

BARLERIA PV FACILITY AND ASSOCIATED INFRASTRUCTURE

North West Province

Social Impact Assessment (SIA) Report

January 2022

savannah
environmental

t +27 (0)11 656 3237

f +27 (0)86 684 0547

e info@savannahsa.com

w www.savannahsa.com

Prepared for:

Barleria PV (Pty) Ltd
101 Block A 7 West Quay Road
Waterfront
Cape Town
Western Cape
8001



REPORT DETAILS

Title	:	Social Impact Assessment (SIA) Report: Barleria PV Facility and associated Infrastructure
Authors	:	Savannah Environmental (Pty) Ltd Nondumiso Bulunga
External Peer Review	:	Tony Barbour
Client	:	Barleria PV (Pty) Ltd
Report Revision	:	Revision 3
Date	:	January 2022

When used as a reference this report should be cited as: Savannah Environmental (2022) Social Impact Assessment (SIA) Report for the Barleria PV Facility, North West Province.

COPYRIGHT RESERVED

This technical report has been produced for Barleria PV (Pty) Ltd. The intellectual property contained in this report remains vested in Savannah Environmental (Pty) Ltd. No part of the report may be reproduced in any manner without written permission from Savannah Environmental (Pty) Ltd or Barleria (Pty) Ltd.

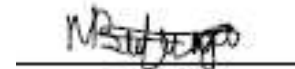
SPECIALIST DECLARATION OF INTEREST

I, Nondumiso Bulunga, declare that –

- » I act as the independent specialist in this application.
- » I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- » I declare that there are no circumstances that may compromise my objectivity in performing such work.
- » I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity.
- » I will comply with the Act, Regulations and all other applicable legislation.
- » I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- » I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing – any decision to be taken with respect to the application by the competent authority, and – the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority.
- » All the particulars furnished by me in this form are true and correct.
- » I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the Act.

Nondumiso Bulunga

Name



Signature

14 January 2022

Date

TABLE OF CONTENTS

	PAGE
REPORT DETAILS	I
SPECIALIST DECLARATION OF INTEREST	II
TABLE OF CONTENTS	III
FIGURES.....	IV
ACRONYMS	V
1. INTRODUCTION AND PROJECT DESCRIPTION.....	1
1.1. Project Description	1
1.2. Details of the Independent Specialist.....	4
1.3. Structure of the SIA Report	4
2. METHODOLOGY AND APPROACH	6
2.1. Purpose of the Study	6
2.2. Approach to the Study	6
2.2.1. Stakeholder Identification and Analysis.....	7
2.2.2. Collection and Review of Existing Information	9
2.2.3. Collection of Primary Data	9
2.3. Impact Assessment Evaluation Method	13
2.4. Limitations and Assumptions.....	14
3. LEGISLATION AND POLICY REVIEW	15
3.1. National Policy and Planning Context.....	15
3.2. Provincial Policies.....	19
3.3. District and Local Municipalities Policies	21
3.4. Conclusion	23
4. SOCIAL PROFILE.....	24
4.1. North West Province	24
4.2. Ngaka Modiri Molema DM.....	25
4.3. Ditsobotla LM	26
4.4. Project Site	27
4.5. Baseline Description of the Social Environment	27
5. KEY CONSIDERATIONS FOR SOLAR PV POWER PLANTS.....	30
5.1. Construction Phase Impacts	30
5.2. Water Usage	30
5.3. Land Matters	30
5.4. Landscape and Visual Impacts.....	31
5.5. Ecology and Natural Resources	31
5.6. Cultural Heritage	31
5.7. Transport and Access	31
5.8. Drainage / Flooding.....	32
5.9. Consultation and Disclosure	32
5.10. Environmental and Social Management Plan (ESMP)	32
6. SOCIAL IMPACT ASSESSMENT.....	33
6.1. Social Impacts during the Construction Phase	33
6.1.1. Construction Phase Impacts Associated with Barleria PV Facility	35
6.1.2. Operation Phase Impacts associated with Barleria PV Facility	42
6.2. Cumulative Impacts	47

6.2.1. Cumulative Impacts associated with Barleria PV Facility	50
6.3. Decommissioning Phase	52
6.4. Assessment of Impacts for the No-Go Option	52
7. CONCLUSION AND RECOMMENDATIONS	54
7.1. Key findings and Recommendations	55
7.2. Recommendations.....	55
7.3. Overall Conclusion	56
8. REFERENCES.....	57

FIGURES

Figure 1-1: Locality map illustrating the locations of the Barleria PV facility development areas.	3
Figure 2-1 Landowner's map of the affected and adjacent properties for the Houthaalboomen PV Cluster	12
Figure 4-1 Districts under the North West Province	25
Figure 4-2 Local Municipalities under the North West Province	26
Figure 6-1 Cumulative impacts considered for Barleria PV Facility	49

ACRONYMS

B-BBEE	Broad-Based Black Economic Empowerment
CLO	Community Liaison Officer
CNA	Community Needs Assessment
DEDECT	Department of Economic Development, Environment and Tourism
DFFE	Department of Forestry Fisheries and the Environment
DoE	Department of Mineral Resources and Energy
DM	District Municipality
EA	Environmental Authorisation
EAP	Economically Active Population
ECA	Environment Conservation Act (No. 73 of 1989)
ECO	Environmental Control Officer
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EP	Equator Principles
EPC	Engineering, Procurement and Construction
GDP	Gross Domestic Product
GDP-R	Gross Domestic Product per Region
GGP	Gross Geographic Product
GHG	Greenhous Gas
GNP	Gross National Product
GNR	Government Notice
HDI	Historically Disadvantaged Individuals
I&AP	Interested and Affected Party
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IEP	Integrated Energy Plan
IFC	International Finance Corporation
IRP	Integrated Resource Plan
km	Kilometre
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality
NEMA	National Environmental Management Act (No. 107 of 1998)
NDP	National Development Plan
O&M	Operation and Maintenance
PGDS	Provincial Growth and Development Strategy
PICC	Presidential Infrastructure Coordinating Committee
PSDF	Provincial Spatial Development Framework
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Infrastructure Project

1. INTRODUCTION AND PROJECT DESCRIPTION

The Applicant, Barleria PV (Pty) Ltd, is proposing the construction of a photovoltaic (PV) solar energy facility (known as the Barleria PV facility) located on a site approximately 5km north west of the town of Lichtenburg in the North West Province. The solar PV facility will comprise several arrays of PV panels and associated infrastructure and will have a contracted capacity of up to 75MW. The development area is situated within the Ditsobotla Local Municipality within the Ngaka Modiri Molema District Municipality. The site is accessible via an existing gravel road which provides access to the development area off the R505, located east of the development area.

The development of the PV Facility and associated infrastructure requires Environmental Authorisation (EA) from the national Department of Forestry, Fisheries and the Environment (DFFE) in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014 (GNR 326), as amended, subject to the completion of an Environmental Impact Assessment (EIA) process.

1.1. Project Description

The Barleria PV Facility is located on the following properties:

PV Facility, including associated facility and grid connection infrastructure¹

Portion 1 of the Farm Houthaalboomen 31
Portion 9 of the Farm Houthaalboomen 31
Portion 10 of the Farm Houthaalboomen 31
Portion 0 of Farm Talene 25
Portion 7 of Farm Elandsfontein 34

Two additional 75MW PV facilities (Dicoma PV and Setaria PV) are concurrently being considered on the project site (within Portion 1, Portion 9, and Portion 10 of the Farm Houthaalboomen 31) and are assessed through separate EIA processes.

A facility development area (approximately 176ha) as well as two alternative grid connection solutions (within a 100m wide corridor) have been considered in the EIA process. The infrastructure associated with this 75MW PV facility includes:

- » PV modules and mounting structures
- » Inverters and transformers
- » Battery Energy Storage System (BESS)
- » Site and internal access roads (up to 8m wide)
- » Site offices and maintenance buildings, including workshop areas for maintenance and storage.
- » Temporary and permanent laydown area
- » Grid connection solution (two alternative locations assessed) within a 100m wide corridor, including:
 - 33kV cabling between the project components and the facility substation
 - A 132kV facility substation
 - A 132kV Eskom switching station

¹ Two alternative locations for the grid connection infrastructure have been provided for assessment.

- A Loop-in-Loop out (LILO) overhead 132kV power line between the Eskom switching station and the existing Delareyville Munic–Watershed 1 88kV power line.²

The alternative grid connection configurations assessed include:

Grid Connection Alternative 1: 33kV MV cabling will connect the Barleria PV solar array to the 132kV facility substation. The 132kV Eskom switching station is located directly adjacent to the development footprint of the facility substation. The facility substation and Eskom switching station are located approximately 2.2km east of the Barleria PV facility on Portion 1 of the Farm Houthaalboomen 31. A 132kV Loop-in-Loop Out power line from the Eskom switching station will connect into the Delareyville Munic–Watershed 1 88kV.² The grid connection infrastructure is located within an assessment corridor of 100m wide.

Grid Connection Alternative 2: 33kV MV cabling will connect the Barleria PV solar array to the 132kV facility substation. The 132kV Eskom switching station is located directly adjacent to the development footprint of the facility substation. The facility substation and Eskom switching station are located approximately 991m east of the Barleria PV facility on Portion 1 of the Farm Houthaalboomen 31. A 132kV Loop-in-Loop Out power line from the Eskom switching station will connect into the Delareyville Munic–Watershed 1 88kV.² The grid connection infrastructure is located within an assessment corridor of 100m wide.

To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the developer will identify a suitable development footprint within which the infrastructure of Barleria PV facility and its associated infrastructure is proposed to be located and fully assessed during the EIA Phase.

² The LILO corridor intersects with several existing parallel Eskom power lines(Watershed-Sephaku 1 132kV, Dudfield–Watershed 2 88kV, Dudfield-Watershed 1 88kV, and Watershed-Klerksdorp North 1 132kV). Therefore, should the connection to the Delareyville Munic–Watershed 1 88kV not be technically feasible, connection to the above mentioned power lines would still be within the assessed LILO corridor and considered feasible through the construction of a shorter LILO connection.

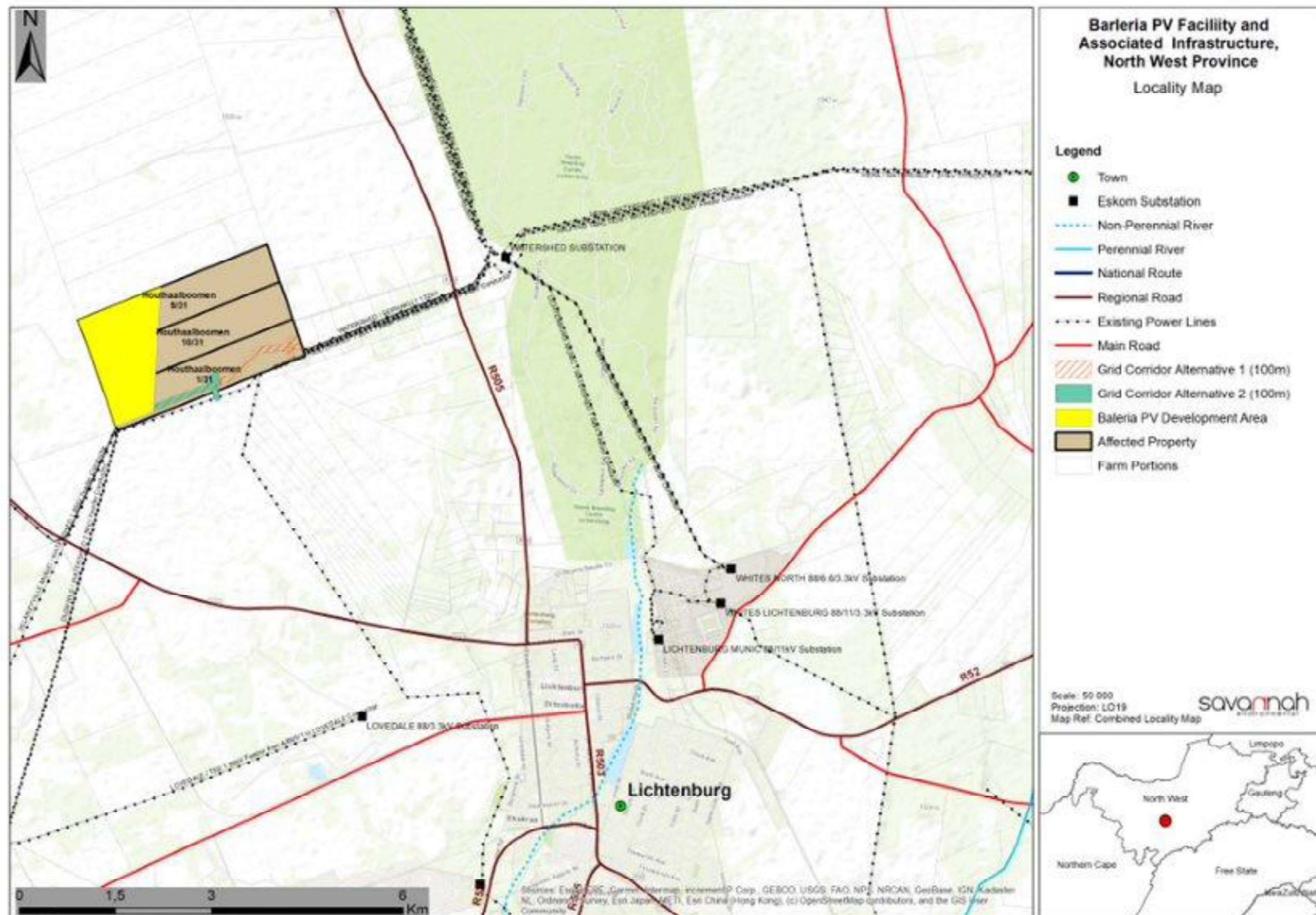


Figure 1-1: Locality map illustrating the locations of the Barleria PV facility development areas.

1.2. Details of the Independent Specialist

This SIA has been undertaken by Nondumiso Bulunga of Savannah Environmental, and peer reviewed externally by Tony Barbour.

- » **Nondumiso Bulunga** – is the lead Social, GIS and Public Participation specialist, who holds a Master Degree with Advanced Geographical Information System and Remote Sensing. Her key focus is on environmental and social impact assessments, public participation, environmental management plans and programmes, as well as mapping using ArcGIS for a variety of environmental projects.
- » **Tony Barbour** is a social specialist who has undertaken in the region of 230 SIA's, including approximately 100 SIA's for a renewable energy projects, including wind and solar energy facilities. All of the SIAs have included as assessment of socio-economic issues. In addition, he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa. Tony has also undertaken a number of SIAs for PV facilities within the North West Province and is therefore familiar with the local socio-economic conditions.

Tony Barbour has undertaken an external review of this SIA and has provided an external reviewer's letter. This letter is attached as **Appendix C**.

1.3. Structure of the SIA Report

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations, as amended. An overview of the contents of this SIA Report, as prescribed by Appendix 6 of the 2014 EIA Regulations (GNR 326), and where the corresponding information can be found within the report is provided in **Table 1-1**.

Table 1-1: Summary of where the requirements of Appendix 6 of the 2014 NEMA EIA Regulations (GNR 326), as amended, are provided within this Specialist Report.

Requirement	Location in Report
(a) Details of – (i) The specialist who prepared the report. (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae.	Section 1
(b) A declaration that the specialist is independent in a form as may be specified by the competent authority.	Specialist Declaration of Interest
(c) An indication of the scope of, and the purpose for which, the report was prepared.	Section 2
(cA) An indication of the quality and age of base data used for the specialist report.	Section 4
(cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 2
(e) A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 2
(f) Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	Section 4 Section 5

Requirement		Location in Report
(g)	An identification of any areas to be avoided, including buffers.	N/A
(h)	A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	N/A
(i)	A description of any assumptions made and any uncertainties or gaps in knowledge.	Section 2
(j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	Section 6
(k)	Any mitigation measures for inclusion in the EMPr.	Appendix A
(l)	Any conditions for inclusion in the environmental authorisation.	Section 7
(m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation.	Appendix A
(n)	A reasoned opinion –	Section 7
(i)	Whether the proposed activity, activities or portions thereof should be authorised.	
(iA)	Regarding the acceptability of the proposed activity or activities.	
(ii)	If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures.	
(o)	A description of any consultation process that was undertaken during the course of preparing the specialist report.	Section 2
(p)	A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	N/A
(q)	Any other information requested by the competent authority.	N/A
2.	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A

2. METHODOLOGY AND APPROACH

2.1. Purpose of the Study

The International Principles for Social Impact Assessment define SIA as:

"The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions".

The International Principles for Social Impact Assessment define social impacts as changes to one or more of the following:

- » People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- » Their culture – that is, their shared beliefs, customs, values and language or dialect.
- » Their community – its cohesion, stability, character, services and facilities.
- » Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
- » Their environment – the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- » Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
- » Their personal and property rights – particularly whether people are economically affected or experience personal disadvantage which may include a violation of their civil liberties.
- » Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

The purpose of this SIA Report is therefore to:

- » Provide baseline information describing the social environment within which the project is proposed, and which may be impacted (both positively and negatively) as a result of the proposed development.
- » Identify, describe and assess possible social risks / fatal flaws and social impacts that may arise as a result of the proposed development (in terms of the detailed design and construction, operation, and decommissioning phases of the project).
- » Recommend ways in which negative impacts can be avoided, minimised, or their significance reduced, and positive impacts maximised or enhanced.

2.2. Approach to the Study

This SIA Report provides a snapshot of the current social setting within which the Barleria PV facility is proposed. It provides an overview of the manner and degree to which the current status quo is likely to change or be impacted by the construction, operation and decommissioning of the project, as well as the way the social environment is likely to impact on the development itself.

An overview of the assessment methodology utilised as part of this SIA is provided in **Section 2.3**.

The SIA process comprised the following:

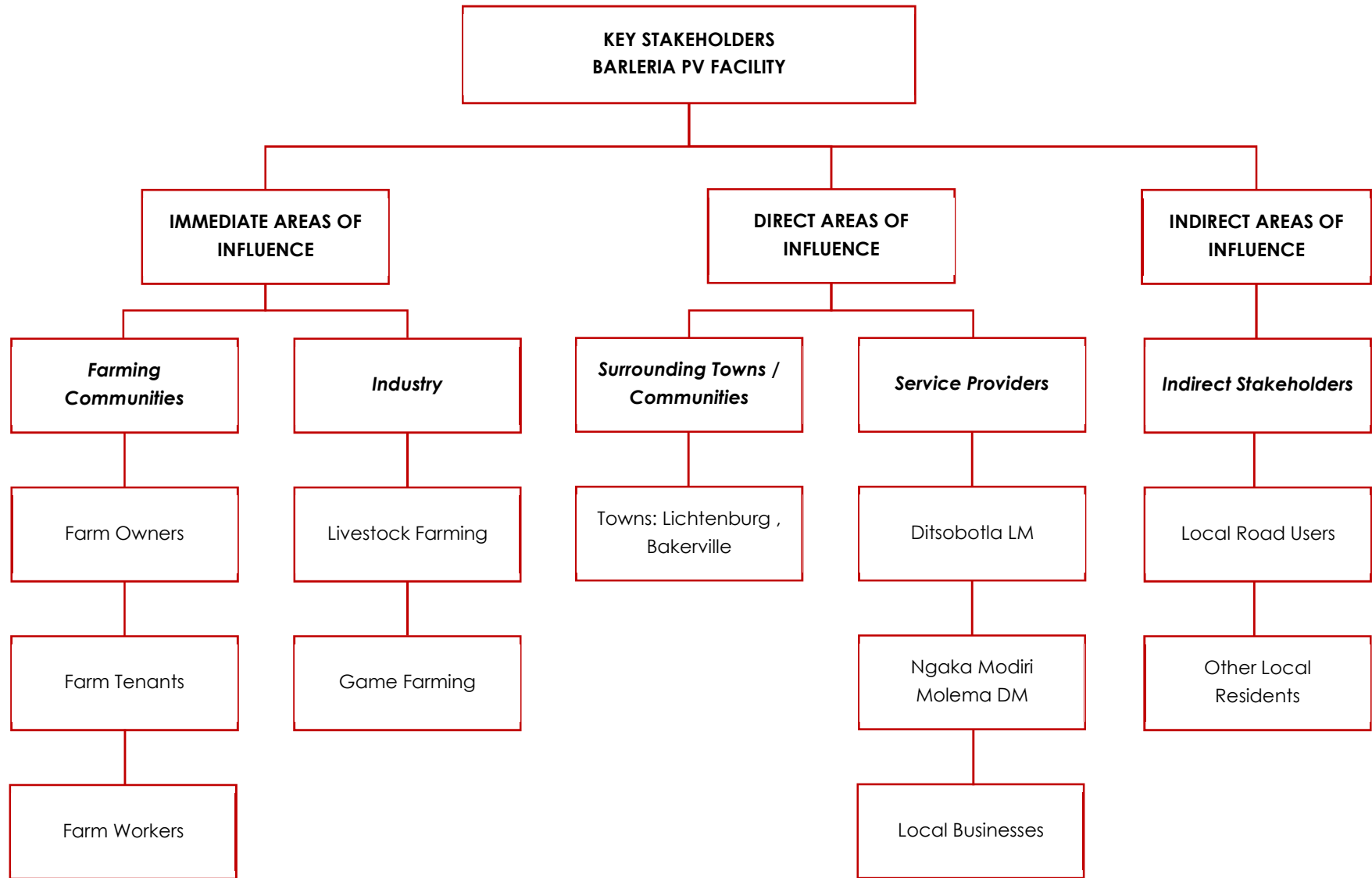
- » Collection and review of existing information, including national, provincial, district, and local plans, policies, programmes, census data, and available literature from previous studies conducted within the area. Project specific information was obtained from the project proponent.
- » As part of the public participation process for placement of site notices, a social investigation was undertaken as part of the site visit on 13th and 14th October 2021.
- » Collection of primary data during telephonic interviews. Attempts were made to undertake telephonic interviews with affected landowners to gain inputs on the project, including the perceived social impacts and benefits. The questionnaire for the telephonic interviews were distributed to all affected landowners via email on 15 November 2021 for completion. Following the email correspondence the landowners were contacted telephonically 07 December 2021 to either provide feedback on the submission of the completed questionnaire or to provide verbal feedback as part of the telephonic discussions on the questionnaire. To date, only a few landowners have submitted the completed questionnaire and the majority of the landowners have been available to participate in telephonic interviews. During the interviews it also became clear that the site visit for the undertaking of face-to-face interviews was not required due to the information provided during the telephonic interviews. In cases where landowners were not available or not willing to participate in interviews this has been recorded. It must be noted that all social issues raised during the public participation process undertaken for the proposed PV Facility and associated infrastructure will be included, have been considered and addressed as part of the this report for the project to be submitted to the DFFE.
- » Identification of potential direct, indirect and cumulative impacts likely to be associated with the construction, operation, and decommissioning of the proposed project. Impacts associated with construction can also be expected to be associated with the decommissioning phase (however, to a lesser extent as the project site would have previously undergone transformation and disturbance during construction)
- » Assessment of identified impacts in terms of their nature, extent, duration, consequence / magnitude, probability, significance, and status.
- » Where applicable, mitigation measures with which to minimise impacts and enhance benefits associated with the project were identified.

2.2.1. Stakeholder Identification and Analysis

Stakeholders are defined as: "*Any group or organisation which may affect or be affected by the issue under consideration*" (UN, 2001: 26).

These may be directly or indirectly impacted and may include organisations, institutions, groups of people or individuals, and can be at any level or position in society, from the international to regional, national, or household level (Franke & Guidero, 2012).

Stakeholder analysis involves the identification of affected or impacted people and their key grouping and sub-groupings (IFC, 2007). Identifying stakeholders that are directly and indirectly affected by the project is important to determine who might be impacted by the development and in what way. The key stakeholders in the area proposed for development have been identified, grouped / sub-grouped and described (as per Ilse Aucamp SIA methodology and Aucamp et al, 2011). There are immediate, direct and indirect areas of influence to the proposed development. Affected stakeholders comprise sensitive social receptors that may potentially be affected by the proposed development based on their location.



A description of each of the stakeholders' groups in relation to the proposed PV Facility and associated infrastructure is discussed in detail below:

- » **Farming community:** The farming community can be grouped into three categories, namely farm owners, farm tenants, and farm workers. Farm owners comprise individuals who own and make a living off of their properties. Farm tenants are people who rent land and work on the land to earn an income. Farm workers are people who work, and also often reside on the farm with their families and are seen as a vulnerable community.
- » **Farming industry:** There are potentially vulnerable farming activities in the broader study area of the project. Agriculture is one of the main economic activities within the area, and the primary agricultural activities comprise mainly livestock farming.
- » **Surrounding towns / affected communities:** One town is in proximity to PV Facility which is Lichtenburg. The town of Lichtenburg is the administrative centre of the local municipality and is located approximately 230 km west of Johannesburg. The main economic activity in the area is the production of maize (corn). Lichtenburg lies in the heart of the maize triangle, which is the main maize growing area in South Africa.
- » **Service providers:** The major service providers which will be affected by the project include the DM, LM, and local businesses in the area. The Ditsobotla LM and to a lesser degree the Ngaka Modiri Molema DM are likely to be impacted by the proposed development. The Ditsobotla LM will absorb a number of positive and negative social impacts. In addition, there are a number of local businesses in the surrounding area that could be impacted negatively or benefit from the opportunities of the proposed project. These include Lichtenburg Game Breeding Farm, TLG Boerdery, Bed & Breakfast Elandsrus.
- » **Stakeholders outside the direct area of influence:** There are a number of stakeholders that reside outside the direct area of influence but who may be affected by the project. These include road users, including those that use the local gravel roads on a frequent basis as part of their daily or weekly movement patterns.

2.2.2. Collection and Review of Existing Information

Existing desktop information that has relevance to the proposed project, project area and / or surrounds was collected and reviewed. The following information was examined as part of this process:

- » Project maps and layouts.
- » Google Earth imagery.
- » A description of the project (as provided by the project proponent).
- » Responses to questions posed to the project proponent regarding employment and social upliftment and local economic development opportunities (as provided by the project proponent).
- » Census Data (2011), and the Local Government Handbook (2019).
- » Planning documentation such as Provincial Growth and Development Strategies (PGDSs), Local and District Municipality Integrated Development Plans (IDPs), Spatial Development Frameworks (SDFs), and development goals and objectives.
- » Relevant legislation, guidelines, policies, plans, and frameworks.
- » Available literature pertaining to social issues associated with the development and operation of solar PV power plants and associated infrastructure.

2.2.3. Collection of Primary Data

Primary data was collected in the form of meeting notes from Focus Group Meetings (FGMs) conducted with key stakeholders as part of the Public Participation process being conducted for the EIA process (refer to Table 2-1), and from interviews conducted with identified stakeholders and affected landowners (refer to Table 2-2).

Table 2-1 Overview of FGMs conducted as part of the Public Participation process being conducted for the EIA process.

FGM Date & Time	Stakeholder Group	No of Invitees	RSVPs	No of delegates attended
Wednesday, 13 October 2021 at 09h00	Ward 1 & Ward 16 Councillors	2	0	2
Tuesday, 26 October 2021 at 09h00	North West Provincial Government Officials	6	0	0
Tuesday, 26 October 2021 at 18h00	Affected & Adjacent Landowners	6	0	0
Wednesday, 27 October 2021 at 11h00	Ngaka Modiri Molema District and Ditsobotla Local Municipality Officials	34	2	0

A Key Stakeholder Workshop was held on Tuesday, 26 October 2021 at 14h00 to which various National and Provincial Government Officials and key stakeholders such as:

- » Eskom
- » Telkom
- » SANRAL
- » ATNS
- » SA CAA
- » Vodacom
- » MTN
- » Cell C

were invited to attend. 37 Stakeholders were invited, two (2) RSVP and one (1) delegate attended the meeting.

A Public Participation Process Meeting (PPPM) was held on Wednesday, 03 November 2021 at 18h00 and 99 I&APs were invited, and eight (8) I&APs attended the meeting.

Attempts were made to hold telephonic interviews with affected and adjacent landowners and key stakeholders identified within the area on Tuesday 07 December 2021. (Refer to **Table 2-2**). A landowner's map is included as Figure 2-1.

Where landowners provided feedback in terms of the questionnaire via email, this has been indicated in Table 2-2 below.

Table 2-2: Overview of Telephonic Interviews with landowners and stakeholders as well as attempts made to contact the relevant parties.

Landowner	Representative details	Date of contact / attempted contact	Notes and feedback (not verbatim, only summarised)
Kgalalelo Mothibedi	Ditsobotla Municipality Local	Questionnaire returned via email 07 December 2021	<p>Their feelings towards having a solar PV project in the area is positive. It is believed that the new renewable project will assist with loadshedding as the project will provide an alternative. A few suggestions have been noted:</p> <ul style="list-style-type: none"> » Local labour to be considered » Local SMME from Ditsobotla LM be subcontracted » Consultation and consent to be undertaken with the Planning and Development department to apply for consent on land/rezoning <p>Contact the LED office when identifying local labour</p>
Mr Andre Nel	Landowner	Telephonic Call 07 December 2021 09:30am	No concerns regarding the PV project.

During the interviews, interviewees were provided with background on the proposed project, and the EIA and public participation process being undertaken in support of the application for EA. Interviewees were then interviewed utilising a questionnaire to determine their perceptions, interest and concerns regarding the project.

The local municipality Ditsobotla were engaged, and their comments obtained as part of the EIA process being undertaken for the project. Should any comments or concerns be raised from a social perspective regarding the project during the public participation process of the project, these will be included and addressed as part of the final SIA to be submitted to DFFE for decision-making.

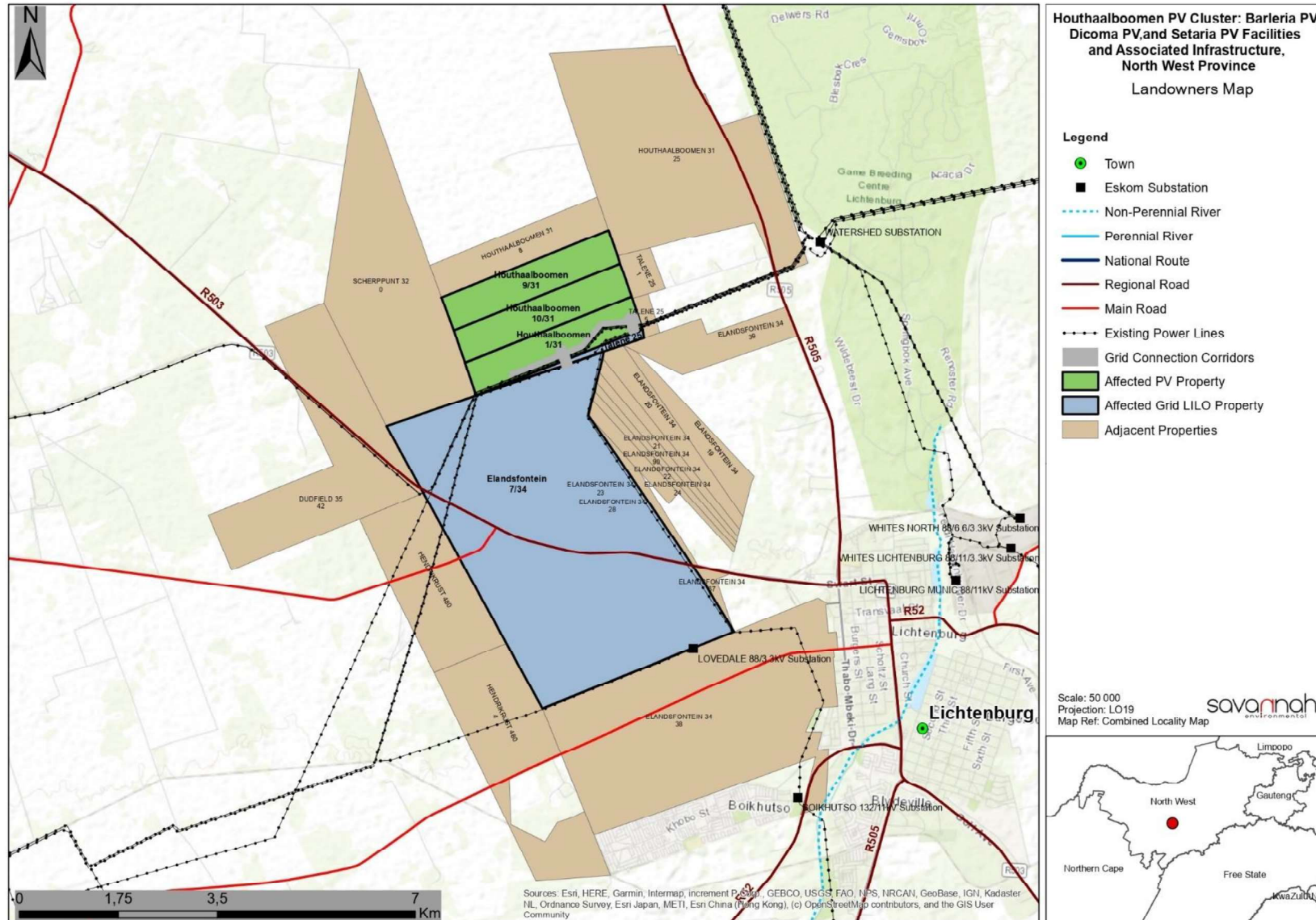


Figure 2-1 Landowner's map of the affected and adjacent properties for the Houthaalboomen PV Cluster

2.3. Impact Assessment Evaluation Method

The main objective of this SIA is to determine the social risks and opportunities, and positive and negative impacts which may be associated with the construction, operation, and decommissioning of the project. The methodology below allows for the evaluation of the overall impact of a proposed project on the social environment. This includes an assessment of the significant direct, indirect, and cumulative impacts associated with the project. Social impacts were assessed in terms of their perceived extent (scale), duration, magnitude (severity), probability (certainty), and status (negative, neutral or positive).

- » The **nature**, which includes a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 was assigned as appropriate (with 1 being low and 5 being high).
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
 - * The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
 - * Medium-term (5 – 15 years) – assigned a score of 3.
 - * Long term (> 15 years) – assigned a score of 4.
 - * Permanent – assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0 – 10, where 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 describes the likelihood of the impact actually occurring. Probability is estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » the **significance**, which is determined through a synthesis of the characteristics described above 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** was then calculated by combining the criteria in the following formula:

$$S = (E+D+M) \times P$$

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).

2.4. Limitations and Assumptions

- » Data derived from the 2011 Census, North West Provincial Development Plan (PDP), 2030 (2013), North West Provincial Growth and Development Strategy (PGDS) (2004 – 2014), Renewable Energy Strategy for the North West Province (2012), North West Provincial Spatial Development Framework (2017), Ngaka Modiri Molema District Municipality Integrated Development Plan (IDP), 2017 – 2022, and Ditsobotla Local Municipality Integrated Development Plan (IDP), 2017 – 2018 was used to generate the majority of information provided in the baseline profile of the study area. The possibility therefore exists that the data utilised may be out of date and may not provide an accurate reflection of the current status quo.
- » This SIA Report was prepared based on information that was available to the specialist at the time of preparing the report. The sources consulted are not exhaustive, and the possibility exists that additional information which might strengthen arguments, contradict information in this report, and / or identify additional information might exist. Additional information available from the public participation undertaken during the BA process will be included and considered within the final report, where relevant.
- » Some of the project projections reflected in this SIA Report (i.e. with regards to job creation and local content) may be subject to change, and therefore may be higher or lower than those estimated by the project proponent.
- » It is assumed that the motivation for, and planning and feasibility study of the project were undertaken with integrity; and that information provided by the project proponent was accurate and true at the time of preparing this SIA Report.

3. LEGISLATION AND POLICY REVIEW

The legislative and policy context applicable to a project plays an important role in identifying and assessing the potential social impacts associated with the development. In this regard a key component of the SIA process is to assess a proposed development in terms of its suitability with regards to key planning and policy documents.

The following key pieces of documentation were reviewed as part of this legislation and policy review process:

National Policy and Planning Context:

- » Constitution of the Republic of South Africa, 1996
- » National Environmental Management Act (No. 107 of 1998) (NEMA)
- » White Paper on the Energy Policy of the Republic of South Africa (1998)
- » National Energy Act (No. 34 of 2008)
- » Integrated Energy Plan (IEP) (2016)
- » National Development Plan (NDP) 2030 (2012)
- » Integrated Resource Plan for Electricity (IRP) 2010 – 2030 (2011) (and subsequent updates thereto)
- » Strategic Infrastructure Projects (SIPs)

Provincial Policy and Planning Context:

- » North West Provincial Development Plan (PDP) 2030 (2013)
- » North West Provincial Growth and Development Strategy (PGDS) 2004 – 2014
- » Renewable Energy Strategy for the North West Province (2012)
- » North West Provincial Spatial Development Framework (PSDF) (2017)

Local Policy and Planning Context:

- » Ngaka Modiri Molema District Municipality Integrated Development Plan (IDP) 2017 – 2022
- » Ditsobotla Local Municipality Integrated Development Plan (IDP) 2017 – 2018

3.1. National Policy and Planning Context

Any project which contributes positively towards the objectives mentioned within national policies could be considered strategically important for the country. A review of the national policy environment suggests that the increased utilisation of Renewable Energy (RE) sources is considered integral to reducing South Africa's carbon footprint, diversifying the national economy, and contributing towards social upliftment and economic development. As the project comprises a RE project and would contribute RE supply to provincial and national targets set out and supported within these national policies, it is considered that the project fits within the national policy framework.

A brief review of the most relevant national legislation and policies is provided in table format (**Table 3.1**) below.

Table 3.1: Relevant national legislation and policies for the Barleria PV Facility

Relevant legislation or policy	Relevance to the proposed project
Constitution of the Republic of South Africa, 1996	<p>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.</p> <p>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.</p>
National Environmental Management Act (No. 107 of 1998) (NEMA)	<p>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.</p> <p>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.</p> <p>The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA.</p>
White Paper on the Energy Policy of the Republic of South Africa (1998)	<p>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 RE and encouraging new entries into the generation market. South Africa has an attractive range of cost-effective renewable resources, taking into consideration social and environmental costs. Government policy RE is thus concerned with meeting the following challenges:</p> <ul style="list-style-type: none"> » Ensuring that economically feasible technologies and applications are implemented. » Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options. » Addressing constraints on the development of the renewable industry. <p>The policy states that the advantages of RE 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. The White Paper on Energy Policy therefore supports the advancement of RE sources and ensuring energy security through the diversification of supply.</p>
National Energy Act (No.34 of 2008)	<p>The purpose of the National Energy Act (No. 34 of 2008) is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation; while taking environmental</p>

Relevant legislation or policy	Relevance to the proposed project
	<p>management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies (REs). The objectives of the Act, are to amongst other things, to:</p> <ul style="list-style-type: none"> » Ensure uninterrupted supply of energy to the Republic. » Promote diversity of supply of energy and its sources. » Facilitate energy access for improvement of the quality of life of the people of the Republic. » Contribute to the sustainable development of South Africa's economy. <p>The National Energy Act therefore recognises the significant role which electricity plays growing the economy while improving citizens' quality of life. The Act provides the legal framework which supports the development of RE facilities for the greater environmental and social good, and provides the backdrop against which South Africa's strategic planning regarding future electricity provision and supply takes place. It also provides the legal framework which supports the development of RE facilities for the greater environmental and social good.</p>
<p>Integrated Energy Plan (IEP) (2016)</p>	<p>The Integrated Energy Plan (IEP) (which was developed under the National Energy Act (No. 34 of 2008)), recognises that energy is essential to many human activities, and is critical to the social and economic development of a country. The purpose of the IEP is essentially to ensure the availability of energy resources, and access to energy services in an affordable and sustainable manner, while minimising associated adverse environmental impacts. Energy planning therefore needs to balance the need for continued economic growth with social needs, and the need to protect the natural environment.</p> <p>The IEP is a multi-faceted, long-term energy framework which has multiple aims, some of which include:</p> <ul style="list-style-type: none"> » 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.
<p>National Development Plan 2030 (2012)</p>	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> » 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. » Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.

Relevant legislation or policy	Relevance to the proposed project
	<p>» Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.</p> <p>The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy.</p> <p>The development of the grid connection infrastructure is considered to be relevant to the plan due to the need of the infrastructure for economic growth within the Ditsobotla Local Municipality municipal area.</p>
<p>Integrated Resource Plan for Electricity (IRP) 2010-2030 (2011) and subsequent updates</p>	<p>The Integrated Resource Plan for Electricity (IRP) 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.</p> <p>The current iteration of the IRP, led to the Revised Balanced Scenario (RBS) that was published in October 2010. Following a round of public participation which was conducted in November / December 2010, several changes were made to the IRP model assumptions. The document outlines the proposed generation new-build fleet for South Africa for the period 2010 to 2030. This scenario was derived based on a cost- optimal solution for new-build options (considering the direct costs of new build power plants), which was then “balanced” in accordance with qualitative measures such as local job creation.</p> <p>The Policy-Adjusted IRP reflects recent developments with respect to prices for renewables. In addition to all existing and committed power plants, the plan includes 9.6GW of nuclear; 6.25GW of coal; 17.8GW of renewables; and approximately 8.9GW of other generation sources such as hydro, and gas.</p>
<p>Strategic Infrastructure Projects (SIPs)</p>	<p>The Presidential Infrastructure Coordinating Committee (PICC) are integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have the following 5 core functions:</p> <ul style="list-style-type: none"> » To unlock opportunity. » Transform the economic landscape. » Create new jobs. » Strengthen the delivery of basic services. » Support the integration of African economies. <p>A balanced approach is being fostered through greening of the economy, boosting energy security, promoting integrated municipal infrastructure investment, facilitating integrated urban development, accelerating skills development, investing in rural development and enabling regional integration.</p> <p>SIP 8 of the energy SIPs supports the development of RE projects as follow:</p> <ul style="list-style-type: none"> » SIP 8: Green energy in support of the South African economy: <p>Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010) and supports bio-fuel production facilities.</p>

Relevant legislation or policy	Relevance to the proposed project
	The development of the proposed project is therefore also aligned with SIP 8 as it constitutes a green energy initiative which would contribute clean energy in accordance with the IRP 2010 – 2030.

3.2. Provincial Policies

This section provides a brief review of the most relevant provincial policies. The proposed Barleria PV Facility and associated infrastructure is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant provincial policies is provided in table format (**Table 3.2**) below.

Table 3.2: Relevant provincial policies for the Barleria PV Facility

Relevant policy	Relevance to the proposed project
North West Provincial Development Plan (PDP) 2030 (2013)	<p>The North West Provincial Development Plan (PDP), 2030, is largely based on, and intended to apply the objectives of, the National Development Plan (NDP) 2030. The overall targets of the PDP have been identified as follows:</p> <p>By 2030:</p> <ul style="list-style-type: none"> » Eliminate income poverty: reduce the percentage of the population living in poverty from 46% to 0% in 2030. » Reduce inequality: the Gini coefficient should fall from 0.61 to 0.53. » The targets for poverty reduction and the GINI coefficient compliments the national targets set out for the elimination of poverty and reduction of inequality. » The unemployment rate should fall from 24% in 2010 to 14% by 2020 and to 6% by 2030. This requires an additional 815 000 jobs. Total employment should rise from 748 000 to 1 563 000. » The NDP projects that total employment should rise from 13 million to 24 million in South-Africa. 7% of additional jobs that has to be created will be located in the North West Province. By 2030 the North West will be responsible for 6.5% of employment in South-Africa. » The provincial Gross Value Added (GVA) should increase by 2.9 times in real terms. Such growth will require an average annual Gross Value Added (GVA) growth of 5.4%. <p>The development of Barleria PV has the potential to contribute towards a number of the targets set by the PDP, including:</p> <ul style="list-style-type: none"> » Job creation and increased income, which would have a positive impact on the current unemployment rate, standard of living, levels of inequality, and poverty levels within the Province. » Contribute towards the capita income, and improve on labour force participation rates. » Production of clean energy.
North West Provincial Growth and Development Strategy (PGDS) 2004 - 2014	The North West Provincial Growth and Development Strategy (PGDS) provides a framework for integrated and sustainable growth and economic development for the province and its people. Challenges facing the Province can be summarised as follows: the Province is mostly rural in nature; has a low population density, and relative inadequate infrastructure, especially in the remote rural areas; has inherited an enormous backlog in basic service delivery and maintenance that will take time to eradicate; the population is predominantly poor with high levels of illiteracy and dependency that seriously affect their productivity and ability to compete for jobs; is characterised by great inequalities between the rich and poor as well as

Relevant policy	Relevance to the proposed project
	<p>disparities between urban and rural; is faced with HIV / AIDS as a social and economic challenge; available resources are unevenly distributed, and there is limited potential for improved delivery of services and growth. From the above, job creation and poverty eradication together with the low level of expertise and skills; stand out as the greatest challenges to be resolved within the Province.</p> <p>Goals and objectives of the PGDS are to fight poverty and unemployment, improve the low level of expertise and skills which are classified as both immediate and long term goals and require primary goals for sustained growth and economic development. The proposed solar farm will contribute to employment creation and skills development which is in line with the goals and objectives of the North West PGDS.</p> <p>The North West PGDS aims at building a sustainable economy to eradicate poverty and improve social development. The proposed solar farm will contribute to growth and development of the local area by expanding the economic base and creating employment opportunities.</p>
<p>Renewable Energy Strategy for the North West Province (2012)</p>	<p>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 energy poverty, whilst promoting economic development and job creation whilst developing its green economy.</p> <p>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.</p> <p>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.</p> <p>The advantages and benefits for the North West Province associated with the implementation and use of RE technologies include:</p> <ul style="list-style-type: none"> » 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.

Relevant policy	Relevance to the proposed project
	<ul style="list-style-type: none"> » 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. » 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. <p>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.</p>
<p>North West Provincial Spatial Development Framework (2017)</p>	<p>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%). Electricity for supply to the North West Province is mostly generated by Eskom's Matimba coal-fired Power Station in Limpopo which will in future be augmented by Eskom's Medupi coal-fired Power Station.</p> <p>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).</p> <p>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.</p>

3.3. District and Local Municipalities Policies

The strategic policies at a district and local level have similar objectives for the respective areas, namely to accelerate economic growth, create jobs, and uplift communities. The proposed Barleria Facility and associated infrastructure is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant district and local municipal policies is provided in table format (**Table 3.3**) below.

Table 3.3: Relevant district and local municipal policies for the Barleria PV Facility

Relevant policy	Relevance to the proposed project						
<p>Ngaka Modiri Molema District Municipality Integrated Development Plan (IDP), 2017 – 2022</p>	<p>The vision of the Ngaka Modiri Molema District Municipality as contained within its 2017 – 2022 Integrated Development Plan (IDP) is as follows:</p> <p>“Leaders in integrated municipal governance”.</p> <p>The vision of the Ngaka Modiri Molema District Municipality is:</p> <p>“To provide a developmental municipal governance system for a better life for all”.</p> <p>In recognition of its vision and mission, the Ngaka Modiri Molema District Municipality has adopted the following strategic development goals for the District:</p> <ul style="list-style-type: none"> » Institutional Transformation and Organisational Development. » Provision of Infrastructure for Basic Service Delivery. » Economic Development. » Financial Viability. » Good Governance. <p>With regards to “Economic Development”, the following additional strategic objectives have been identified:</p> <ul style="list-style-type: none"> » To facilitate economic development by creating a conducive environment for business development. » Unlock opportunities to increase participation amongst all sectors of society in the mainstream economy to ultimately create decent job opportunities. » To promote Local Economic Development » To enhance rural development and agriculture » To Expand Public Works Programme <p>The implementation of Barleria PV Facility would contribute positively towards local economic development as well as the creation of new job opportunities within the Ngaka Modiri Molema District Municipality, and would therefore be in line with these objectives.</p>						
<p>Ditsobotla Local Municipality Integrated Development Plan (IDP), 2017 – 2018</p>	<p>The vision statement for the Ditsobotla Local Municipality as contained within the Integrated Development Plan (IDP) 2017 – 2018 is as follows:</p> <p>“A developmental municipality dedicated to the social and economic upliftment of its communities.” The Mission Statement of the Ditsobotla Local Municipality is as follows: “Sustainable service delivery through: transparent administration, dedicated staff, implementation of municipal programmes, and consultation with communities.”</p> <p>The following key issues and objectives have been identified for the Ditsobotla Local Municipality:</p> <table border="1" data-bbox="375 1780 1460 2027"> <thead> <tr> <th data-bbox="375 1780 917 1816">Key Issue</th> <th data-bbox="917 1780 1460 1816">Key Objective</th> </tr> </thead> <tbody> <tr> <td data-bbox="375 1816 917 1928">The municipality's financial position is poor due to inadequate capacity as well as poor finance management controls/systems</td> <td data-bbox="917 1816 1460 1928">A fully capacitated municipal administration developing and implementing effective controls.</td> </tr> <tr> <td data-bbox="375 1928 917 2027">The organizational design does not respond to service delivery challenges. There is no</td> <td data-bbox="917 1928 1460 2027">Capacitated institution structured in a way that enables efficient and effective service delivery.</td> </tr> </tbody> </table>	Key Issue	Key Objective	The municipality's financial position is poor due to inadequate capacity as well as poor finance management controls/systems	A fully capacitated municipal administration developing and implementing effective controls.	The organizational design does not respond to service delivery challenges. There is no	Capacitated institution structured in a way that enables efficient and effective service delivery.
Key Issue	Key Objective						
The municipality's financial position is poor due to inadequate capacity as well as poor finance management controls/systems	A fully capacitated municipal administration developing and implementing effective controls.						
The organizational design does not respond to service delivery challenges. There is no	Capacitated institution structured in a way that enables efficient and effective service delivery.						

Relevant policy	Relevance to the proposed project	
	adequate capacity in technical functions of the municipality	
	High levels of poverty and unemployment, skills shortage, and inequalities within the Ditsobotla Local Municipality.	Create an environment conducive for economic growth, sustainable employment opportunities and growth in personal income levels of communities
	Backlogs in the provision of social services, infrastructure service delivery and economic opportunities	A well-structured Ditsobotla Local Municipality able to support sustainable human settlement and enable residents meets their social and economic needs,

3.4. Conclusion

The review of relevant legislation, policies and documentation pertaining to the energy sector indicate that renewable or green energy (i.e. energy generated by naturally occurring renewable resources) and therefore the establishment Barleria PV Facility is supported at a national, provincial, and local level, and that the proposed project will contribute positively towards a number of targets and policy aims. Specifically those relating to employment creation, social and economic development and upliftment, and an increase in RE and electricity supply which has the potential to further improve individuals' standard of living.

4. SOCIAL PROFILE

Barleria PV Facility including associated facility and grid connection infrastructure is proposed on Portion 1 of the Farm Houthaalboomen 31; Portion 9 of the Farm Houthaalboomen 31; Portion 10 of the Farm Houthaalboomen 31; Portion 0 of Farm Talene 25 and Portion 7 of Farm Elandsfontein 34, within the Ditsobotla Local Municipality within the Ngaka Modiri Molema District Municipality, North West Province (refer to **Table 4-1**).

Table 4-1: Spatial Context of the study area for the development of the Barleria PV Facility and associated infrastructure

Province	North West Province
District Municipality	Ngaka Modiri Molema District Municipality
Local Municipality	Ditsobotla Local Municipality
Ward number(s)	16
Nearest town(s)	Lichtenburg (approximately 10km south-east) Bakerville (approximately 14 km north)
Preferred access	The site is accessible via an existing gravel road which provides access to the development area off the R505, located east of the development area.

This Chapter provides an overview of the socio-economic environment of the province, DM, and LM within which the Barleria PV Facility is proposed and provides the socio-economic basis against which potential issues can be identified.

4.1. 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 4-1).

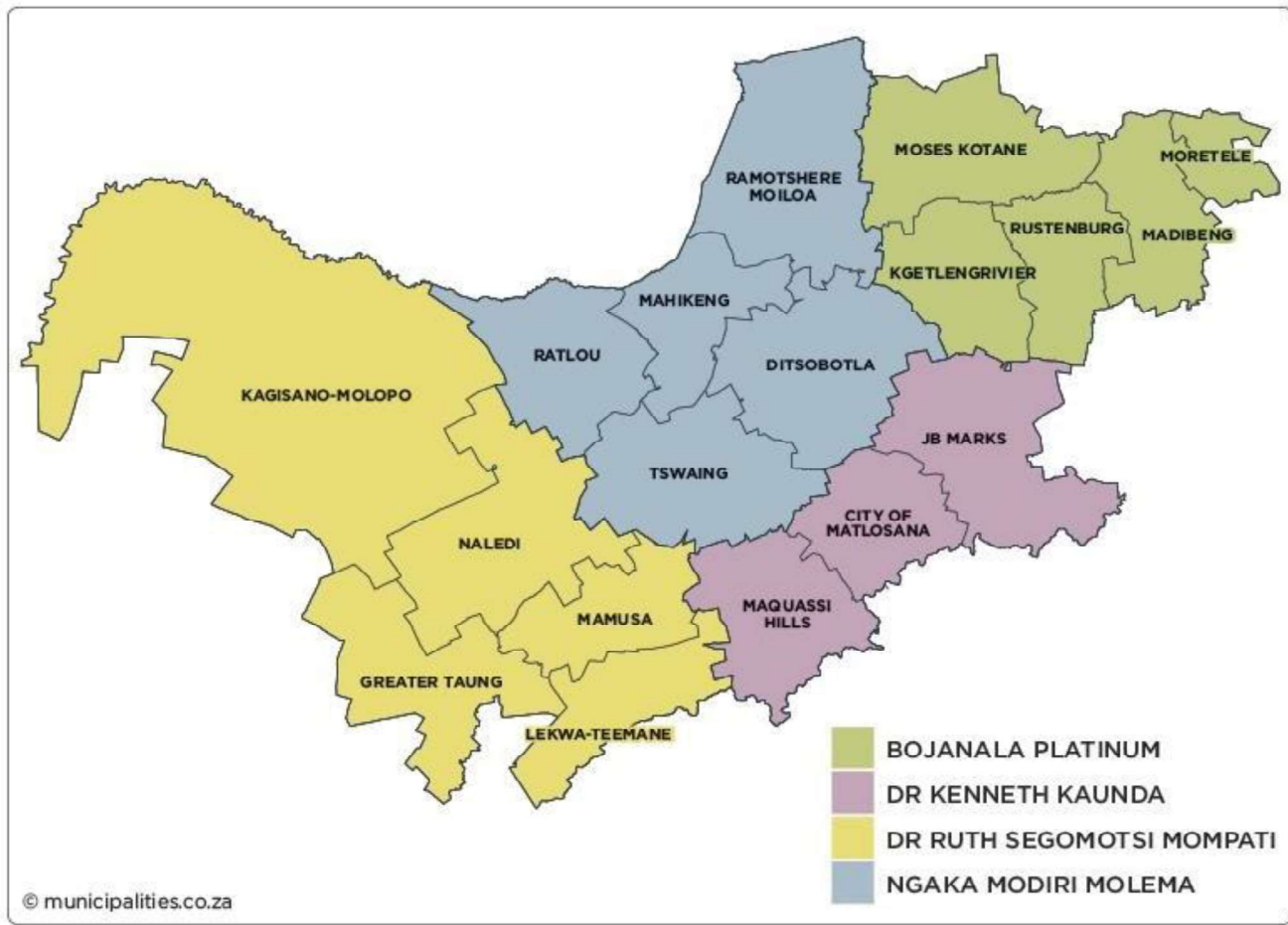


Figure 4-1 Districts under the North West Province

4.2. Ngaka Modiri Molema DM

Ngaka Modiri Molema District is in the north-central extent of the North West Province, and is bordered by Dr Ruth Segomotsi Mompoti District to the west, south-west, and south; Dr Kenneth Kaunda District to the south, and south-east; Bojanala Platinum District to the east; and Botswana to the north. The Ngaka Modiri Molema District occupies an area of land approximately 25 206km² in extent, making it the 2nd largest District in the North West Province; with the second highest population (842 699 in 2011), and 3rd highest population density (30/km² in 2011).

The Ngaka Modiri Molema District is home to Mahikeng (previously Mafikeng), the capital of the North West Province. Other prominent cities and towns found within the District include Biesiesvlei, Coligny, Delareyville, Disaneng, Groot Marico, Kraaipan, Lichtenburg, Madibogo, Mahikeng, Mmabatho, Ottosdal, Ottoshoop, Sannieshof, Setlagole, and Zeerust. The main economic sectors include agriculture, tourism, and mining.

Ngaka Modiri Molema District comprises five Local Municipalities (LMs) namely, Ditsobotla, Mahikeng, Ramotshere Moiloa, Ratlou and Tswaing LMs (refer to Figure 4-2).



Figure 4-2 Local Municipalities under the North West Province

4.3. Ditsobotla LM

Ditsobotla LM is in the south-eastern extent of the Ngaka Modiri Molema District. It is bordered by Ramotshere Moiloa LM to the north; Mahikeng LM to the north-west, and west; Tswaing LM to the south-west; the City of Matlosana LM, and JB Marks LM of Dr Kenneth Kaunda District to the south, and south-east; and Kgetlengrivier LM of Bonjala Platinum District to the north-east. The Ditsobotla LM is approximately 6 387km² in extent, making it the second largest LM in the District; with the 2nd largest population (168 902 in 2011), and 2nd highest population density (26/km² in 2011).

The Ditsobotla LM was established through the amalgamation of the former Lichtenburg, Coligny and Biesiesvlei Transitional Councils. The seat of the Ditsobotla LM is Lichtenburg. Its main attractions include cultural, heritage, and agricultural museums; the burning vlei, which is a unique vlei consisting of the thick layers of subterranean peat that burnt for years, creating a rare natural phenomenon; the Lichtenburg Game Breeding Centre (which has since closed); Eufees and Duch Roode Dams; and Molopo Oog/Wondergat. Major cities and towns found within the Ditsobotla LM include Biesiesvlei, Coligny, and Lichtenburg. The main economic sectors within the municipality include manufacturing (38.5%), agriculture (16.5%), and wholesale and retail (7.4%).

4.4. Project Site

Barleria PV Facility is proposed on Portion 1 of the Farm Houthaalboomen 31; Portion 9 of the Farm Houthaalboomen 31; Portion 10 of the Farm Houthaalboomen 31; Portion 0 of Farm Talene 25 and Portion 7 of Farm Elandsfontein 34 within Ward 16 of the Ditsobotla Local Municipality, of the Ngaka Modiri Molema District. The closest major town to the project site is Lichtenburg, which is located approximately 10km south-east of the project site. Other towns in proximity of the project site include Bakerville, located approximately 14 km north, and Itsoseng located approximately 24km west of the project site. Mahikeng, the provincial capital, is located approximately 53km north-west of the project site.

Lichtenburg serves as the administrative centre of the Ditsobotla LM. Lichtenburg is located at the centre of the maize triangle, considered to be the primary maize growing area in South Africa, and Lichtenburg's main economic activity is the production of maize (corn). The production of cement is also considered to be a major economic activity with three large cement producers located within 80km of the town. Several factories manufacturing liquid fertilizer, animal feed and agricultural equipment have also been established.

The Lichtenburg area is considered to have a unique historical background and houses a number of places of interest including the Lichtenburg Diggings Museum, Bakerville, the Burning Vlei, Wondergat, and monuments such as the General De la Rey Square.

The surrounding area within which Barleria PV Facility is proposed is characterised by a number of small holdings which are used for small-scale agriculture (i.e. maize and livestock), residential, and semi-industrial (earth moving and agricultural equipment). Existing built infrastructure is present within and surrounding the study area, some of which are expected to be occupied. It is assumed that these buildings include farm homesteads, workers quarters and warehouses. The vertical and horizontal landscapes are also disturbed due to the presence of linear infrastructure within the surrounding area.

4.5. Baseline Description of the Social Environment

Table 4.2 provides a baseline summary of the socio-economic profile of the Ditsobotla Local Municipality within which Barleria PV Facility is proposed. In order to provide context against which the Local Municipality's socio-economic profile can be compared, the socio-economic profiles of the Ngaka Modiri Molema District, North West Province, and South Africa as a whole have also been provided where applicable. The data presented in this section have been derived from the 2011 Census, the North West Provincial Spatial Development Framework (PSDF), and the Ngaka Modiri Molema DM and Ditsobotla LM IDPs.

Table 4.2: Baseline description of the socio-economic characteristics of the area within which the Barleria PV Facility

Location characteristics	
»	The project is proposed within the North West Province, the province located to the west of the major population centre of Gauteng Province.
»	The project is proposed within the Ditsobotla LM of the Ngaka Modiri Molema DM.
»	The Ditsobotla LM is approximately 6 398.7km ² in extent.
Population characteristics	
»	Ditsobotla LM has a population of 181 866 which is about one-fifth of the figure in Ngaka Modiri Molema 889,108.
»	The LM occupies an area of land approximately 6 465km ² in extent and has a population density of 26/7km ² .

- » Between 2001 and 2011 the LM experience a positive population growth of 1.3% per year. This is higher than the DM population growth of 1.0% between 2001 and 2011.
- » According to Census 2011, the significant majority of 89.1% of the Ditsobotla LM population are Black African, followed secondly by 8.2% which are White, 1.9% which are Coloured, and 0.6% which are Indian / Asian. This population structure corresponds to that of the Ngaka Modiri Molema DM, and North West Province.
- » The Ditsobotla LM is slightly male dominated with males making up just over half (50.5%) of the municipal population, and females the remaining 49.5% of the population. This correlates with the Provincial population which is also slightly female dominated (comprising 50.7% males, and 49.3% females), but differs from the District and National populations which are both female dominated.
- » When assessing five year age groups the largest proportion of the population are between the ages of 0 to 4 years old, with the proportion decreasing uniformly as age increases. There are no significant outliers within any one age group. The age structure of the North West Province and South African national populations are similar to one another, but differ somewhat from that of the Ditsobotla LM and Ngaka Modiri Molema DM.
- » The dependent portion of the population typically comprises youth below 15 years of age which are yet to enter the workforce, and individuals 65 years and older which would typically already have retired from the workforce.
- » The Ditsobotla LM has a dependency ratio of 38.1; implying that for every 100 people within the Ditsobotla LM, over two thirds (i.e. 38.1) of them are considered dependent. This figure is slightly lower than the Ngaka Modiri Molema DM (39.2), but higher than the provincial (35.3) and national (34.5) dependency ratios

Economic, education and household characteristics

- » Approximately 14.7% of the Ditsobotla LM population aged 20 years and older have received no formal form of schooling.
- » The majority of 29.9% of the LM population have received some secondary education (which correlates with the DM, Provincial, and national averages), followed closely by 22.6% which have received some primary schooling. Approximately one fifth (20%) of the LM population have completed Grade 12 / Matric, with 6.8% having received some form of higher / tertiary education.
- » Due to the fact that the majority of almost three quarters (73.2%) of the Ditsobotla LM population have not completed Grade 12 / Matric, it can be expected that a large proportion of the population will either be unskilled or have a low-skill level, and would therefore either require employment in non-skilled or low-skilled sectors; or alternatively would require skills development opportunities in order to improve the skills, and income levels of the area
- » The Ditsobotla LM has an unemployment rate of 28.3%.
- » Of the Ditsobotla LM's labour force (i.e. individuals ages between 15 and 64 years of age) the majority of 43.2% are not economically active.
- » The economically inactive proportion of the Ditsobotla LM's labour force is slightly lower than the DM (47.9%), but higher than the Provincial (40.2%), and national (39.2%) averages.
- » Approximately 14.3% of the Ditsobotla LM's labour force is unemployed.
- » Over two thirds (68.4%) of households within the Ditsobotla LM fall within the low income (poverty level) bracket (i.e. below R38 400 per annum).
- » Approximately one quarter (25.9%) of households within the LM fall within the medium income bracket, while the remaining 5.7% fall within the high income bracket.
- » According to the Ditsobotla LM IDP 2017 – 2018 the LM contributes 22.7% to the DM economy.
- » The finance and business services sector represent the largest contributing sector with a contribution of 24.7%, followed by the trade sector with a contribution of 19.1%, the manufacturing sector which contributes 11.8%, and the general government service which contributes 11.4%.
- » The dominant economic sectors within the LM include finance and business services (25%); wholesale and retail trade, catering and accommodation (19%); manufacturing (12.2%); and general government services (11.5%).
- » The unemployment rate for the LM is fractionally lower than the DM (14.8%), as well as the Provincial (17.1%), and national averages (16.5%).

Services

- » Approximately two thirds (66%) of households within the Ditsobotla LM have access to piped water inside their yard / dwelling which is equivalent to the basic level of service provision.

- » Approximately 23.2% of households receive piped water outside of their yard, while 10.9% have no access to water services
- » The majority of 34.8% of the Ditsobotla LM households make use of the bucket system, followed by 33.7% which have access to and make use of flush or chemical toilets
- » A quarter (25%) of households within the LM have access to pit latrines, and 6.5% of households have no access to sanitation services
- » Approximately 32 933 (74%) of households within the LM are connected to the electricity grid. The LM has a total backlog of 11 567 (26%) of households without access to electricity.

5. KEY CONSIDERATIONS FOR SOLAR PV POWER PLANTS

While no industry sector Environmental, Health and Safety (EHS) Guidelines have been developed for PV solar power, the International Finance Corporation (IFC) has published a Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants (IFC, 2015). Section 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 are provided below:

5.1. Construction Phase Impacts

Construction activities lead to temporary air emissions (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. In addition, Occupational Health and Safety (OHS) is an issue that needs to be properly managed during construction in order to minimise the risk of preventable accidents leading to injuries and / or fatalities. Proper OHS risk identification and management measures should be incorporated in every project's management plan and standard Engineering, Procurement and Construction (EPC) contractual clauses.

5.2. Water Usage

Although water use requirements are typically low for solar PV plants, clusters of PV plants may have a high cumulative water use requirement in arid areas where local communities rely upon scarce groundwater resources. In such scenarios, water consumption should be estimated and compared to local water abstraction by communities (if any), to ensure no adverse impacts on local people. Operation and Maintenance (O&M) methods in relation to water availability and use should be carefully reviewed where risks of adverse impacts to community usage are identified.

5.3. Land Matters

As solar power is one of the most land-intensive power generation technologies, land acquisition procedures and in particular the avoidance or proper mitigation of involuntary land acquisition / resettlement are critical to the success of the project. This includes land acquired either temporarily or permanently for the project site itself and any associated infrastructure – i.e. access roads, powerlines, construction camps (if any) and switchyards. If involuntary land acquisition is unavoidable, a Resettlement Action Plan (RAP) (dealing with physical displacement and any associated economic displacement) or Livelihood Restoration Plan (LRP) (dealing with economic displacement only) will be required. This is often a crucial issue with respect to local social license to operate, and needs to be handled with due care and attention by suitably qualified persons.

5.4. Landscape and Visual Impacts

Key impacts can include the visibility of the solar panels within the wider landscape and associated impacts on landscape designations, character types and surrounding communities. Common mitigation measures to reduce impacts can include consideration of layout, size and scale during the design process and landscaping / planting in order to screen the modules from surrounding receptors. Note that it is important that the impact of shading on energy yield is considered for any new planting requirements. Solar panels are designed to absorb, not reflect, irradiation. However, glint and glare should be a consideration in the environmental assessment process to account for potential impacts on landscape / visual and aviation aspects.

5.5. Ecology and Natural Resources

Potential impacts on ecology can include habitat loss / fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species. Receptors of key consideration are likely to include nationally and internationally important sites for wildlife and protected species such as bats, breeding birds and reptiles. Ecological baseline surveys should be carried out where potentially sensitive habitat, including undisturbed natural habitat, is to be impacted, to determine key receptors of relevance to each site. Mitigation measures can include careful site layout and design to avoid areas of high ecological value or translocation of valued ecological receptors. Habitat enhancement measures could be considered where appropriate to offset adverse impacts on sensitive habitat at a site, though avoidance of such habitats is a far more preferable option.

5.6. Cultural Heritage

Potential impacts on cultural heritage can include impacts on the setting of designated sites or direct impacts on below-ground archaeological deposits as a result of ground disturbance during construction. Where indicated as a potential issue by the initial environmental review / scoping study, field surveys should be carried out prior to construction to determine key heritage and archaeological features at, or in proximity to, the site. Mitigation measures can include careful site layout and design to avoid areas of cultural heritage or archaeological value and implementation of a 'chance find' procedure that addresses and protects cultural heritage finds made during a project's construction and/or operation phases.

5.7. Transport and Access

The impacts of transportation of materials and personnel should be assessed in order to identify the most appropriate transport route to the site while minimising the impacts on project-affected communities. The requirement for any oversized vehicles / abnormal loads should be considered to ensure access is appropriate. On-site access tracks should be permeable and developed to minimise disturbance to agricultural land. Where project construction traffic has to traverse local communities, traffic management plans should be incorporated into the environmental and social management plan and EPC requirements for the project.

5.8. Drainage / Flooding

A review of flood risk should be undertaken to determine if there are any areas of high flood risk associated with the site. Existing and new drainage should also be considered to ensure run-off is controlled to minimise erosion.

5.9. Consultation and Disclosure

It is recommended that early stage consultation is sought with key authorities, statutory bodies, affected communities and other relevant stakeholders. This is valuable in the assessment of project viability, and may guide and increase the efficiency of the development process. Early consultation can also inform the design process to minimise potential environmental impacts and maintain overall sustainability of the project. The authorities, statutory bodies and stakeholders that should be consulted vary from country to country but usually include the following organisation types:

- » Local and / or regional consenting authority.
- » Government energy department / ministry.
- » Environmental agencies / departments.
- » Archaeological agencies / departments.
- » Civil aviation authorities / Ministry of Defence (if located near an airport).
- » Road's authority.
- » Health and safety agencies / departments.
- » Electricity utilities.
- » Military authorities.

Community engagement is an important part of project development and should be an on-going process involving the disclosure of information to project-affected communities. The purpose of community engagement is to build and maintain over time a constructive relationship with communities located in close proximity to the project and to identify and mitigate the key impacts on project-affected communities. The nature and frequency of community engagement should reflect the project's risks to, and adverse impacts on, the affected communities.

5.10. Environmental and Social Management Plan (ESMP)

Whether or not an Environmental and Social Impact Assessment (ESIA) or equivalent has been completed for the site, an ESMP should be compiled to ensure that mitigation measures for relevant impacts of the type identified above (and any others) are identified and incorporated into project construction procedures and contracts. Mitigation measures may include, for example, dust suppression during construction, safety induction, training and monitoring programs for workers, traffic management measures where routes traverse local communities, implementation of proper waste management procedures, introduction of periodic community engagement activities, implementation of chance find procedures for cultural heritage, erosion control measures, fencing off of any vulnerable or threatened flora species, and so forth. The ESMP should indicate which party will be responsible for (a) funding, and (b) implementing each action, and how this will be monitored and reported on at the project level. The plan should be commensurate to the nature and type of impacts identified.

6. SOCIAL IMPACT ASSESSMENT

This section provides a detailed description and assessment of the potential social impacts that were identified for the detailed design and construction, operation, and decommissioning phases of Barleria PV Facility.

A facility layout has been provided by the applicant for consideration as part of the EIA process and is considered within the SIA. The layout provides an indication of the facility infrastructure proposed within the development footprint (Figure 6-1).

Social impacts are expected to occur during both the construction and operation phase of Barleria PV Facility. The status of the impacts will be either positive or negative and either mitigation or enhancement measures are recommended for the management of the impacts depending on the status of the impacts.

This Chapter provides an overview of the potential social impacts that have been identified, which may be associated with the development of Barleria PV Facility. Potential impacts have been identified based on the current understanding of the project and the socio-economic environment within which it is proposed. The potential social impacts identified for the project will be investigated further during the EIA phase.

Social impacts are expected to occur during both the construction and operation phases of the associated infrastructure. The status of the impacts will either be positive or negative and either mitigation or enhancement measures are recommended for the management of the impacts depending on the status of the impacts.

6.1. Social Impacts during the Construction Phase

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 (~18 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 at this stage and will be 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

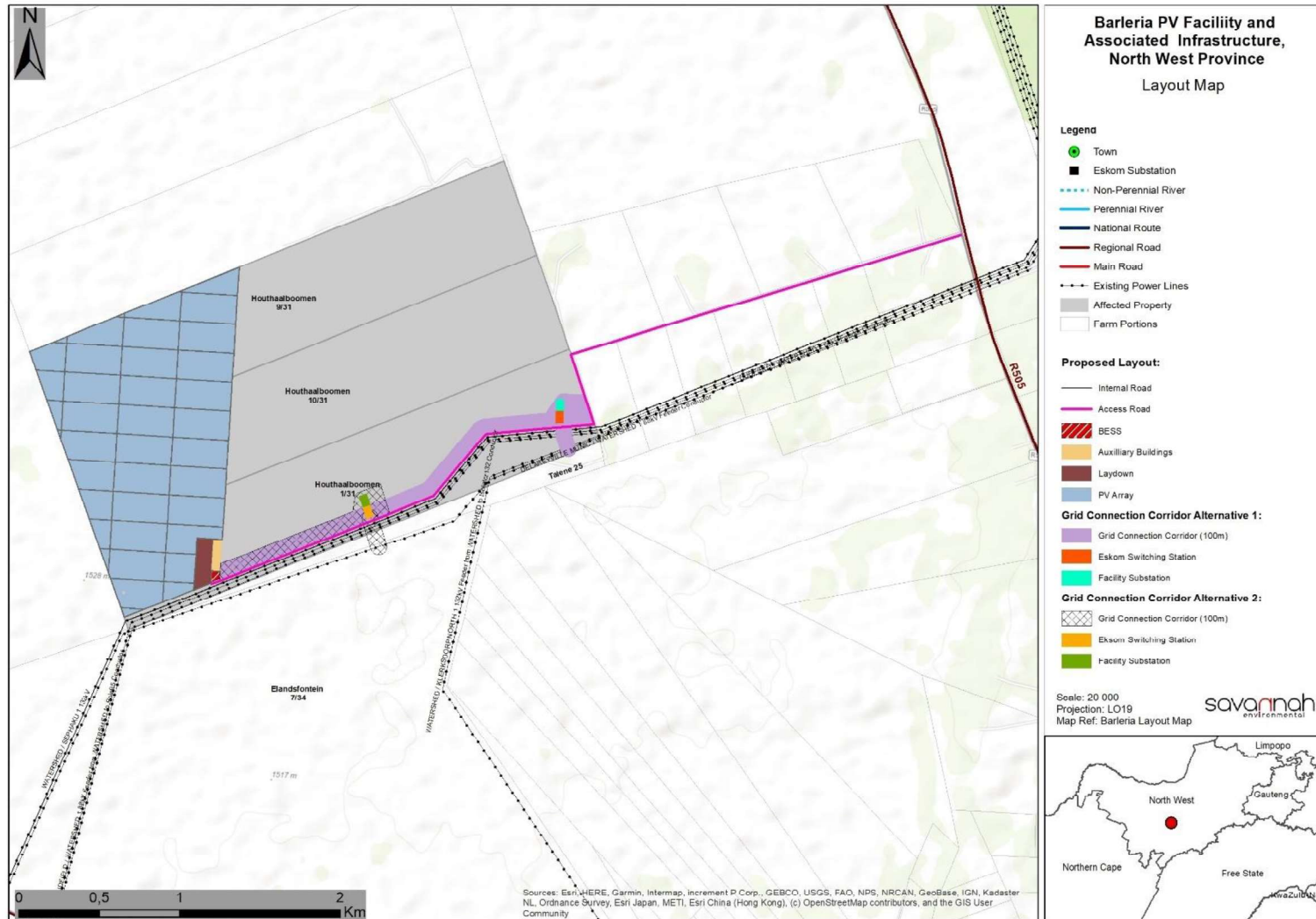


Figure 5.1: Layout of the PV Facility and Associated Infrastructure

6.1.1. Construction Phase Impacts Associated with Barleria PV Facility

Table 6-1: Impact assessment on direct and indirect employment opportunities

<p>Nature: The creation of direct and indirect employment opportunities during the construction phase of the project.</p> <p>It is anticipated that development of the PV Facility will result in the creation of approximately 250 temporary employment of which, 50 full -time employment opportunities is anticipated, comprising a mixture of skilled, semi-skilled and unskilled positions during the operational phase. Employment opportunities generated as a result of the project will be temporary in nature, and will last for the duration of the construction period (i.e. ~18 months). The general labour force will, as far as possible and where skills are available, be sourced from the local labour pool. Where relevant skills are unavailable from the local labour pool, these would need to be sought elsewhere. The injection of income into the area, albeit limited, in the form of wages will represent an opportunity for the local economy and businesses in the area.</p> <p>Several indirect employment opportunities will also be created. Indirect employment opportunities will predominantly be created in the service industry, through the opportunity for the provision of secondary services to the construction team. Services may include, but are not limited to, accommodation, catering, and laundry services.</p>		
	Without mitigation	With mitigation
Extent	Local - Regional (3)	Local - Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Minor (2)	Moderate (6)
Probability	Highly Probable (4)	Definite (4)
Significance	Low (28)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Mitigation:</p> <p>To enhance the local employment, skills development and business opportunities associated with the construction phase the following measures should be implemented:</p> <ul style="list-style-type: none"> » It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force. Barleria (Pty) Ltd should make it a requirement for contractors to implement a 'locals first' policy, especially for semi and low skilled job categories. Enhance employment opportunities for the immediate local area Ditsobotla Local Municipality, if this is not possible, then the broader focus areas should be considered for sourcing workers. » In the recruitment selection process; consideration must be given to women during recruitment process » It is recommended to set realistic local recruitment targets for the construction phase » Training and skills development programmes should be initiated prior to the commencement of the construction phase 		
Cumulative impacts:		

Opportunity to upgrade and improve skills levels in the area
Residual Risks:
<ul style="list-style-type: none"> » Improved pool of skills and experience in the local area » Temporary employment during the construction phase will result in job losses and struggles for construction workers to find new employment opportunities following the completion of construction. » Economic growth for small-scale entrepreneurs

Table 6-2: Economic multiplier effects impact assessment

Nature: Significance of the impact from the economic multiplier effects from the use of local goods and services		
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.		
	Without mitigation	With mitigation
Extent	Local - Regional (3)	Local - Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Low (4)	Moderate (6)
Probability	Highly Probable (4)	Definite (5)
Significance	Medium (36)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » A local procurement policy should be adopted to maximise the benefit to the local economy and the existing local SMMEs. » A database of local companies, specifically Historically Disadvantaged Individuals (HDIs) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) should be created and companies listed thereon should be invited to bid for project-related work where applicable. » Local procurement must be encouraged along with engagement with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible. 		
Cumulative impacts:		
Opportunity for local capital expenditure, potential for the local service sector		
Residual Risks:		
Improved local service sector; growth in local business		

Table 6-3: Assessment of impacts from an influx of jobseekers and change in population

<p>Nature: In-migration of labourers in search of employment opportunities, and a resultant change in population, and increase in pressure on local resources and social networks, or existing services and infrastructure.</p> <p>An influx of people looking for employment or other economic opportunities could result in increased pressure being placed on economic and social infrastructure, and a change in the local population. Population change refers to the size, structure, density as well as demographic profile of the local community.</p> <p>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.</p>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Improbable (2)	Improbable (2)
Significance	Low (18)	Low (14)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Mitigation:</p> <ul style="list-style-type: none"> » Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated. » Develop and implement a local procurement policy which prioritises "locals first" to prevent the movement of people into the area in search of work. » Engage with local community representatives prior to construction to facilitate the adoption of the local's first procurement policy. » Provide transportation for workers to ensure workers can easily access their place of employment and do not need to move closer to the project site. » Compile and implement a grievance mechanism. » Appoint a Community Liaison Officer (CLO) to assist with the procurement of local labour. » Prevent the recruitment of workers at the construction site. » Implement a method of communication whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. » Establish clear rules and regulations for access to the construction site. 		

<ul style="list-style-type: none"> » Appoint a security company and implement appropriate security procedures to ensure that workers to not remain on site after working hours. » Inform local community organisations and policing forums of construction activities and times and the duration of the construction phase.
<p>Cumulative impacts: Possible increase in crime level (with influx of people) with subsequent possible economic losses,</p>
<p>Residual Risks: Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure, resources and services</p>

Table 6-4: Assessment of safety and security impacts

<p>Nature: Temporary increase in safety and security concerns associated with the influx of people during the construction phase.</p> <p>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.</p> <p>The labour force will not permanently reside within the construction site.</p>		
	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	High (8)	Moderate (6)
Probability	Probable (3)	Improbable (2)
Significance	Medium (30)	Low (20)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Mitigation:</p> <ul style="list-style-type: none"> » Working hours must preferably be restricted to daylight hours during the construction phase. Where deviation of working hours is required, it must be approved by the relevant local authorities and surrounding landowners must be notified. » All vehicles must be road worthy, and drivers must be licensed, obey traffic rules, follow speed limits and made aware of the potential road safety issues. » Construction vehicles should be inspected regularly by the EPC contractor to ensure their road worthiness. » Adequate and strategically placed traffic warning signs and control measures must be placed along the gravel farm access roads to warn road users of the construction activities taking place 		

<p>for the duration of the construction phase. Warning signs must be visible at all times, and especially at night and must be maintained throughout the construction phase.</p> <ul style="list-style-type: none"> » Implement penalties for reckless driving as a way to enforce compliance to traffic rules. » Avoid heavy vehicle activity through residential areas during “peak” hours (when children are taken to school, people driving to work, etc.). » The developer and EPC contractor must ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed or damaged due to construction activities. » The developer and EPC Contractor must ensure that the roads utilised for construction activities are either maintained in the present condition or upgraded if damaged (i.e. wear and tear) due to construction activities. » A protocol for communication must be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. » Undertake information sessions with the surrounding communities, and affected and adjacent landowners, prior to construction in order to ensure that communities are fully informed of the project to be developed in its final form. This must be undertaken through the appointment of a CLO. » The placement of the power line route within the grid connection must avoid the sensitive land uses undertaken by the affected landowners as far as possible. Consultation with the affected landowners must be undertaken in this regard.
<p>Cumulative impacts: Possible increase in crime level (with influx of people) with subsequent possible economic losses</p>
<p>Residual Risks: None anticipated.</p>

Table 6-5: Disruption of daily living and movement patterns

<p>Nature: Temporary increase in traffic disruptions and movement patterns during the construction phase.</p> <p>Project components and equipment will be transported using road transport. Increased traffic due to the movement of construction vehicles could cause disruptions to the local community and increase safety hazards. The use of local roads and transport systems may cause road deterioration and congestion. This impact will be magnified since farm roads are not designed to carry heavy traffic and are prone to erosion. Noise, vibrations, dust and visual pollution from heavy vehicle traffic and construction activities during the construction phase could also negatively impact local residents and road users.</p> <p>The labour force will not permanently reside within the construction site.</p>		
	Without mitigation	With mitigation
Extent	Local – Regional (3)	Local – regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	High (8)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Medium (39)	Medium (33)
Status (positive or negative)	Negative	Negative

Reversibility	Yes
Irreplaceable loss of resources?	No
Can impacts be mitigated?	Yes
Mitigation:	
<ul style="list-style-type: none"> » Working hours must preferably be restricted to daylight hours during the construction phase. Where deviation of working hours is required, it must be approved by the relevant local authorities and surrounding landowners must be notified. » All vehicles must be road worthy, and drivers must be licensed, obey traffic rules, follow speed limits and made aware of the potential road safety issues. » Construction vehicles should be inspected regularly by the EPC contractor to ensure their road worthiness. » Adequate and strategically placed traffic warning signs and control measures must be placed along the gravel farm access roads to warn road users of the construction activities taking place for the duration of the construction phase. Warning signs must be visible at all times, and especially at night and must be maintained throughout the construction phase. » Implement penalties for reckless driving as a way to enforce compliance to traffic rules. » Avoid heavy vehicle activity through residential areas during "peak" hours (when children are taken to school, people driving to work, etc.). » The developer and EPC contractor must ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed or damaged due to construction activities. » The developer and EPC Contractor must ensure that the roads utilised for construction activities are either maintained in the present condition or upgraded if damaged (i.e. wear and tear) due to construction activities. » A protocol for communication must be implemented whereby procedures to lodge complaints are set out for the local community to express any complaints or grievances with the construction process. » Undertake information sessions with the surrounding communities, and affected and adjacent landowners, prior to construction to ensure that communities are fully informed of the project to be developed in its final form. This must be undertaken through the appointment of a CLO. » The placement of the power line route within the grid connection corridor must avoid the sensitive land uses undertaken by the affected landowners as far as possible. Consultation with the affected landowners must be undertaken in this regard. 	
Cumulative impacts:	
Possible increase in crime level (with influx of people) with subsequent possible economic losses,	
Residual Risks:	
None anticipated	

Table 6-6: Assessment of nuisance impacts (noise and dust)

<p>Nature: Nuisance impacts in terms of temporary increase in noise and dust.</p> <p>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,</p>
--

<p>as well as impacts on travellers travelling along the gravel access roads. 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.</p>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	High (8)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	Medium (44)	Low (27)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Mitigation:</p> <ul style="list-style-type: none"> » The movement of heavy vehicles associated with the construction phase through populated areas should be timed to avoid weekends, public holidays and holiday periods, where feasible. » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. » A speed limit of 40km/hr should be implemented on gravel roads. » Ensure all vehicles are road worthy, drivers are licensed and are made aware of the potential noise and dust issues. » A CLO should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. » A stakeholder management plan must be implemented by the EPC contractor to address neighbouring farmer concerns regarding safety and security. 		
<p>Cumulative impacts: Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.</p>		
<p>Residual Risks: None anticipated</p>		

Table 6-7: Assessment of visual impacts and impacts on the sense of place

<p>Nature: Intrusion impacts from construction activities will have an impact on the area's "sense of place".</p> <p>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. It is envisaged that the structures, where visible from</p>
--

shorter distances (e.g. less than 1km and potentially up to 3km), and where sensitive visual receptors may find themselves within this zone, may constitute a high visual prominence, potentially resulting in a visual impact. This may include residents of the farm dwellings mentioned above, as well as observers travelling along the R503 arterial road in closer proximity to the facility.

Cumulative visual exposure from the formerly mentioned elevated areas occurs at varying distances from the sites, with some sites appearing in the foreground, whilst others further away in the distance. It is also possible that solar panel structures from a Solar Energy Facility (SEF) closer to the observer may obstruct views of SEFs structures located further away, thereby negating the potential cumulative visual impact.

	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Moderate (40)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Retain and maintain natural vegetation immediately adjacent to the development footprint. » Ensure that vegetation is not unnecessarily removed during the construction phase. » Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible. » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Rehabilitate all disturbed areas immediately after the completion of construction works. 		
Cumulative impacts:		
The primary visual impact, namely the layout and appearance of the PV panels is not possible to mitigate.		
Residual Risks:		
None, provided rehabilitation works are carried out as specified.		

6.1.2. Operation Phase Impacts associated with Barleria PV Facility

It is anticipated that the Barleria PV Facility will operate for approximately 20 years (which is equivalent to the operational lifespan of the project).

The potential positive and negative social impacts that could arise because of the operation of the proposed project include the following:

- » Direct and indirect employment opportunities
- » Development of non-polluting, renewable energy infrastructure
- » Contribution to Local Economic Development (LED) and social upliftment
- » Visual and sense of place impacts
- » Impacts associated with the loss of agricultural land

Table 6-8: Employment opportunities and skills development

Nature: The creation of employment opportunities and skills development opportunities during the operation phase.		
<p>Given the location of the proposed facility the majority of permanent staff is likely to reside in Lichtenburg. In terms of accommodation options, a percentage of the non-local permanent employees may purchase houses in Lichtenburg, while other may decide to rent. Both options would represent a positive economic benefit for the region. In addition, a percentage of the monthly wage bill earned by permanent staff would be spent in the regional and local economy, which will benefit local businesses in these towns. The benefits to the local economy will extend over the operational lifespan of the project.</p> <p>The local hospitality industry in Lichtenburg would also benefit from the operational phase. These benefits are associated with site visits by company staff members and other professionals (engineers, technicians, etc.) who are involved in the company and the project but who are not limited to day-to-day operations</p>		
	Without mitigation	With mitigation
Extent	Local-Regional (3)	Local-regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Low (4)
Probability	Highly probable (4)	Definite (5)
Significance	Medium (44)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » It is recommended that a local employment policy is adopted by the developer to maximise the project opportunities being made available to the local community. Enhance employment opportunities for the immediate local area, Govan Mbeki Local Municipality, if this is not possible, then the broader focus areas should be considered for sourcing employees. » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible » The developer should establish vocational training programs for the local employees to promote the development of skills. 		

Cumulative impacts: Opportunity to upgrade and improve skills levels in the area
Residual Risks: Improved pool of skills and experience in the local area

Table 6-9: Development of non-polluting, renewable energy infrastructure

Nature: Renewable energy as an alternative		
<p>South Africa currently relies predominantly on coal-generated electricity to meet its energy needs. As a result, the country's carbon emissions are considerably higher than those of most developed countries partly because of the energy-intensive sectors which rely heavily on low quality coal, which is the main contributor to GHG emissions. The use of solar technology for power generation is considered a non-consumptive use of a natural resource which produces zero GHG emissions during its operation. The generation of RE utilising solar power will contribute positively to South Africa's electricity market. Given South Africa's reliance on Eskom as a power utility, the benefits associated with a REIPPP Programme are regarded as an important contribution, and the advancement of RE has been identified as a priority for South Africa.</p> <p>Increasing the contribution of the RE sector to the local economy would contribute to the diversification of the local economy and provide greater economic stability. The growth in the RE sector as a whole could introduce new skills and development into the area. This is especially true with regards to solar power specifically considering the number of other solar power projects proposed within the broader area.</p> <p>The development of RE projects have the potential to contribute to the stability of the economy, and could contribute to the local economy through employment generation (direct, indirect, and local service providers) and revenue generation for the LM. While the overall contribution of the project to South Africa's total energy requirements is small, the facility will also contribute towards offsetting the total carbon emissions associated with energy generation in South Africa. It should however be noted that such a benefit is associated with all RE projects and not only solar power projects in particular</p>		
	Without mitigation	With mitigation
Extent	Local-Regional (4)	Local-Regional-National (4)
Duration	Long-term (4)	Long-term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Definite (5)	Definite (5)
Significance	Medium (50)	Medium (50)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	Yes	
Can impacts be mitigated?	No	
Mitigation: » None identified.		
Cumulative impacts: None		
Residual Risks:		

Reduce carbon emissions through the use of renewable energy and contribute to reducing global warming

Table 6-10: Contribution to Local Economic Development (LED) and social upliftment

Nature: Local upliftment and contribution to the economy		
<p>Projects which form part of the DMRE's REIPPP Programme are required as part of their bidding requirements, to contribute towards LED and social upliftment initiatives within the area in which they are proposed. In addition, they are required to spend a percentage of their revenue on socio-economic and enterprise development, as well as allocate ownership shares to local communities that benefit previously disadvantaged communities around the project. A portion of the dividends generated by each development also need to be invested into LED projects and programmes. The proposed development therefore has the potential to contribute positively towards socio-economic development and improvements within the local area.</p> <p>Socio-economic spin-offs from the proposed development could therefore contribute towards better infrastructure provision, and the investment in education and skills development. An in-depth Community Needs Assessment (CNA) is required to ensure that the beneficiary community's needs are understood and sufficiently addressed by the proposed development programmes in order to contribute meaningfully towards local economic growth and development. It should be noted however that such a benefit would be associated with all RE projects and not just solar power projects in particular.</p>		
	Without mitigation	With mitigation
Extent	Local-Regional- National(4)	Local-Regional-National (4)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate(6)	High (8)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium (50)	Medium (64)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » A CNA must be conducted to ensure that the LED and social upliftment programmes proposed by the project are meaningful. » Ongoing communication and reporting is required to ensure that maximum benefit is obtained from the programmes identified, and to prevent the possibility for such programmes to be misused. » The programmes should be reviewed on an ongoing basis to ensure that they are best suited to the needs of the community at the time (bearing in mind that these are likely to change over time). 		
Cumulative impacts:		
None		
Residual Risks:		
Social upliftment of the local communities through the development and operation of the project.		

Table 6-11: Assessment of the visual impact and impacts on sense of place

<p>Nature: Visual impacts and sense of place impacts associated with the operation phase of the Barleria PV Facility.</p> <p>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.</p> <p>Given the location of the corridor within an area characterised as having a low-medium population density, and given the project's location within close proximity to existing operational and visible grid infrastructure and other industrial developments, the visual impact and impact on the area's sense of place associated with the construction of the proposed project, from a social perspective, is anticipated to be of a very limited significance.</p>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Minor (2)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (36)	Low (21)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Mitigation:</p> <ul style="list-style-type: none"> » Maintain and manage the associated infrastructure to be in a good and neat condition to ensure that no degradation of the area and the associated infrastructure servitude takes place and impacts the visual quality of the area. » Implement the relevant mitigation measures as recommended in the Visual Impact Assessment. 		
<p>Cumulative impacts: Vegetation screening established if required</p>		
<p>Residual Risks: The visual impact of the PV facility will remain until the infrastructure is completely decommissioned and removed. Thereafter the impact will be removed.</p>		

Table 6-12: Impacts associated with loss of agricultural land

<p>Nature: Loss of agricultural land and overall productivity because of the operation of the proposed project on an agricultural property.</p>
--

The development footprint on which the solar energy facility will be developed will be removed from agricultural production. This could have negative implications in terms of food production and security and could also threaten jobs of workers employed in the agricultural activities.		
	Without mitigation	With mitigation
Extent	Local (1)	Local-regional (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	Medium Negative (33)	Medium Negative (20)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Keep the project footprint as small as possible. » Avoid interference with current agricultural activities undertaken within the affected properties. 		
Cumulative impacts:		
Vegetation screening established if required		
Residual Risks:		
None expected to occur.		

6.2. Cumulative Impacts

The EIA Regulations, 2014 (GNR 326) define a cumulative impact as follows:

“Cumulative impact in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.”

The Barleria PV Facility and associated infrastructure is proposed within proximity to several other solar energy facilities (refer to Table 6-13) for an overview of solar facilities within a 30km radius of the project site.

Table 6-13 Other solar energy projects

Project Name	Location	Approximate distance from the PV facility	Project Status
Lichtenburg Solar Park	Refer Map 6.1	5km north-east	Approved
Tlitseng SEF	Refer Map 6.1	1.7km north- east	Approved
Lichtenburg 1 PV Facility	Refer Map 6.1	7.5km north-east	Approved
Lichtenburg 2 PV Facility	Refer Map 6.1	3.8km north	Approved
Lichtenburg 3 PV Facility	Refer Map 6.1	6km north-east	Approved
Barleria PV Facility	Refer Map 6.1	N.A.	In process
Dicoma PV Facility	Refer Map 6.1	Adjacent east	In process
Setaria PV Facility	Refer Map 6.1	900m east	In process

The potential for cumulative impacts to occur as a result of the projects is therefore likely. Potential cumulative impacts identified for the project include positive impacts on the economy, business development, and employment, as well as negative impacts such as an influx of jobseekers and change in the area's sense of place

A cumulative map is included in Figure 6-1 illustrating PV facility and associated infrastructure.

Potential cumulative social impacts identified for the project include positive impacts on the economy, business development, and employment, as well as negative impacts such as an influx of jobseekers and change in the areas sense of place.

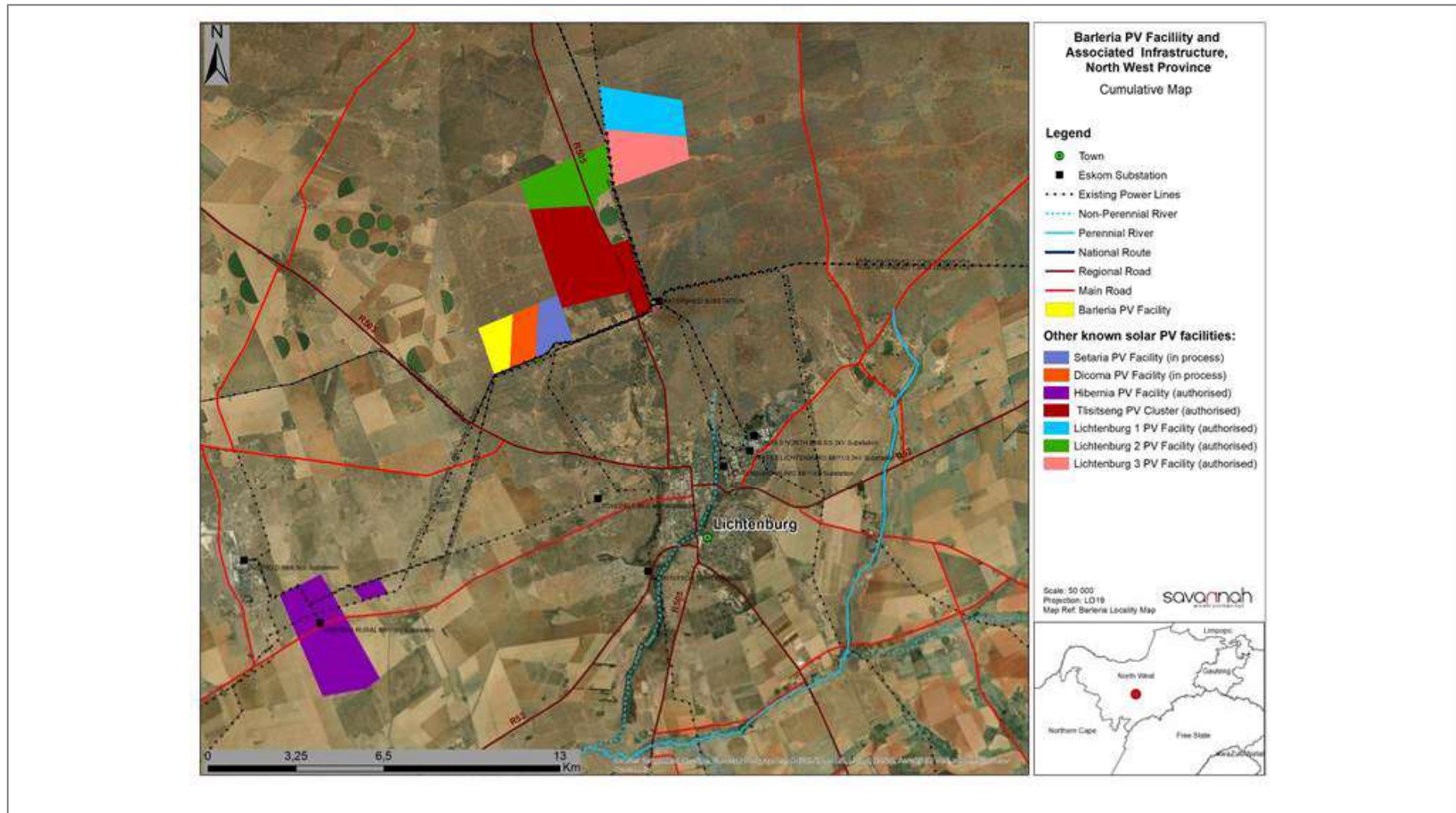


Figure 6-1 Cumulative impacts considered for Barleria PV Facility

6.2.1. Cumulative Impacts associated with Barleria PV Facility

Table 6-14: Cumulative impact from employment, skills and business opportunities

Nature: Employment, skills and business opportunities		
<p>Barleria PV Facility and the establishment of other solar power projects within the area has the potential to result in significant positive cumulative impacts, specifically with regards to the creation of a number of socio-economic opportunities for the region, which in turn, can result in positive social benefits. The positive cumulative impacts include creation of employment, skills development and training opportunities, and downstream business opportunities. The cumulative benefits to the local, regional, and national economy through employment and procurement of services are more considerable than that of Barleria PV Facility alone.</p>		
	Overall impact of proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local-regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Highly probable (4)
Significance	Medium (33)	Medium (52)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	N/A	
Can impacts be mitigated?	Yes	
Confidence in findings	High	
Mitigation:		
<p>The establishment of a number of solar power projects under the REIPPP Programme in the area has the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted and local services providers are utilised by the developers to maximise the project opportunities available to the local community.</p>		

Table 6-15: Cumulative impact with large scale in-migration of people

Nature: Negative impacts and change to the local economy with an in-migration of labourers, businesses and jobseekers to the area
<p>While the development of a single solar power project may not result in a major influx of people into an area, the development of several projects may have a cumulative impact on the in-migration and movement of people. In addition, the fact that the project is proposed within an area characterised by good levels of solar irradiation suitable for the development of commercial solar energy facilities implies that the surrounding area is likely to be subject to considerable future applications for PV energy facilities. Levels of unemployment, and the low level of earning</p>

potential may attract individuals to the area in search of better employment opportunities and higher standards of living. It is very difficult to control an influx of people into an area, especially in a country where unemployment rates are high. It is therefore important that the project proponent implement and maintain strict adherence with a local employment policy in order to reduce the potential of such an impact occurring.		
	Overall impact of proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local-regional (2)
Duration	Short-term (2)	Long-term (4)
Magnitude	Low (4)	Low (4)
Probability	Very improbable (3)	Probable (3)
Significance	Low (7)	Medium (30)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Confidence in findings	High	
Mitigation:		
<ul style="list-style-type: none"> » Develop a recruitment policy / process (to be implemented by contractors), which will source labour locally. » Work together with government agencies to ensure service provision is in line with the development needs of the local area. » Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services. 		

Table 6-16: Cumulative impact on the sense of place and landscape character

<p>Nature: Visual impact and impact on the sense of place and landscape character</p> <p>The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of Barleria PV Facility. Given the location of the project on a private property, within an area characterised as a mining area, the visual impact and impact on the area's sense of place associated with the project is anticipated to be of a low significance. The alteration of the sense of place in view of the local residents (specifically adjacent landowners) and road users will start during the construction phase and remain for the project's operational lifetime. The area has been exposed to large scale industrial development.</p> <p>The anticipated cumulative visual impact of the proposed SEFs is expected to be of moderate significance, which is acceptable from a visual perspective. This is due to the relatively low viewer incidence within close proximity to the proposed development sites and the presence of the existing electricity infrastructure and mining activities (at Bakerville, Grasfontein and north of Lichtenburg) within the region.</p>
--

	Overall impact of proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (2)	Regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	High (8)
Probability	Probable (3)	Probable (3)
Significance	Moderate (36)	Moderate (45)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	No, only best practice measures can be implemented	
Confidence in findings	High	
Mitigation:		
<ul style="list-style-type: none"> » Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint. » Maintain the general appearance of the facility as a whole. » Remove infrastructure not required for the post-decommissioning use. » Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications. 		
Residual impacts:		
<ul style="list-style-type: none"> » The visual impact will be removed after decommissioning, provided the PV facility infrastructure is removed. Failing this, the visual impact will remain. 		

6.3. Decommissioning Phase

Typically, major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income and will be similar to the impacts during the construction phase associated with construction activities. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. The impact of the decommissioning phase is expected to be negligible due to the small number of permanent employees affected. The potential impacts associated with decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).

6.4. Assessment of Impacts for the No-Go Option

The “no-go” alternative is the option of not constructing the Barleria PV Facility. The implementation of the proposed project is expected to result in a number of positive and negative social impacts. The majority of negative impacts identified for the project are associated with the construction phase of the project, while the positive impacts are associated with both the construction and operation phases of the project.

Potential negative social impacts associated with the construction and operation of the project include the following:

- » Potential influx of job seekers and an associated change in population and increase in pressure on basic services.

- » Potential safety and security impacts.
- » Potential impacts on daily living and movement patterns.
- » Potential nuisance impacts (noise and dust).
- » Potential visual impact and impact on the sense of place.
- » Potential loss of agricultural land.

Potential positive social impacts associated with the construction and operation of the project include the following:

- » Potential direct and indirect employment opportunities.
- » Potential economic multiplier effect.

The impacts of pursuing the "no-go" alternative can therefore be summarised as follows:

- » The benefits would be that there is no disruption from nuisance impacts (noise and dust during construction), visual impacts and safety and security impacts. The impact is therefore neutral.
- » There would also be an opportunity loss in terms of limited job creation, skills development, community upliftment and associated economic business opportunities for the local economy. This impact is considered to be negative.
- » The opportunity to strengthen the grid connection within the municipal area would be lost which will have a negative impact on economic growth and development and therefore result in negative social impacts.

7. CONCLUSION AND RECOMMENDATIONS

This SIA Report focused on the collection of data to provide an understanding of the current social environment associated with the Barleria PV Facility is proposed and identifying and assessing social issues and potential social impacts associated with the development of such a nature. Secondary data was collected and presented in a literature review and primary data was collected through consultations (i.e. telephonic interviews) with landowners and key stakeholders. The environmental assessment framework for assessment of impacts and the relevant criteria was applied to evaluate the significance of the potential impacts and to recommend appropriate mitigation and enhancement measures for the identified impacts.

A summary of the potential positive and negative impacts identified for the detailed design, construction and operation phases are presented in Table 7-1 and Table 7-2 for the potential impacts identified at EIA phase.

Table 7-1: Summary of potential social impacts identified for the detailed design and construction phase of the Barleria PV Facility

Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Positive Impacts		
Creation of direct and indirect employment and skills development opportunities.	Low	Medium
Economic multiplier effects	Medium	Medium
Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Negative Impacts		
In-migration of people (non-local workforce and jobseekers).	Low	Medium
Safety and security impacts	Medium	Low
Impacts on daily living and movement patterns	Medium	Medium
Nuisance impact (noise and dust)	Medium	Low
Visual and sense of place impacts	Low	Medium

Table 7-2: Summary of potential social impacts identified for the operation phase of the Barleria PV Facility

Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Positive Impacts		
Direct and indirect employment and skills development opportunities	Positive	Medium
Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area

Negative Impacts		
Visual and sense of place impacts	Negative	Low
Impacts associated with the loss of agricultural land.	Negative	Low

Table 7-3: Summary of potential cumulative social impacts identified for the project

Cumulative Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Positive Cumulative Impacts		
Cumulative impact from employment, skills and business opportunities and skills development	Medium	Medium
Negative Cumulative Impacts		
Cumulative impact with large scale in-migration of people	Low	Medium
Visual and sense of place impacts	Low	Medium
Cumulative impact on the sense of place and landscape character	Low	Medium

7.1. Key findings and Recommendations

The social impacts identified (including all positive and negative impacts) will be either of a low or medium significance. No negative impacts with a high significance rating have been identified to be associated with the development of the Barleria PV Facility and associated infrastructure. All negative social impacts are within acceptable limits with no impacts considered as unacceptable from a social perspective. The recommendations proposed for the project are appropriate and suitable for the mitigation of the negative impacts and the enhancement of the positive impacts. Barleria PV Facility is supported at a national, provincial, and local level, and that the proposed project will contribute positively towards a number of targets and policy aims.

Based on the findings of the SIA the proposed establishment of the Barleria PV is supported.

7.2. Recommendations

The following recommendations are made on the basis of the SIA. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts associated with the project. Based on the social assessment, the following recommendations are made:

- » The appointment of a CLO to assist with the management of social impacts and to deal with community issues, if feasible.
- » It is imperative that local labour be sourced, wherever possible, to ensure that benefits accrue to the local communities. Efforts should be made to involve local businesses during the construction activities where possible. Local procurement of labour and services / products would greatly benefit the community during the construction and operation phases of the project.

- » Local procurement of services and equipment is required where possible to enhance the multiplier effect.
- » Involve the community in the process as far as possible (encourage co-operative decision making and partnerships with local entrepreneurs).
- » Employ mitigation measures to minimise the dust and noise pollution and damage to existing roads.
- » Safety and security risks should be considered during the planning / construction phase of the proposed project. Access control, security and management should be implemented to limit the risk of crime increasing in the area.

7.3. Overall Conclusion

The proposed project is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the project is acceptable subject to the implementation of the recommended mitigation and enhancement measures and management actions identified for the project. Considering the findings of the report and the potential for mitigation and management of impacts, it is the reasoned opinion of the specialist that the project can be authorised from a social perspective.

8. REFERENCES

Department of Energy (DoE). (2008). National Energy Act (No. 34 of 2008). Republic of South Africa.

Department of Energy (DoE). of South Africa. (2011). National Integrated Resource Plan for Electricity 2010-2030. Republic

Department of Energy (DoE). (2003). White Paper on Renewable Energy. Republic of South Africa.

Department of Environmental Affairs (DEA). (1998). National Environmental Management Act 107 of 1998 (No. 107 of 1998). Republic of South Africa.

Department of Environmental Affairs (DEA). (2010). National Climate Change Response Green Paper. Republic of South Africa.

Department of Justice (DoJ). (1996). The Constitution of the Republic of South Africa (Act 108 of 1996). ISBN 978-0-621-39063-6. Republic of South Africa.

Department of Minerals and Energy (DME). (1998). White Paper on Energy Policy of the Republic of South Africa. Republic of South Africa.

Ditsobotla Local Municipality. (2017). Ditsobotla Local Municipality Integrated Development Plan (IDP), 2017 – 2018.

International Finance Corporation (IFC). (2007). Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets. International Finance Corporation: Washington.

Interorganizational Committee on Principles and Guidelines for Social Impact Assessment. US Principles and Guidelines – Principals and guidelines for social impact assessment in the USA. Impact Assessment and Project Appraisal, 21 (3): 231-250.

National Development Agency (NDA). (2014). Beyond 10 years of unlocking potential. Available from: http://www.nda.org.za/?option=3&id=1&com_id=198&parent_id=186&com_task=1

National Planning Commission. (2012). National Development Plan 2030. ISBN: 978-0-621-41180-5. Republic of South Africa.

Ngaka Modiri Molema District Municipality. (2017). Ngaka Modiri Molema District Municipality Integrated Development Plan (IDP) 2017 – 2022.

North West Provincial Government. (2013). North West Provincial Development Plan (PDP) 2030.

North West Provincial Government. (2004). North West Provincial Growth and Development Strategy (PGDS) (2004 – 2014).

North West Provincial Government. (2017). North West Provincial Spatial Development Framework. North West Provincial Government. (2012). Renewable Energy Strategy for the North West Province. Statistics South Africa. (2011). Census 2011 Community Profiles Database. Pretoria.

United Nations Environment Programme (UNEP). (2002). EIA Training Resource Manual. 2nd Ed. UNEP.

United Nations Economic and Social Commission for Asia and the Pacific (UN). (2001). Guidelines for Stakeholders: Participation in Strategic Environmental Management. New York, NY: United Nations.

Vanclay, F. (2003). Conceptual and methodological advances in Social Impact Assessment. In Vanclay, F. & Becker, H.A. 2003. The International Handbook for Social Impact Assessment. Cheltenham: Edward Elgar Publishing Limited

**APPENDIX A:
SOCIAL INPUT INTO THE ENVIRONMENTAL MANAGEMENT
PROGRAMME (EMPr)**

1. Construction Phase:

OBJECTIVE: Maximise local employment and skills opportunities associated with the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Opportunities and benefits associated with the creation of local employment and skills development to be maximised.
Activity/risk source	<ul style="list-style-type: none"> » Construction procurement practice employed by the Engineering, Procurement and Construction (EPC) Contractor » Developers investment plan
Mitigation: Target/Objective	The developer should aim to employ as many low-skilled and semi-skilled workers from the local area as possible. This should also be made a requirement for all contractors.

Mitigation: Action/control	Responsibility	Timeframe
Where feasible local suppliers and contractors, that are compliant with Broad-Based Black Economic Empowerment (B-BBEE) criteria, should be used as far as possible to ensure that the benefits resulting from the project accrue as far as possible to the local communities which are also likely to be most significantly impacted / affected by the project.	The Proponent & EPC Contractor	Pre-construction & construction phase
Adopt a local employment policy to maximise the opportunities made available to the local labour force.	The Proponent & EPC Contractor	Pre-construction & construction phase
Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated.	The Proponent & EPC Contractor	Pre-construction & construction phase
In the recruitment selection process, a minimum percentage of women must be employed.	EPC Contractor	Pre-construction & construction phase
Set realistic local recruitment targets for the construction phase.	The Proponent & EPC Contractor	Pre-construction & construction phase
Training and skills development programmes to be initiated prior to the commencement of the construction phase.	The Proponent	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Implement a business policy document that sets out local employment and targets completed before the construction phase commences. » Employ as many local semi-skilled and unskilled labour as possible. » Training and skills development programme is undertaken prior to the commencement of construction phase.
Monitoring	<ul style="list-style-type: none"> » The developer and EPC Contractor must keep a record of local recruitments and information on local labour must be shared with the Environmental Control Officer (ECO) for reporting purposes. » Records and details of skills development must be kept and proof of skills development must be provided to the upskilled individual.

OBJECTIVE: Maximise the local economic multiplier effect during the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Potential local economic benefits
Activity/risk source	Developers procurement plan
Mitigation: Target/Objective	Increase the procurement of goods and services especially within the local economy

Mitigation: Action/control	Responsibility	Timeframe
A local procurement policy must be adopted to maximise the benefit to the local economy.	The Proponent & EPC Contractor	Pre-construction & construction phase
Develop a database of local companies, specifically Historically Disadvantaged Individuals (HDIs) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable.	The Proponent & EPC Contractor	Pre-construction & construction phase
Source as much goods and services as possible from the local area. Engage with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers, where feasible.	The Proponent	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Local procurement policy is adopted. » Local goods and services are purchased from local suppliers, where feasible.
Monitoring	<ul style="list-style-type: none"> » The developer must monitor the indicators listed above to ensure that they have been met during the construction phase

OBJECTIVE: Reduce the pressure on resources, service delivery, infrastructure and social dynamics from a population change as a result of an increase of construction workers to the area during the construction phase

Project component/s	Construction of the proposed project.
Potential Impact	Population changes resulting in additional pressure on resources, service delivery, infrastructure maintenance and social dynamics during the construction phase as a result of an influx of construction workers and job seekers into the area.
Activity/risk source	Influx of construction workers and job seekers.
Mitigation: Target/Objective	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods.

Mitigation: Action/control	Responsibility	Timeframe
Implement a grievance and communication system for community issues.	The Proponent & EPC Contractor	Pre-construction & construction phase

Appoint a Community Liaison Officer (CLO).	The Proponent & EPC Contractor	Pre-construction & construction phase
--	--------------------------------	---------------------------------------

Performance Indicator	» CLO is appointed.
Monitoring	» The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase.

OBJECTIVE: Reduce the pressure on economic and social infrastructure and social conflicts from an influx of jobseekers during the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Decline on local economic and social infrastructure and services as well as a rise in social conflicts from an influx of jobseekers.
Activity/risk source	Influx of jobseekers.
Mitigation: Target/Objective	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods.

Mitigation: Action/control	Responsibility	Timeframe
A 'locals first' policy must be implemented for employment opportunities, especially for semi-skilled and low-skilled job categories.	The Proponent & EPC Contractor	Pre-construction & construction phase
The tender documentation must stipulate the use of local labour as far as possible.	EPC Contractor	Pre-construction & construction phase
Inform local community members of the construction schedule and exact size of workforce (e.g. Ward Councillor, surrounding landowners).	EPC Contractor	Pre-construction & construction phase
Recruitment of temporary workers on-site must not be permitted. A recruitment office with a CLO should be established to deal with jobseekers.	EPC Contractor	Pre-construction & construction phase
Set up a labour desk in a secure and suitable area to discourage the gathering of people at the construction site.	EPC Contractor	Pre-construction & construction phase
Have clear rules and regulations for access to the construction site.	EPC Contractor	Pre-construction & construction phase
All construction workers must be easily identifiable.	EPC Contractor	Pre-construction & construction phase
Local community organisations and policing forums, as well as affected and adjacent landowners, must be informed of construction times and the duration of the construction phase. Also procedures for the control and removal of loiterers at the construction site must be established.	EPC Contractor	Pre-construction & Construction phase
A security company must be appointed and appropriate security procedures must be implemented.	EPC Contractor	Pre-construction & Construction phase

Performance Indicator	<ul style="list-style-type: none"> » Ensure that a 'locals first' policy is adopted. » Ensure no recruitment takes place on-site. » Control/removal of loiters.
------------------------------	--

Monitoring	» The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes
-------------------	---

OBJECTIVE: To avoid or reduce traffic disruptions and movement patterns of the local community during the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Increase in traffic disruptions, safety hazards, and impacts on movement patterns of the local community as well as an impact on private property due to the use of the existing roads and heavy vehicle traffic in the local area.
Activity/risk source	Construction activities affecting daily living and movement patterns.
Mitigation: Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods.

Mitigation: Action/control	Responsibility	Timeframe
Working hours must be kept during daylight hours as per the Environment Conservation Act (No. 73 of 1989) (ECA) during the construction phase, and / or as any deviation that is approved by the relevant authorities.	EPC Contractor	Construction phase
All vehicles must be road worthy and drivers must be licensed, obey traffic rules, follow speed limits and be made aware of potential road safety issues.	EPC Contractor	Pre-construction & Construction phase
All vehicles must be inspected regularly to ensure their road safety worthiness. Records pertaining to this must be maintained and made available for inspection as necessary.	EPC Contractor	Construction phase
Adequate traffic warning signs and control measures (including speed limits) must be implemented along access roads to warn road users of the construction activities taking place for the duration of the construction phase. Ensure that all signage is visible at all times (especially at night) and must be maintained throughout the construction phase.	EPC Contractor	Construction phase
Implement penalties for drivers of all vehicles for reckless driving or speeding as a way to enforce compliance to traffic rules.	EPC Contractor	Construction phase
Infrastructure such as fencing and gates along access routes must be maintained in the present condition or repaired if disturbed or damaged due to construction activities.	EPC contractor	Construction phase
Ensure that roads utilised are either maintained in the present condition or restored if damaged due to construction activities.	EPC Contractor	Construction phase
A CLO should be appointed and a grievance mechanism implemented. A communication protocol should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.	EPC Contractor	Pre-construction & Construction phase

Performance Indicator	<ul style="list-style-type: none"> » Vehicles are roadworthy, inspected regularly and speed limits are adhered to. » Ensure that there are traffic warning signs along access roads, and ensure that these are well illuminated (especially at night).
------------------------------	--

	<ul style="list-style-type: none"> » Roads and electric fencing are maintained or improved upon if disturbed from project activities. » A CLO is appointed for the project.
Monitoring	<ul style="list-style-type: none"> » The developer and EPC Contractor must monitor the indicators listed above to ensure that they have been met for the construction phase.

OBJECTIVE: To avoid or minimise the potential intrusion impacts such as noise, dust, aesthetic pollution and light pollution during the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Intrusion impacts could impact the areas "sense of place" and heavy vehicles and construction activities can generate noise and dust.
Activity/risk source	Construction activities
Mitigation: Target/Objective	To avoid or minimise the potential intrusion impacts such as aesthetic pollution, noise, dust and light pollution during the construction phase.

Mitigation: Action/control	Responsibility	Timeframe
Limit noise generating activities to daylight working hours and avoid undertaking construction activities on weekends and public holidays.	EPC Contractor	Construction phase
The movement of heavy vehicles associated with the construction phase through populated areas should be timed to avoid weekends, public holidays and holiday periods where feasible.	EPC Contractor	Construction phase
Dust suppression measures must be implemented for heavy vehicles such as the wetting of gravel roads on a regular basis and ensuring that vehicles used to transport building materials are fitted with tarpaulins or covers.	EPC Contractor	Construction phase
All vehicles must be road-worthy and drivers must be licensed and made aware of the potential road safety issues and the need for strict speed limits.	EPC Contractor	Construction phase
Communication, complaints and grievance channels must be implemented and contact details of the CLO are to be provided to the local community.	EPC Contractor	Construction phase
Ensure that noise generated by machinery is within acceptable limits and implement silencers where required	EPC Contractor	Construction phase
Ensure that the construction site is kept clean and is maintained within a good condition which includes the removal of waste as and when required.	EPC Contractor	Construction phase
Ensure that the lighting used does not spill into the adjacent surrounding areas.	EPC Contractor	Construction phase
Ensure that damage caused by construction related traffic / project activities to the existing roads is repaired before the completion of the construction phase.	EPC Contractor	Construction phase
A speed limit of 40km/hr should be implemented on gravel roads.	EPC Contractor	Construction phase

Performance Indicator	» Limit noise generating activities.
------------------------------	--------------------------------------

	<ul style="list-style-type: none"> » Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase. » Enforcement of strict speeding limits. » CLO available for community grievances and communication channel. » Road worthy certificates are in place for all vehicles.
Monitoring	<ul style="list-style-type: none"> » The EPC contractor must monitor the indicators to ensure that they have been met for the construction phase

OBJECTIVE: To avoid or reduce the possibility of the increase in crime and safety and security issues during the construction phase

Project component/s	Construction of the proposed project
Potential Impact	Increase in crime due to influx of non-local workforce and job seekers into the area.
Activity/risk source	Safety and security risks associated with construction activities.
Mitigation: Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods.

Mitigation: Action/control	Responsibility	Timeframe
Working hours to be restricted to daylight hours as per the ECA during the construction phase, and / or as any deviation that is approved by the relevant authorities.	EPC Contractor	Construction phase
Employees should be easily identifiable and must adhere to the security rules of the project site.	EPC Contractor	Pre-construction & Construction phase
The perimeter of the construction site is to be appropriately secured to prevent any unauthorised access to the site. The fencing of the site is to be maintained throughout the construction period.	The Proponent & EPC Contractor	Pre-construction & Construction phase
Local community organisations and policing forums must be informed of construction times and the duration of the construction phase.	The Proponent & EPC Contractor	Pre-construction & Construction phase
Access in and out of the construction site should be strictly controlled by a security company.	EPC Contractor	Construction Phase
A security company is to be appointed and appropriate security procedures are to be implemented.	EPC Contractor	Construction Phase
No unauthorised entry to the construction site is to be allowed. Access control is to be implemented.	EPC Contractor	Construction Phase
Open fires on the construction site for heating, smoking or cooking are not allowed, except in designated areas.	EPC Contractor	Construction phase
The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.	EPC Contractor	Pre-construction & Construction phase
A comprehensive employee induction programme must be developed and utilised to cover land access protocols, fire management and road safety.	EPC Contractor	Pre-construction & Construction phase
Have designated personnel trained in first aid on site to deal with smaller incidents that require medical attention	EPC Contractor	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Employee induction programme, covering land access protocols, fire management and road safety » The construction site is appropriately secured with a controlled access system » Ensure a security company is appointed and appropriate security procedures and measures are implemented
Monitoring	<ul style="list-style-type: none"> » The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

2. Operation Phase

OBJECTIVE: Maximise local employment and skills opportunities associated with the operation phase of the project

Project component/s	Operation and maintenance of the proposed project.
Potential Impact	Loss of opportunities to stimulate production and employment of the local economy.
Activity/risk source	Labour practices employed during operations.
Mitigation: Target/Objective	Maximise local community employment benefits in the local economy.

Mitigation: Action/control	Responsibility	Timeframe
Adopt a local employment policy to maximise the opportunities made available to the local labour force.	The Proponent & Operation and Maintenance (O&M) Contractor	Operation phase
Establish vocational training programs for the local labour force to promote the development of skills.	The Proponent	Operation phase

Performance Indicator	<ul style="list-style-type: none"> » Percentage of workers that were employed from local communities. » Number of people attending vocational training on an annual basis.
Monitoring	<ul style="list-style-type: none"> » The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes.

OBJECTIVE: Minimise visual impact and the impact on sense of place during the operation phase

Project component/s	Operation and maintenance of the proposed project.
Potential Impact	Visual impacts and sense of place impacts associated with the operation phase of project
Activity/risk source	Negative impact on receptors within the surrounding area.
Mitigation: Target/Objective	Minimise visual impact and the impact on the sense of place.

Mitigation: Action/control	Responsibility	Timeframe
-----------------------------------	-----------------------	------------------

Maintain and manage the facility to be in a good and neat condition to ensure that no degradation of the area and associated infrastructure servitudes takes place and impact the visual quality of the area.	The Proponent & Operation and Maintenance (O&M) Contractor	Operation phase
Implement the relevant mitigation measures as recommended in the Visual Impact Assessment for the change in character and sense of place of the landscape setting.	The Proponent	Operation phase

Performance Indicator	» No complaints are submitted regarding the management of the project.
Monitoring	» The proponent and O&M Contractor must monitor the indicators listed above to ensure that they have been met for the operation phase

APPENDIX B: QUESTIONNAIRE USED FOR CONSULTATION

Social Impact Assessment Questionnaire



INTRODUCTION

The development of three separate solar photovoltaic (PV) facilities, each with a generating capacity of up to 75MW, and associated infrastructure is proposed on the farms Portion 1, Portion 9 and Portion 10 of the Farm Houthaalboomen 31, Portion 0 of Farm Talene 25 and Portion 7 of Farm Elandsfontein 34 located approximately 5km north west of the town of Lichtenburg in the North West Province. The three solar PV facilities are to be known as Barleria PV, Dicoma PV and Setaria PV, and would form the Houthaalboomen PV Cluster. The facilities are located within the Ditsobotla Local Municipality of the Ngaka Modiri Molema District Municipality.

OVERVIEW OF THE HOUTHAAALBOOMEN PV CLUSTER

A full Scoping and Environmental Impact Reporting (S&EIR) process is being undertaken in order to obtain Environmental Authorisation (EA) for the development of the respective PV facilities. The public participation processes for the projects will be undertaken concurrently, providing the public with an opportunity to comment on all projects simultaneously. Each solar PV facility will be constructed as a separate stand-alone project, with a separate project development company (or Special Purpose Vehicle (SPV)) as the applicant for each project. The project details for the respective projects are as follows:

Applicant:	Project Name:
Barleria PV (Pty) Ltd	Barleria PV
Dicoma PV (Pty) Ltd	Dicoma PV
Seratia PV (Pty) Ltd	Setaria PV

A project site considered to be suitable for the development of three solar PV facilities, with an extent of approximately 552 hectares in total, was identified by the project developer. The dedicated development area for each solar PV facility does not exceed 190ha in extent. The facility development area as well as two alternative grid connection solutions (within a 100m wide corridor) will be evaluated in the Scoping phase to identify sensitivities. Site-specific studies and assessments will delineate areas of potential sensitivity within the identified study area. Once constraining factors have been confirmed, the layout of the solar PV facilities within the development areas can be planned to minimise social and environmental impacts.

The layout for each facility will be designed to avoid sensitive environmental areas and features and is likely to be smaller than the development footprint identified for the scoping phase. The site is accessible via an existing gravel road which provides access to the development area off the R505, located east of the development area.

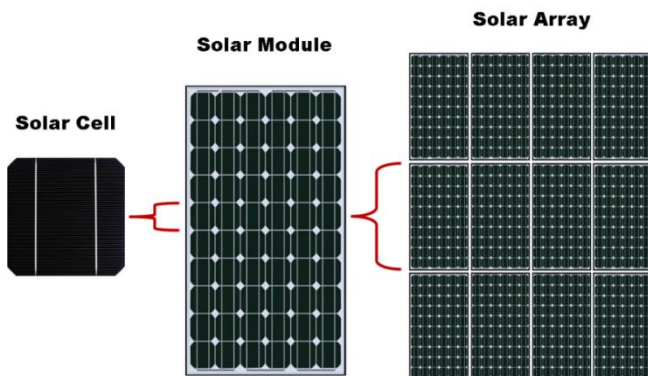
Two alternative grid connection solutions (within a 100m wide corridor) have been considered as alternatives as part of Scoping Report

MORE ABOUT SOLAR PV TECHNOLOGY

Solar energy facilities use 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. The solar fields of the PV facilities will comprise the following components:

Photovoltaic Cells:

A photovoltaic (PV) cell is made of silicon that acts as a semiconductor 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. 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)).



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

A solar PV module is made up of individual solar PV cells connected together, whereas a solar PV array is a system made up of a group of individual solar PV modules electrically wired together to form a much larger PV installation. The PV panels will be fixed to support structures to maximise exposure to the sun.

PV panels are designed to operate continuously for more than 20 years, mostly unattended and with low maintenance.

Inverters:

Inverters are used to convert electricity produced by the PV cells from Direct Current (DC) into Alternating Current (AC) to enable the facility to be connected to the national electricity grid. Numerous inverters will be arranged in several arrays to collect and convert power produced by the facilities.

WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT?

Site-specific studies and assessments will be undertaken through the EIA process in order to delineate areas of potential sensitivity within the surrounding areas, and the identified project sites. Once constraining factors have been determined, the layout of the PV Facility can be planned to minimise social and environmental impacts. Independent specialist studies that are proposed as part of the Scoping & EIA include the following:

Biodiversity	which includes ecology, wetlands, fauna and flora and assesses the potential impact and the associated disturbance of vegetation on the ecology and biodiversity (including critical biodiversity areas and broad-scale processes).
Avifauna	which includes pre-construction monitoring and assesses the impact on avifaunal habitats, species diversity and abundance as well as sensitive species.

Soils, Land use and Agricultural potential	Includes land types and assess the significance of loss of agricultural land and spoil degradation and/or erosion
Heritage (Archaeology and Palaeontology)	which includes archaeology and palaeontology and assesses the potential of disturbance to or destruction of heritage sites and fossils during the construction phase through excavation activities.
Visual	which include the visual quality of the area and assesses the impact of a PV Facility on the aesthetics within the area.
Social	which assess the positive and negative social impacts
Traffic	which assess the impact related to traffic within the area

The independent specialist studies will be undertaken in two phases:

1. A Scoping phase study, wherein potential issues associated with the PV facility and associated infrastructure are identified and evaluated, and those issues requiring further investigation through the EIA phase are highlighted.
2. A detailed EIA phase assessment and ground-truthing of the potentially significant impacts identified in the Scoping Phase. Where avoidance of impacts is not possible, practical and achievable mitigation measures will be recommended in order to minimise the significance of the potential impacts identified. These recommendations will be included within an Environmental Management Programme (EMPr).

The specialist studies will be informed by existing information, field observations and input from the public participation process.

As an I&AP, your input is considered as an important part of the process, and we urge your involvement.

Survey Questionnaire

Questionnaire instructions

This assessment is being undertaken as part of the Social Impact Assessment for the Houthaalboomen PV Cluster, and you are invited to participate in an effort to gather information in this regard.

The questionnaire is divided into two sections. **Section A** is aimed at obtaining certain personal information to ensure that you are identifiable and contactable. This is necessary to analyse the opinions of people associated with various organisations within the vicinity of the Houthaalboomen PV Cluster consisting of Barleria PV, Dicoma PV and Setaria PV.

In **Section B** we ask short questions relating to the proposed project. As your opinion is vitally important to us, we request that you read **each** question **carefully** before you respond.

Section A

Complete **Section A** by filling in the requested information in the space provided. If you prefer to remain anonymous you are still welcome to comment and we will record these comments under **anonymous**.

1. Name.

First name		Surname	
-------------------	--	----------------	--

2. Contact Details.

Phone number	
Mobile number	
Email address	
Postal address	

3. What organisation do you represent, and what is your designation in respect of this organisation?

Name of organisation	
Designation in respect of your affiliation indicated above	
Private citizen	

APPENDIX C: EXTERNAL REVIEWERS LETTER

EXTERNAL PEER REVIEW

BALERIA PV

SOCIAL IMPACT ASSESSMENT

NORTH WEST PROVINCE

JANUARY 2022

By

Tony Barbour

Tony Barbour

ENVIRONMENTAL CONSULTING AND RESEARCH

10 Firs Avenue, Claremont, 7708, South Africa
(Tel) 27-21-761 2355- (Fax) 27-21-761 2355- (Cell) 082 600 8266
(E-Mail) tbarbour@telkomsa.net

1.1 INTRODUCTION

Tony Barbour was appointed by Savannah Environmental to undertake an independent Peer Review of the Social Impact Assessment (SIA) Report for the proposed 75 MW Barleria PV solar energy facility, located approximately 5km north west of the town of Lichtenburg in the North West Province. This report contains the findings of the Peer Review of the SIA for the 75 MW Barleria PV solar energy facility prepared by Savannah Environmental.

1.2 EXPERIENCE WITH SOCIAL IMPACT ASSESSMENTS

Tony Barbour has undertaken in the region of 300 SIA's, including approximately 120 SIAs for renewable energy projects, including wind and solar energy facilities. Tony has also undertaken a number of SIAs for solar projects in the study area and is therefore familiar with the local socio-economic conditions and social issues affecting renewable energy projects in the area. In addition, he is the author of the Guidelines for undertaking SIAs as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa. A copy of Tony Barbour's CV is attached in Annexure A.

1.3 TERMS OF REFERENCE AND APPROACH

The terms of reference for the Peer Review were to review the SIA prepared by Savannah Environmental to ensure that the report met the accepted standards based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (DEADP, 2007). The approach to the review involved:

- A review of the approach adopted in preparing the SIA Report.
- A review of the type and quality of information contained in the SIA Report.
- A review of the key findings contained in the SIA Report.
- Assessment of conformance of the Specialist Report with the requirements for Specialist Reports (Appendix 6, Regulation GNR 326 of 4 December 2014, as amended 7 April 2017).

1.4 FINDINGS OF PEER REVIEW

The findings of the Peer Review indicate that the SIA provides decision makers with the information required to identify the key socio-economic issues and risks associated with the proposed project. The findings of the Peer Review also support the findings of the SIA, namely that all negative social impacts are within acceptable limits with no impacts considered as unacceptable from a social perspective.

Introduction and Approach

The approach adheres to and meets the requirements for SIAs. Section 1, Introduction and Project Description (p1) provides a detailed description of the proposed project and the location, including a clear locality map (Figure 1-1). Section 2, Methodology and Approach (p6), provides an overview of the approach to the SIA, including the identification of key stakeholders (Section 2.2.1 and Figure 2-1) and the collection and review of baseline information (Section 2.2.2 and 2.2.3), and the impact assessment method (Section 2.3, p13). The limitations and assumptions are also clearly spelt out (Section 2.4, p14).

Policy and Baseline Socio-economic Information

Section 3, Legislation and Policy Review (p15), provides an overview of the relevant National, Provincial and Local policies, while Section 4, Socio-economic Profile (p24), provides baseline socio-economic information at a Provincial, Municipal, and local site level (Section 4.1-4.5).

Assessment

Section 5, Key Considerations for Solar PV Power Plants (p30), refers to the IFC Project Developers Guide to Utility Sector Solar PV Plants (IFC, 2015), and summarizes the key issues associated with the construction and operation of solar plants. This provides the reader with valuable insight to the potential impacts associated with solar plants and context for Section 6, Social Impact Assessment (p33). Section 6, Social Impact Assessment, identifies, describes, and assesses the potential social impacts associated with the construction (Section 6.1.1, p35) and operation (Section 6.1.2, p42) phases of the project. Based on the authors' experience with solar projects, all the relevant potential social impacts that are likely to have a bearing on the decision-making process have been identified and assessed. Section 6.2, Cumulative Impacts (p47), identifies and addresses the relevant potential cumulative impacts. Section 6.3 and 6.4 assess the impacts associated with Decommissioning and the No-Development Option respectively.

The assessment ratings for the construction and operation phase impacts with enhancement and/or mitigation measures are all regarded as accurate. The same finding applies to the assessment of cumulative, decommissioning and no-development option impacts.

Conclusion

The key findings and recommendations (Section 7, p52) of the SIA as summarised in Table 7.1 (Construction Phase), Table 7.2 (Operation Phase) and Table 7.3 (Cumulative Impacts), are supported by the findings of the Peer Review. The overall conclusion (Section 7.1, p55), that "From a social perspective it is concluded that the project is acceptable subject to the implementation of the recommended mitigation and enhancement measures and management actions identified for the project", is also supported by the findings of the Peer Review.

The findings of the Peer Review also confirm that the SIA complies with the requirements for Specialist Reports (Appendix 6, GNR 326 of 4 December 2014, as amended 7 April 2017).

ANNEXURE A: CV

Tony Barbour

ENVIRONMENTAL CONSULTING AND RESEARCH

10 Firs Avenue, Claremont, 7708, South Africa
(Tel) 27-21-761 2355 - (Fax) 27-21-761 2355 - (Cell) 082 600 8266
(E-Mail) tbarbour@telkomsa.net

Tony Barbour's experience as an environmental consultant includes working for ten years as a consultant in the private sector followed by four years at the University of Cape Town's Environmental Evaluation Unit. He has worked as an independent consultant since 2004, with a key focus on Social Impact Assessment. His other areas of interest include Strategic Environmental Assessment and review work.

EDUCATION

- BSc (Geology and Economics) Rhodes (1984).
- B Economics (Honours) Rhodes (1985).
- MSc (Environmental Science), University of Cape Town (1992)

EMPLOYMENT RECORD

- Independent Consultant: November 2004 – current.
- University of Cape Town: August 1996-October 2004: Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher.
- Private sector: 1991-August 2000: 1991-1996: Ninham Shand Consulting (Now Aurecon, Cape Town). Senior Environmental Scientist; 1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Cape Town.

LECTURING

- University of Cape Town: Resource Economics; SEA and EIA (1991-2004).
- University of Cape Town: Social Impact Assessment (2004-current).
- Cape Technikon: Resource Economics and Waste Management (1994-1998).
- Peninsula Technikon: Resource Economics and Waste Management (1996-1998).

RELEVANT EXPERIENCE AND EXPERTISE

Tony Barbour has undertaken in the region of 240 SIA's, including SIAs for infrastructure projects, dams, pipelines, and roads. All of the SIAs include interacting with and liaising with affected communities. In addition, he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa.

Tony was also the project manager for a study commissioned in 2005 by the then South African Department of Water Affairs and Forestry for the development of a Social Assessment and Development Framework. The aim of the framework was to enable the Department of Water Affairs and Forestry to identify, assess and manage social impacts associated with large infrastructure projects, such as dams. The study also included the development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation.

Countries with work experience include South Africa, Namibia, Angola, Botswana, Zambia, Lesotho, Swaziland, Ghana, Nigeria, Senegal, Armenia, Mozambique, Mauritius, Kenya, Ethiopia, Oman, South Sudan, Sudan and Armenia.