

DOORNHOEK 1 PV FACILITY AND ASSOCIATED INFRASTRUCTURE

North West Province

Social Assessment

April 2022

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REPORT DETAILS

Title	:	Social Impact Assessment (SIA) Report: Doornhoek 1 PV Facility and associated Infrastructure
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Client	:	Doornhoek PV (Pty) Ltd
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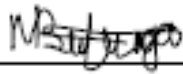
SPECIALIST DECLARATION OF INTEREST

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

08 April 2022

Date

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ACRONYMS

B-BBEE	Broad-Based Black Economic Empowerment
CLO	Community Liaison Officer
CNA	Community Needs Assessment
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, Doornhoek PV (Pty) Ltd, is proposing the construction of a photovoltaic (PV) solar energy facility (known as the Doornhoek 1 PV facility) located on a site approximately 11km north of Klerksdorp 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 115MW. The development area is situated within the City of Matlosana Local Municipality within the Dr Kenneth Kaunda District Municipality. The site is accessible via an existing district road located adjacent to the east of the development area.

The proposed Doornhoek 1 PV facility and associated infrastructure will be located on Portion 18 of the Farm Doornhoek No. 372-IP. The project site is located within the Klerksdorp Renewable Energy Development Zones (REDZ), and therefore, a Basic Assessment (BA) process will be undertaken in accordance with GN R114 (as formally gazetted on 16 February 2018).

1.1. Project Description

The Doornhoek 1 PV Facility is located on the following properties:

PV Facility, including associated facility and grid connection infrastructure	Farm Doornhoek No. 372-IP Farm Portion 18
--	--

An additional 50MW PV facility (Doornhoek 2 PV Facility) is concurrently being considered on the same property and is being assessed through a separate Basic Assessment (BA) process.

The proposed Doornhoek 1 PV Facility will cover approximately 200ha and will include the following infrastructure:

- » PV modules and mounting structures
- » Inverters and transformers
- » Battery Energy Storage System (BESS)
- » Site and internal access roads (up to 8m wide)
- » Operation and Maintenance buildings including a gate house and security building, control centre, offices, warehouses and workshops for storage and maintenance.
- » Temporary and permanent laydown area
- » Grid connection infrastructure, including:
 - 33kV cabling between the project components and the facility substation
 - A 132kV facility substation
 - A 132kV Eskom switching station
 - A Loop-in-Loop out (LILo) overhead 132kV power line between the Eskom switching station and the existing Watershed–Klerksdorp 1 132kV power line.

1.2. Objective of the Basic Assessment Process

This SIA Report has been prepared as part of the BA Process being undertaken for Doornhoek 1 PV Facility and associated infrastructure. The purpose of this SIA Report is to provide details on the nature and extent of the Doornhoek 1 PV Facility and associated infrastructure, and the potential social impacts associated

with the construction, operation, and decommissioning of the project. The inputs contained within this SIA Report are intended to provide a high-level overview of the social environment within which the project is proposed and set the scene for issues which have been addressed in detail as part of the BA process specialist investigations.

The objective of this SIA Report is therefore to:

- » Identify and review policies and legislation which may have relevance to the activity from a social perspective.
- » Provide comment on the need and desirability of the proposed activity from a social perspective.
- » Identify potential impacts and risks associated with the preferred activity and technology alternatives.
- » Identify key social issues to be addressed in the project phase.
- » Agree on the level of assessment to be undertaken, including the methodology to be applied to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site.
- » Identify suitable measures to avoid, manage or mitigate identified social impacts and determine the extent of residual risks that need to be managed and monitored.

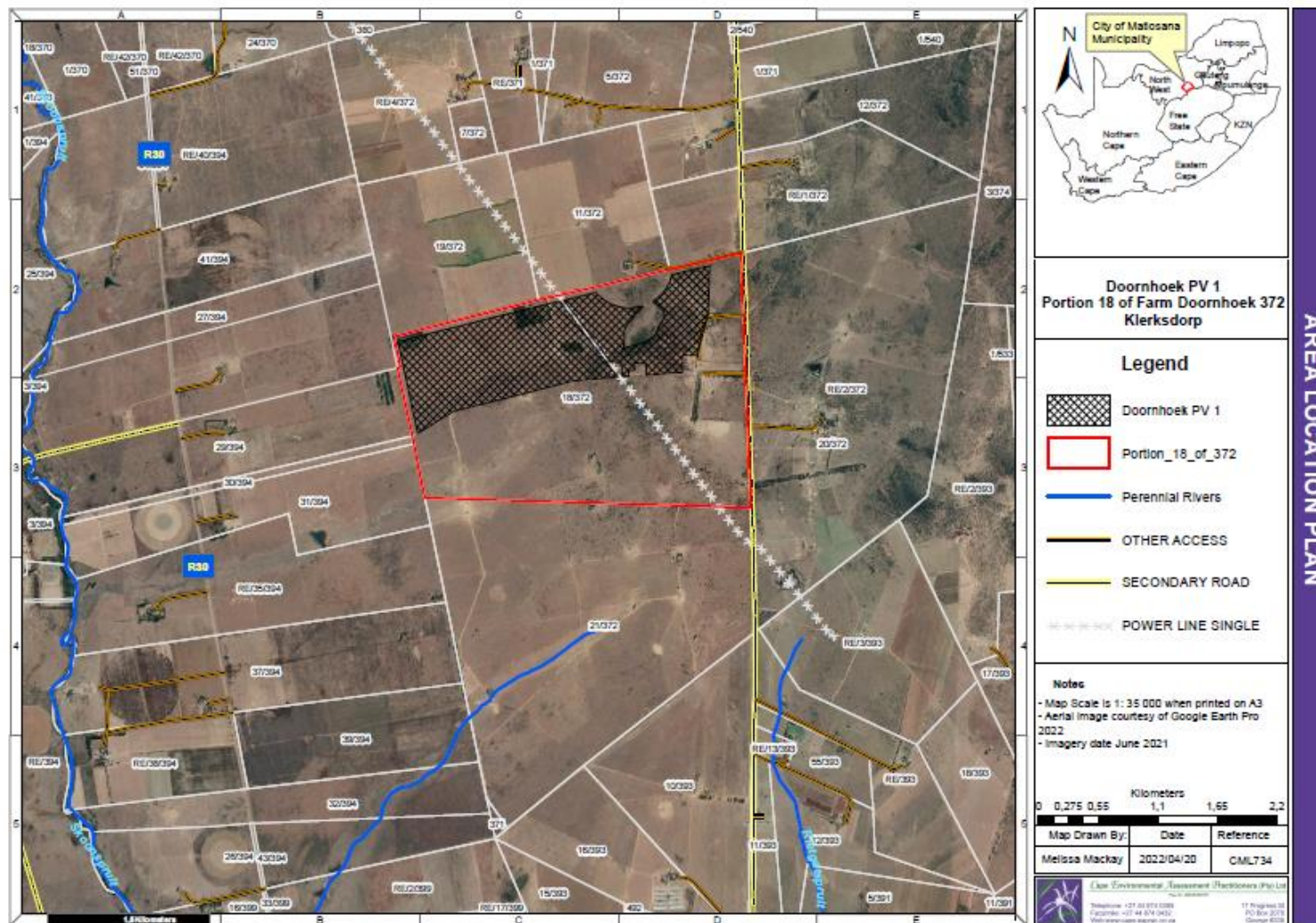


Figure 1-1: Locality map illustrating the locations of the Doornhoek 1 PV facility development areas.

1.3. Details of the Independent Specialist

This SIA has been undertaken by Nondumiso Bulunga of Savannah Environmental.

- » **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.
- » **Dr Neville Bews** is a Senior Social Scientist and Human Resource professional at Dr. Neville Bews & Associates. Dr. Bews has a Doctorate in Literature and Philosophy (D. Litt. et Phil) from the Rand Afrikaans University (RAU) (now the University of Johannesburg (UJ)), and 37 years of experience in the fields of Social Impact Assessment and Research, and Human Resource Management. Dr. Bews has worked on a number of large infrastructure, mining and water resource projects.

1.4. Structure of the SIA Report

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 Environmental Impact Assessment (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 Error! Reference source not found.
(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 Error! Reference source not found.
(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

Requirement		Location in Report
(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 Error! Reference source not found.
(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 – (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.	Section 7
(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 Doornhoek 1 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 Error! Reference source not found.**

The SIA process comprised the following:

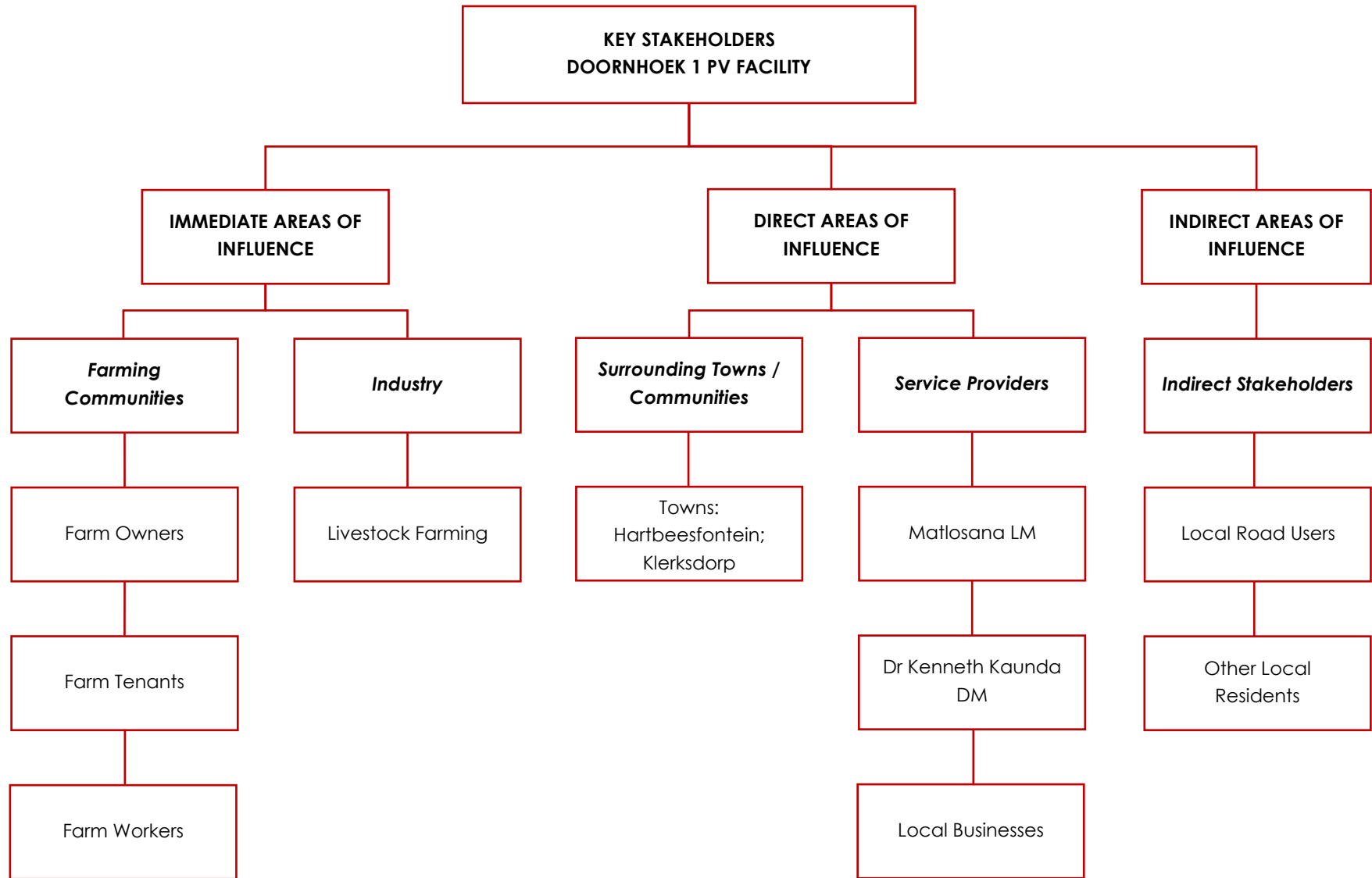
- » Collection and review of existing information, including national, provincial, district, and local plans, policies, programmes, census data, and available literature from previous studies conducted within the area. Project specific information was obtained from the project proponent.
- » A site visit was undertaken 7th April 2022 where the focus was to assess the proposed site development.
- » Collection of primary data during face-to-face interviews.
- » 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 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 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 the PV Facility which is Hartbeesfontein. The town of Hartbeesfontein is a settlement near Klerksdorp, situated at the intersection of the R503 and R507 routes. The town is situated on an ancient geological feature known as the Hartbeesfontein basin (or KOSH basin) which is the source of gold found on its southern rim.
- » **Service providers:** The major service providers which will be affected by the project include the District Municipality (DM), Local Municipality (LM), and local businesses in the area. The City of Matlosana LM and to a lesser degree the Dr Kenneth Kaunda DM are likely to be impacted by the proposed development. The City of Matlosana 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.
- » **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. Construction vehicles and trucks will be utilising these roads during the construction phase, which will increase the traffic, noise and dust, create traffic disruptions and may increase the wear and tear on these roads.

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 face-to-face interviews with the directly affected landowner. The following is a summary of the discussions held with the landowners directly affected by the project.

Representative and Interest	Main Points Raised
Neil Orford Landowner	The proposed project will assist with the issue of security in the area. The biggest concern has always been security as theft is a big issue in the area. This proposed development also comes at a time where the farm needs to down-scale and I am worried about my workers if one would need to let them go. This proposed development will then help as it is anticipated to start operation 3-4 years from now which is also when I had planned to scale down the farm operation. Environmentally the water is an issue in the area, so our farm doesn't have a great supply of water. It is important that the development brings some of the benefits that my workers use to get when the economic activities within this area was still lively and busy, such as the mobile clinics. The mobile clinics use to not only help my farm workers but also those surrounding the farm areas and about 6 months ago the mobile clinics stopped coming out as a result it has been difficult for the workers to get health care services.
Petrus (farm worker) Surrounding farm worker resident	From what you have explained with the project it seems like it would benefit us greatly, however during the public participation process (as explained) it will be better to inform the whole community so they can also provide their inputs on how they feel about the development.

During the interviews, interviewees were provided with background on the proposed project, and the BA 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.

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.

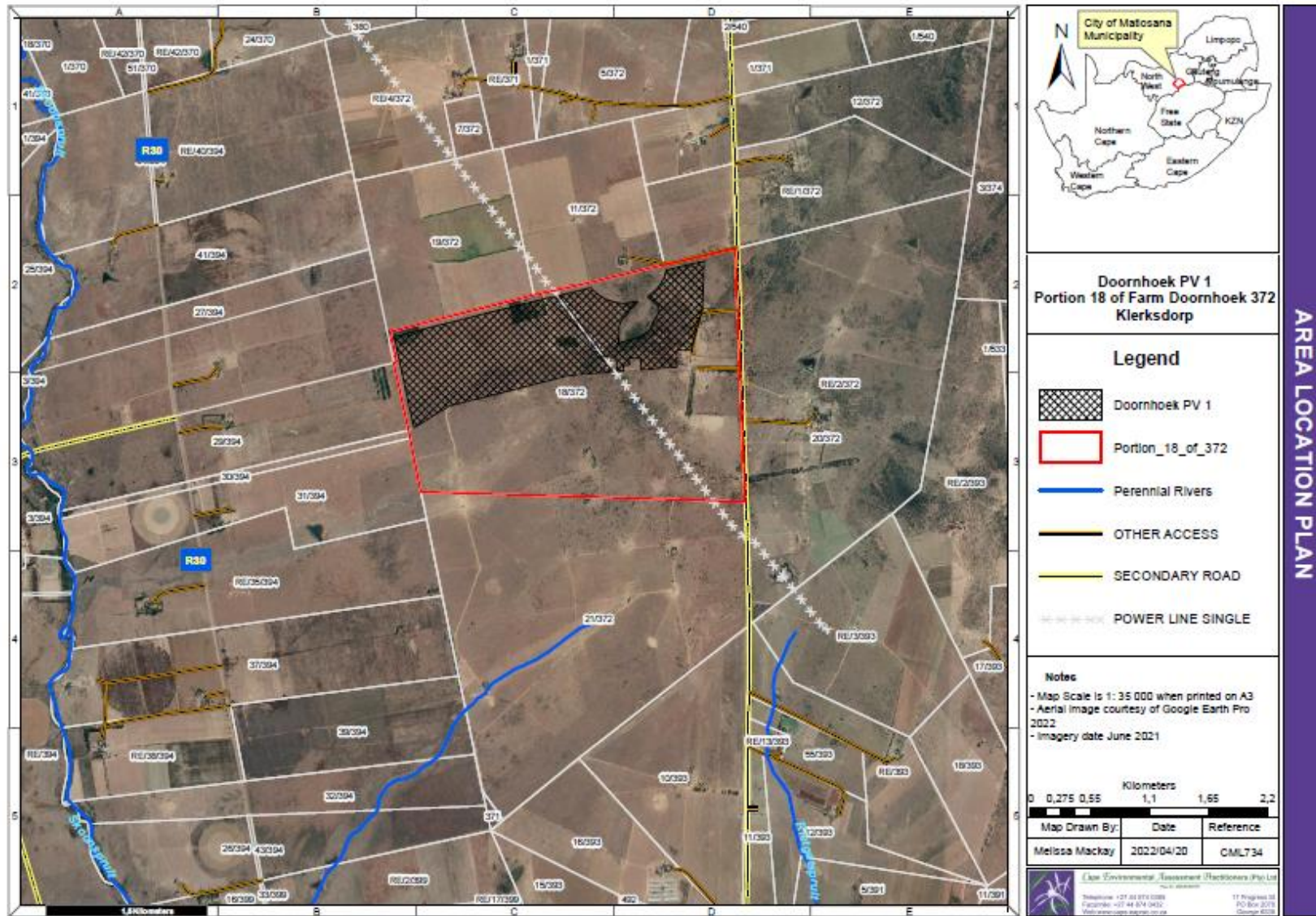


Figure 2-1 Landowner's map of the affected and adjacent properties for the Doornhoek 1 PV Facility

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), Dr Kenneth Kaunda District Municipality Integrated Development Plan (IDP), 2017 – 2022, and Matlosana Local Municipality Integrated Development Plan (IDP), 2017 – 2022 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:

- » Dr Kenneth Kaunda District Municipality Integrated Development Plan (IDP) 2017 – 2022
- » City of Matlosana Local Municipality Integrated Development Plan (IDP) 2017 – 2022
- » Strategic Environmental Assessment (SEA) for Wind and Solar energy in South Africa (CSIR)
- » Independent Power Producers Procurement Programme (IPPPP)

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 Doornhoek 1 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 City of Matlosana 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 Doornhoek 1 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 Doornhoek 1 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 Doornhoek 1 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 Doornhoek 1 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 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 Doornhoek 1 PV Facility

Relevant policy	Relevance to the proposed project
<p>Dr Kenneth Kaunda District Municipality Integrated Development Plan (IDP), 2017 – 2022</p>	<p>The objectives of the Spatial Development Framework (SDF) of Dr Kenneth Kaunda DM are:</p> <ul style="list-style-type: none"> » Diversification of the economic base » Accelerating growth in agriculture, tourism, industries, and export sectors (metals, clothing, textiles, agro-processing, mineral beneficiation and manufacturing) » Innovation and competitiveness in manufacturing sector is manufacturing sector is critical component in the strategy to significantly increase the potential of the manufacturing sector to contribute towards the overall development of the district » Ensure sustainability by identifying possible conflict zones between proposed development and environmental sensitive areas » Bringing marginalized communities into economic mainstream » SMME development and skills development » Strengthening and concentration of developments along N12 » Identification of available land and infrastructure to accommodate development along the corridor <p>The vision of Dr Kenneth Kaunda District Municipality (DKKDM) is to be a catalyst for Economic Development in the region of the North West Province, benefitting all communities in the designated area of jurisdiction. The goal is to assist municipalities with the implementation of key local economic development projects, by championing investment in or supporting business development for selected high impact projects to stimulate economic growth, job creation and economic diversification in the district region.</p> <p>The proposed solar energy facility falls in line with the SDF within the IDP. The development will contribute to assisting the District Municipality in achieving economic growth and building a sustainable economy through the field of renewable energy.</p>
<p>City of Matlosana Integrated Development Plan (IDP), 2017 – 2022</p>	<p>The City of Matlosana Integrated Development Strategy focuses on the following issues:</p> <ul style="list-style-type: none"> » The regeneration of the manufacturing sector » The growth of tourism and the linkages to the sector » The growth of agriculture » The development and growth of the information technology sector » The re-skilling of the labour force » The regeneration of industrial areas and CBD's and upgrade of residential areas » Facilitate the utilization of co-operatives in the municipality's procurement system » Facilitate the growth and contribution of SMME's. <p>The City of Matlosana's IDP has moved from forming to storming then to norming; now they are proceeding to performing. The overarching direction of CMLM IDP articulates a vision for economic growth and development, provision of basic services (service delivery improvement) and infrastructure development. The proposed solar energy facility will contribute to job creation, economic growth and development in the region, which will be KPA 2 of the City of Matlosana IDP.</p>
<p>Strategic Environmental Assessment (SEA) for Wind and Solar energy in South Africa (CSIR)</p>	<p>The Strategic Environmental Assessment (SEA) for wind and solar PV energy in South Africa (CSIR, 2013) identified eight (8) Renewable Development Zones (REDZs). The REDZs identified areas where large scale renewable energy facilities can be developed in a manner that limits significant negative impacts on the environment while yielding the highest possible socio-economic benefits to the country. The Doornhoek 1 PV facility site is located within the Klerksdorp REDZ (REDZ10), which was formally gazetted in 20188. The area has therefore been identified as suitable for the establishment of renewable energy facilities, specifically large scale solar farms.</p>
<p>Independent Power Producers</p>	<p>Energy Supply In terms of renewable energy 6 422 MW⁹ of electricity had been procured from 112 RE</p>

Relevant policy	Relevance to the proposed project
Procurement Programme (IPIPPP)	<p>Independent Power Producers (IPPs) in seven bid rounds to date. Of this 3 162 MW of electricity generation capacity from 57 IPP projects has been connected to the national grid. To date 16 991 GWh of energy has been generated by renewable energy sources procured under the REIPIPPP since the first project became operational (making a 15% contribution to morning and evening system peak periods).</p> <p>Investment</p> <p>The document notes that the REIPIPPP has attracted significant investment in the development of the REIPPs into the country. The total investment (total project costs), including interest during construction, of projects under construction and projects in the process of closure is R201.8 billion (this includes total debt and equity of R200.4 billion, as well as early revenue and VAT facility of R1.4 billion). The REIPIPPP has attracted R48.8 billion in foreign investment and financing in the six bid windows (BW1 – BW4, 1S2 and 1S2). This is more than double the inward FDI attracted into South Africa during 2015 (R22.6 billion).</p> <p>South African citizen shareholding</p> <p>In terms of local equity shareholding, 48% (R31.5 billion) of the total equity shareholding (R66.7 billion) was held by South African's across BW1 to BW4, BW1S2 and 1S2. This equates to substantially more than the 40% requirement. Foreign equity amounts to R35.8 billion and contributes 52% of total equity.</p> <p>The REIPIPPP also contributes to Broad Based Black Economic Empowerment and the creation of black industrialists. In this regard Black South Africans own, on average, 31% of projects that have reached financial close, which is slightly above the 30% target.</p> <p>The REIPIPPP has also ensured that black people in local communities have ownership in the IPP projects that operate in or nearby their vicinities. On average, black local communities own 11% of projects that have reached financial close. This is well above the 5% target. In addition, an average of 18% shareholding by black people in engineering, procurement and construction (EPC) contractors has been attained in projects that have reached financial close under the REIPIPPP. This is slightly below the 20% target. The shareholding by black people in operating companies of IPPs has averaged 20% (against a targeted 20%) for the 57 projects in operation (i.e. in BW 1, 2 and 3). The target for shareholding by black people in top management has been set at 40%, with an average 61% achieved to date. The target has therefore been significantly exceeded.</p>

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 of the Doornhoek 1 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

Doornhoek 1 PV Facility including associated facility and grid connection infrastructure is proposed on Portion 18 of the Farm Doornhoek No. 372-IP within the City of Matlosana Local Municipality within the Ngaka Dr Kenneth Kaunda District Municipality, North West Province (refer to **Table 4-1**).

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

Province	North West Province
District Municipality	Dr Kenneth Kaunda District Municipality
Local Municipality	City of Matlosana Local Municipality
Ward number(s)	18
Nearest town(s)	Klerksdorp (approximately 15km south of the proposed site)

This Chapter provides an overview of the socio-economic environment of the province, DM, and LM within which the Doornhoek 1 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).

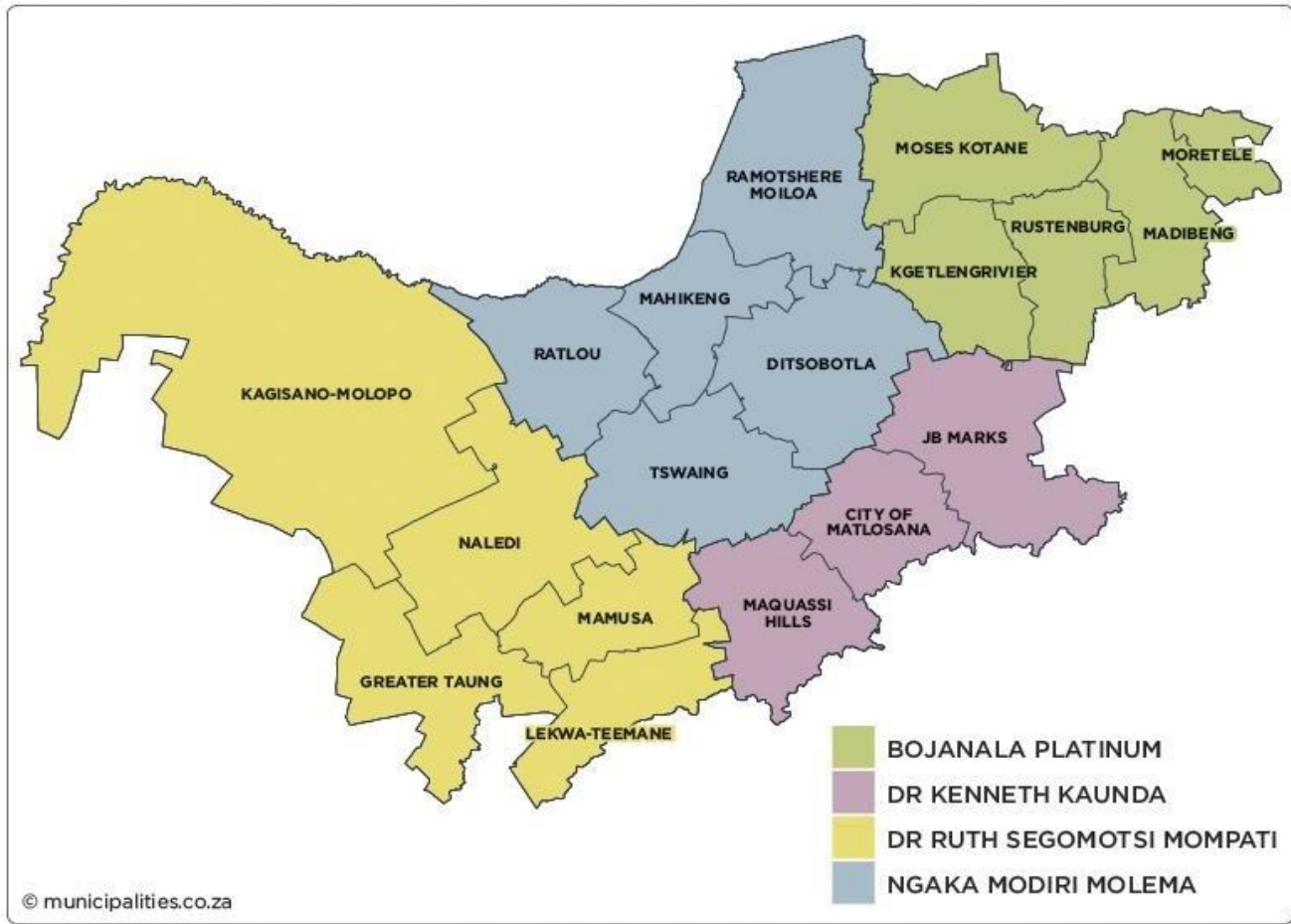


Figure 4-1 Districts under the North West Province

4.2. Dr Kenneth Kaunda DM

The Dr Kenneth Kaunda District Municipality (DKKDM) is situated at the southern part of the North West Province and borders both the Gauteng (located 65km south-west of Johannesburg) and the Free State Province (Refer to Figure 4-2). The DKKDM is the smallest of the four districts and is made up of three local municipalities namely JB Marks, City of Matlosana, Maquassi Hills (Refer to Figure 4-3).

Mining is the dominant economic activity of the district. Additional sectors in terms of employment are social services, trade and farming. Potchefstroom is home to several tertiary institutions and training centres while the economic base for Ventersdorp is agriculture. The main economic sectors in the DKKDM include mining, trade, finance, business services, manufacturing, construction, government services and agriculture.

The district is serviced by several primary roads, with the N12 Treasure Corridor forming the main development axis in the district and serving as a potential concentration point for future industrial, commercial and tourism development. DKKDM is a region with a rich and diverse natural and cultural heritage, with the potential for sustained economic growth. The major cities/towns in the district municipality include, Hartbeesfontein, Klerksdorp, Leeudoringstad, Makwassie, Orkney, Potchefstroom, Stilfontein, Ventersdorp, Witpoort and Wolmaransstad.



Figure 4-2 District Municipalities of the North West Province, South Africa (Source North West Province, Local Government, Handbook, 2012).

4.3. City of Matlosana Local Municipality

The City of Matlosana Local Municipality (CMLM) is in the DKKDM in the North West Province (Refer to Figure 4-3). It is one of four local municipalities in this district. The major towns are Hartbeesfontein, Klerksdorp, Orkney and Stilfontein (Local government handbook, 2021). The CMLM is also located 120km south of Rustenburg and the platinum belt. Klerksdorp, Jouberton, Alabama, Manzilpark, Orkney, Kanana, Vaal Reefs, Stilfontein, Khuma, Tigane and Hartebeesfontein area all areas that form part of the CMLM. The following characteristics are found within the CMLM (South African Cities Network, 2012):

- » Klerksdorp was originally established and developed as a regional service centre between the gold mining areas on the Rand and the diamond mining fields in the Cape in the late 1800s. The paper makes the specific point that this historical role as regional/rural service centre has helped to mitigate the impact of mine downscaling since the early 1990s. Although Klerksdorp has always been the main economic hub of the greater municipal area, it has not specifically been involved in the mining activities but has maintained the function of a regional service centre in terms of agricultural supplies, retail facilities, schools and medical services which stretches further than the boundaries of the Dr Kenneth Kaunda District Municipality into the North West Province and even Botswana. It is precisely this notion which has helped sustain the area in a period of considerable mining decline over the last 20 years.
- » Since the early 1990s but more specifically since 2001, mining activities have downscaled drastically. This downscaling also lead to nearly 75% of the original workforce in 1996 being retrenched by 2011. It seems as if significant percentages of these retrenchment packages have been reinvested in the area because the housing market has improved despite the decrease in employment. Entrepreneurial activities have also intensified due to compulsory self-employment advancements.

The City of Matlosana case study can therefore be strongly linked to the research that has been completed in terms of mining downscaling and closures.

- » The declining mining industry has resulted in the number of people living in poverty in the City of Matlosana almost doubling between 1996 and 2011. This is due to the fact that the municipal area is characterised by high unemployment levels (19.6%) – albeit the fact that this percentage is somewhat lower than the national average.
- » Although the economic decline of the area is similar to that experienced in the Free State Goldfields the overall impact in Matlosana seems significantly less than in the Free State Goldfields. The rapid economic decline of the area has been buffered by (1) the regional service character of the area, (2) a business focus which has expanded into Botswana, (3) proximity to platinum belt and (4) proximity to Gauteng (in fact some researchers view the areas as a spatial extension of Gauteng) and more specifically, proximity to the West Rand.
- » Currently, the N12 Treasure Route puts Klerksdorp in the centre of new developments. Towards the west of the N12, developments comprise residential development, retail nodes and mixed land usages. This is where the new Rio Casino Resort and shell garage (future truck inn) was developed as well as a Tower Mall retail centre to open at the end of 2013. The east of this corridor is earmarked for bulk services, with projects like a regional shopping complex, integrated housing, IT Call Centre, and light industry (medical and mining supplies show potential). This development has also affected the decentralisation of business into the northern suburbs of Klerksdorp and business activities along the N12. These activities probably have two main implications. In the first place the emphasis on new trade space probably confirms the regional service role of the town. In fact the distance of influence has probably increased over the past 20 years. Secondly, the corridor development suggests the importance of the link with Gauteng.
- » Like many other cities and towns in South Africa, old infrastructure is a matter of concern. The old infrastructure systems are already in need of drastic upgrades and continuous maintenance – this pressure will only increase, resulting in various challenges. At the same time the historic role related to mining has created significant problems for municipal management in the advent of mine downscaling and closure. One such an example is the inability of the municipality to institute an appropriate billing system.
- » The notion of becoming a metropolitan area is high on the agenda of The City of Matlosana. The conceptual idea is to link up with Tlokwe and form a metro on the N12 corridor development.

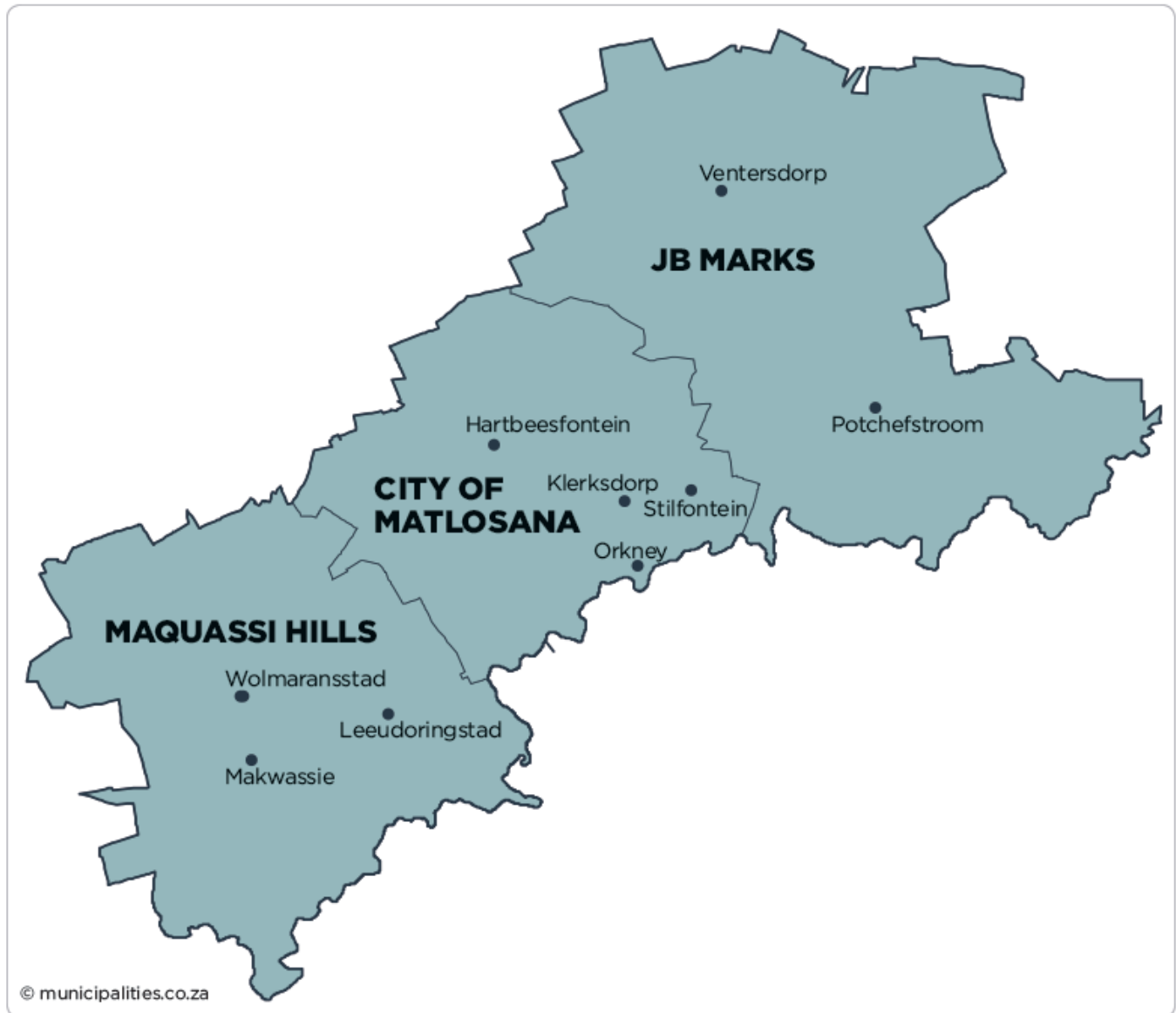


Figure 4-3 Local Municipalities under the DKKDM

4.4. Project Site

Doornhoek 1 PV Facility is proposed on Portion 18 of the Farm Doornhoek No. 372-IP, within the City of Matlosana Local Municipality within the Ngaka Dr Kenneth Kaunda District Municipality, North West Province. The closest town to the project site is Klerksdorp, which is located approximately 15km south of the project site. Other towns within the vicinity of the project site include Hartbeesfontein, located approximately 19 km west-southwest and Stilfontein approximately 18 km east-southeast.

Majority of the land surrounding the proposed site comprises large industrial mining areas and some agricultural area. The associated mining activities has led to the transformation and degradation of the area, leaving limited options for other land uses. There is a vast industrial character within the area and large

areas are utilised for gold mining. The area being subjected to heavy mining activities over a long period of time has resulted in the transformation and degradation of the area.

4.5. Baseline Description of the Social Environment

Table 4.2 provides a baseline summary of the socio-economic profile of the City of Matlosana Local Municipality within which Doornhoek 1 PV Facility is proposed. To provide context against which the Local Municipality's socio-economic profile can be compared, the socio-economic profiles of the Dr Kenneth Kaunda District, North West Province, and South Africa 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 Dr Kenneth Kaunda DM and City of Matlosana LM IDPs.

Table 4.2: Baseline description of the socio-economic characteristics of the area within which the Doornhoek 1 PV Facility

Location characteristics
<ul style="list-style-type: none"> » 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 City of Matlosana LM of the Dr Kenneth Kaunda DM. » The City of Matlosana LM is approximately 3 608.6km² in extent.
Population characteristics
<ul style="list-style-type: none"> » The City of Matlosana LM has a population of 417 282 which is about three-fifths of the figure in Dr Kenneth Kaunda 742,822. » The LM occupies an area of land approximately 3 608.6km² in extent and has a population density of 115.6km². » According to estimates based on the population growth rate of SA Statistics (1.04%) and the Matlosana Socio-Economic Report. » Population growth and household growth has declined over time. This can be ascribed to the fact that the local economy has become less dependent on the mining sector with the tertiary sectors growing in the long term. » Downscaling in terms of economic activity in the LM has lead to nearly 80% of the original workforce in 1996 being retrenched by 2016. » The declining mining industry has resulted in the number of people living in poverty in the City of Matlosana almost doubling between 1999 and 2019. » The average annual household growth between 1996 and 2019 was 3.46%. » The dependency ratio is high at 50.7% of the KM population (that is half the local population) which puts pressure on the Economically Active Population and local municipalities. » The dependency ratio indicates the number of individuals that are below the age of 15 and over the age of 65, that are dependent on the Economically Active Population (individuals that are aged 15-64 that are either employed or actively seeking employment).
Economic, education and household characteristics
<ul style="list-style-type: none"> » According to Census 2011 the unemployment rate for the LM is high at 32.7% whilst youth unemployment rate is 43.1%. » There is 40.4% of the population which is employed under the LM. 4.3% represent discouraged work – seeker, 35.7% are not economically active whilst 19.6% are unemployed. » The LM is largely populated by potentially economically active and young people. » There is a high number of households that fall within a low-income category and within the poverty level, this is being 62.1% of the local population. » A low percentage of households fall within the middle-income category (33.1% of the population) and high income category (4.7%). » Majority of the population live in urbanised areas within formal dwellings. » A large number of people in the LM have access to basic services.

- » Approximately 69.9% have completed Grade 9 or higher which is a little higher than the rate of Dr Kenneth Kaunda 67.26%
- » According to Census 2011, R2 400 is the average annual income for employed children between 15 and 17.
- » 13.6% of children between 15 and 17 are in the labour force.
- » There is 526 households with heads under 18 years old and 9.3% of child-headed households that are informal dwellings (shacks).
- » There is 45.4% child-headed households with women as their head.
- » The average child-headed household income for the LM is R2400.

Services

- » According to Community Survey 2016, 96.2% of the population are getting water from regional or local service provider which is a little higher than the rate of Dr Kenneth Kaunda (93.33%)
- » 48.3% have piped water inside the yard, 47.8% have piped water inside the house, 1.8% have public/communal tap whilst 0.7% have borehole outside the yard.
- » 3.7% have no access to electricity and which is about three quarters of the rate in Dr Kenneth Kaunda (5.12%)
- » 77.7% have in-house prepaid meter, 17.2% in-house conventional meter, 3.7% have no access to electricity and 1.1% use other source (not paying for)
- » 95.7% have access to flush or chemical toilets which is a little higher than the rate in Dr Kenneth Kaunda 90.07%, whilst 2% have no access to any toilets.
- » 94.1% are getting refuse disposal from local authority, private company or community members, which is about 10% higher than the rate in Dr Kenneth Kaunda (82.71%).

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 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. 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.

For the purposes of this proposed development there will be no resettlement required or undertaken.

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 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.
- » Heritage 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 near 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 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 Doornhoek 1 PV Facility.

Social impacts are expected to occur during both the construction and operation phase of Doornhoek 1 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. Social impacts are expected to occur during both the construction and operation phases of the associated infrastructure.

6.1. Social Impacts during the Construction Phase

Most 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 mismanagement 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

6.1.1. Construction Phase Impacts Associated with Doornhoek 1 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 400 employment opportunities, 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>Enhancement measures:</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. Doornhoek PV (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 Matlosana 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	
Enhancement measures:		
<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>Enhancement measures:</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. 		

<p>» Inform local community organisations and policing forums of construction activities and times and the duration of the construction phase.</p>
<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>Enhancement measures:</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. » Appoint a security company and implement appropriate security procedures to ensure that workers to not remain on site after working hours. » 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. 		

<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
Enhancement measures:	
<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, 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</p>

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.		
	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	
Enhancement measures:		
<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. » Dust fall out monitoring to be implemented during the construction phase. » 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. 		
Cumulative impacts:		
Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.		
Residual Risks:		
None anticipated		

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 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</p>

<p>visual impact. This may include residents of the farm dwellings , as well as observers travelling along the arterial road in closer proximity to the facility.</p> <p>The incidence rate of sensitive visual receptors is however expected to be quite low, due to the generally remote location of the proposed development, the low number of potential observers and the assumed support of (most of) the land owners to the solar energy facility developments.</p>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short term (1)	Short term (2)
Magnitude	Low (4)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Low (28)	Low (21)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
<p>Enhancement measures:</p> <ul style="list-style-type: none"> » The movement of heavy vehicles associated with the construction phase 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. » All vehicles must be road-worthy and drivers must be licensed and made aware of the potential road safety issues and need for strict speed limits. » Communication, complaints and grievance channels must be implemented and contact details of the CLO must be provided to the relevant local communities. » Ensure proper management and tidiness of the construction site. » Implement the relevant mitigation measures as recommended in the Visual Impact Assessment. 		
<p>Cumulative impacts:</p> <p>The primary visual impact, namely the layout and appearance of the PV panels is not possible to mitigate.</p>		
<p>Residual Risks:</p> <p>None anticipated</p>		

6.1.2. Operation Phase Impacts associated with Doornhoek 1 PV Facility

It is anticipated that the Doornhoek 1 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.		
Given the location of the proposed facility the majority of permanent staff is likely to reside in Klerksdorp. In terms of accommodation options, a percentage of the non-local permanent employees may purchase houses in Klerksdorp, 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.		
	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	
Enhancement measures:		
<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, City of Matlosana 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
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.

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.

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.

	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.		
Enhancement measures: 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

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

<p>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	
<p>Enhancement measures:</p> <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 are 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). 		
<p>Cumulative impacts:</p> <p>None</p>		
<p>Residual Risks:</p> <p>Social upliftment of the local communities through the development and operation of the project.</p>		

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 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</p>
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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.		
	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	
Mitigation:		
<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. 		
Enhancement measures:		
<ul style="list-style-type: none"> » Site visit and interviews with local farmers and representatives from local municipality and farming and hospitality associations etc. 		
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.		

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

Nature: Loss of agricultural land and overall productivity because of the operation of the proposed project on an agricultural property.		
The development footprint on which the solar energy facility will be developed will be removed from agricultural production. Following the discussions with the directly affected landowners it was expressed that no loss to agriculture will be experienced from the proposed development.		
	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.
Enhancement measures: 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 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 jobseekers and change in the area's sense of place

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.

6.2.1. Cumulative Impacts associated with Doornhoek 1 PV Facility

Table 6-13: Cumulative impact from employment, skills and business opportunities

Nature: Employment, skills and business opportunities		
Doornhoek 1 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 Doornhoek 1 PV Facility alone.		
	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 Negative (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:		
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.		

Table 6-14: 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
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 and within a Renewable Development Zone 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 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 (3)
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 6-15: 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 Doornhoek 1 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 development of various PV facilities within the area will increase the extent of industrial infrastructure and result in a low significance from a social perspective.</p>
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	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	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Medium (39)
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"> » Maintain and manage the facilities to be in a good and neat condition to ensure that no degradation of the area and sites takes place and impacts the visual quality of the area. » Implement the relevant mitigation measures as recommended in the Visual Impact Assessment. 		

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 Doornhoek 1 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 Doornhoek 1 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.

Table 7-1 Summary of potential social impacts identified for the detailed design and construction phase of the Doornhoek 1 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 Doornhoek 1 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	Low	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	Low	Low
Impacts associated with the loss of agricultural land.	Low	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
Cumulative Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
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 Doornhoek 1 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.

Based on the findings of the SIA the proposed establishment of the Doornhoek 1 PV Facility is supported.

7.2. Recommendations

The following recommendations are made based on 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.

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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 far 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	» 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
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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.
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Monitoring	» The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes
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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).
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	<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.
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	<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
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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: REVIEW LETTER



Dr Neville Bews & Associates

Social Impact Assessors

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22 April 2022

Attention: Nondumiso Bulunga

Savannah Environmental Pty Ltd

5 Woodlands Drive Office Park
Cnr Woodlands Drive and Western Service Road
Woodmead

**Re: Peer review of the Social Impact Assessment of the Doornhoek 1 PV Facility
and Associated Infrastructure**

Having reviewed the above report I find that it provides a good description of the project and the social environment within which the project will unfold. It also provides a good indication of the social impacts that are likely to arise as a result of the proposed project.

The review was concluded on 22 April 2022 and the following comments are made:

1. The terms of reference are acceptable.
2. The methodology is clearly explained and acceptable.
3. The findings are based on acceptable evidence.
4. The recommendations are appropriate.
5. The reference literature is appropriate.
6. No site-inspection was carried out as part of this peer review.
7. The report is well-written and easy to understand.
8. No shortcomings have been identified.

DECLARATION OF INDEPENDENCE

I, Neville Bews, as authorised representative of Dr Neville Bews & Associates hereby confirm my independence as a specialist and declare that neither I nor Dr Neville Bews & Associates have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Dr Neville Bews & Associates was appointed as social impact assessment specialists in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for work performed. This declaration is specifically in connection with the review of the Social Impact Assessment Report of the Doornhoek 1 PV Facility and associated Infrastructure, located near Klerksdorp in the North West Province.

Signed: 

Neville Bews

Date: 22 April 2022



Social Impact Assessment (SIA) Report: Doornhoek 1 PV Facility and associated Infrastructure

<u>Appendix 6: Specialist reports</u>	Section	Comment
A specialist report prepared in terms of these Regulations must contain-		
(a) details of- (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 1.3 page 4	
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Specialist Declaration of Interest, page ii	
(c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 2.1 page 6	
cA) An indication of the quality and age of base data used for the specialist report.	Section 2.4 page 13	
cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 5 pages 30-32	
(d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Not applicable	
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process;	Section 2.2 & 2.3 6-pages 6-13	
(f) the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;	Sections 4 & 5 pages 23-32	
(g) an identification of any areas to be avoided, including buffers;	None = 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;	Figure 2-1 page 11	
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2.4 page 13	
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;	Sections 6 & 7 pages 33-53	
(k) any mitigation measures for inclusion in the EMPr;	Appendix A	
(l) any conditions for inclusion in the environmental authorisation;	Section 7.2 pages 52-53	
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Appendix A	
(n) a reasoned opinion- (i) as to whether the proposed activity or portions thereof should be authorised; and (ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 7 pages 51-53	
(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 2.2 pages 7-10	
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto	Not applicable	
(q) any other information requested by the competent authority.	Not applicable	
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.	Not applicable	