

# KHUNAB SOLAR GRID CONNECTION

Northern Cape Province

Social Impact Assessment

September 2019

savannah  
environmental

t +27 (0)11 656 3237

f +27 (0)86 684 0547

e info@savannahsa.com

w www.savannahsa.com

**Prepared for:**

McTaggarts PV1 (Pty) Ltd



---

## REPORT DETAILS

---

<b>Title</b>	:	Social Impact Assessment (SIA) Report: Khunab Solar Grid Connection, near Upington, Northern Cape Province
<b>Authors</b>	:	Savannah Environmental (Pty) Ltd Lisa Opperman
<b>External Peer Review</b>	:	Dr. Neville Bews & Associates Dr. Neville Bews
<b>Client</b>	:	McTaggarts PV1 (Pty) Ltd
<b>Report Revision</b>	:	Revision 0
<b>Date</b>	:	September 2019

**When used as a reference this report should be cited as:** Savannah Environmental (2019) Social Impact Assessment (SIA) Report for Khunab Solar Grid Connection, near Upington, Northern Cape Province.

**COPYRIGHT RESERVED**

This technical report has been produced for McTaggarts PV1 (Pty) Ltd. The intellectual property contained in this report remains vested in Savannah Environmental (Pty) Ltd. No part of the report may be reproduced in any manner without written permission from Savannah Environmental (Pty) Ltd or McTaggarts PV1 (Pty) Ltd.



## TABLE OF CONTENTS

	PAGE
REPORT DETAILS .....	I
SPECIALIST DECLARATION OF INTEREST .....	II
TABLE OF CONTENTS.....	III
ACRONYMS .....	IV
1. INTRODUCTION AND PROJECT DESCRIPTION.....	1
1.1. Details of the Independent Specialist .....	3
1.2. Structure of the SIA Report .....	3
2. METHODOLOGY AND APPROACH .....	5
2.1. Purpose of the Study .....	5
2.2. Approach to the Study .....	5
2.2.1. Stakeholder Identification and Analysis .....	6
2.2.2. Collection and Review of Existing Information.....	8
2.2.3. Collection of Primary Data .....	9
2.3. Impact Assessment Evaluation Method .....	10
2.4. Limitations and Assumptions.....	12
3. LEGISLATION AND POLICY REVIEW .....	13
3.1. National Policy and Planning Context.....	13
3.2. Provincial Policies .....	17
3.3. District and Local Municipalities Policies.....	18
3.4. Conclusion.....	20
4. SOCIAL PROFILE.....	21
4.1. Northern Cape Province .....	21
4.2. ZF Mgcawu DM.....	22
4.3. Kai !Garib LM .....	24
4.4. Dawid Kruiper LM .....	24
4.5. Grid Connection Corridor .....	24
4.6. Baseline Description of the Social Environment.....	27
5. SOCIAL IMPACT ASSESSMENT .....	29
5.1. Social Impacts during the Construction Phase .....	29
5.2. Social impacts during the Operation Phase .....	37
5.3. Cumulative Impacts .....	39
5.3.1. Cumulative Impacts associated with Khunab Solar Grid Connection.....	43
5.4. Decommissioning Phase .....	44
5.5. Assessment of Impacts for the No-Go Option: .....	44
6. CONCLUSION AND RECOMMENDATIONS .....	46
6.1. Key findings and Recommendations.....	47
6.2. Overall Conclusion .....	47
7. REFERENCES .....	48

### APPENDICES:

**Appendix A:** Environmental Management Programme (EMPr)

## ACRONYMS

---

B-BBEE	Broad-Based Black Economic Empowerment
BA	Basic Assessment
CLO	Community Liaison Officer
CSP	Concentrated Solar Power
DEA	Department of Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries (National)
DENC	Department of Environment and Nature Conservation (Northern Cape Provincial)
DoE	Department of 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	Greenhouse 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
IPP	Independent Power Producer
IRP	Integrated Resource Plan
km	Kilometre
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality
MTS	Main Transmission Substation
MW	Megawatt
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
PV	Photovoltaic
RBS	Revised Balanced Scenario
RE	Renewable Energy
REDZ	Renewable Energy Development Zone
REIPPP	Renewable Energy Independent Power Producer Procurement Programme
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Infrastructure Project
SKA	Square Kilometre Array
SWOT	Strengths, Weaknesses, Opportunities and Threats
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation

# 1. INTRODUCTION AND PROJECT DESCRIPTION

---

McTaggarts PV1 (Pty) Ltd proposes the construction and operation of a grid connection solution for the proposed McTaggarts PV1, PV2, PV3 and Klip Punt PV1 solar PV facilities<sup>1</sup> near Upington in the Northern Cape Province. The four solar PV facilities (each with a capacity of up to 75MW) are collectively known as the Khunab Solar Development. The grid connection solution considered within this report will connect the four solar PV facilities to the Upington Main Transmission Substation (MTS) and will include the development of a single circuit 132kV power line and two collector substations, each including switching station components.

A grid connection corridor that is 300m wide (which increases to ~700m at the Upington MTS) and 13km long is being assessed to allow for the optimisation of the grid connection and associated infrastructure to accommodate the identified environmental sensitivities. The grid connection corridor is located within the Kai !Garib Local Municipality (LM) and the Dawid Kruiper LM, and falls within the greater ZF Mgcawu District Municipality (DM) (refer to **Figure 1.1**). The project is known as Khunab Solar Grid Connection. The grid connection infrastructure will be developed within the 300m wide grid connection corridor. The height of the power line pylons will be up to 32m and will be located within a servitude of up to 36m. Two collector substations, each including switching station components, will evacuate power at 132kV and will each have an extent of approximately 1ha. The collector substations will be known as, the Khunab Collector Substation<sup>2</sup>, and the Klip Punt Collector Substation<sup>3</sup>. Other associated infrastructure will also be required for the grid connection solution, including access roads, feeder bays, a fibre and optical ground wire (OPGW) layout, insulation and assembly structures.

The grid connection corridor traverses three affected properties, namely:

- » Portion 3 of the Farm McTaggarts Camp No. 453;
- » Portion 12 of The Farm Klip Punt 452; and
- » Olyvenhouts Drift Settlement Agricultural Holding 1080

The grid connection corridor is located within the Northern Corridor of the Strategic Transmission Corridors which is one of five corridors identified for the rollout of large scale electricity transmission and distribution infrastructure. The grid connection corridor is also located within Zone 7 of Renewable Energy Development Zones (REDZ), otherwise known as the Upington REDZ, which has been earmarked for the development of large scale solar photovoltaic energy facilities.

The development of the Khunab Solar Grid Connection requires Environmental Authorisation (EA) from the national Department of Environmental Affairs (DEA) (soon to be known as Department Environment, Forestry and Fisheries (DEFF)), in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), and the 2014 Environmental Impact Assessment (EIA) Regulations (GNR 326), as amended, subject to the completion of a Basic Assessment (BA) process. Lisa Opperman of Savannah Environmental (Pty) Ltd has been appointed as the independent social consultant responsible for undertaking a Social Impact Assessment (SIA) as part of the BA process being conducted for the project.

---

<sup>1</sup> Each of the four solar PV facilities are considered and assessed as part of separate Basic Assessment processes.

<sup>2</sup> The Khunab Collector Substation will facilitate a connection from McTaggarts PV2 and PV3 to the national grid and will be located on Portion 3 of the Farm McTaggarts Camp No. 453.

<sup>3</sup> The Klip Punt Collector Substation will facilitate a connection from McTaggarts PV1 and Klip Punt PV1 to the national grid and will be located on Portion 3 of the Farm McTaggarts Camp 453 and Portion 12 of the Farm Klip Punt 452.



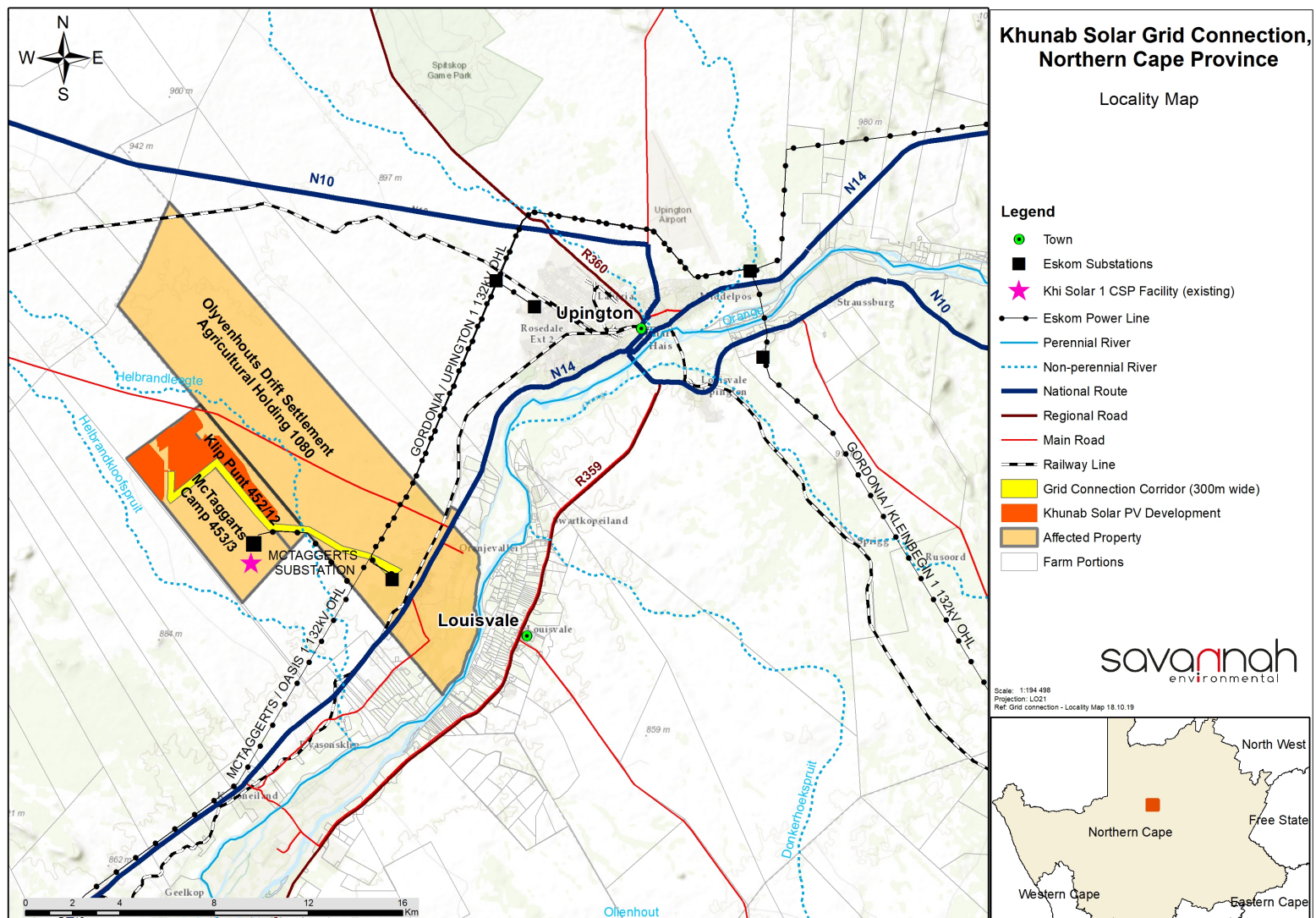


Figure 1.1: Proposed grid connection corridor for the Khunab Solar Grid Connection, near Upington, Northern Cape Province.

## 1.1. Details of the Independent Specialist

This SIA has been undertaken by Lisa Opperman of Savannah Environmental, and peer reviewed externally by Dr. Neville Bews of Dr. Neville Bews & Associates.

- » **Lisa Opperman** – holds a Bachelor degree with Honours in Environmental Management and has four years of experience in the environmental field. 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.

## 1.2. Structure of the SIA Report

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations (GNR 326), 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.	Declaration of Interest
(c) An indication of the scope of, and the purpose for which, the report was prepared.	Section 2
(cA) An indication of the quality and age of base data used for the specialist report.	Section 4
(cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 2
(e) A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 2
(f) Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	Section 4 Section 5
(g) An identification of any areas to be avoided, including buffers.	N/A
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	N/A
(i) A description of any assumptions made and any uncertainties or gaps in knowledge.	Section 2

<b>Requirement</b>		<b>Location in Report</b>
(j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	Section 5
(k)	Any mitigation measures for inclusion in the EMPr.	Appendix A
(l)	Any conditions for inclusion in the environmental authorisation.	Section 6
(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 6
(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 Khunab Solar Grid Connection 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 manner in which 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.
- » Collection of primary data during telephonic and face-to-face interviews. Attempts were made to undertake telephonic interviews with adjacent landowners and key stakeholders in order to gain inputs on the project, including the perceived social impacts and benefits on the affected community, and to obtain an understanding of whether the undertaking of face-to-face interviews would be required. To date, only a few landowners have been available to participate in telephonic interviews. During the interviews it also became clear that the site visit for the undertaking of face-to-face interviews is not required due to the lack of issues raised during the telephonic interviews. In cases where landowners were not available or willing to participate in interviews this has been recorded. A Community Key Stakeholder meeting was held to gain insight in the potential social impacts expected with the development of the proposed project. It must be noted that all social issues raised during the public participation process undertaken for the proposed grid connection infrastructure will be included, considered and addressed as part of the final SIA report for the project to be submitted to the DEA.
- » Identification of potential direct, indirect and cumulative impacts likely to be associated with the construction, operation, and decommissioning of the proposed project.
- » 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.
- » Preparation of an SIA Report and inputs into the Environmental Management Programme (EMPr) to be prepared for the project.

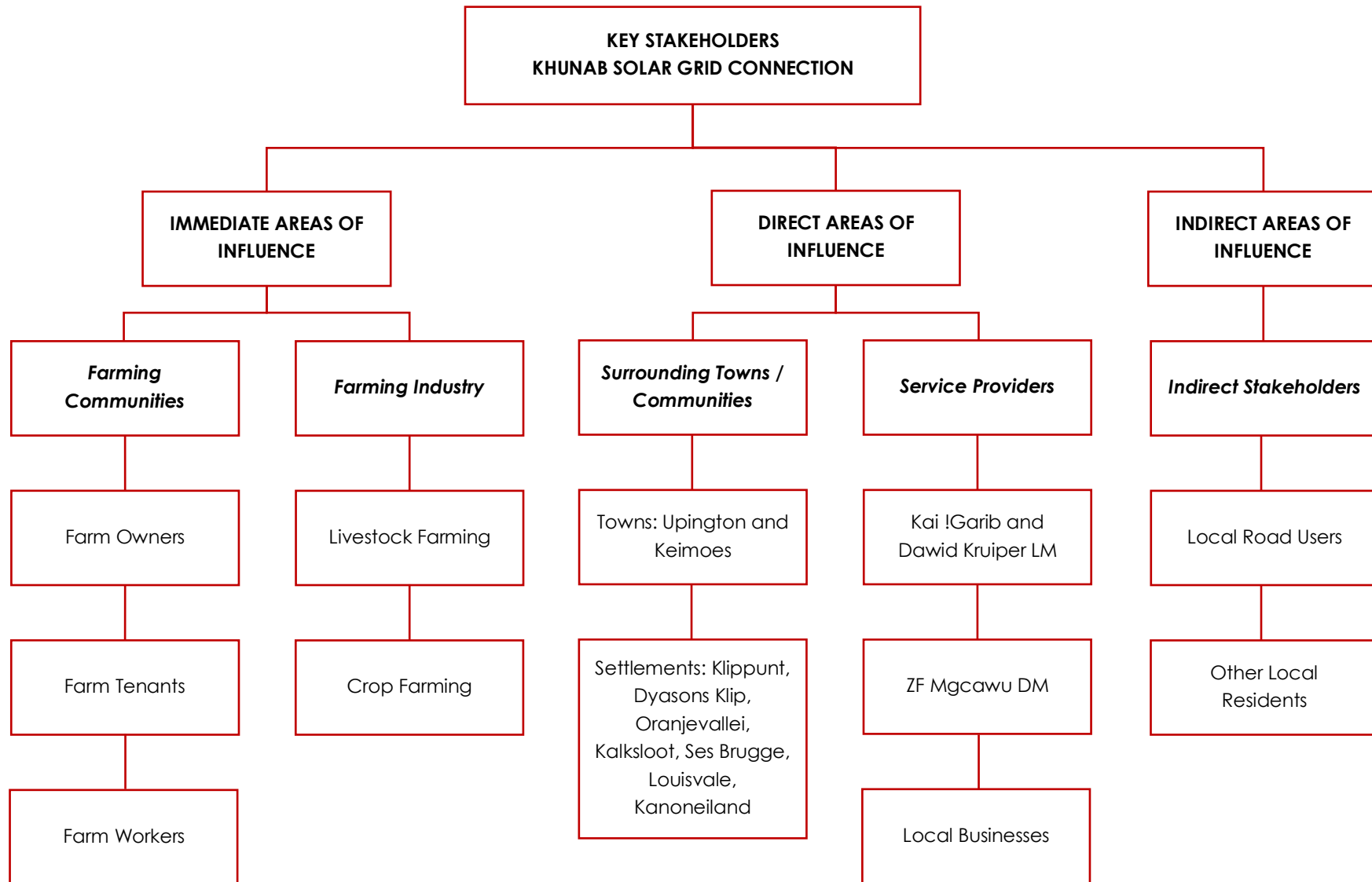
### **2.2.1. Stakeholder Identification and Analysis**

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 proposed project 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.



**Figure 2.1: Key Stakeholders identified for the Khunab Solar Grid Connection, near Upington, Northern Cape Province.**

A description of each of the stakeholders groups in relation to the proposed grid connection corridor is discussed in detail below:

- » **Farming community:** The farming community can be grouped into three categories, namely farm owners, farm tenants, and farm workers. Farm owners comprise individuals who own and make a living off of their properties. Farm tenants are people who rent land and work on the land to earn an income. Farm workers are people who work, and also often reside on the farm with their families, and are seen as a vulnerable community.
- » **Farming industry:** There are potentially vulnerable farming activities in the broader study area of the corridor. Agriculture is the main economic activity within the area, and the primary agricultural activities comprise a mix of livestock and crop farming, with areas of irrigated land located along the banks of the Orange River (located to the south of the grid connection corridor).
- » **Surrounding towns / affected communities:** The closest major towns include Upington (located ~24km north-east), and Keimoes (located approximately ~22km south-west of the grid connection corridor). Whereas Upington constitutes the economic hub of the ZF Mgcawu DM and Northern Cape Province, the town of Keimoes is significant from an agricultural perspective. In addition to the main towns of Upington and Keimoes, numerous smaller settlement areas are located along the banks of the Orange River. These include Klippunt (located approximately 11km south-east), Dyasons Klip Settlement (located approximately 10km south), Oranjevallei (located approximately 11km east), Kalksloot / Ses Brugge (located approximately 9km south-east), Louisvale (located approximately 14km east-south-east), and Kanoneiland (located approximately 15km south of the grid connection corridor).
- » **Service providers:** The major service providers which will be affected by the project include the DM, LM, and local businesses in the area. The Kai !Garib LM and the Dawid Kruiper LM, and to a lesser degree the ZF Mgcawu DM are likely to be impacted by the proposed development. The Kai !Garib LM and the Dawid Kruiper 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 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 N14 national road and local gravel roads on a frequent basis as part of their daily or weekly movement patterns.

### **2.2.2. Collection and Review of Existing Information**

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

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

- » Available literature pertaining to social issues associated with the development and operation of grid connection infrastructure.

### 2.2.3. Collection of Primary Data

Attempts were made to hold telephonic interviews with adjacent landowners and key stakeholders identified within the area on Wednesday 04 September 2019, Friday 06 September 2019 and Monday 09 September 2019 (refer to **Table 2.1**). A landowners map is included as **Figure 2.2**.

**Table 2.1: Overview of Telephonic Interviews with landowners and key stakeholders as well as attempts made to contact the relevant parties.**

Landowner	Property details	Date of contact / attempted contact	Notes
Mr Piet Karstens (adjacent landowner)	Remaining Extent of Farm 450 Remaining Extent of Farm 449, Remaining Extent of Farm 448	Via telephone: 04 September 2019, 06 September 2019 and 09 September 2019	The landowner requested a locality map of the project which was provided via email. The landowner advised that he will submit his inputs from a social perspective once the SIA is available for review and also indicated that in principle he has no social issues with the project.
Mr Piet van Schalkwyk (adjacent landowner)	Remaining Extent of Farm 617	Via telephone: 04 September 2019, 06 September 2019 and 09 September 2019	Party not available for telephonic interview.
Mr Boeta du Toit (adjacent landowner)	Remainder of Farm Dyasons Klip 454	Via telephone: 04 September 2019 and 09 September 2019	The landowner advised that he does not foresee social issues associated with the development and that he has no objection to the project from a social perspective.
Mr Willem Louw (adjacent landowner)	Remaining Extent of Farm Tungsten Lodge 638	Via telephone: 04 September 2019 and 09 September 2019	The landowner advised that he does not foresee social issues associated with the development and that he has no inputs to the SIA.
Mr Piet van Schalkwyk (tenant on adjacent property)	Remaining Extent of Farm Klip Kraal 451	Via telephone: 04 September 2019, 06 September 2019 and 09 September 2019	Party not available for telephonic interview

A community Key Stakeholder meeting was held on 16 October 2019 in Kalksloot with the Ward Committee members and Key Community Leaders. The purpose of the meeting was to identify social impacts and concerns related to the proposed development. Concerns raised during this face-to-face meeting includes:

- » Lack of local SMME involvement for procurement of services;
- » Lack of employment opportunities for local community members;
- » Employment is contract based and of a temporary nature;

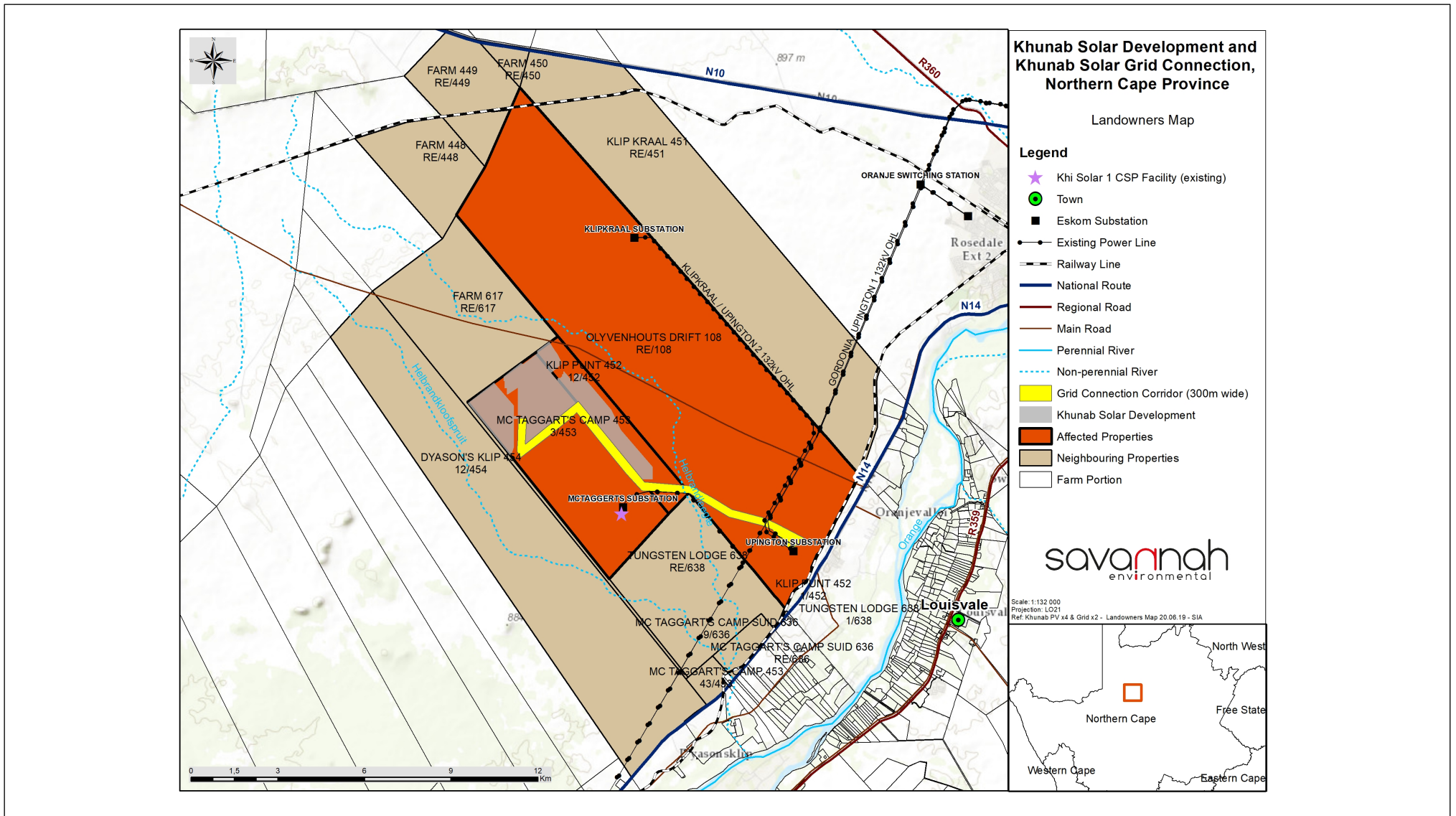


- » Limited skills development opportunities are provided and no proof of skills development is provided to the upskilled individual;
- » Lack of community involvement and employment opportunities during the operation phase and maintenance activities.

### 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.



**Figure 2.2:** Landowners map of the affected and adjacent properties for the Khunab Solar Development and Khunab Solar Grid Connection

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

The following assumptions and limitations are applicable to this SIA Report:

- » Data derived from the 2011 Census, Northern Cape Provincial Spatial Development Framework (PSDF) 2012, ZF Mcgawu District Municipality Draft Integrated Development Plan (IDP) 2018/2019 (2017-2022), Kai !Garib Local Municipality Integrated Development Plan (IDP) 2019/2020 of June 2019, Dawid Kruijer Local Municipality All-inclusive Spatial Development Framework (SDF), Final Report February 2018 and the Dawid Kruijer Local Municipality Final Reviewed Integrated Development Plan for 2019/2020 (approved on 30 May 2019) was used to generate the majority of information provided in the baseline profile of the broader study area and the grid connection corridor. The possibility exists that some of 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 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)
- » White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)
- » National Energy Act (No. 34 of 2008)
- » Integrated Energy Plan (IEP) (2015)
- » Integrated Resource Plan (IRP) for Electricity (2010 – 2030) (2011) (and subsequent updates thereto)
- » National Development Plan (NDP) 2030 (2012)
- » Strategic Infrastructure Projects (SIPs)

#### **Provincial Policy and Planning Context:**

- » Northern Cape Provincial Spatial Development Framework (PSDF) 2012

#### **Local Policy and Planning Context:**

- » ZF MCGAWU District Municipality Draft Integrated Development Plan (IDP) 2018/2019 (2017-2022)
- » KAI !GARIB LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) 2019/2020 OF JUNE 2019
- » DAWID KRUIPER LOCAL MUNICIPALITY ALL-INCLUSIVE SPATIAL DEVELOPMENT FRAMEWORK (SDF), FINAL REPORT FEBRUARY 2018
- » DAWID KRUIPER LOCAL MUNICIPALITY FINAL REVIEWED INTEGRATED DEVELOPMENT PLAN FOR 2019/2020 (APPROVED ON 30 MAY 2019)

The relevant legislation and policies listed and discussed below are relevant to the Khunab Solar Grid Connection project and the Khunab Solar Development which comprises of four individual solar PV facilities (assessed as part of separate Basic Assessment Processes). This is due to the fact that the proposed grid connection infrastructure is directly linked to the operation of the Khunab Solar Development. Neither the four solar PV facilities or the grid connection infrastructure can operate on its own and require the other to be developed in order to fulfil the need for the development in its entirety.

#### **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, which is linked to the development of the required associated grid connection infrastructure, 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 the development of grid connection infrastructure for a RE project that 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 Khunab Solar Grid Connection**

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.</p> <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 development of the associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use.</p>
White Paper on the Renewable Energy Policy of the	<p>The White Paper on Renewable Energy Policy supplements Government's predominant policy on energy as set out in the White Paper on the Energy Policy of the Republic of South Africa (DME, 1998). The policy recognises the potential of RE, and aims to create the necessary conditions for the development and commercial implementation of RE technologies.</p>

Relevant legislation or policy	Relevance to the proposed project
<p>Republic of South Africa (2003)</p>	<p>The White Paper on RE sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing RE in South Africa. The country relies heavily on coal to meet its energy needs due to its abundant, and fairly accessible and affordable coal resources. However, massive RE resources that can be sustainable alternatives to fossil fuels, have so far remained largely untapped.</p> <p>The White Paper on Renewable Energy of 2003 set a target of 10 000GWh to be generated from RE by 2013 to be produced mainly from biomass, wind, solar and small-scale hydro. The target was subsequently reviewed in 2009 during the RE summit of 2009. The policy supports the investment in RE facilities as they contribute towards ensuring energy security through the diversification of energy supply, reducing GHG emissions and the promotion of RE sources.</p> <p>The development of the associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use. The development of the grid connection infrastructure is considered to be relevant to the policy due to the need for the associated infrastructure for the operation of RE facilities.</p>
<p>National Energy Act (No. 34 of 2008)</p>	<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 management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies (REs).</p> <p>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>The development of the associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use. The development of the grid connection infrastructure is considered to be relevant to the Act due to the need for the associated infrastructure for the operation of RE facilities.</p>
<p>Integrated Energy Plan (IEP), 2015</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 development of the associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use. The development of the grid connection infrastructure assists with ensuring the availability of energy resources. The development of the grid connection infrastructure is considered to be relevant to the plan due to the need for the associated infrastructure for the operation of RE facilities.</p>
<p>Integrated Resource Plan for</p>	<p>The Integrated Resource Plan (IRP) for Electricity 2010 – 2030 is a subset of the IEP and constitutes South Africa's National electricity plan. The primary objective of the IRP is to</p>

Relevant legislation or policy	Relevance to the proposed project
<p>Electricity (IRP) 2010-2030 (2011)</p>	<p>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>On 27 August 2018, the then Minister of Energy published a draft IRP which was issued for public comment. The lengthy public participation and consultation process has culminated in the issue of the overdue IRP 2019 which updates the energy forecast from the current period to the year 2030. Since the promulgated IRP 2010, the following capacity developments have taken place:</p> <ul style="list-style-type: none"> <li>» A total of 6 422MW has been procured thus far under the REIPPPP, with 3 876MW being currently operational and made available to the grid. In addition, IPPs have commissioned 1005MW from the two (2) Open Cycle Gas Turbines (OCGT) peaking plants; and</li> <li>» Under the Eskom Build Programme, 1 332MW has been procured from the Ingula Pumped Storage Project, 1 588MW and 800MW from the Medupi and Kusile power stations and 100MW from the Sere Wind Farm.</li> </ul> <p>Provision has been made for the following new capacity by 2030:</p> <ul style="list-style-type: none"> <li>» 1 500MW of coal;</li> <li>» 2 500MW of hydro;</li> <li>» 6 000MW of solar PV;</li> <li>» 14 400MW of wind;</li> <li>» 1 860Mw of nuclear;</li> <li>» 2 088MW of storage;</li> <li>» 3 000MW of gas/diesel; and</li> <li>» 4 000MW from other distributed generation, co-generation, biomass and landfill technologies.</li> </ul> <p>Based on the 2019 IRP, 1 474MW has been installed for solar PV facilities, whereas, 814MW has already been procured. In addition, 1 000MW has been allocated for solar PV facilities from 2022 to 2030. This will bring the total installed capacity of solar PV facilities by 2030 to 8 288MW.</p> <p>The development of the associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use. The development of the grid connection infrastructure assists with adding additional capacity of electricity generated by PV to the national grid. The development of the grid connection infrastructure is considered to be relevant to the plan due to the need for the associated infrastructure for the operation of RE facilities, including the Khunab Solar Development which consists of four individual PV facilities.</p>
<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>

Relevant legislation or policy	Relevance to the proposed project
	<p>» 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.</p> <p>» Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.</p> <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 associated grid connection infrastructure is required in order to connect RE facilities to the national grid and evacuate the electricity into the grid for use. The development of the grid connection infrastructure is considered to be relevant to the plan due to the need for the associated infrastructure for the operation of RE facilities and due to the associated growth and potential.</p>
Strategic Infrastructure Projects (SIPs)	<p>The Presidential Infrastructure Coordinating Committee (PICC) are integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have 5 core functions, including to unlock opportunity, transform the economic landscape, create new jobs, strengthen the delivery of basic services and support the integration of African economies.</p> <p>SIP 8 of the energy SIPs supports the development of RE projects as follows:</p> <p>» Green energy in support of the South African economy:</p> <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) and supports bio-fuel production facilities.</p> <p>The development of the proposed grid connection infrastructure is aligned with SIP 8 as it enables the operation of a green energy initiative which would contribute clean energy in accordance with the IRP 2010 – 2030. It must be noted that the project would only be registered as a SIP should the project proceed to construction.</p>

### 3.2. Provincial Policies

This section provides a brief review of the most relevant provincial policies. The proposed grid connection infrastructure required for the development of the four solar energy facilities (i.e. known as the Khunab Solar Development) 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 Khunab Solar Grid Connection**

Relevant policy	Relevance to the proposed project
Northern Cape Provincial Spatial Development	<p>The Northern Cape Provincial Spatial Development Framework (PSDF) 2012 states that the overarching goal for the province is to enable sustainability through sustainable development. The province considers social and economic development as imperative in order to address the most significant challenge facing the Northern Cape, which is poverty.</p>



Relevant policy	Relevance to the proposed project
<p>Framework (PSDF) 2012</p>	<p>The PSDF identifies key sectoral strategies and plans which are considered to be the key components of the PSDF. Sectoral Strategy 19 refers to a provincial renewable energy strategy. Within the PSDF a policy has been included which states that renewable energy sources (including the utilisation of solar energy) are to comprise 25% of the province's energy generation capacity by 2020.</p> <p>The overall energy objective for the province also includes promoting the development of renewable energy supply schemes which are considered to be strategically important for increasing the diversity of domestic energy supply and avoiding energy imports, while also minimising the detrimental environmental impacts. The implementation of sustainable renewable energy is also to be promoted within the province through appropriate financial and fiscal instruments.</p> <p>The development of the associated grid connection infrastructure is required in order to connect the Khunab Solar Development to the national grid and evacuate up to 300MW of electricity into the national electricity grid. The development of the grid connection infrastructure is considered to be relevant to the framework due to the need for the associated infrastructure for the operation of RE facilities and due to the aim of the Province to have 25% energy generation capacity in terms of renewable energy.</p>

### 3.3. District and Local Municipalities Policies

The strategic policies at district and local level have similar objectives for the respective areas, namely to accelerate economic growth, create jobs, and uplift communities. The proposed grid connection 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 Khunab Solar Grid Connection**

Relevant policy	Relevance to the proposed project
<p>ZF Mgcawu District Municipality Draft Integrated Development Plan (IDP), 2018/2019 (2017-2022)</p>	<p>The vision of the ZF Mgcawu DM is "Quality support to deliver quality services.". The mission of the ZF Mgcawu DM is "Centre of excellence in providing quality basic services through support to local municipalities."</p> <p>The following strategic objectives and development objectives have been identified for the ZF Mgcawu DM:</p> <ul style="list-style-type: none"> <li>» To monitor and determine the housing backlogs in the district as well as to eradicate sanitation and infrastructure backlogs</li> <li>» To assess and provide targeted support improving institutional capacity and service delivery capabilities of category B-municipalities</li> <li>» To promote environmental health and safety of communities in the ZF Mgcawu District through the proactive prevention, mitigation, identification and management of environmental health services, fire and disaster risks</li> <li>» To promote safety of communities in the ZF Mgcawu District through the proactive prevention, mitigation, identification and management of fire and disaster risks</li> </ul>

Relevant policy	Relevance to the proposed project
	<ul style="list-style-type: none"> <li>» To Facilitate the Development of Sustainable regional land use, economic, spatial and environmental planning frameworks that will support and guide the development of a diversified, resilient and sustainable district economy</li> <li>» To market, develop and co-ordinate tourism in the ZF Mgcawu District</li> <li>» To assess and monitor the status of infrastructure needs and requirements of B Municipalities</li> <li>» To ensure efficient business operations and to fulfil the assurance statutory requirements of the ZF Mgcawu District Municipality</li> </ul> <p>The strategic objective of supporting and guiding the development of a diversified, resilient and sustainable district economy, and the development objectives of creating investment opportunities in sectoral development (i.e. investment activities, Entrepreneurial business support programme), and enabling an environment for business establishment and support initiatives (i.e. Increase the number of businesses, entrepreneurial support) through its local content and local economic development requirements will be supported through the proposed development of the grid connection infrastructure required for the operation of the proposed Khunab Solar Development.</p>
<p>Kai !Garib Local Municipality Integrated Development Plan 2019/2020 (June 2019)</p>	<p>There are six established Independent Power Producer projects located within the municipality. These projects include Khi Solar One (Solar CSP), which is located directly adjacent to McTaggart's PV1, Aries Solar (Solar PV), Neusberg Hydro Electric Project A (Hydro), Dyasons Klip 1 (Solar PV), Dyasons Klip 2 (Solar PV) and Sirius Solar PV Project One (Solar PV).</p> <p>The Kai !Garib LM has identified that there is potential for further IPP projects to become operational in the LM, with several already in the planning stages. Kai !Garib LM is also a participant in the ZF Mgcawu Development Forum, an initiative coordinated by the Industrial Development Corporation (IDC) which aims to ensure that integrated development planning and implementation of regional projects take place. This includes the renewable energy and mining plants, together with other industry stakeholders such as agricultural, business and civil society stakeholders. Kai !Garib LM recognises the importance of participating in this forum to provide a platform for partnerships for regional socio-economic growth.</p> <p>The development of the proposed grid connection infrastructure is required for the operation of the renewable energy facilities and is therefore in-line with this plan.</p>
<p>Dawid Kruiper Local Municipality Final Reviewed Integrated Development Plan for 2019/2020 (approved on 30 May 2019)</p>	<p>The LM identified, through the undertaking of a community and stakeholder analysis, key priority issues. Issues relating to energy and electricity have been identified and includes electricity provision to all in need and the upgrading of electricity infrastructure.</p> <p>The LM confirms that it is involved in the national programme for the development of solar power installations in the Upington area. Furthermore, the electricity sector is one of the fastest growing sectors in the municipality and it is considered that the sector must be exploited to ensure the creation of new job opportunities for local people.</p> <p>The development of the proposed grid connection infrastructure is required for the operation of the renewable energy facilities and is therefore in-line with this plan.</p>
<p>Dawid Kruiper All-inclusive Spatial Development Framework Final Report (February 2018)</p>	<p>The IDP (as discussed in the row above) identified the following 8 pillars as being important for development and the Dawid Kruiper Council's envisagement of a self-sustaining ecology with long-term benefit for all inhabitants of Dawid Kruiper:</p> <ol style="list-style-type: none"> <li>1. Agriculture</li> <li>2. Manufacturing and industry</li> <li>3. Tourism as a sustainable industry</li> </ol>

Relevant policy	Relevance to the proposed project
	<ol style="list-style-type: none"><li>4. Urban development</li><li>5. Rural development</li><li>6. Social Development</li><li>7. Conservation of natural habitats</li><li>8. Natural resources</li></ol> <p>According to the Dawid Kruiper LM SDF the area under investigation is located within the C.a.2 Agriculture (Ward 11) Spatial Planning Category (SPC).</p> <p>The implementation of the proposed grid connection infrastructure is not considered to be in contrast with the Dawid Kruiper LM SDF and the SPC within which the project is located.</p>

### 3.4. Conclusion

The review of relevant legislation, policies and documentation pertaining to the energy sector indicates that renewable or green energy (i.e. energy generated by naturally occurring renewable resources) and the use thereof through the evacuation of the electricity to the national grid, and therefore the establishment of the proposed grid connection infrastructure, 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.

## 4. SOCIAL PROFILE

The grid connection corridor within which the grid connection infrastructure is proposed for the development of the Khunab Solar Development is located within three affected properties including Portion 3 of the Farm McTaggart's Camp No. 453, Portion 12 of the Farm Klip Punt No. 452 and Olyvenhouts Drift Settlement Agricultural Holding 1080. The grid connection corridor is located approximately 20km south-west of Upington, in the Kai !Garib LM and the Dawid Kruiper LM, of the ZF Mgcawu DM, in the Northern Cape Province (refer to **Table 4.1**). A corridor is being considered for the development of the grid connection infrastructure.

**Table 4.1: Spatial Context of the study area for the development of the Khunab Solar Grid Connection**

<b>Province</b>	Northern Cape Province
<b>District Municipality</b>	ZF Mgcawu DM
<b>Local Municipality</b>	Kai !Garib LM Dawid Kruiper LM
<b>Ward Number(s)</b>	Ward 8 – Kai !Garib LM Ward 11 - Dawid Kruiper LM
<b>Nearest Town(s)</b>	Large towns located in the surrounding area includes Upington (approximately 20km north-east of the grid connection corridor) and Keimoes (approximately 22km south-west of the grid connection corridor)
<b>Farm Portion(s), Name(s) and Number(s)</b>	Portion 3 of the Farm McTaggart's Camp No. 453 Portion 12 of the Farm Klip Punt No. 452 Olyvenhouts Drift Settlement Agricultural Holding 1080
<b>SG 21 Digit Code (s)</b>	C02800000000045300003 C02800000000045200012 C02800130000108000000
<b>Current Zoning of the affected properties</b>	Agriculture and special use
<b>Current land use of the affected properties</b>	Agriculture and energy generation (Khi Solar One CSP Facility)

This Chapter provides an overview of the socio-economic environment of the province, DM, and LMs within which the grid connection infrastructure is proposed for development, and provides the socio-economic basis against which potential issues can be identified.

### 4.1. Northern Cape Province

The Northern Cape Province is located in the north-western extent of South Africa and constitutes South Africa's largest province, occupying an area 372 889km<sup>2</sup> in extent, equivalent to nearly a third (30.5%) of the country's total land mass. It is also South Africa's most sparsely populated province with a population of 1 145 861, and a population density of 3.1/km<sup>2</sup>. It is bordered by the provinces of the Western Cape, and Eastern Cape to the south, and south-east, the provinces of Free State, and North West to the east, Botswana and Namibia, to the north, and the Atlantic Ocean to the west. The Northern Cape is South Africa's only province which borders Namibia, and therefore plays an important role in terms of providing linkages between Namibia and the rest of South Africa. The Orange River is a significant feature within the province, is the main source of water, and also constitutes the international border between South Africa and Namibia.

The Northern Cape offers unique tourism opportunities including wildlife conservation destinations, natural features, historic sites, festivals, cultural sites, stars gazing, adventure tourism, agricultural tourism, ecotourism, game farms, and hunting areas, etc. The province is home to the Richtersveld Botanical and Landscape World Heritage Site, which comprises a United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site under the World Heritage Convention. The Northern Cape is also home to 2 Transfrontier National Parks, namely the Kgalagadi Transfrontier Park, and the Richtersveld /Ai-Ais Transfrontier Park, as well as five national parks, and 6 provincial reserves.

The Northern Cape plays a significant role in South Africa's science and technology sector, and is home to the Square Kilometre Array (SKA), the Southern African Large Telescope (SALT), and the Karoo Array Telescope (MeerKAT).

The Northern Cape makes the smallest contribution to South Africa's economy (contributing only 2% to South Africa's Gross Domestic Product per region (GDP-R) in 2007). The mining sector is the largest contributor to the provincial GDP, contributing 26%. The Northern Cape's mining industry is of national and international importance, as it produces approximately 37% of South Africa's diamond output, 44% of its zinc, 70% of its silver, 84% of its iron-ore, 93% of its lead and 99% of its manganese.

In 2007 the agricultural sector contributed 5.8% to the Northern Cape GDP per region which was equivalent to approximately R1.3 billion. The agricultural sector also employs approximately 19.5% of the total formally employed individuals (LED Strategy). The sector is experiencing significant growth in value-added activities, including game-farming, while food production and processing for the local and export market is also growing significantly (PGDS, July 2011). Approximately 96% of the land is used for stock farming, including beef cattle and sheep or goats, as well as game farming, while approximately 2% of the province is used for crop farming, mainly under irrigation in the Orange River Valley and Vaalharts Irrigation Scheme (LED Strategy).

The Northern Cape comprises five Districts, namely Frances Baard, Johan Taolo Gaetsewe, Namakwa, Pixley ka Seme, and ZF Mgcawu (refer to **Figure 4.1**).

## **4.2. ZF Mgcawu DM**

The ZF Mgcawu DM (previously known as the Siyanda DM) is situated in the north-central extent of the Northern Cape Province, and is bordered by the Namakwa DM to the south-west and south, the Pixley ka Seme DM to the south and south-east, the Frances Baard and John Taolo Gaetsewe DMs to the east, Botswana to the north, and Namibia to the west. The ZF Mgcawu DM occupies an area of land approximately 102 484km<sup>2</sup> in extent, which is equivalent to over one quarter (approximately 27%) of the Northern Cape Province. Approximately 65 000km<sup>2</sup> of the DM's land mass comprises the Kalahari Desert, Kgalagadi Transfrontier Park, and the former Bushman Land.

The ZF Mgcawu DM is home to Upington, which is the capital of the DM, and is also where the DM's government is located. Other prominent cities and towns located within the DM include Beeshoek, Brandboom, Danielskuil, Eksteenskuil, Groblershoop, Kakamas, Keimoes, Kenhardt, Lime Acres, Mier, Postmasburg, and Rietfontein. The main economic sectors within the DM include agriculture, mining, and tourism.

The ZF Mgcawu DM comprises five LMs, namely Kai !Garib, Tsantsabane, Kheis, Kgatelopele and Dawid Kruiper (refer to **Figure 4.2**).

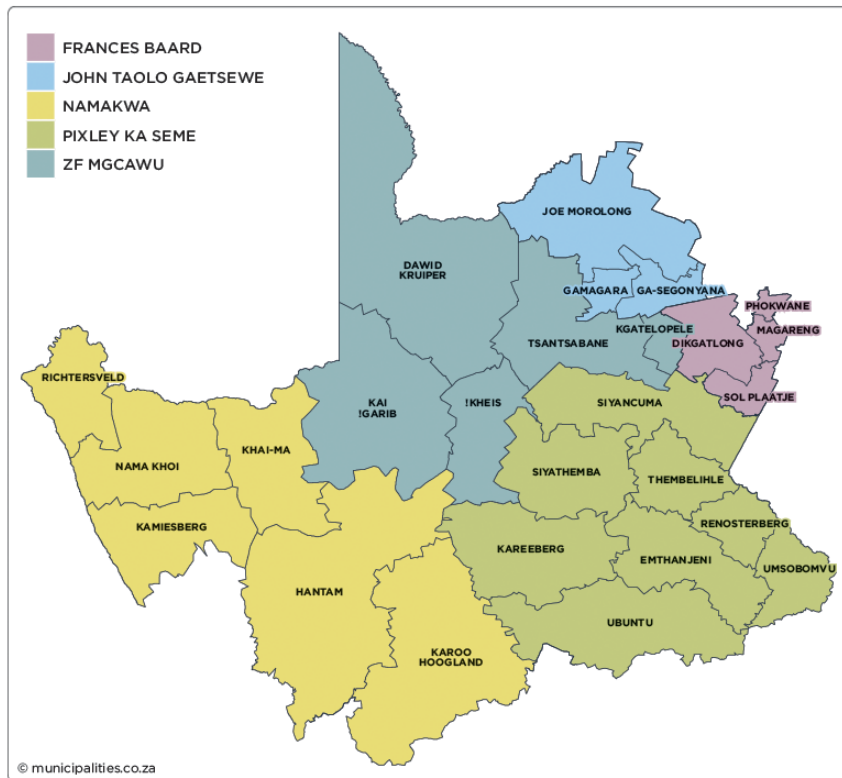


Figure 4.1: Map showing the municipalities of the Northern Cape (Source: [www.municipalities.co.za](http://www.municipalities.co.za)).

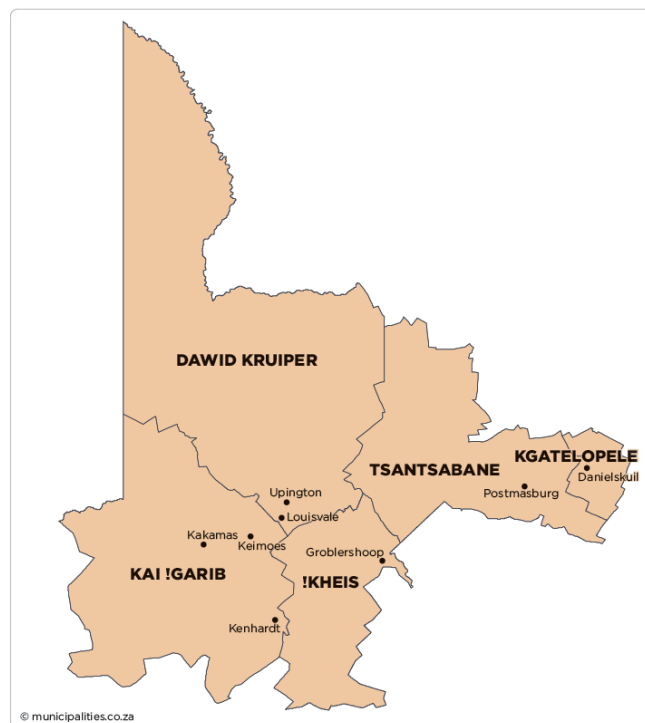


Figure 4.2: Map showing the municipalities of the ZF Mgcawu DM (Source: [www.municipalities.co.za](http://www.municipalities.co.za)).

### **4.3. Kai !Garib LM**

The Kai !Garib LM is located in the south-western extent of the ZF Mgcawu DM. It is bordered by the Dawid Kruiper LM to the north, and north-east, the !Kheis LM to the east, the Hantam LM and Khai-Ma LM of the Namakwa DM to the south and south-west respectively, and Namibia to the north-west. The Kai !Garib LM is approximately 26 377km<sup>2</sup> in extent, and is the second-largest LM in the ZF Mgcawu DM, accounting for approximately one quarter (25.7%) of the DM's geographical area. The Kai !Garib LM is characterised by its unique landscape, which includes the Kalahari Desert on one side, and the Orange River on the other.

The Kai !Garib LM is characterised by three main towns, namely: Kakamas, Keimoes, and Kenhardt. The main economic sectors within the LM include agriculture (51.8%), community and government services (15.9%), wholesale and retail trade (11.3%), finance services (7.6%), and manufacturing (5.1%)

The Orange River is the life vein of the area and forms the largest economic base of this area with large tracts of cultivated land occurring on both sides of the river. The Orange River is the biggest driving force behind the area, causing economic activities to have expanded greatly along the river over the last two decades. The main towns of Kakamas and Keimoes are situated in the midst of an intensive irrigation farming community stretching from Groblershoop in the east to Blouputs in the west. Farming includes crops like vineyards, pecan-nut and citrus plantations. Local areas where these types of farming flourish include: Blouputs, Eksteenskuil, Riemvasmaak and Cannon Island, while Kenhardt is known for livestock farming.

### **4.4. Dawid Kruiper LM**

The Dawid Kruiper LM was established by the amalgamation of the Mier LM and //Khara Hais LM on 3 August 2016, and is located in the northern extent of the ZF Mgcawu DM. The Dawid Kruiper LM is bordered by the Kai !Garib and !Kheis LMs to the south, the Tsantsabane LM to the south-east, Botswana to the north-east and north, and Namibia to the west. The LM occupies an area of land approximately 44 231km<sup>2</sup> in extent and is the largest of the five LMs which make up the ZF Mgcawu DM, occupying an area equivalent to approximately 43% of the ZF Mgcawu DM.

The Kgalagadi Transfrontier Park is located in the northern extent of the LM. The LM is also home to the Khomani San community, who are descended from several original San groups.

The Dawid Kruiper LM is the commercial, educational, military, agricultural, medical, transport and tourism centre of the area. Upington comprises the administrative and economic centre of the LM, and is also the largest town within the LM. Other prominent cities and towns located within the LM include Mier and Rietfontein. The main economic sectors within the LM include agriculture, business services, game farming, tourism and hospitality, manufacturing, transport, community services, social and personal services.

### **4.5. Grid Connection Corridor**

The Khunab Solar Grid Connection is to be developed within Portion 3 of the Farm McTaggarts Camp No. 453, Portion 12 of the Farm Klip Punt No. 452 and Olyvenhouts Drift Settlement Agricultural Holding 1080. The grid connection corridor is 300m wide (except at the Upington Main Transmission Substation where it is ~700m wide), 13km long and traverses all three aforementioned properties.

The corridor is located approximately 20km south-west of Upington, and 22km north-east of Keimoes. Settlement areas located in the vicinity of the corridor include Ses Brugge, Klippunt, Dyasons Klip Settlement, Oranjevallei, Louisvale, and Kanoneiland. These communities are considered to be low-income communities housed in low cost and informal housing. The residents of these settlements are employed largely by the local agricultural sector, specifically viticulture and fruit farms and associated manufacturing facilities. The employment opportunities are therefore largely seasonal.

The grid connection corridor traverses three agricultural properties, which are utilised for grazing purposes (specifically sheep farming). Other land uses within the affected and directly adjacent areas includes the operation of the 50MW Khi Solar One CSP Facility (operational since February 2016, **Figure 4.3**), which is located directly south of the grid connection corridor. To the north-west of the corridor, the remains of old Tungsten mining activities and limited mining infrastructure are present, which has resulted in degradation of the natural environment.

According to the National Landcover Map (2014), the corridor and the affected properties consist primarily of low shrubland, industrial areas (i.e. Khi Solar One CSP Facility), bare areas with no vegetation, very small areas of open bush or woodlands and bare mining areas.

The general area within which the corridor is located is sparsely populated (with the Kai !Garib LM having a population density of approximately 2.5/km<sup>2</sup> and Dawid Kruiper LM having a population density of 3.1/km<sup>2</sup>).



**Figure 4.3: Operational Khi Solar One located (source: [www.energy.org.za](http://www.energy.org.za))**

The N14 national road, which links the town of Keimoes to the south-west, and Upington to the north-east, is located approximately 1km to the south-east of the southern point of the grid connection corridor. A disused railway line, which stretches between Keimoes and Upington, is located north of the N14. A gravel road (known as the Lutzputs Road (D3276)) is located to the north-east of the corridor and provides access to the northern portion of the corridor through smaller farm tracks. The Lutzputs Road provides access to the Lutzputz settlement, located approximately 37km to the north-west of the corridor and is mainly used by



local road users of the area. A railway line is located ~10km to the north of the corridor which provides access from Upington to the Nakop Border Post to Namibia.

The Orange River is located ~4km to the south-east of the corridor and is considered as a major economic contributor to the area. Activities undertaken along the River include cultivation and an intensive irrigation farming community. The farming activities include crops such as vineyards, pecan-nut and citrus plantations.

The development of the Khunab Solar Grid Connection is required to enable the connection of the Khunab Solar Development to the national grid. The Khunab Solar Development comprises four solar PV facilities known as McTaggart PV1, McTaggart PV2, McTaggart PV3 and Klip Punt PV1, each with a contracted capacity of 75MW. These facilities are being assessed as part of separate Basic Assessment processes.

Considering the existing CSP project located to the south of the corridor and the proposed PV solar energy facilities, the area will become more industrial. This change in land use is considered to be acceptable considering the current and previous land use activities undertaken within the surrounding area. Further existing industrial infrastructure (i.e. grid infrastructure) in the area includes the existing Oasis Oranje 132kV power line located to the south-east, which is crossed by the grid connection corridor proposed for the development of the grid connection infrastructure. The existing Upington Main Transmission Substation (MTS) is located within the south-eastern portion of the corridor and is the preferred grid connection point to connect the four solar energy facilities to the national grid.

There are no major social receptors located within or directly adjacent to the grid connection corridor. Social receptors which could be affected are the local travellers making use of the Lutzputs Road (D3276) located to the north-east of the corridor. Other social receptors located further to the south-east include travellers making use of the N14, the settlements of Klippunt, Ses Brugge, Kalksloot, Oranjevallei and Dyasons Klip, as well as the agricultural activities undertaken along the Orange River. Due to the fact that the development of grid infrastructure and other renewable energy developments has already been undertaken within the surrounding area of the social features, i.e. the construction and operation of the Khi Solar One CSP Facility, the construction of the Sirius Solar One PV project, the construction of the Dyasons Klip 1 and 2 PV projects and the construction and operation of the Oasis Oranje 132kV power line and Upington MTS, the development of the proposed project will not introduce industrial and grid related infrastructure as a land use to the area. The nature and extent of the development and the distance of the corridor to these social receptors also provides some buffer in terms of direct impact.

Tourism activities are undertaken outside of the grid connection corridor and close to the Orange River. This includes the Bezalel Wine and Brandy Estate, which is located on the N14 approximately 8km to the south of the grid connection corridor. This facility includes accommodation, a restaurant and a wine tasting facility.

The description of the grid connection corridor and the surrounding area provided above is considered to be the current *status quo* and social landscape and characteristics associated with the area within which grid connection infrastructure is proposed to be placed.

#### 4.6. Baseline Description of the Social Environment

**Table 4.2** provides a baseline summary of the socio-economic profile of the Kai !Garib LM and the Dawid Kruiper LM within which the Khunab Solar Grid Connection is located. In order to provide context against which the LM's socio-economic profile can be compared, the socio-economic profiles of the ZF Mgcawu DM, Northern Cape Province, and South Africa as a whole have also been provided. The data presented in this section have been derived from the 2011 Census, the Local Government Handbook South Africa 2019, the Northern Cape Provincial Spatial Development Framework (PSDF), and the ZF Mgcawu DM and Kai !Garib LM IDPs.<sup>4</sup>

**Table 4.2: Baseline description of the socio-economic characteristics of the area within which the Khunab Solar Grid Connection is proposed**

Location characteristics
<ul style="list-style-type: none"> <li>» The project is proposed within the Northern Cape Province, which is South Africa's largest, but least populated Province.</li> <li>» The project is proposed within the Kai !Garib LM and the Dawid Kruiper LM of the ZF Mgcawu DM.</li> <li>» The Dawid Kruiper LM was established by the amalgamation of the Mier LM and //Khara Hais LM on 3 August 2016, and covers an area of land 44 231km<sup>2</sup> in extent, formally making it the largest LM in South Africa.</li> <li>» The Kai !Garib LM is approximately 26 358km<sup>2</sup> in extent, equivalent to approximately one quarter (25.7%) of the ZF Mgcawu DM.</li> </ul>
Population characteristics
<ul style="list-style-type: none"> <li>» Between 2001 and 2011 the Kai !Garib LM experienced a population growth rate of 1.2% per year.</li> <li>» Between 2001 and 2011 the Dawid Kruiper LM experienced a population growth rate of 1.8% per year.</li> <li>» The Kai !Garib LM is male dominated, with males comprising approximately 52.0% of the LM population. The ZF Mgcawu DM is also male dominated, with males comprising approximately 50.8% of the DM population.</li> <li>» The Dawid Kruiper LM is female dominated, with females comprising approximately 50.6% of the LM population, while the ZF Mgcawu DM is male dominated, with males comprising approximately 50.8% of the DM population.</li> <li>» Coloureds comprise the predominant population group within the Kai !Garib LM, Dawid Kruiper LM and ZF Mgcawu DM.</li> <li>» The Kai !Garib LM, Dawid Kruiper LM, ZF Mgcawu DM, and Northern Cape provincial, and South African national population age structures are all youth dominated. A considerable proportion of the respective populations therefore comprise individuals within the economically active population between the ages of 15 and 64 years of age</li> </ul>
Economic, education and household characteristics
<ul style="list-style-type: none"> <li>» The Kai !Garib LM has a dependency ratio of 29.5, which is lower than the ZF Mgcawu DM (33.6), Northern Cape Province (35.8), and South Africa (34.5).</li> <li>» The Dawid Kruiper LM has a dependency ratio of 35.6, which correlates closely with the ZF Mgcawu DM (34.4), Northern Cape Province (35.8), and South Africa (34.5).</li> <li>» Education levels within the Kai !Garib LM are low with approximately 70.6% of the population aged 20 years and older who have received some form of schooling not having completed Grade 12 / Matric. This implies that the majority of the population can be expected to have a relatively low-skill level and would either require employment in low-skill sectors, or skills development opportunities in order to improve the skills level of the area.</li> <li>» Education levels within the Dawid Kruiper LM are low with approximately 58.3% of the population over 20 years of age not having completed Grade 12 / Matric. This means that the majority of the population can be expected</li> </ul>

<sup>4</sup> While information was derived from the Local Government Handbook South Africa 2019, Northern Cape PSDF, ZF Mgcawu DM and Kai !Garib LM and Dawid Kruiper LM IDPs, these sources largely make use of statistical information derived from the Census 2011. The information presented in this Chapter may therefore be somewhat outdated, but is considered sufficient for the purposes of this assessment (i.e. to provide an overview of the socio-economic characteristics against which impacts can be identified and their significance assessed).

to have a relatively low-skill level and would either require employment in low-skill sectors, or skills development opportunities in order to improve the skills level of the area.

- » The unemployment rate of the Kai !Garib LM (6.7%) is lower than that of the ZF Mgcawu DM (11.3%), and the percentage of economically inactive individuals within the Kai !Garib LM (31.3%) is also lower than that of the ZF Mgcawu DM (38.3%).
- » The unemployment rate of the Dawid Kruiper LM is only fractionally lower than that of the ZF Mgcawu DM (i.e. 11.9% for the LM and 11.3% for the DM), and the percentage of economically inactive individuals within the Dawid Kruiper LM is higher than in the ZF Mgcawu DM (i.e. 43.3% in the LM and 38.3% in the DM). This could have a negative impact in terms of the local human capital available for employment.
- » Household income levels within the Kai !Garib LM are very low, with approximately 84% falling within the poverty level (i.e. R0 – R38 400 per annum). The area can therefore be expected to have a high poverty level with associated social consequences such as not being able to pay for basic needs and services and poor living conditions.
- » Household income levels of the Dawid Kruiper LM are low within the area, with over half (54%) of falling within the poverty level (i.e. R0 – R38 400 per annum). The area can therefore be expected to have a high poverty level with associated social consequences such as not being able to pay for basic needs and services and poor living conditions.
- » The main economic sectors within the Kai !Garib LM include agriculture (51.8%), community and government services (15.9%), wholesale and retail trade (11.3%), finance services (7.6%), and manufacturing (5.1%).
- » The primary economic activities within the Dawid Kruiper LM comprise trade and retail as a result of the strong tourism and agricultural sectors.
- » As of 2011 there were a total of 22 260 households within the Kai !Garib LM. This is equivalent to 32.9% of the total number of households within the ZF Mgcawu DM (67 468), and 7.1% of the total number of households within Northern Cape Province (313 402).
- » The majority of households (56.3%) within the Kai !Garib LM comprise formal brick dwellings, while 1.7% comprise traditional dwellings, 4.3% comprise informal dwellings not in a backyard, and 0.4% comprise informal dwellings in a back yard.
- » The majority of households within the Dawid Kruiper LM comprise formal brick dwellings, with only a very small proportion (0.8%) comprising traditional dwellings.

#### Services

- » The Kai !Garib LM is poorly serviced in terms of public sector health facilities with 1 hospital located in Kakamas, and a number of clinics, satellite clinics, mobile facilities and community health centres throughout the LM.
- » The Dawid Kruiper LM is poorly serviced in terms of public sector health facilities with 2 hospitals (one public and one private hospital), 2 Community Healthcare Centres (CHC) and 6 Fixed Primary Healthcare Clinics (CHC), and 5 Satellite Healthcare Clinics.
- » The majority of households within the Kai !Garib LM are adequately serviced with regards to water, sanitation, electricity, and refuse removal, however there is significant room for improvement in terms of service deliver within the LM, with the LM often exhibiting lower levels of service provision than that of the ZF Mgcawu DM, Northern Cape Province, and South Africa as a whole.
- » The majority of households within the Dawid Kruiper LM are well serviced with regards to water, sanitation, electricity, and refuse removal, with the LM often exhibiting higher levels of service provision than the ZF Mgcawu, Northern Cape Province, and South Africa.

## 5. SOCIAL IMPACT ASSESSMENT

---

This Chapter provides a detailed description and assessment of the potential social impacts that have been identified for the detailed design and construction, operation, and decommissioning phases, of the proposed Khunab Solar Grid Connection.

A 300m wide and 13km long grid connection corridor, within which the grid connection infrastructure will be developed, has been provided by the applicant for consideration as part of the Basic Assessment process and is considered within the SIA. The layout provides an indication of the grid connection corridor within which the power line and collector substations will be located (**Figure 5.1**).

Through the undertaking of this Social Impact Assessment for the development of the grid connection infrastructure, the current *status quo* of the area from a social and land use perspective was considered in order to provide an indication of the positive and negative social impacts expected to occur. This assessment considered the following points:

- » The location of the grid connection corridor in relation to immediately adjacent and surrounding social features that may be affected.
- » The nature, extent and significance of the features within the social landscape being considered.
- » The existing disturbance already present within the social landscape (i.e. mining activities and other industrial developments).

Social impacts are expected to occur during both the construction and operation phase of the grid connection infrastructure. 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.

### 5.1. Social Impacts during the Construction Phase

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

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

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

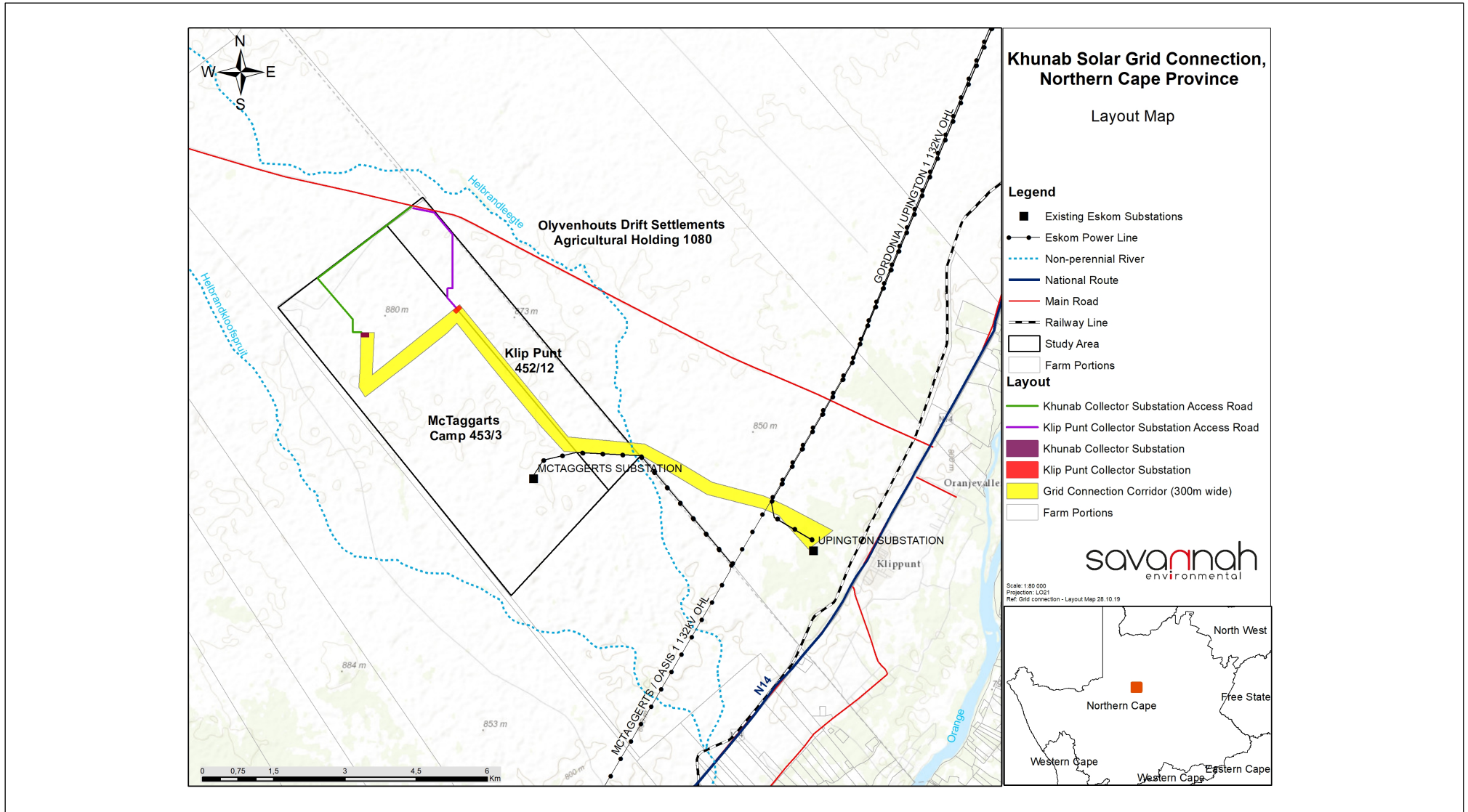


Figure 5.1: Layout of the grid connection corridor assessed for the Khunab Solar Grid Connection

**Table 5.1: Impact assessment on direct and indirect employment opportunities**

**Nature:** The creation of direct and indirect employment opportunities during the construction phase of the project.

It is anticipated that development of the grid connection infrastructure will result in the creation of approximately 110 employment opportunities at the peak of construction, comprising a mixture of highly skilled (5%), skilled (15%) and semi-skilled and unskilled (90%) positions. 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. ~12 months). The general labour force will, as far as possible, 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 in the form of wages will represent an opportunity for the local economy and businesses in the area.

A number of 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.

	<b>Without enhancement</b>	<b>With enhancement</b>
<b>Extent</b>	Local- Regional (3)	Local- Regional (3)
<b>Duration</b>	Short term (1)	Short term (1)
<b>Magnitude</b>	Minor (2)	Low (2)
<b>Probability</b>	Highly probable (4)	Definite (5)
<b>Significance</b>	<b>Low (24)</b>	<b>Medium (30)</b>
<b>Status (positive or negative)</b>	Positive	Positive
<b>Reversibility</b>	N/A	N/A
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes (enhanced)	

**Enhancement:**

- » A local employment policy should be adopted to maximise opportunities made available to the local labour force.
- » Labour should be sourced from the local labour pool where possible. If the necessary skills are unavailable, labour should be sourced from (in order of preference) the greater Kai !Garib LM, Dawid Kruiper LM, ZF Mgcawu DM, Northern Cape Province, South Africa, or elsewhere. Where required, training and skills development programmes should be initiated prior to the commencement of the construction phase.
- » Labour force suppliers should as far as possible be sourced locally.
- » 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 recruitment selection process should seek to promote gender equality and the employment of women wherever possible.
- » Proof of skills development must be provided to the upskilled individual.

**Residual impacts:**

- » Improved pool of skills and experience in the local area.
- » Economic growth for small-scale entrepreneurs.

**Table 5.2: Economic multiplier effects**

**Nature:** Significance of the impact from the economic multiplier effects from the use of local goods and services.

There are likely to be opportunities for local businesses and service providers to provide services and materials for, and in doing so benefit from, the construction phase of the Khunab Solar Grid Connection. Off-site accommodation in the nearest towns (Keimoes or Upington) may be required for contract workers and certain employees. The economic multiplier effects from the use of local goods and services will include, but is not limited to, construction materials and equipment, and workforce essentials such as catering, trade clothing, safety equipment, accommodation, transportation and other goods.

In terms of business opportunities for local companies, expenditure during the construction phase will create business opportunities for the regional and local economy. The increase in demand for new materials and services in the nearby area may stimulate local business and local economic development. There is likely to be a direct increase in industry and indirect increase in secondary businesses.

	<b>Without enhancement</b>	<b>With enhancement</b>
<b>Extent</b>	Local- Regional (3)	Local- Regional (3)
<b>Duration</b>	Short term (1)	Short term (1)
<b>Magnitude</b>	Minor (2)	Low (4)
<b>Probability</b>	Highly probable (4)	Highly probable (4)
<b>Significance</b>	<b>Low (24)</b>	<b>Medium (32)</b>
<b>Status (positive or negative)</b>	Positive	Positive
<b>Reversibility</b>	N/A	N/A
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes (enhanced)	

**Enhancement:**

- » 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.

**Residual impacts:**

- » Improved local service sector; growth in local business.

**Table 5.3: Assessment of impacts from an influx of jobseekers and change in population**

**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.

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.

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.

	Without mitigation	With mitigation
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Short-term (2)	Short-term (2)
<b>Magnitude</b>	Small (0)	Small (0)
<b>Probability</b>	Probable (3)	Improbable (2)
<b>Significance</b>	<b>Low (9)</b>	<b>Low (6)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » 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 prioritizes "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 (from towns such as Keimoes and Upington) 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.
- » Appoint a security company and implement appropriate security procedures to ensure that workers do not remain onsite after working hours.
- » Inform local community organisations and policing forums of construction activities and times and the duration of the construction phase.

**Residual impacts:**

- » Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure, resources and services.

**Table 5.4: Assessment of safety and security impacts**

**Nature:** Temporary increase in safety and security concerns associated with the influx of people during the construction phase.

The commencement of construction activities can be associated with an increase in crime within an area. The perceived loss of security during the construction phase of a project due to an influx of workers and / or outsiders to the area (as in-migration of newcomers, construction workers or jobseekers are usually associated with an increase in crime), may have indirect effects such as increased safety and security concerns for neighbouring properties, damage to property, increased risk of veld fire, stock theft, poaching, crime and so forth.

The labour force will not permanently reside within the construction site.

	Without mitigation	With mitigation
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Short term (2)	Short term (2)
<b>Magnitude</b>	High (8)	Moderate (6)



<b>Probability</b>	Probable (3)	Improbable (2)
<b>Significance</b>	<b>Medium (36)</b>	<b>Low (20)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » Working hours should be kept within daylight hours during the construction phase.
- » Employees should be easily identifiable and must adhere to the security rules of the construction site.
- » Provide transportation for workers (from towns such as Keimoes and Upington) to ensure workers do not need to move closer to the construction site.
- » The perimeter of the construction site should be appropriately secured to prevent any unauthorised access to the site. The fencing of the site should be maintained throughout the construction period.
- » The appointed EPC contractor must appoint a security company and ensure appropriate security procedures and measures are implemented.
- » Access in and out of the construction site should be strictly controlled by a security company appointed for the project.
- » 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.
- » The implementation of a stakeholder management plan by the EPC contractor to address neighbouring landowner concerns regarding safety and security.

**Residual impacts:**

- » None anticipated.

**Table 5.5: Assessment of impacts on daily living and movement patterns.**

**Nature:** Temporary increase in traffic disruptions and movement patterns during the construction phase.

Project components and equipment will be transported using road transport. The N14 national road provides the primary access to the area, while the corridor itself can be accessed via the Lutzputs Road (gravel in nature) from the N14. Local farmers utilise the gravel access roads to access their farms.

Increased traffic due to 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 during the construction phase could also negatively impact local residents and road users.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local-Regional (3)	Local-Regional (3)
<b>Duration</b>	Short term (1)	Short term (1)
<b>Magnitude</b>	Moderate (6)	Low (4)
<b>Probability</b>	Probable (3)	Probable (3)
<b>Significance</b>	<b>Medium (30)</b>	<b>Low (24)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » Working hours must preferably be restricted to daylight hours during the construction phase. Where deviation of the 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 N14, the Lutzputs Road and 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 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 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 Community Liaison Officer (CLO).

**Residual impacts:**

- » None anticipated.

**Table 5.6: Assessment of nuisance impacts (noise and dust)**

**Nature:** Nuisance impacts in terms of temporary increase in noise and dust.

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 along the N14 national road, and gravel access roads. The primary sources of noise during construction would be from construction equipment, vehicle and truck traffic. Noise levels can be audible over a large distance although are generally short in duration. Dust would be generated from construction activities as well as trucks / vehicles driving on gravel access roads. This impact will negatively impact sensitive receptors. The impact of noise and dust on sensitive receptors can be reduced through the application of appropriate mitigation measures.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Short-term (2)	Short-term (2)
<b>Magnitude</b>	Moderate (6)	Low (4)
<b>Probability</b>	Highly probable (4)	Probable (3)
<b>Significance</b>	<b>Medium (36)</b>	<b>Low (21)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » The movement of heavy vehicles associated with the construction phase through populated areas should be timed to avoid weekends, public holidays and holiday periods, where feasible.
- » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.
- » A speed limit of 40km/hr should be implemented on gravel roads.
- » Ensure all vehicles are road worthy, drivers are licensed and are made aware of the potential noise and dust issues.
- » A CLO should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
- » A stakeholder management plan must be implemented by the EPC contractor to address neighbouring farmer concerns regarding safety and security.

**Residual impacts:**

- » Residual damage from construction activities.

**Table 5.7: Assessment of visual impacts and impacts on the sense of place**

**Nature:** Intrusion impacts from construction activities will have an impact on the area's "sense of place".

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 however expected that the grid connection infrastructure will only affect areas and receptors that have already been exposed to other existing grid connection infrastructure and other industrial infrastructure (i.e. for which the sense of place has already been altered).

Given the location of corridor within an area characterised as having a low population density, and given the project's location within close proximity to operational and visible grid infrastructure and other industrial developments (such as solar facilities), the visual impact and impact on the area's sense of place, from a social perspective, associated with the construction of the proposed project is anticipated to be of a very limited significance.

The identification of the significance of the impact on sense of place for the construction phase was undertaken through the consideration of the Landscape and Visual Impact Assessment (Environmental Planning and Design, 2019) undertaken for the project.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Short-term (1)	Short-term (1)
<b>Magnitude</b>	Minor (2)	Small (0)
<b>Probability</b>	Improbable (2)	Very improbable (1)
<b>Significance</b>	<b>Low (8)</b>	<b>Low (2)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » Limit noise generating activities to daylight working hours and avoid weekends and public holidays.
- » 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.

**Residual impacts:**

- » None anticipated.

## 5.2. Social impacts during the Operation Phase

As the Khunab Solar Grid Connection is proposed for the Khunab Solar Development, it is anticipated that the grid connection infrastructure will operate for a minimum of 20 years and continuously, 7 days a week. While the grid connection infrastructure will be largely self-sufficient, monitoring periodic maintenance activities will be required during the operation phase.

It must be noted that the ownership of the grid connection infrastructure will be transferred to Eskom following completion of construction, who will be responsible for the operation and maintenance of the infrastructure.

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

- » Direct and indirect employment opportunities
- » Visual impact and sense of place impacts
- » Impacts associated with the loss of agricultural land

**Table 5.8: Employment opportunities and skills development**

**Nature:** The creation of employment opportunities and skills development opportunities during the operation phase

During the operation phase, it is expected that very limited employment opportunities will be available to Eskom Employees as the maintenance will be undertaken by Eskom and according to scheduled and preventative maintenance regimes. These opportunities will be available for limited periods of time, during this phase of the Khunab Solar Grid Connection which will have a negligible positive impact to the area.

	Without enhancement	With enhancement
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Short term (2)	Short term (2)
<b>Magnitude</b>	Small (0)	Small (0)
<b>Probability</b>	Probable (3)	Probable (3)
<b>Significance</b>	<b>Low (9)</b>	<b>Low (9)</b>
<b>Status (positive or negative)</b>	Positive	Positive
<b>Reversibility</b>	N/A	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	No enhancement is relevant as Eskom employees will be utilised for the maintenance of the grid connection infrastructure.	

**Enhancement:**

None

**Residual impacts:**

None

**Table 5.9: Assessment of the visual impact and impacts on sense of place**

**Nature:** Visual impacts and sense of place impacts associated with the operation phase of the Khunab Solar Grid Connection.

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 operation of the facility, and consider the impact to be less significant. Such a scenario may especially be true given that the project comprises a renewable energy project, and could therefore be seen as benefitting the local environment, when compared to non-renewable energy generation projects.

Given the location of corridor within an area characterised as having a low population density, and given the project's location within close proximity to the operational and visible grid infrastructure and other industrial developments (i.e. solar facilities), the visual impact and impact on the area's sense of place associated with the construction of the proposed project, from a social perspective, is anticipated to be of a very limited significance.

The identification of the significance of the impact on sense of place was undertaken through the consideration of the Landscape and Visual Impact Assessment (Environmental Planning and Design, 2019) undertaken for the project.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Long-term (4)	Long-term (4)
<b>Magnitude</b>	Minor (2)	Small (0)
<b>Probability</b>	Improbable (2)	Improbable (2)
<b>Significance</b>	<b>Low (14)</b>	<b>Low (10)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Yes	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

- » Maintain and manage the grid connection infrastructure 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.
- » 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.

**Residual impacts:**

- » The visual impact of the grid infrastructure will remain until the infrastructure is completely decommissioned and removed. Thereafter the impact will be removed.

**Table 5.90: Assessment on the loss of agricultural land and overall productivity**

**Nature:** Loss of agricultural land and overall productivity as a result of the operation of the proposed project on an agricultural property.

Land capability is defined as “the extent to which land can meet the needs of one or more uses under defined conditions of management”. The grid connection corridor proposed for the development of the Khunab Solar Grid Connection has a Low to Very-Low land capability which indicates that the area is only suitable for animal grazing and no dryland crop production.

The grazing capacity of the veld is 30 to 40 hectares per large animal unit or large stock unit. When this is converted to small stock units (8 to 10 hectares per small stock unit), it indicates that the area proposed for the project can support 39 to 48 head of sheep for grazing purposes. Sheep farming is a viable long-term land use of the site permitting that the current crippling drought conditions ceases and as long as the field quality is maintained by never exceeding the grazing capacity.

From an agricultural potential perspective the grid connection corridor has limited to no suitability for rainfed crop production.

Considering the land capability and agricultural potential of the grid connection corridor, the significance of the impact on the loss of agricultural land will be low, before the implementation of mitigation, from a social perspective.

The Soils, Land Use, Land Capability and Agricultural Potential Impact Assessment (TerraAfrica Consult, 2019) undertaken for the project was considered for the identification of the significance relating to the impact on loss of agricultural land.

	Without mitigation	With mitigation
<b>Extent</b>	Site (1)	Site (1)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Minor (2)	Small (0)
<b>Probability</b>	Improbable (2)	Improbable (2)
<b>Significance</b>	<b>Low (14)</b>	<b>Low (10)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Reversible	Reversible
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	
<b>Mitigation:</b>		
» Keep the project footprint as small as possible.		
» Implement mitigation measures recommended by the soil specialist.		
<b>Residual impacts:</b>		
» None expected to occur.		

### 5.3. Cumulative Impacts

The 2014 EIA Regulations (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 grid connection corridor is proposed within the Northern Strategic Transmission Corridor and the Uppington Renewable Energy Development Zone (REDZ 7). The location of the grid connection corridor is in close

proximity to a number of other proposed, approved, and operational grid connection infrastructure, which in some cases is associated infrastructure for other renewable energy developments within the area (refer to **Table** ).

Existing grid connection infrastructure located within the surrounding area of the corridor includes the existing Oasis Oranje 132kV power line located to the south-east, which is crossed by the grid connection corridor proposed for the development of the grid connection infrastructure. The Klipkraal Upington 2 132kV power line is located on the north eastern boundary of Olyvenhouts Drift Settlement Agricultural Holding 1080 which connects to the Klipkraal Substation located within the said property. This infrastructure is located more than 5km from the grid connection corridor. The existing Upington Main Transmission Substation (MTS) is located within the south-eastern portion of the corridor and is the preferred grid connection point to connect the four solar energy facilities to the national grid.

**Table 5.13: Solar energy projects / developments proposed, approved and operational within proximity (i.e. within 30km) of the Khunab Solar Grid Connection and the Khunab Solar Development. Each project has an associated grid connection.**

Project Name	DEA Reference Number(s)	Location	Project Status
Sirius Solar PV Project One (1 x 75MW PV)	14/12/16/3/3/2/469	Remaining Extent of the Farm Tungsten Lodge No. 638 – located south east of the corridor.	Preferred Bidder project under construction
Sirius Solar PV Project Two (1 x 75MW PV)	14/12/16/3/3/2/470	Remaining Extent of the Farm Tungsten Lodge No. 638 – located south-east of the corridor.	Approved
Sirius Solar PV Project Three (1 x 100MW PV)	TBC	Remaining Extent of the Farm Tungsten Lodge No. 638 – located south-east of the corridor.	Proposed
Sirius Solar PV Project Four (1 x 100MW PV)	TBC	Remaining Extent of the Farm Tungsten Lodge No. 638 – located south-east of the corridor.	Proposed
Khi Solar One (1 x 50MW CSP)	12/12/20/1831	Portion 03 of the Farm McTaggarts Camp No. 435 – located immediately south east and within the study area.	Operational
Kai Garib (1 x 125MW CSP)	14/12/16/3/3/2/656	Portion 03 of the Farm McTaggarts Camp No. 435 – located within the study area and immediately to the south.	Approved
Eskom Kiwno CSP (1 x 100MW CSP)	12/12/20/777	Olyvenhouts Drift Settlement Agricultural Holding 1080 – located immediately to the east of the corridor.	Approved
Dyasons Klip 1 and 2 (2 x 75MW)	14/12/16/3/3/2/538/1 14/12/16/3/3/2/538/2	Remainder of the Farm Dyasons Klip No. 454 – immediately west of the corridor.	Preferred Bidder projects under construction

Project Name	DEA Reference Number(s)	Location	Project Status
Bloemsmond Solar 1 and 2 (2 x 75MW PV)	14/12/16/3/3/2/815 14/12/16/3/3/2/816	Portions 5 and 14 of the Farm Bloemsmond No. 455 – located to the south-west of the corridor.	Approved
Upington Solar Park (1 x 1 000MW CSP and PV)	12/12/20/2146	Farm Klip Kraal No. 451 – located to the east of the corridor.	Approved
S-Kol PV Plant (1 x 100MW PV)	12/12/20/2230	Farm Geelkop No. 456 – located to the south-west of the corridor.	Approved
Roopunt (1 x 150MW CSP)	14/12/16/3/3/1/427	Farm McTaggarts Camp No. 435 – located directly to the north-west of the corridor.	Approved
Solis Power I and II Projects (1 x 150MW CSP, 1 x 125MW CSP)	14/12/20/16/3/3/3/82 14/12/16/3/3/2/621	Portion 443 to 450 of the Farm Van Rooys Vlei – located to the north-west of the corridor.	Approved
Upington Airport Solar PV (1 x 8.9MW PV)	12/12/20/2146	Erf 6013 Upington – located to the north-east of the corridor.	Operational
Allepad PV (4 x 100MW)	14/12/16/3/3/2/1105 14/12/16/3/3/2/1106 14/12/16/3/3/2/1107 14/12/16/3/3/2/1108	Erf 5315 and Erf 01 Upington - located north-east of the corridor.	Approved
Ephraim Sun Solar PV (1 x 75MW PV)	14/12/16/3/3/2/821	Remaining Extent of Portion 62 of the Farm Vaalkoppies No. 40 – located to the south-east of the corridor.	Approved
Ofir-Zx PV Plant (1 x 200MW PV)	12/12/20/2229	Remaining extent of the Farm 616 - located to the south-west of the corridor.	Approved
Eenduin Solar Park (1x 75MW PV)	14/12/16/3/3/2/631	Portion 2 of the Farm Eenduin No. 465 – located to the south-west of the corridor.	Proposed
Bright Source CSP Facility (1 x 125MW CSP)	14/12/16/3/3/2/605	Remaining extent of the Farm No. 426 - located to the north-north-east of the corridor	Approved
Bloemsmond 3,4 & 5 (3 x100 MW PV)	TBC	Portions 5 and 14 of the Farm Bloemsmond No. 455 – located to the south-west of the corridor.	Proposed

Considering the concentration of existing and proposed grid connection infrastructure and solar power energy developments within the surrounding area of the proposed Khunab Solar Grid Connection, the potential for cumulative impacts to occur is likely. 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 jobseekers and change in the areas sense of place.

A cumulative map is included in **Figure 5.2** illustrating grid connection infrastructure.



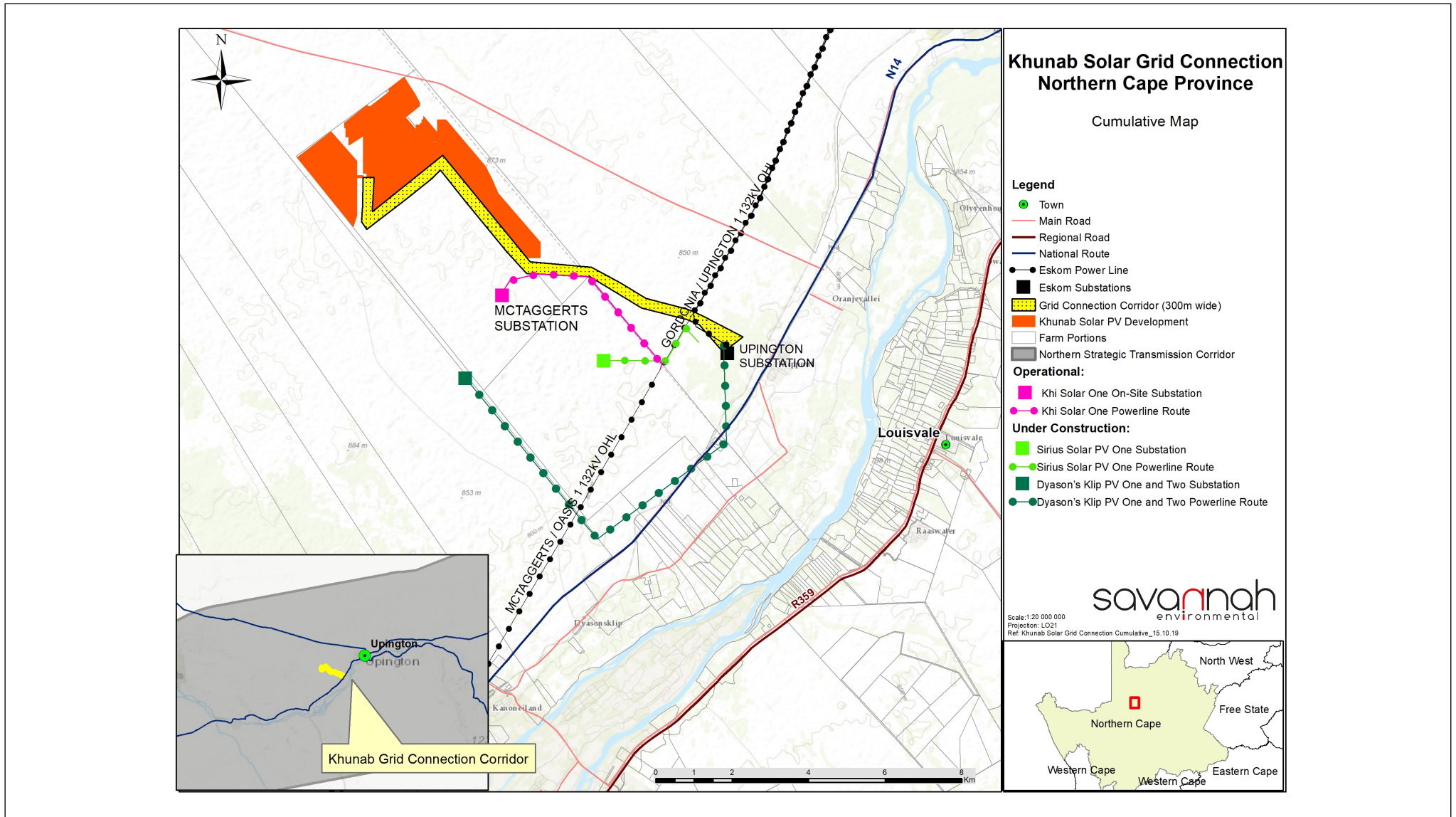


Figure 5.2: Cumulative map considered for the Khunab Solar Grid Connection

### 5.3.1. Cumulative Impacts associated with Khunab Solar Grid Connection

**Table 5.14: Cumulative impacts of employment opportunities, business opportunities and skills development**

**Nature:**

An increase in employment opportunities, skills development and business opportunities with the establishment of more than one solar power facility.

The Khunab Solar Grid Connection, the establishment of associated grid connection infrastructure for other solar power projects and grid connection infrastructure associated with the national grid 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/spin-off business opportunities. The cumulative benefits to the local, regional, and national economy through employment and procurement of services are more considerable than that of the Khunab Solar Grid Connection alone.

	<b>Overall impact of the proposed project considered in isolation</b>	<b>Cumulative impact of the project and other projects in the area</b>
<b>Extent</b>	Local- Regional-National (4)	Local- Regional-National (4)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Low (4)	Moderate (6)
<b>Probability</b>	Probable (3)	Highly Probable (4)
<b>Significance</b>	<b>Medium (36)</b>	<b>Medium (56)</b>
<b>Status (positive or negative)</b>	Positive	Positive
<b>Reversibility</b>	N/A	
<b>Irreplaceable loss of resources?</b>	N/A	
<b>Can impacts be mitigated?</b>	Yes (enhanced)	
<b>Confidence in findings</b>	High	

**Enhancement:**

The establishment of grid connection infrastructure projects within 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.

**Residual impacts:**

- » Improved pool of skills and experience in the local area.
- » Improved standard of living through the creation of employment opportunities.
- » Economic growth for small-scale entrepreneurs.

**Table 5.15: Cumulative impact with large-scale in-migration of people**

**Nature:** Negative impacts and change to the local economy with an in-migration of labourers, businesses and jobseekers to the area.

While the development of the Khunab Solar Grid Connection may not result in a major influx of people into the area, the development of several projects at the same time may have a cumulative impact on the in-migration and movement of people. In addition, the fact that the project is proposed within REDZ 7 and within the Northern Strategic Transmission Corridor, which has specifically been earmarked for the development of large scale solar PV energy facilities and grid connection infrastructure, implies that the surrounding area is likely to be subject to considerable future applications and expansion of such infrastructure. Levels of unemployment, and the low level of earning potential may attract individuals to the area in search of better employment opportunities and 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.

	<b>Overall impact of the proposed project considered in isolation</b>	<b>Cumulative impact of the project and other projects in the area</b>
<b>Extent</b>	Local (2)	Local-Regional (3)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Minor (2)	Low (4)
<b>Probability</b>	Very Improbable (1)	Improbable (2)
<b>Significance</b>	<b>Low (8)</b>	<b>Low (22)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Yes	
<b>Irreplaceable loss of resources?</b>	No	
<b>Can impacts be mitigated?</b>	Yes	
<b>Confidence in findings</b>	High	

**Mitigation:**

- » Develop a recruitment policy / process (to be implemented by contractors), which will source labour locally.
- » Work together with government agencies to ensure that service provision is in line with the development needs of the local area.
- » Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services.
- » Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated.

**Residual impacts**

- » Possibility of outside workers remaining in the area after the construction is completed and the subsequent potential pressures on local infrastructure, services and poverty problems.

**5.4. 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. However, due to operation phase employment opportunities being available only to Eskom employees, the impact of the decommissioning phase is expected to be negligible.

**5.5. Assessment of Impacts for the No-Go Option:**

The “no-go” alternative is the option of not constructing the Khunab Solar Grid Connection. 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 job creation, skills development, community upliftment and associated economic business opportunities for the local economy. This impact is considered to be negative.

The option of not developing the Khunab Solar Grid Connection would compromise the development of the proposed Khunab Solar Development and the socio-economic benefits for local communities associated with the Khunab Solar Grid Connection (and indirectly the Khunab Solar Development) would be forfeited and the current status of the social aspects associated with the area will remain as it is currently described in this report.

## 6. CONCLUSION AND RECOMMENDATIONS

This SIA focused on the collection of data to provide an understanding of the current social environment associated with the grid connection corridor within which the Khunab Solar Grid Connection 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 were 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 and construction, and operation phases are presented in Error! Reference source not found. and Error! Reference source not found.. A summary of the potential positive and negative cumulative social impacts identified for the project is provided in Error! Reference source not found..

**Table 6.1: Summary of potential social impacts identified for the detailed design and construction phase of the Khunab Solar Grid Connection.**

Impact	Significance Without Mitigation/ Enhancement	Significance With Mitigation/ Enhancement
<b>Positive Impacts</b>		
Creation of direct and indirect employment and skills development opportunities.	Low (24)	Medium (30)
Economic multiplier effects	Low (24)	Medium (32)
<b>Negative Impacts</b>		
In-migration of people (non-local workforce and jobseekers).	Low (9)	Low (6)
Safety and security impacts	Medium (36)	Low (20)
Impacts on daily living and movement patterns	Medium (30)	Low (24)
Nuisance impact (noise and dust)	Medium (36)	Low (21)
Visual and sense of place impacts	Low (8)	Low (2)

**Table 6.2: Summary of potential social impacts identified for the operation phase of the Khunab solar Grid Connection**

Impact	Significance Without Mitigation/ Enhancement	Significance With Mitigation/ Enhancement
<b>Positive Impacts</b>		
Direct and indirect employment and skills development opportunities	Low (12)	Low (16)
<b>Negative Impacts</b>		
Visual and sense of place impacts	Low (14)	Low (10)
Impacts associated with the loss of agricultural land.	Low (14)	Low (10)

**Table 6.3: Summary of potential cumulative social impacts identified for the Khunab Solar Grid Connection**

Cumulative Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
<b>Positive Cumulative Impacts</b>		
Cumulative impact from employment, skills and business opportunities and skills development	Medium (36)	Medium (56)
<b>Negative Cumulative Impacts</b>		
Cumulative impact with large-scale in-migration of people	Low (8)	Low (22)

### 6.1. 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 Khunab Solar Grid Connection. 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 considered to be appropriate and suitable for the mitigation of the negative impacts and the enhancement of the positive impacts.

Based on the findings of the social impact assessment, the following recommendations are made:

- » A Community Liaison Officer (CLO) must be appointed to assist with the management of social impacts and to deal with community issues, if feasible.
- » 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.
- » It is recommended 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 phase where possible.
- » Local procurement of services and equipment is required where possible in order to enhance the multiplier effect.
- » Involve the community in the project 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 taken into account 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.

### 6.2. 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 potential for mitigation it is the reasoned opinion of the specialist that the project can be authorised from a social perspective.

## 7. REFERENCES

---

- Department of Energy (DoE). (2008). National Energy Act (No. 34 of 2008). Republic of South Africa.
- Department of Energy (DoE). (2011). National Integrated Resource Plan for Electricity 2010-2030. Republic of South Africa.
- Department of Energy (DoE). (2003). White Paper on Renewable Energy. Republic of South Africa.
- Department of Environmental Affairs (DEA). (1998). National Environmental Management Act 107 of 1998 (No. 107 of 1998). Republic of South Africa.
- Department of Environmental Affairs (DEA). (2010). National Climate Change Response Green Paper. Republic of South Africa.
- Department of Justice (DoJ). (1996). The Constitution of the Republic of South Africa (Act 108 of 1996). ISBN 978-0-621-39063-6. Republic of South Africa.
- Department of Minerals and Energy (DME). (1998). White Paper on Energy Policy of the Republic of South Africa. Republic of South Africa.
- Environmental Planning and Design. (2019). Landscape and Visual Impact Assessment for the proposed McTaggart's PV 1, near Upington in the Northern Cape Province.
- International Finance Corporation (IFC). (2007). Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets. International Finance Corporation: Washington.
- Interorganizational Committee on Principles and Guidelines for Social Impact Assessment. US Principles and Guidelines – Principals and guidelines for social impact assessment in the USA. *Impact Assessment and Project Appraisal*, 21 (3): 231-250.
- Kai !Garib Local Municipality. (2018). Kai !Garib Local Municipality Draft Integrated Development Plan 2018 / 2019.
- National Development Agency (NDA). (2014). Beyond 10 years of unlocking potential. Available from: [http://www.nda.org.za/?option=3&id=1&com\\_id=198&parent\\_id=186&com\\_task=1](http://www.nda.org.za/?option=3&id=1&com_id=198&parent_id=186&com_task=1)
- National Planning Commission. (2012). National Development Plan 2030. ISBN: 978-0-621-41180-5. Republic of South Africa.
- Northern Cape Provincial Government. (2012). Northern Cape Provincial Spatial Development Framework (PSDF) 2012.
- Savannah Environmental (2014). Final Environmental Impact Assessment Report for the Sirius Solar PV Project One, Northern Cape Province.
- Statistics South Africa. (2011). Census 2011 Community Profiles Database. Pretoria.
- TerraAfrica Consult cc. (2019). Soil, Land Use, Land Capability and Agricultural Potential Assessment for the proposed McTaggart's PV 1, Northern Cape Province.
- United Nations Environment Programme (UNEP). (2002). EIA Training Resource Manual. 2nd Ed. UNEP.
- United Nations Economic and Social Commission for Asia and the Pacific (UN). (2001). Guidelines for Stakeholders: Participation in Strategic Environmental Management. New York, NY: United Nations.
- Vanclay, F. (2003). Conceptual and methodological advances in Social Impact Assessment. In Vanclay, F. & Becker, H.A. 2003. *The International Handbook for Social Impact Assessment*. Cheltenham: Edward Elgar Publishing Limited.
- ZF Mgcawu District Municipality. (2018). ZF Mgcawu District Municipality Draft Integrated Development Plan (IDP) 2017 – 2022 (2018 / 2019).

**APPENDIX A:  
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)**



## 1. Construction Phase

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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

<b>Performance Indicator</b>	<ul style="list-style-type: none"> <li>» Implement a business policy document that sets out local employment and targets completed before the construction phase commences.</li> <li>» Employ as many local semi-skilled and unskilled labour as possible.</li> <li>» Training and skills development programme is undertaken prior to the commencement of construction phase.</li> </ul>
<b>Monitoring</b>	» 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.

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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

<b>Performance Indicator</b>	<ul style="list-style-type: none"> <li>» Local procurement policy is adopted.</li> <li>» Local goods and services are purchased from local suppliers, where feasible.</li> </ul>
<b>Monitoring</b>	» 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**

<b>Project component/s</b>	Construction of the proposed project
<b>Potential Impact</b>	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.
<b>Activity/risk source</b>	Influx of construction workers and job seekers.
<b>Mitigation: Target/Objective</b>	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods.

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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
--	--------------------------------	---------------------------------------

<b>Performance Indicator</b>	» CLO is appointed.	
<b>Monitoring</b>	» 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**

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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 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 proposed 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 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

<b>Performance Indicator</b>	» Ensure that a 'locals first' policy is adopted. » Ensure no recruitment takes place on-site. » Control/removal of loiters.	
------------------------------	--	--

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

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

<b>Project component/s</b>	Construction of the proposed project
<b>Potential Impact</b>	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.
<b>Activity/risk source</b>	Construction activities affecting daily living and movement patterns.
<b>Mitigation: Target/Objective</b>	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
Heavy 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 heavy 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

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

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

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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

<b>Performance Indicator</b>	» Limit noise generating activities.
------------------------------	--------------------------------------

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

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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

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

## 2. Operation Phase

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
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

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

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

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

<b>Mitigation: Action/control</b>	<b>Responsibility</b>	<b>Timeframe</b>
-----------------------------------	-----------------------	------------------

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



