will be informed by the results 6-month pre-construction monitoring programme. » The avifaunal specialists report will be structured around the following terms of reference: o Description of the affected environment from an avifaunal perspective. o Discussion of gaps in baseline data and other limitations. o Description of the methodology that was used for the field surveys. o Comparison of the site sensitivity recorded in the field with the sensitivity classification in the DFFE National Screening Tool and adjustment if necessary. o Provision of an overview of all applicable legislation. o Provision of an overview of assessment methodology. o Identification and assessment of the potential impacts of the proposed development on avifauna including cumulative impacts. o Provision of sufficient mitigation measures to include in the Environmental Management Programme (EMPr). o Conclusion with an impact statement whether the PV facility is fatally flawed or may be authorised. <u>Assessment of Impacts for the EIA:</u> The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of	Lindi Steyn of the Biodiversity Company

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. <u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Soils and Agricultural Potential	<u>The EIA Phase will include the following activities:</u> The soils impact assessment will include the consideration of aspects related to agricultural aspects in accordance with the protocols and procedures of GN 320 of 2020. The assessment will also include: » Identification and delineation of soils forms. » Determination of soil sensitivity. » Undertake a field survey that will prioritise the development areas. <u>Assessment of Impacts for the EIA:</u> The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. <u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	Andrew Husted of the Biodiversity Company
Heritage (including Cultural Landscape, Archaeology and Palaeontology)	<u>The EIA Phase will include the following activities:</u> As part of the EIA, it is necessary to undertake a Heritage and Archaeological Study to fulfil the SAHRA requirements in accordance with the National Heritage Resources Act (No. 25 of 1999). A Heritage Impact Assessment with specific focus on impacts to archaeological heritage will therefore be conducted, the primary objective of which is to determine the heritage	Jenna Lavin of CTS Heritage

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	features on the site as well as the significance of the cultural landscape. The following activities will be undertaken during the EIA Phase: » Undertake field assessments in order to fill the identified gaps in knowledge. The archaeological field surveys will provide sufficient ground-coverage of the areas to be developed to be able to determine the nature of the resources likely to be impacted. The palaeontological and cultural landscape field surveys will target sensitive geological and cultural landscape features. Assessment of Impacts for the EIA: The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. Environmental Management Programme: For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Social	The EIA Phase will include the following activities: Based on the findings of the social impact assessment, the following approach to the EIA Phase studies is proposed: » Review comments pertaining to social impacts received from members of the public, key stakeholders, and any organ of state during the public review of the Scoping Report. Where applicable, comments received from the Department of Environment, Forestry and Fisheries on the Final Scoping Report (FSR), which may pertain to social impacts or have relevance to the SIA, will also be reviewed. » Collect primary data during a site visit. Interview directly affected and adjacent landowners, and key stakeholders to obtain primary information related to the project site, social environment, and to gain their inputs on the proposed project and its perceived social impact (positive and /or negative). » Update the baseline information with information received during the site visit, as well as any additional information received from the client, or updates to the project description.	Nondumiso Bulunga of Savannah Environmental and peer reviewed by Dr Neville Bews.

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	» Assess impacts identified for the project in terms of their nature, extent, duration, magnitude, probability, status, and significance; as well as the degree to which the impact can be reversed, may cause irreplaceable loss of resources, and can be mitigated. » Identify mitigation measures with which to reduce negative impacts and enhance positive impacts for inclusion in the Environmental Management Programme (EMPr). As far as possible the mitigation hierarchy of "avoid, minimise, and reduce" will be followed in the mitigation of potential negative impacts. » Identify any conditions for inclusion in the Environmental Authorisation (EA). » Identify any monitoring requirements for inclusion in the EMPr or EA. » Provide a reasoned opinion regarding the acceptability of the project, and whether the proposed project should be authorised. » Prepare a SIA Report for inclusion in the EIA Report to be prepared for the project. » Subject the SIA Report prepared for the project for inclusion in the EIA Report to external peer review. Assessment of Impacts for the EIA: The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. Environmental Management Programme: For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Cumulative Assessment	Assess the cumulative impacts associated with the construction and operation of more than one development (i.e., renewable energy developments) within 30km of the project site on the ecological & Freshwater, heritage, soil and agricultural potential, avifaunal, social, impacts of the area. The objective is to identify and focus on potentially significant cumulative impacts so these may be taken into consideration in the decision-making process. The following will be considered:	Savannah Environmental

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	» Unacceptable loss of threatened or protected vegetation types, habitat, or species through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning. » Unacceptable risk to freshwater features through disturbance associated with construction activities and increased runoff and erosion during the operation phase. » Unacceptable risk to avifauna through habitat loss, displacement, and collision with PV infrastructures. » Unacceptable loss of high agricultural potential areas presenting a risk to food security and increased soil erosion. » Unacceptable loss of heritage resources (including palaeontological and archaeological resources). » Unacceptable impact to social factors and components.	

» 9.7 Methodology for the Assessment of Potential Impacts

Direct, indirect, and cumulative impacts of the above issues identified through this Scoping Study will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional:
  - local extending only as far as the development site area – assigned a score of 1;
  - limited to the site and its immediate surroundings (up to 10 km) – assigned a score of 2;
  - will have an impact on the region – assigned a score of 3;
  - will have an impact on a national scale – assigned a score of 4; or
  - will have an impact across international borders – assigned a score of 5.
- The **duration**, wherein it will be 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; or
  - 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); and
  - 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale, and a score assigned:
  - Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
  - Assigned a score of 2 is improbable (some possibility, but low likelihood);
  - Assigned a score of 3 is probable (distinct possibility);
  - Assigned a score of 4 is highly probable (most likely); and
  - Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which shall be determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- the **status**, which will be 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; 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).

Other aspects to be taken into consideration in the specialist studies and EIA report are:

- Impacts should be described in terms of before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the full lifecycle of the proposed development, including construction, operation, and decommissioning.
- The impact assessment should take into consideration the cumulative effects associated with this and other similar developments which are either developed or in the process of being developed in the region. 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 will consider whether the construction of the proposed development 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 proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area is included in the respective specialist reports.

As Main Street 1886 Proprietary Limited has the responsibility to avoid and/or minimise impacts as well as plan for their management (in terms of the EIA Regulations), the mitigation of significant impacts will be discussed. Assessment of mitigated impacts will demonstrate the effectiveness of the proposed mitigation measures.

9.8 Authority Consultation

Consultation with the regulating authorities (i.e., DFFE, North West DEDECT and Limpopo DEDET) has been undertaken in the Scoping Phase and will continue throughout the EIA process. On-going consultation will include the following:

» Submission of a Final Scoping Report following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments.
» Submission of an EIA Report and EMPr for a 30-day review and comment period.
» Submission of a Final EIA Report and EMPr following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments received.
» Consultation and an authority site visit (if required) in order to discuss the findings and conclusions of the EIA Report.

9.9 Public Participation Process

A public participation process will be undertaken by Savannah Environmental during the EIA phase. Consultation with key stakeholders and I&APs will be on-going throughout the EIA Phase. Through this consultation process, stakeholders and I&APs will be encouraged to verify that their issues were recorded in the Scoping Phase, identify additional issues of concern or highlight positive aspects of the proposed project, and comment on the findings of the EIA Phase. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA Phase of the process, as follows:

» Focus group meetings (pre-arranged and I&APs invited to attend) via the use of virtual platforms (Zoom or MS Teams).
» One-on-one consultation meetings (for example with directly affected and surrounding landowners) via telephone or virtual platforms.
» Telephonic consultation sessions (consultation with various parties from the EIA project team, including the public participation consultant, lead EIA consultant, as well as specialist consultants).
» Written, faxed or e-mail correspondence.

The public participation process will include the following activities:

» Placement of advertisements in local newspapers (Rustenburg Herald and Bushveld Platinum Newspaper, in English).
» Maintenance and finalisation of the I&AP database.
» Release of the EIA Report for a 30-day review and comment period.
» Ongoing consultation with all registered I&APs regarding the progress of the EIA process and the outcomes or findings of the EIA Report through stakeholder consultation via notification letters, telephone calls, focus group meetings, depending on the specific needs of the stakeholders in the area.
» Facilitate comments on the EIA Report.
» Compile a Comments and Responses Report and evidence of the public participation process undertaken to be included in the final EIA Report for decision-making.

9.10 Key Milestones of the Programme for the EIA

The envisaged key milestones of the programme for the EIA Phase are outlined in the following table (and include indicative dates):

Key Milestone Activities	Proposed timeframe
Make the Scoping Report available to the public, stakeholders, and authorities for 30 days	June 2022 – July 2022
Finalisation of Scoping Report, and submission of the Final Scoping Report to DFFE	July 2022
Authority acceptance of the Final Scoping Report and Plan of Study to undertake the EIA	43 days from submission of the Final Scoping Report
Undertake specialist studies and public participation process	July 2022 – September 2022
Make Draft EIA Report and EMPr available to the public, stakeholders, and authorities	September 2022 – October 2022
Finalisation of EIA Report, and submission of the Final EIA Report to DFFE	October 2022
Authority review period and decision-making (107 calendar days)	October 2022 – January 2023

CHAPTER 10: REFERENCES

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Nid	Report Type	Author/s	Date	Title
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318678	AIA Phase 1	Neels Kruger	19/05/2014	ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF A DEMARCATED SURFACE PORTION ON THE FARM GROOTKUIL 409KQ FOR THE PROPOSED PLATINUM PHOTOVOLTAIC POWER PLANT DEVELOPMENT, THABAZIMBI LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY, LIMPOPO PROVINCE
369743	Heritage Impact Assessment Specialist Reports	Prof. Anton van Vollenhoven	21/09/2016	HERITAGE IMPACT ASSESSMENT - Input for Environmental Impact Assessment report undertaken in terms of the National Environmental Management Act 107 of 1998
375246	PIA Desktop	Bruce Rubidge	01/12/2015	Palaeontological Desktop Study â€“ Siyanda Chrome Smelting Company Pty. Ltd
5057	AIA Phase 1	Frans Roodt	20/02/2007	Phase 1 Heritage Resources Impact Assessment (Scoping & Evaluation) Rhebokkloof Wild Life Estate Thabazimbi, Limpopo
5702	AIA Phase 1	Johnny Van Schalkwyk	01/02/2003	Arch Survey Mantserre-Kraalhoek-Mopyane Water Scheme, NW Province
5706	AIA Phase 1	Johnny Van Schalkwyk, Frank Teichert, Anton Pelser	01/06/2003	Survey of Archaeological Sites for the Amandelbult Platinum Mine Seismic Exploration Program
5725	AIA Phase 1	Julius CC Pistorius	01/12/2002	A Cultural Heritage Assessment for Eskom's Proposed New Power Line Between the Spitskop Substation and the Union Plats Substation in the Limpopo
5729	AIA Phase 1	JM Maguire, Calvin van Wijk	12/06/2008	Phase 1 Archaeological Impact Assessment for Portion 128 of the Farm Koedoesdoorns KQ 414, Northam, Limpopo Province

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