

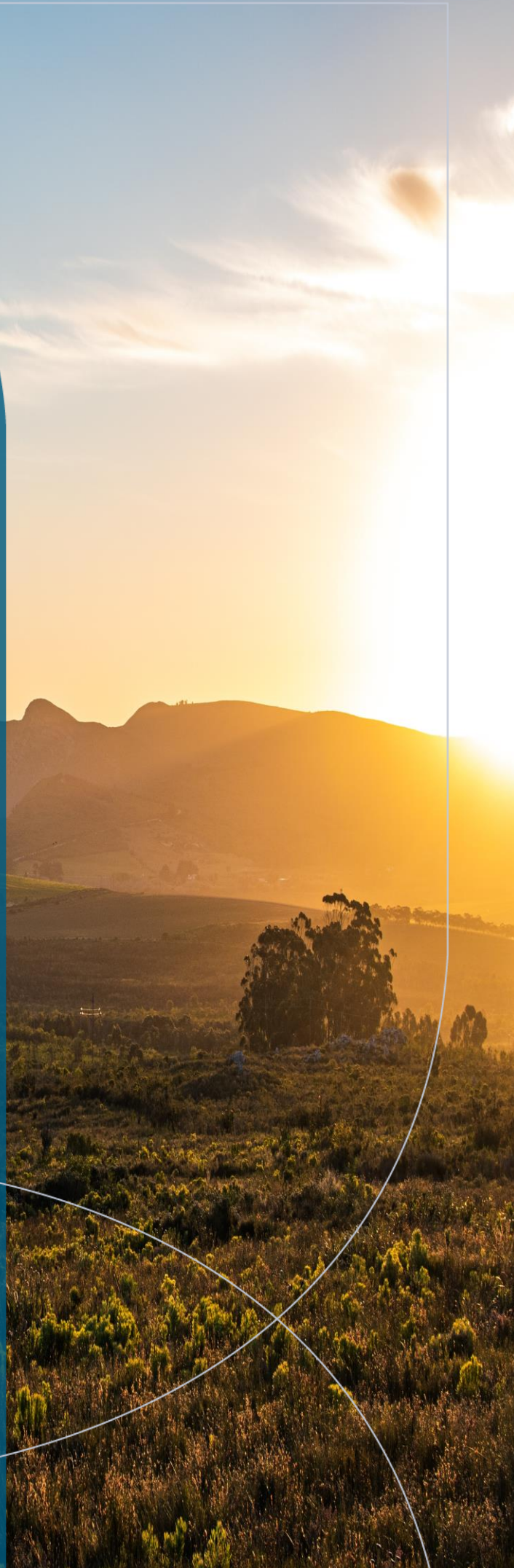
DRAFT  
SCOPING  
REPORT

ENVIRONMENTAL  
IMPACT ASSESSMENT  
PROCESS FOR THE  
PROPOSED  
DWAALBOOM SOLAR 2  
PHOTOVOLTAIC SOLAR  
ENERGY FACILITY AND  
ASSOCIATED  
INFRASTRUCTURE NEAR  
NORTHAM, LIMPOPO  
PROVINCE

01 SEPTEMBER 2023



BLUECRANE  
ENVIRONMENTAL



---

## PROJECT DETAILS

---

DFFE Reference Number	:	2023-06-0024
Project Title	:	The Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province
Authors	:	Roschel Maharaj and Suvana Alakram
Consultancy	:	Blue Crane Environmental (Pty) Ltd
Registered EAP	:	Roschel Maharaj (2019/824) Suvana Alakram (2021/4387) (candidate)
Applicant	:	Dwaalboom Solar 2 (Pty) Ltd
Report Status	:	Draft Scoping Report released for the 30-day review and comment period from 01 September 2023 to 03 October 2023
Submission Date	:	01 September 2023
Report Reference	:	Blue Crane Environmental, (2023). Draft Scoping Report: The Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province.



**COPYRIGHT RESEVED**

This report is specifically created for Dwaalboom Solar 2 (Pty) Ltd. The intellectual property included in this report belongs to both Blue Crane Environmental (Pty) Ltd and Dwaalboom Solar 2 (Pty) Ltd. Any reproduction or utilization of this report in any form is strictly prohibited without prior written consent from Blue Crane Environmental (Pty) Ltd or Dwaalboom Solar 2 (Pty) Ltd.

---

# TABLE OF CONTENTS

---

1. INTRODUCTION.....	1
1.1. Project Overview .....	2
1.2. Requirement for the Environmental Impact Assessment Process.....	3
1.3. Details of the Environmental Assessment Practitioner and Independent Specialists .	8
1.4. Assumptions and Limitations.....	11
1.5. Legal Requirements Complied with in Section 1 as per the Requirements of the EIA Regulations, 2014 (as amended).....	11
2. PROJECT DESCRIPTION AND SITE SELECTION PROCESS.....	13
2.1. Location of the proposed development .....	13
2.2. Details of the infrastructure proposed .....	16
2.3. Site Selection Process.....	21
2.4. Alternatives under assessment .....	24
2.4.1. Site-specific and Layout Alternatives.....	26
2.4.2. Activity Alternatives.....	28
2.4.3. Technology Alternatives.....	29
2.4.4. Grid Connection Alternatives .....	31
2.4.5. 'Do-nothing' Alternative .....	32
2.5. Project Development Phases and Services Required.....	32
2.6. Legal Requirements Complied with in Section 2 as per the Requirements of the EIA Regulations, 2014 (as amended).....	37
3. POLICY AND LEGISLATIVE CONTEXT .....	39

---

3.1.	National, Provincial and Local Policy and Planning Context .....	39
3.2.	International Policy and Planning Context.....	40
3.3.	Legal Requirements Complied with in Section 3 as per the Requirements of the EIA Regulations, 2014 (as amended).....	76
4.	NEED AND DESIRABILITY .....	77
4.1.	Need for the Proposed Development .....	77
4.2.	Receptiveness of the Site and Desirability of the Development .....	79
4.3.	Legal Requirements Complied with in Section 4 as per the Requirements of the EIA Regulations, 2014 (as amended).....	82
5.	APPROACH TO THE PROCESS .....	83
5.1.	Assessment of Potential Impacts and Issues.....	85
5.2.	Impact Assessment Methodology .....	92
5.3.	Legal Requirements Complied with in Section 5 as per the Requirements of the EIA Regulations, 2014 (as amended).....	98
6.	PUBLIC PARTICIPATION PROCESS.....	99
6.1.	Identification of Stakeholder and Interested and / or Affected Parties .....	99
6.2.	Formal Notification.....	100
6.3.	Registered I&APs entitled to comment on the Reports and Plans .....	104
6.4.	Legal Requirements Complied with in Section 6 as per the Requirements of the EIA Regulations, 2014 (as amended).....	105
7.	DESCRIPTION OF THE AFFECTED ENVIRONMENT.....	106
7.1.	Description of the Study Area .....	106
7.2.	Biophysical Environment .....	110
7.3.	Agricultural Assessment .....	110

---

7.4.	Terrestrial Biodiversity.....	112
7.4.1.	Description of the Biome.....	115
7.4.2.	Description of the Climate of the Savanna Biome .....	115
7.4.3.	Description of the Vegetation and Habitat Types.....	115
7.4.4.	Floral Assessment.....	120
7.4.5.	Faunal Assessment.....	121
7.5.	Aquatic Biodiversity.....	124
7.6.	Avifauna Assessment.....	128
7.7.	Visual Assessment .....	130
7.7.1.	Visual Features and Sensitive Receptors.....	131
7.7.2.	Zone of Theoretical Visibility (ZTV) Model .....	133
7.8.	Cultural Impact Assessment .....	140
7.8.1.	Cultural Landscape and Heritage Resources .....	141
7.8.2.	Palaeontological Assessment .....	142
7.9.	Traffic Assessment.....	143
7.10.	Concluding Statement.....	145
7.11.	Legal Requirements Complied with in Section 7 as per the Requirements of the EIA Regulations, 2014 (as amended).....	145
8.	IMPACT ASSESSMENT OF POTENTIAL ISSUES.....	147
8.1.	Assessment of Potential Impacts and Issues.....	148
8.1.1.	Potential Impacts on Avifauna.....	148
8.1.2.	Potential Impacts on Terrestrial and Aquatic Ecology.....	149
8.1.3.	Potential Impacts on Soil and Agriculture .....	163
8.1.4.	Potential Impacts on the Visual Landscape .....	164

---

8.1.5.	Potential Impacts on the Social Environment.....	168
8.1.6.	Potential Impacts on Heritage Resources.....	179
8.1.7.	Traffic Impact Assessment .....	183
8.2.	Consideration of Potential Cumulative Impacts.....	187
8.3.	Site Sensitivity Analysis for the Facility Layout Design .....	192
8.4.	Legal Requirements Complied with in Section 8 as per the Requirements of the EIA Regulations, 2014 (as amended).....	194
9.	EIA PLAN OF STUDY .....	195
9.1.	Description of the Aspects to be Assessed .....	195
9.1.1.	Aspects of the Development.....	195
9.1.2.	Consideration of Alternatives .....	195
9.1.3.	Aspects to be Assessed by the Independent Specialists .....	197
9.2.	Methodology to be Utilised for the Impact Assessment.....	199
9.3.	Consultation with the Competent Authority.....	204
9.4.	Public Participation during the EIA Phase.....	204
9.5.	Legal Requirements Complied with in Section 9 as per the Requirements of the EIA Regulations, 2014 (as amended).....	205
10.	CONCLUSION .....	207
11.	REFERENCES.....	210

---

## LIST OF TABLES

---

Table 1.1: Listed Activities Applied For.....	4
Table 1.2: Details of the Registered EAPs.....	8
Table 1.3: Details of the independent specialists.....	10
Table 2.1: General site and location information .....	13
Table 2.3: Summary of the alternatives considered.....	24
Table 2.4: Summary of the Activities to be Undertaken in the Development Phases.....	32
Table 3.1: Legislative context relevant to Dwaalboom Solar 2.....	47
Table 3.2: Policy context relevant to Dwaalboom Solar 2 .....	56
Table 4.1: Published Draft IRP 2019.....	79
Table 5.1: Specialist studies Identified by the DFFE screening tool, solar PV category and specialist studies completed.....	86
Table 5.2: Specialist studies identified by the DFFE screening tool, substation category and specialist studies completed.....	88
Table 5.3: Specialist studies identified by the DFFE screening tool, power line category (LILCO Connection) and specialist studies completed.....	90
Table 5.4: Impact rating methodology.....	92
Table 7.1: On-site confirmation of Species of Conservation Concern (SCC) .....	129
Table 7.2: Landscape Features and Potential Sensitive Receptors within a 10 km Radius.	131
Table 7.3: ZTV Exposure Rating.....	133
Table 7.4: Summary of the Visual Impact Assessment.....	134
Table 7.5: Palaeontological Sensitivity Rating.....	143
Table 8.1: Summary of the Impacts Identified for Terrestrial Ecology During the Construction and Decommissioning Phases.....	153
Table 8.2: Summary of the Impacts Identified for Terrestrial Ecology During the Operational Phase .....	159
Table 8.3: Visual Impact During the Construction Phase of the Solar PV Facility.....	166



---

Table 8.4: Visual Impact During the Operational Phase of the Solar PV Facility.....	166
Table 8.5: Visual Lighting Impacts.....	167
Table 8.6: Direct and Indirect Employment Opportunities and Skills Development During Construction .....	170
Table 8.7: Economic Multiplier Effects During Construction .....	170
Table 8.8: Potential Loss of Productive Farmland During Construction.....	171
Table 8.9: Influx of Jobseekers and Change in Population During Construction.....	171
Table 8.10: Safety and Security Impacts During Construction.....	172
Table 8.11: Impacts on Daily Living and Movement Patterns During Construction .....	173
Table 8.12: Nuisance Impacts During Construction Phase .....	173
Table 8.13: Increased Risk of Potential Veld Fires During Construction .....	174
Table 8.14: Visual and Sense of place Impacts During Construction.....	174
Table 8.15: Direct and Indirect Employment Opportunities and Skills Development During Operation .....	175
Table 8.16: Development of Non-Polluting, Renewable Energy Infrastructure During Operation .....	175
Table 8.17: Potential Loss of Agricultural Land During Operation .....	176
Table 8.18: Contribution to Local Economic Development (LED) and Social Upliftment During Operation .....	176
Table 8.19: Impact on Tourism During Operation.....	177
Table 8.20: Visual and Sense of Place Impacts During Operation.....	177
Table 8.21: Vegetation Clearance During Decommissioning .....	178
Table 8.22: Impact to Heritage Resources During Construction .....	181
Table 8.23: Impact to Heritage Resources During Operation .....	181
Table 8.24: Impact to Heritage Resources During Decommissioning.....	182
Table 8.25: Traffic Impacts Relating to the Construction Phase of the Dwaalboom Solar 2 PV Facility.....	184
Table 8.26: Traffic Impacts Relating to the Operational Phase of the Dwaalboom Solar 2 PV Facility.....	184

Table 8.27: Traffic Impacts Relating to the Decommissioning Phase of the Dwaalboom Solar 2 PV Facility .....	185
Table 8.28: Renewable energy facilities within a 30 km radius from the proposed development .....	187
Table 9.1: Aspects to be assessed by the independent specialists .....	198
Table 9.2: Impact rating methodology for the Impact Assessment. ....	199

---

## LIST OF FIGURES

---

Figure A: Locality Map

Figure B: Regional Map

Figure C: Footprint Map

Figure D: Land Capability Map

Figure E: Vegetation Map

Figure F: Critical Biodiversity Areas Map

Figure G: Cumulative Impacts Map

Figure H1: Preliminary Layout Map (Scoping Phase)

Figure H2: Environmental Sensitivity Map

Figure H3: Layout and Environmental Sensitivity Map

Figure H4: Layout, Environmental Sensitivity and Similar Projects Map

Figure I: South African Protected and Conservation Areas Map

Figure 2.1: Draft layout plan for Dwaalboom Solar 2 assessed as part of this draft Scoping Report..... 20

Figure 2.2: Global horizontal irradiation values for South Africa (Solar GIS, 2021) and the Dwaalboom Solar 2 development area ..... 22

Figure 2.3: Typical mitigation hierarchy ..... 24

Figure 2.4: Dwaalboom Solar 2 PV Facility layout under assessment as part of the Scoping Phase ..... 27

Figure 2.5: Dwaalboom Solar 2 LILO Connection Corridor under assessment for the placement of the overhead power line ..... 31

Figure 5.1: The phases of an EIA Process ..... 83

Figure 5.2: Prescribed timeframes associated with the S&EIA process ..... 85

---

Figure 6.1: Affected properties of Dwaalboom Solar 1-4 (indicated in Blue) in relation to the identified surrounding landowners.....	103
Figure 7.1: District Municipalities of the Limpopo Province. ....	108
Figure 7.2: Local Municipalities of the Waterberg District Municipality.....	109
Figure 7.3: Agricultural Sensitivity as per Screening Tool Report.....	111
Figure 7.4: Terrestrial Threatened Ecosystems Map .....	113
Figure 7.5: Critical Biodiversity Areas Map.....	114
Figure 7.6: Delineated Landscape / Habitat Features and Ecological Status .....	118
Figure 7.7: Terrestrial Ecological Importance.....	119
Figure 7.8: Potential Area of Influence for Dwaalboom Solar 2.....	126
Figure 7.9: Aquatic Biodiversity Map .....	127
Figure 7.10: Zone of Theoretical Visibility (ZTV) Map.....	139
Figure 7.11: Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map.....	142
Figure 7.12: Existing External Road Network Surrounding the Dwaalboom Solar 2 Facility .....	144
Figure 7.13: Site Access Recommendation .....	144

## PLATES

---

Plate 1: Approximate centre of the site taken towards the north

Plate 2: Approximate centre of the site taken towards the north-east

Plate 3: Approximate centre of the site taken towards the east

Plate 4: Approximate centre of the site taken towards the south-east

Plate 5: Approximate centre of the site taken towards the south

Plate 6: Approximate centre of the site taken towards the south-west

Plate 7: Approximate centre of the site taken towards the west

Plate 8: Approximate centre of the site taken towards the north-west

## APPENDICES LIST

---

Appendix A: EAP Declaration, Undertaking of Oath and Curriculum Vitae

Appendix B: DFFE Screening Report (s)

Appendix C: Public Participation

Appendix C1: Press Advertisement

Appendix C2: On-Site Notice

Appendix C3: List of I&APs

Appendix C4: Proof of Correspondence

Appendix C5: Written Comments

Appendix C6: Comments and Responses Report

Appendix D: Site Verification Report

Appendix E: Specialist Reports and Site Sensitivity Verification

Appendix E1: Terrestrial and Aquatic Ecological Scoping Phase Assessment

Appendix E2: Avifaunal Site Sensitivity Verification Report

Appendix E3: Site Sensitivity Verification and Agricultural Compliance Statement

Appendix E4: Visual Impact Assessment

Appendix E5: Social Impact Assessment

Appendix E6: Heritage Impact Assessment

Appendix E7: Traffic Impact Assessment

Appendix E8: Specialist Terms of Reference

Appendix E9: Specialist Declaration of Independence

Appendix F: Additional Information

Appendix F1: DFFE confirmation that no pre-application meeting is required

## GLOSSARY OF TERMS AND ACRONYMS

CEA	Cumulative Effects Assessment
DFFE	Department of Forestry, Fisheries and the Environment
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EP	Equator Principles
EPFI	Equator Principles Financial Institutions
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
GNR	Government Notice Regulation
I&AP	Interested and affected party
IAP	Invasive Alien Plant
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
IRP	Integrated Resource Plan



kV	Kilo Volt
LM	Local Municipality
Mitigate	Activities designed to compensate for unavoidable environmental damage.
MW	Megawatt
NEMA	National Environmental Management Act No. 107 of 1998
NERSA	National Energy Regulator of South Africa
NWA	National Water Act No. 36 of 1998
PAOI	Project area of influence
POSA	Plants of South Africa
PPP	Public Participation Process
PV	Photovoltaic
REIPPP	Renewable Energy Independent Power Producer Procurement Programme
SAHRA	South African Heritage Resources Agency
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
S&EIA	Scoping and EIA Process
SPP	Solar Power Plant
VU	Vegetation Unit

---

# INVITATION TO COMMENT

---

Dwaalboom Solar 2 (Pty) Ltd is proposing the development of a photovoltaic solar energy facility and associated infrastructure for the purpose of commercial electricity generation on an identified site located on Portion 1 of the Farm Einde No. 420, Registration Division KQ, Limpopo Province situated within the Thabazimbi Local Municipality, Waterberg District area of jurisdiction.

Blue Crane Environmental (Pty) Ltd has been appointed as the independent environmental consultant to undertake the required Environmental Impact Assessment Process (EIA) as per the requirements of the 2014 EIA Regulations promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

As the development of the Dwaalboom Solar 2 facility has the potential to result in negative impacts on the environment, Application for Environmental Authorisation (EA) must be made by the relevant decision-maker and in doing so to obtain Environmental Authorisation. The decision-making authority is the National Department of Forestry, Fisheries and the Environment (DFFE).

This is the draft Scoping Report that has been made available for a 30-day review and comment period to all interested and/or affected parties (I&APs) to provide opportunity to raise comment and concern regarding the proposed development. The 30-day period is from **Friday, 01 September 2023 to Tuesday, 03 October 2023**.

This report therefore represents the findings of the Scoping Phase of the EIA process and contains the following sections and information:

- **Section 1: Introduction** - provides background to the development and the Scoping & EIA (S&EIA) process.
- **Section 2: Project Description and Site Selection Process** - provides a description of all project related details, including alternatives and the process followed by the Applicant for site selection.
- **Section 3: Policy and Legislative Context** – provides a description of the policy and legislative context considering the proposed development, and also provides an indication of how the development responds to these aspects.

- **Section 4: Need and Desirability** - describes the need and desirability of the proposed development within the site and for the broader area.
- **Section 5: Approach to the Process** - outlines the approach followed in terms of the S&EIA Process.
- **Section 6: Public Participation Process** – outlines the approach followed in terms of the Public Participation Process.
- **Section 7: Description of the Affected Environment** - describes the current environment within which the development is proposed, including biophysical and socio-economic aspects.
- **Section 8: Impact Assessment** - provides an assessment of the potential impacts (including cumulative impacts) associated with the development and provides recommendations for the mitigation of significant impacts.
- **Section 9: EIA Plan of Study** - provides the plan to be followed for the EIA Phase of the process.
- **Section 10: Conclusion** - presents the conclusions and recommendations based on the findings of the draft Scoping Report.

---

## EXECUTIVE SUMMARY

---

Dwaalboom Solar 2 (Pty) Ltd intends to develop a 240 MW photovoltaic solar energy facility and associated infrastructure on Portion 1 of the Farm Einde No. 420 approximately 5.5 km east of the town of Northam in the Limpopo Province. The solar PV facility will comprise several arrays of PV panels and associated infrastructure and will have a contracted capacity of up to 240 MW. The development area is situated within the Thabazimbi Local Municipality within the Waterberg District Municipality. The site is accessible via an existing District Road, 3717 (along the Brits Road) located adjacent to the development area.

Blue Crane Environmental (Pty) Ltd has been appointed to undertake the Scoping and EIA Process for the proposed development. Activities required for the development of the solar energy facility which are listed under Listing Notice 1, 2 and 3 (GNR 327, 325 and 324) implies that the development could potentially have a significant impact on the environment that will require mitigation. Subsequently a thorough assessment process is required as described in Regulations 21-24 of the EIA Regulations to obtain Environmental Authorisation (EA).

This is the draft Scoping Report that has been made available to I&APs, stakeholders and the competent authority for a 30-day review and comment period. Potentially sensitive areas have been identified through the Scoping Phase and provides a high-level overview of the sensitivity on the Dwaalboom Solar 2 Development Area. The detail is based on the desktop review of available baseline information for the Development Area, as well as the sensitivity data received from specialist studies undertaken during the Scoping Phase.

Based on the high-level assessments, it has been predicted that the proposed development will have a net positive impact for the area and will subsequently ensure the optimal utilisation of resources and land. All negative environmental impacts can be effectively mitigated through the recommended mitigation measures and no residual negative impacts are foreseen. The potentially most significant environmental impacts associated with the development, as identified in this draft Scoping Report, are briefly summarised below.

### Predicted impacts during the construction phase:

During the construction phase negative impacts are foreseen over the short term. The latter refers to a period of up to 24 months. The potentially most significant impacts relate to habitat

destruction caused by clearance of vegetation and socio-economic impacts such as the creation of direct and indirect employment opportunities, economic multiplier effects from the use of local goods and services and temporary increase in traffic disruptions and movement patterns.

Predicted impacts during the operational phase:

During the operation phase the site will serve as a solar PV energy facility and the potential impacts will take place over a period of 25 – 30 years. The negative impacts are generally associated with habitat destruction caused by clearance of vegetation, displacement of priority avian species from important habitats, collision and electrocutions of avifauna and visual impact of sensitive visual receptors occurring for motorists that drive past the proposed facility. The provision of sustainable services delivery also needs to be confirmed. The operational phase will have a direct positive impact through the creation of employment opportunities and skills development, development of non-polluting, renewable energy infrastructure and contribution to economic development and social upliftment.

Predicted impacts during the decommissioning phase:

The negative impacts generally associated with the decommissioning phase include: habitat destruction caused by clearance of vegetation and the loss of permanent employment. However, skilled staff will be eminently employable, and a number of temporary jobs will also be created in the process. It is not expected that the facility will be decommissioned, but rather that the technology used will be upgraded.

Further to the above, cumulative impacts could arise as other similar projects are constructed in the area. According to the Department of Forestry, Fisheries and Environment (DFFE) database, there are twelve (12) similar developments that have been proposed in close proximity to the proposed activity.

It is recommended that the competent authority approve the Scoping Report and Plan of Study for the EIA so that the Application may move forward to the EIA Phase. This is based on the fact that no fatal flaws have been identified for the development of the Dwaalboom Solar 2 PV facility and associated infrastructure, as well as the potential opportunity to avoid, manage and mitigate the impacts associated with the proposed development.

---

# 1. INTRODUCTION

---

Dwaalboom Solar 2 (Pty) Ltd intends to develop a 240 MW photovoltaic solar energy facility and associated infrastructure (including LILLO connection into existing Eskom infrastructure) on Portion 1 of the Farm Einde No. 420, situated within the Thabazimbi Local Municipality, Waterberg District Municipality, area of jurisdiction. The town of Northam is located approximately 5.5 km west of the proposed development (refer to Figure A and B for the locality and regional maps). . The site is accessible via an existing District Road, 3717 (along the Brits Road) located adjacent to the development area.

A development area<sup>1</sup> / site of up to 481 hectares (including supporting infrastructure) has been identified for assessment as part of the Environmental Impact Assessment (EIA) process, which is fully assessed as part of this draft Scoping Report. The project further entails a Loop-In-Loop-Out (LILLO) overhead power line connection between the back-to-back facility substation and Eskom collector switching station and into the existing Eskom Spitskop–Mamba 132 kV overhead power line.

The site has been identified as being highly desirable due to its suitable climatic conditions, topography (i.e., in terms of slope), environmental conditions (i.e., low agricultural potential, ecological sensitivity and archaeology), proximity to the Eskom grid connection infrastructure, and proximity to the existing R510 Regional Road and the existing 3717 District Road (i.e., to facilitate the movement of machinery, equipment, infrastructure and people during the construction phase).

Three additional solar PV facilities (Dwaalboom Solar 1, Dwaalboom Solar 3, Dwaalboom Solar 4) are concurrently being considered on the surrounding properties and are assessed through separate Scoping and Environmental Impact Assessment (S&EIA) processes.

---

<sup>1</sup> The development area is defined as the area within the affected property under assessment for the placement of the development footprint which will house all infrastructure associated with the development. The final development footprint will only be defined within the EIA phase of the process.

### 1.1. Project Overview

For the development of Dwaalboom Solar 2, specific infrastructure and key components are required to be constructed and operated to enable the generation of electricity through the use of photovoltaic technology. The main components are as follows:

- PV Panel Array to enable the generation of up to 240 MW of electricity.
- Inverters and cabling are required to connect the PV array and thereby enabling the conversion of direct current (DC) electricity to alternating current (AC) electricity at grid frequency.
- Grid connection infrastructure is required to connect the PV array to the electrical grid. This requires the transformation of the voltage from 480 V up to 33 kV and 132 kV. The grid connection infrastructure required includes an on-site facility substation and an Eskom collector switching station (located back-to-back) and a single or double circuit overhead power line. A Loop-In-Loop-Out (LILO) connection between the back-to-back facility substation and Eskom collector switching station and into the existing Eskom Spitskop–Mamba 132 kV power line is required.
- Battery Energy Storage System (BESS) / facilities are required for the storage of generated electricity.
- Supporting infrastructure is required in the form of auxiliary buildings (including basic services such as water and electricity). These include an operations and maintenance building / offices, switch gear and relay room, a gate house and security control, control centre, workshops for storage and maintenance, staff lockers and changing room.
- Temporary and permanent laydown areas are also required.
- Roads are required to access the site, as well as internally to access the various project components.
- For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farms.

A separate Basic Assessment will be undertaken to assess the grid connection infrastructure required to evacuate the energy from the Eskom collector station (central collector) directly into the national grid i.e., Spitskop Main Transmission Substation.

The proposed project is intended to form part of the Department of Mineral Resources and Energy's (DMREs) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme or any other programmes/opportunities to generate power in South Africa. The

REIPPP Programme aims to secure 14 725 Megawatts (MW) of new generation capacity from renewable energy sources, while simultaneously diversifying South Africa's electricity mix. According to the 2021 State of the Nation Address, Government will soon be initiating the procurement of an additional 11 800 MW of power from renewable energy, natural gas, battery storage and coal in line with the Integrated Resource Plan (IRP) 2019 and fulfilling their commitments under the United Nations Framework Convention on Climate Change and its Paris Agreement which include the reduction of greenhouse gas emissions. Eskom, our largest greenhouse gas emitter, has committed in principle to net zero emission by 2050 and to increase its renewable capacity.

During the 2022 State of the Nation Address it was indicated that during the past year the government had taken "firm steps" to bring additional generation capacity online as quickly as possible to close the shortfall in terms of electricity. As a result, it was confirmed that several new generation projects will be coming online over the next few years. During the recent 2023 State of the Nation Address, the government has embarked upon allowing private developers to generate electricity. There are now more than 100 projects, which are expected to provide over 9 000 MW of new capacity over time. A number of companies that have participated in the renewable energy programme will soon enter construction and deliver a total of 2 800 MW of new capacity. Through the Just Energy Transition Investment Plan, R1.5 trillion will be invested in our economy over the next five years in new frontiers such as renewable energy, green hydrogen and electric vehicles. A number of projects are already underway, including the development of a new facility by Sasol at Boegoebaai in the Northern Cape, the Prieska Power Reserve in the Free State, and the Hydrogen Valley initiative in Limpopo, Gauteng and KwaZulu-Natal.

Therefore, in response to the above Dwaalboom Solar 2 (Pty) Ltd is proposing the development of a photovoltaic solar facility and associated infrastructure for the purpose of commercial electricity generation.

## **1.2. Requirement for the Environmental Impact Assessment Process**

The construction and operation of Dwaalboom Solar 2 is subject to the requirements of the EIA Regulations, 2014 (as amended), published in terms of Section 24(5) of the National



Environmental Management Act<sup>2</sup> (NEMA) 107 of 1998. NEMA provides for the authorisation of certain activities referred to as “listed activities”. In terms of Section 24(1) of NEMA, the potential impact on the environment associated with such listed activities must be considered, investigated, assessed, and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.

The main listed activity triggered by the proposed facility is Activity 1 of Listing Notice 2 (GN R 325), which relates to the development of facilities or infrastructure for the generation of electricity from a renewable resource where the generating capacity is 20 megawatts or more. The photovoltaic solar facility will have a capacity of up to 240 MW. Table 1.1 below indicates all listed activities triggered in terms of the EIA Regulations and provide a project description in terms of the activity trigger.

**Table 1.1:** Listed Activities Applied For

Relevant notice:	Activity No (s)	Description of each listed activity as per project description:
GNR. 327 (as amended in 2017)	Activity 11(i)	<ul style="list-style-type: none"> <li>• <i>“The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts”.</i></li> <li>• Activity 11(i) is triggered as the project entails the development of: <ul style="list-style-type: none"> <li>○ 33 kV cabling between the project components and the facility substation;</li> <li>○ A 132 kV facility substation;</li> <li>○ A 132 kV Eskom collector switching station; and</li> <li>○ A Loop-In-Loop-Out (LILLO) overhead 132 kV power line connection between the back-to-back facility substation and Eskom collector switching station</li> </ul> </li> </ul>

<sup>2</sup> NEMA is the national legislation that provides for the authorisation of certain controlled activities known as “listed activities”.

		and the existing Spitskop–Mamba 132 kV power line.
GNR. 327 (as amended in 2017)	Activity 24(ii)	<ul style="list-style-type: none"> <li>• <i>“The development of a road (ii) with reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 meters”.</i></li> <li>• Activity 24(ii) is triggered as the proposed main access road will be up to 10 m wide.</li> </ul>
GNR. 327 (as amended in 2017)	Activity 28(ii)	<ul style="list-style-type: none"> <li>• <i>“Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare”.</i></li> <li>• Activity 28(ii) is triggered as the total area to be developed for the PV facility and associated infrastructure is greater than 1 ha and occurs outside an urban area in an area currently zoned for agriculture. The property will be re-zoned to “special” use. The identified assessment area is up to 481 ha.</li> </ul>
GNR. 327 (as amended in 2017)	Activity 56 (ii):	<ul style="list-style-type: none"> <li>• <i>“The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre (ii) where no reserve exists, where the existing road is wider than 8 metres...”</i></li> <li>• Activity 56(ii) is triggered as the main access roads may require widening of up to 10 m to accommodate the movement of heavy vehicles and cable trenching activities. Internal access roads will comprise a width of up to 8 m.</li> </ul>
GNR. 325 (as amended in 2017)	Activity 1	<ul style="list-style-type: none"> <li>• <i>“The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more”.</i></li> </ul>

		<ul style="list-style-type: none"> <li>Activity 1 is triggered since the proposed solar PV facility will generate up to 240 megawatts of electricity through the use of a renewable resource.</li> </ul>
GNR. 325 (as amended in 2017)	Activity 15	<ul style="list-style-type: none"> <li><i>"The clearance of an area of 20 hectares or more of indigenous vegetation."</i></li> <li>Activity 15 is triggered as the cumulative area of indigenous vegetation to be cleared for the entire Project (excluding linear components) will exceed 20 hectares. The development area is approximately 481 ha.</li> </ul>
GNR. 324 (as amended in 2017)	Activity 4(e)(i)(gg)	<ul style="list-style-type: none"> <li><i>"The development of a road wider than 4 metres within a reserve less than 13.5 metres (e) Limpopo Province (i) Outside urban areas (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from core areas of a biosphere reserve"</i></li> <li>Activity 4(e)(i)(gg) is triggered as the proposed main access road will be up to 10 m wide. Internal access roads will comprise a width of up to 8 m. The development area is located within 5 km of a protected area being the Leeuwkopje Private Nature Reserve; Sharme Private Nature Reserve; Koerooi Private Nature Reserve; and Tortoiseshell Private Reserve.</li> </ul>
GNR. 324 (as amended in 2017)	Activity 10(e)(i)	<ul style="list-style-type: none"> <li><i>"The development and related operations of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres (e) Limpopo (i) All areas."</i></li> <li>Activity 10(e)(i) is triggered as the use of hazardous substances will form part of the construction phase. The</li> </ul>

		<p>substances anticipated to be used includes cement powder associated with the concrete/brick works; petrol/diesel for trucks, cranes, bulldozers etc. and limited amounts of transformer oils. The dangerous goods will be stored during construction in a covered area/bin and disposed at registered hazardous waste sites. The development area is located within 5 km of a protected area being the Leeuwkopje Private Nature Reserve; Sharme Private Nature Reserve; Koerooi Private Nature Reserve; and Tortoiseshell Private Reserve.</p>
GNR. 324 (as amended in 2017)	Activity 18 (e)(i)(gg)	<ul style="list-style-type: none"> <li>• <i>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre (e) Limpopo Province (i) Outside urban areas (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area biosphere reserve..”</i></li> <li>• Activity 18(e)(i)(gg) is triggered as the proposed main access road will be up to 10 m wide. The development area is located within 5 km of a protected area being the Leeuwkopje Private Nature Reserve; Sharme Private Nature Reserve; Koerooi Private Nature Reserve; and Tortoiseshell Private Reserve.</li> </ul>

Appendix 2 of the EIA Regulations, 2014 (as amended), contains the objectives to be achieved through the undertaking of a Scoping process. The following objectives have been considered, undertaken and achieved through a consultative process within this draft Scoping Report for the Dwaalboom Solar 2 facility:

- Identify the relevant policies and legislation relevant to the activity;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

- Identify and confirm the preferred activity and technology alternative through an identification of impacts and risks and ranking process of such impacts and risks;
- Identify and confirm the preferred site, through a detailed site selection process, which includes an identification of impacts and risks inclusive of identification of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- Identify the key issues to be addressed in the assessment phase;
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

### 1.3. Details of the Environmental Assessment Practitioner and Independent Specialists

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), Dwaalboom Solar 2 (Pty) Ltd has appointed Blue Crane Environmental (Pty) Ltd (Blue Crane Environmental) as the independent Environmental Assessment consultant to undertake the Environmental Impact Assessment process and prepare the draft Scoping Report for the proposed development. Neither Blue Crane Environmental nor any of the appointed independent specialists are subsidiaries of, or are affiliated to Dwaalboom Solar 2 (Pty) Ltd.

Regulation 13(1)(a) and (b) requires that an independent and suitably qualified and experienced Environmental Assessment Practitioner (EAP) must conduct the Scoping and EIA (S&EIA) process. In terms of the independent status of the EAP a declaration is attached as Appendix A to this report. The expertise of the EAP is also summarised in the curriculum vitae included as part of Appendix A.

The details of the Registered EAP is as follows:

**Table 1.2:** Details of the Registered EAPs

Contact Person:	Roschel Maharaj
-----------------	-----------------

EAPASA Registration:	2019/824
Telephone:	+27 (63) 062-7725
Electronic Mail:	roschel@bcrane.co.za
Contact Person:	Suvana Alakram
EAPASA Registration:	2021/4387 (registered candidate)
Telephone:	+27 (82) 671-6686
Electronic Mail:	suvana@bcrane.co.za

Regulation 13(1)(a) and (b) determines that independent and suitably qualified, experienced and independent specialists should conduct the specialist studies, in the event where the specialist is not independent, a specialist should be appointed to externally review the work of the specialist as contemplated in sub regulation (2), must comply with sub-regulation 1. In terms of the independent status of the specialists, their declarations are attached as Appendix E9 to this report. The expertise of the specialists is summarized in their respective reports.

Refer to Table 1.3 for the details of the independent specialists.

**Table 1.3:** Details of the independent specialists

Study	Prepared by	Contact Person	Tel	E-mail
Terrestrial Biodiversity Impact Assessment	Nkurenkuru Ecological Services	Gerhard Botha	Cell: 084 207 3454	<a href="mailto:gabotha11@gmail.com">gabotha11@gmail.com</a>
Avifaunal Impact Assessment	Wild Skies	Jon Smallie	Cell: 082 444 8919	<a href="mailto:jon@wildskies.co.za">jon@wildskies.co.za</a>
Aquatic Biodiversity Impact Assessment	Nkurenkuru Ecological Services	Gerhard Botha	Cell: 084 207 3454	<a href="mailto:gabotha11@gmail.com">gabotha11@gmail.com</a>
Soil and Agricultural Impact Assessment	Johann Lanz	Johann Lanz	Cell: 082 927 9018	<a href="mailto:johann@johannlanz.co.za">johann@johannlanz.co.za</a>
Heritage Impact Assessment	Beyond Heritage	Jaco Van der Walt	Cell: 082 373 8491	<a href="mailto:jaco@heritageconsultants.co.za">jaco@heritageconsultants.co.za</a>
Social Impact Assessment	Donaway Environmental Consultants	Johan Botha	Cell: 082 316 7749	<a href="mailto:johan@donaway.co.za">johan@donaway.co.za</a>
Visual Impact Assessment	Donaway Environmental Consultants	Johan Botha	Cell: 082 316 7749	<a href="mailto:johan@donaway.co.za">johan@donaway.co.za</a>
Traffic Impact Assessment	BVI Consulting Engineers	Adrian Tarrant	Cell: 076 598 7658	<a href="mailto:adriant@bviwc.co.za">adriant@bviwc.co.za</a>

#### 1.4. Assumptions and Limitations

The following assumptions and limitations are applicable to the draft Scoping Report:

- It is assumed that all information provided by the Applicant and I&APs to Blue Crane Environmental is correct and valid at the time it was provided.
- It is assumed that the development area identified by the Applicant is a technically suitable site for the establishment of the Dwaalboom Solar 2 PV Facility and associated infrastructure.
- It is assumed that the Applicant has consulted / is in the process of consulting with Eskom in terms of connection into existing Eskom infrastructure.
- Conclusions of independent specialist studies undertaken and this draft Scoping Report assume that any potential impacts on the environment associated with the proposed development will be avoided, mitigated, or offset.
- It is assumed that the Applicant will consider and avoid all sensitive areas and environmental features not conducive for the placement of infrastructure.
- This draft Scoping Report and its investigations/ results are project-specific, and therefore no other power generation alternatives have been considered.

Refer to the specialist studies provided in Appendices E1-E7 for limitations specific to the independent specialist studies.

#### 1.5. Legal Requirements Complied with in Section 1 as per the Requirements of the EIA Regulations, 2014 (as amended)

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

Requirement	Relevant Section
2(a) the details of the (i) EAP who prepared the report and (ii) the expertise of the EAP, including a curriculum vitae.	The details of the EAP who prepared the report and the expertise of the EAP is included in section 1.3. The curriculum vitae of the EAP is included in Appendix A.



2(d) a description of the scope of the proposed activity, including (i) all listed and specified activities triggered.	All listed activities triggered by the development are included in Table 1.1 of section 1.2.
2(i) an undertaking under oath or affirmation by the EAP in relation to (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.	The Declaration of the EAP and undertaking under oath is included in Appendix A.
2(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	The Declaration of the EAP and undertaking under oath is included in Appendix A.

## 2. PROJECT DESCRIPTION AND SITE SELECTION PROCESS

This section provides the details of the project proposed including the project infrastructure and alternatives. Furthermore, the section considers the site selection process and approach undertaken by the Applicant for the Dwaalboom Solar 2 PV facility and associated infrastructure.

### 2.1. Location of the proposed development

A development area of 481 ha has been identified within an affected property for the placement of the development footprint which will ultimately house the Dwaalboom Solar 2 PV facility and associated infrastructure. The location information related to the grid connection infrastructure is also provided. The details of the location is included in Table 2.1 below.

**Table 2.1:** General site and location information

Description of affected farm portions	<p><u>Solar PV Facility:</u></p> <ul style="list-style-type: none"> <li>• Portion 1 of the Farm Einde No. 420</li> </ul> <p><u>LILO Grid Connection:</u></p> <ul style="list-style-type: none"> <li>• Portion 1 of the Farm Einde No. 420</li> <li>• Remaining Extent of the Farm Koedoesdoorn No. 414</li> </ul> <p><u>Access Road (existing road to possibly be widened):</u></p> <ul style="list-style-type: none"> <li>• Portion 6 of Farm Koedoesdoorns No. 414</li> <li>• Portion 112 of Farm Koedoesdoorns No. 414</li> <li>• Portion 111 of Farm Koedoesdoorns No. 414</li> <li>• Portion 93 of Farm Koedoesdoorns No. 414</li> <li>• Portion 92 of Farm Koedoesdoorns No. 414</li> </ul>
---------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<ul style="list-style-type: none"> <li>• Portion 91 of Farm Koedoesdoorns No. 414</li> <li>• Portion 70 of Farm Koedoesdoorns No. 414</li> <li>• Portion 69 of Farm Koedoesdoorns No. 414</li> <li>• Portion 51 of Farm Koedoesdoorns No. 414</li> <li>• Portion 50 of Farm Koedoesdoorns No. 414</li> <li>• Portion 49 of Farm Koedoesdoorns No. 414</li> <li>• Portion 48 of Farm Koedoesdoorns No. 414</li> <li>• Portion 35 of Farm Koedoesdoorns No. 414</li> <li>• Portion 34 of Farm Koedoesdoorns No. 414</li> <li>• Portion 33 of Farm Koedoesdoorns No. 414</li> </ul>
Province	Limpopo
Local Municipality	Thabazimbi LM
District Municipality	Waterberg DM
Ward numbers	7 and 8
Closest towns	The town of Northam is located approximately 5.5 km west of the proposed development.
21 Digit Surveyor General codes	<p><u>Solar PV Facility:</u></p> <ul style="list-style-type: none"> <li>• Portion 1 of the Farm Einde No. 420 T0KQ00000000042000001</li> </ul> <p><u>LILO Grid Connection:</u></p> <ul style="list-style-type: none"> <li>• Portion 1 of the Farm Einde No. 420 T0KQ00000000042000001</li> <li>• Remaining Extent of the Farm Koedoesdoorn No. 414 T0KQ00000000041400000</li> </ul> <p><u>Access Road (existing road to possibly be widened):</u></p> <ul style="list-style-type: none"> <li>• Portion 6 of Farm Koedoesdoorns No. 414</li> </ul>

	<p>T0KQ00000000041400006</p> <ul style="list-style-type: none"> <li>• Portion 112 of Farm Koedoesdoorns No. 414 T0KQ00000000041400112</li> <li>• Portion 111 of Farm Koedoesdoorns No. 414 T0KQ00000000041400111</li> <li>• Portion 93 of Farm Koedoesdoorns No. 414 T0KQ00000000041400093</li> <li>• Portion 92 of Farm Koedoesdoorns No. 414 T0KQ00000000041400092</li> <li>• Portion 91 of Farm Koedoesdoorns No. 414 T0KQ00000000041400091</li> <li>• Portion 70 of Farm Koedoesdoorns No. 414 T0KQ00000000041400070</li> <li>• Portion 69 of Farm Koedoesdoorns No. 414 T0KQ00000000041400069</li> <li>• Portion 51 of Farm Koedoesdoorns No. 414 T0KQ00000000041400051</li> <li>• Portion 50 of Farm Koedoesdoorns No. 414 T0KQ00000000041400050</li> <li>• Portion 49 of Farm Koedoesdoorns No. 414 T0KQ00000000041400049</li> <li>• Portion 48 of Farm Koedoesdoorns No. 414 T0KQ00000000041400048</li> <li>• Portion 35 of Farm Koedoesdoorns No. 414 T0KQ00000000041400035</li> <li>• Portion 34 of Farm Koedoesdoorns No. 414 T0KQ00000000041400034</li> <li>• Portion 33 of Farm Koedoesdoorns No. 414 T0KQ00000000041400033</li> </ul>
Area under assessment (Development Area)	481 ha
Photographs of the site	Included in the Plates as an appendix to the Report

The total area assessed comprises of approximately 481 ha (Development Area) proposed for the PV facility and supporting infrastructure which includes the Loop-in-Loop-out (LILO) overhead 132 kV power lines between the back-to-back facility substation and Eskom collector switching station and into the existing Spitskop–Mamba 132 kV power line.

The full extent of the development area has been considered as part of this draft Scoping Report with the aim of confirming the suitability of the area from an environmental and social perspective and thereby to enable the identification of a suitable development footprint. The development footprint will be defined based on the outcomes of the scoping phase and will be further assessed in the EIA phase, which will include the assessment of a detailed facility layout.

The property on which the facility is to be constructed will be leased by Dwaalboom Solar 2 (Pty) Ltd from the property owner for the life span of the project (minimum of 25 years).

The area surrounding Dwaalboom Solar 2 PV facility is characterised mostly by agricultural development except to the west where large scale urban development is present, which is the town of Northam. The project area is in a rural setting with the current land use of the site being natural grazing. Refer to plates 1 – 8 for photographs of the affected property and assessment area.

## **2.2. Details of the infrastructure proposed**

The development footprint associated with Dwaalboom Solar 2 will include specific infrastructure that will be developed as part of the facility layout.

The infrastructure to be developed is specifically related to the preferred technology to be installed to generate electricity from the solar resource, which in this case is photovoltaic technology. Photovoltaic solar energy is obtained by converting sunlight into electricity using a technology based on the photoelectric effect<sup>3</sup>. It is a type of renewable, inexhaustible and non-polluting energy that can be produced in installations ranging from small generators for self-consumption to large photovoltaic plants.

---

<sup>3</sup> The photoelectric effect is the emission of electrons or other free carriers when light shines on a material. Electrons emitted in this way can be called photo electrons.

In terms of the S&EIA process currently underway for Dwaalboom Solar 2 facility, the layout plan/development footprint will only become available following the completion of the Scoping Phase as the Applicant requires the results (including the locations of all sensitive environmental features and areas not suitable for the placement of infrastructure) to consider the suitability of the development area for the placement of the development footprint.

The design of the detailed layout will however consider and adhere to the limitations of the development area and aspects such as environmentally sensitive areas, roads, fencing and servitudes on site - refer to Figure C. The total surface area proposed for the layout will include the PV panel arrays (spaced to avoid shadowing), access and maintenance roads and associated infrastructure (buildings, power inverters, power line, battery energy storage system, on-site substation and collector switching substation and perimeter fences).

Table 2.2 below provides the technical details of the Dwaalboom Solar 2 available at the Scoping Phase of the development.

**Table 2.2:** Technical details of the proposed infrastructure for Dwaalboom Solar 2

Component	Description / dimension
Type of technology	Photovoltaic solar facility
Generation capacity	Up to 240 MW
Area of the PV Array	To be confirmed once the development footprint is available. Will be located within the 481ha development area.
Structure orientation	<p>Monofacial or Bifacial PV panels will be utilised. The panels will either be fixed to a single- and/or double-axis horizontal tracking structure, or fixed-tilt structure, where the orientation of the panel varies according to the time of the day, as the sun moves from east to west or tilted at a fixed angle equivalent to the latitude at which the site is located in order to capture the most sun.</p> <p>PV panels with single axis tracking is preferred over fixed-axis or double axis tracking systems due to the potential to achieve higher annual energy yields whilst minimising</p>

	<p>the balance of system (BOS) costs, resulting in the lowest levelized cost of energy (LCOE). The development of the PV facility will take into consideration during the final design phase the use of either tracker vs fixed-tilt mounting structures. Both options are considered feasible for the site.</p>
Structure Height	<ul style="list-style-type: none"> <li>• Panels up to 5.5 m</li> <li>• Buildings up to 12 m</li> <li>• Power line up to 32 m</li> <li>• Fencing up to 3.5 m</li> </ul>
Area of the Battery Storage	<p>Within a 5 ha area or spread out within the facility next to the inverters. The infrastructure will be located within the development footprint.</p> <p>Lithium-ion or other solid-state battery technology proposed for implementation.</p>
Capacity of the Battery Storage	<p>Unspecified. To be confirmed prior to construction activity.</p>
Area of the facility substation, switching station and collector substation	<ul style="list-style-type: none"> <li>• On-site Facility Substation: up to 1 ha</li> <li>• Eskom Collector Switching Station: up to 1 ha</li> </ul>
Capacity of the facility substation, switching station and collector substation	<ul style="list-style-type: none"> <li>• On-site Facility Substation: 132 kV</li> <li>• Eskom Collector Switching Station: 132 kV</li> </ul>
Grid connection	<p>Facility grid connection infrastructure, including:</p> <ul style="list-style-type: none"> <li>○ 33 kV cabling between the project components and the facility substation;</li> <li>○ A 132 kV facility substation;</li> <li>○ A 132 kV Eskom collector switching station; and</li> <li>○ Loop-in-Loop-out (LILO) overhead 132 kV power line between the back-to-back facility substation and</li> </ul>

	Eskom collector switching station and the existing Spitskop–Mamba 132 kV power line.
Capacity of the power line	Single or double circuit line with a capacity of 132 kV
Power line servitude width	Up to 35 m
Laydown area dimensions	Temporary laydown areas will occupy up to 7 hectares while 1 hectare will remain in place for the permanent laydown area as required for facility operation.  The final extents will however be confirmed in the EIA phase once the development footprint is available.
Area occupied by buildings	An area of up to 1.5 ha will be occupied by buildings which will include (but not limited to) a 33 kV switch room, a gate house, ablutions, workshops, storage and warehousing areas, site offices and a control centre.
Width of internal roads	Up to 8 m wide
Length of internal roads	Up to 40 km in total

A draft layout has been provided by the Applicant for assessment as part of the Scoping Phase. The draft layout shows the development area of 481 ha with an indication of the placement of auxiliary infrastructure such as substations, BESS and laydown areas. Refer to Figure 2.1 below.

However, as this is only the Scoping Phase of the EIA process the Applicant has indicated that an optimisation approach will be followed once the Scoping Phase is completed to enable the consideration and avoidance of all sensitive environmental features and areas present within the development area and thereby provide an opportunity to holistically consider all sensitivities and design an environmentally appropriate development footprint / facility layout to be assessed in the EIA phase.

It is therefore confirmed that the coordinates associated with Dwaalboom Solar 2 PV facility and the specific project components, such as substations, BESS and PV array, will only become available in the EIA Phase and will therefore be included in the draft EIA Report.



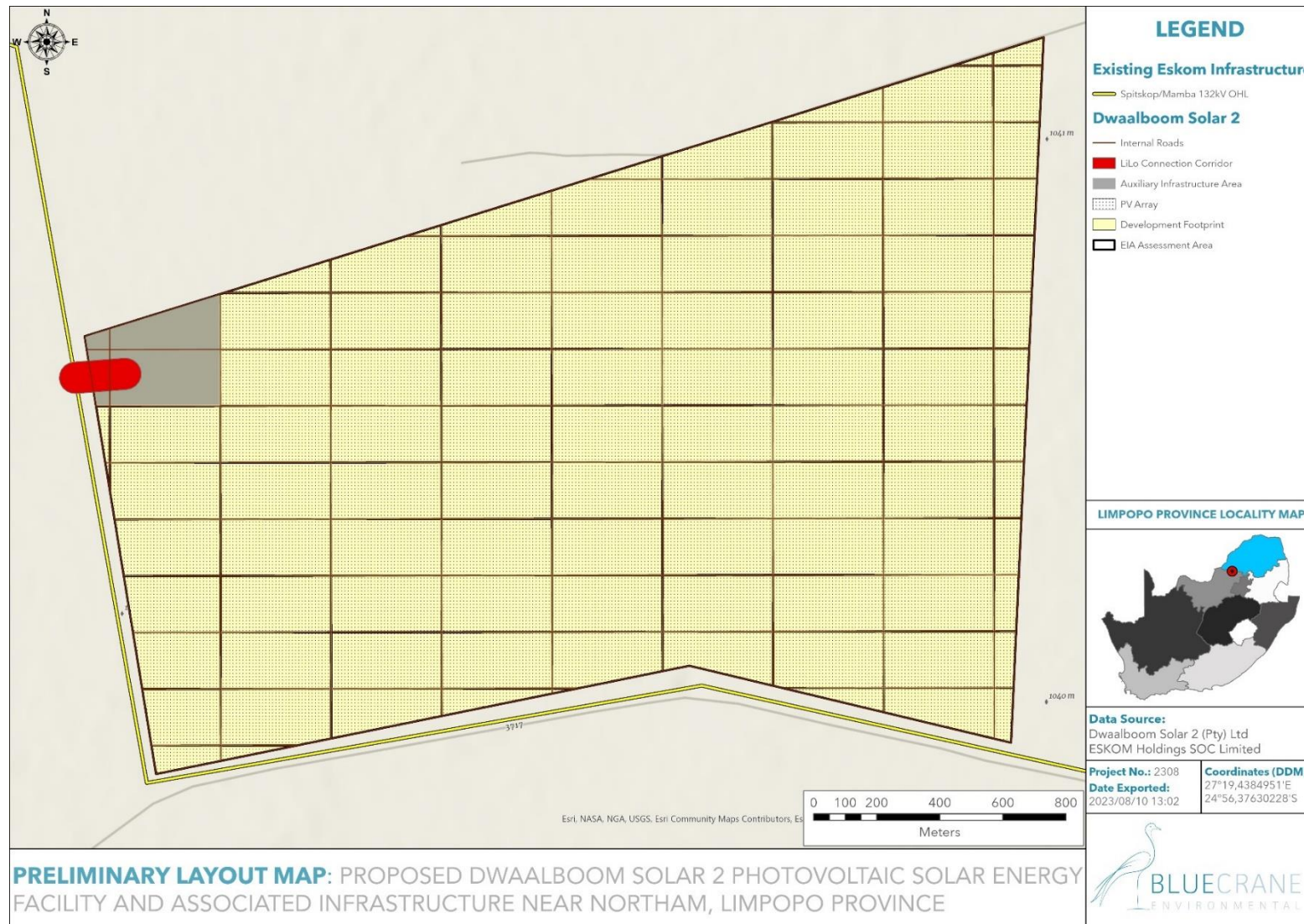


Figure 2.1: Draft layout plan for Dwaalboom Solar 2 assessed as part of this draft Scoping Report

### 2.3. Site Selection Process

The process undertaken by the Applicant for the identification of the preferred site was through an investigation of prospective sites and properties in the Northam area. The investigation involved the consideration of specific characteristics within the Limpopo Province and specifically within the Northam area. The characteristics considered were identified by the Applicant as the main aspects that play a role in the opportunities and limitations for the development of a photovoltaic solar facility. The characteristics considered, and the results thereof, are discussed in the sections below. The Applicant considered that should these characteristics not be favourable for the development of a solar facility, then some limitations and challenges may be expected.

Solar Resource - The Applicant firstly considered the available solar resource for the Limpopo Province and the Northam area through the consideration of various datasets and variables. Through the consideration of the datasets, involving the global horizontal irradiation values of South Africa, as well as meteorological information and geographical factors it was confirmed that the Northam area, and in particular the Dwaalboom Solar 2 site / development area, is suitable for the development of a solar facility. See Figure 2.2.

Land Availability – In order to develop the Dwaalboom Solar 2 PV facility with a contracted capacity of up to 240 MW sufficient space is required for the placement of infrastructure. The site was identified within the Limpopo Province and in close proximity to the Northam area following the confirmation of the solar resource. The property included in the site / development area is one of the few available privately-owned parcels in the area that can be developed and are available. The extent of the affected property enables the consideration of a large development area (i.e., 481 ha) for the assessment and placement of the development footprint. Furthermore, the willingness of the respective landowner to consent to the development on the affected property was also considered by the Applicant.

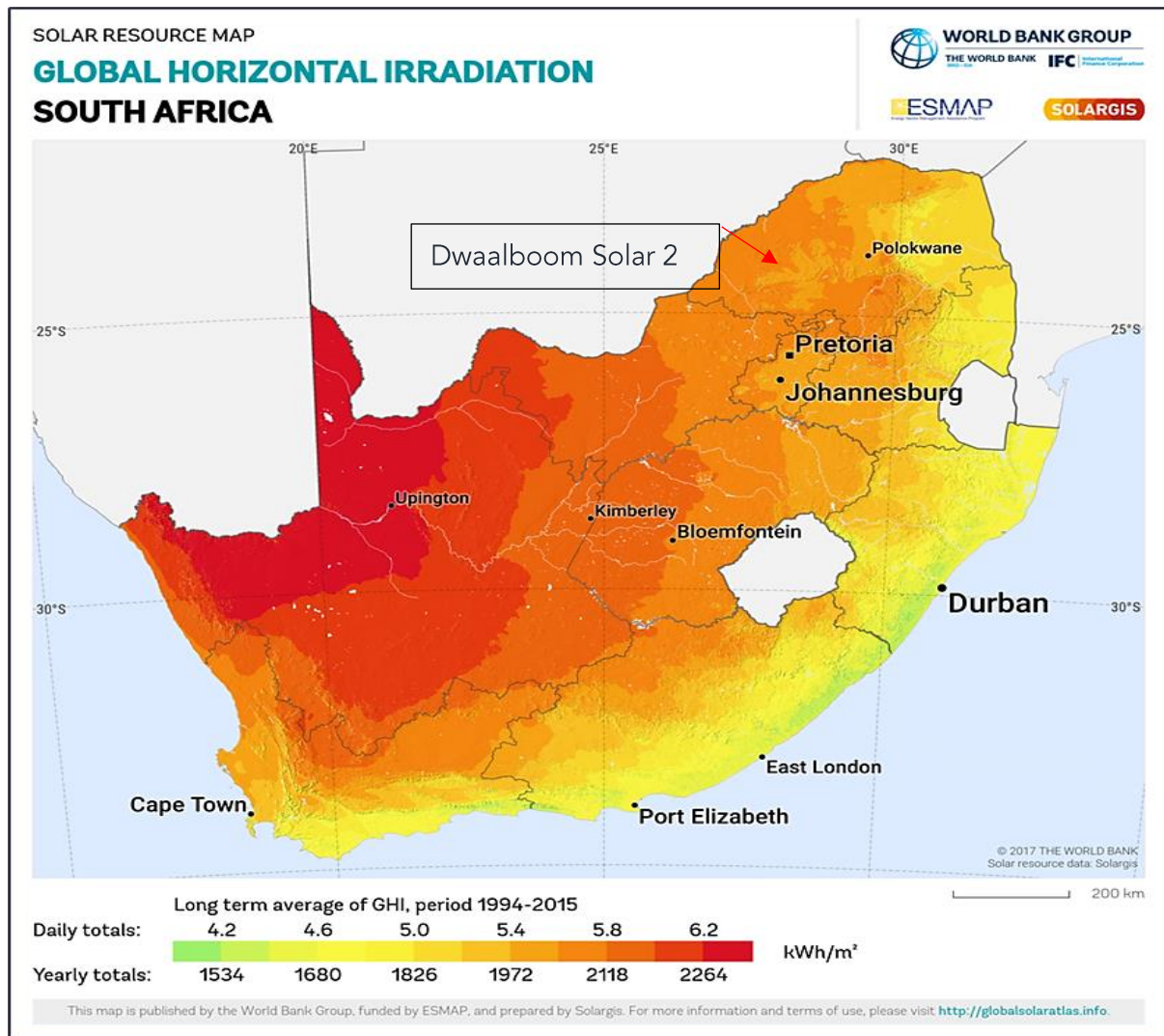


Figure 2.2: Global horizontal irradiation values for South Africa (Solar GIS, 2021) and the Dwaalboom Solar 2 development area

Access to the National Grid - Following the confirmation of sufficient available land for the development of the solar facility, the Applicant considered the possible grid connection points in order to evacuate the generated electricity into the national grid. This was considered as a vital aspect by the Applicant for the project. Within the surrounding area of Dwaalboom Solar 2 existing and viable grid connection infrastructure is available. The Applicant specifically considers a Loop-In-Loop-Out (LILO) overhead 132 kV power line between the back-to-back facility substation and Eskom collector switching station and into the existing Spitskop–Mamba 132 kV power line as an opportunity for the development of the solar facility as the lack of viable grid connection points can be quite limiting and challenging for the development of solar energy facilities. A 100 m wide LILO grid connection corridor is under assessment for the placement of the overhead power line to evacuate the

generated electricity to the national grid. This is explored in section 2.4 below. The Applicant will also consider and explore the direct grid connection to the national grid i.e., Spitskop Main Transmission Substation which will be assessed separately as part of a Basic Assessment process. The Applicant considered this as a benefit to the project and environment as a whole to reduce the on-ground disturbance by power lines within the area as well as the associated visual intrusion.

*Geographical and Socio-Economic Considerations* - The greater area surrounding the site contains agricultural and mining activity except to the west of the proposed development where urban development is present, which is the town of Northam. The Applicant considered the potential opportunity for the Dwaalboom Solar 2 PV facility to bring some opportunity to the area, to an extent, considering the development and growth opportunities associated with development and expansion.

*Availability of existing infrastructure* - The availability of existing infrastructure was also considered by the Applicant as this will enable the solar facility development to make use of infrastructure already available and thereby reduce the disturbance associated with the construction of the associated infrastructure. The existing road network within the surrounding areas and within the site makes access manageable. The Applicant also considered the fact that the directly surrounding area has little infrastructure related to intense residential uses, which may be affected by the development of a solar facility.

*Topographical Considerations* - From a topographical perspective there are very few physical constraints present on site which would have an effect on the efforts required for the construction and installation of the PV Panels.

*Consideration of sensitive environmental features through environmental screening* - Following the confirmation of the Dwaalboom Solar 2 PV facility preferred site as being technically feasible for the development of a solar facility, the developer set out to screen the site, and assess the main constraints and opportunities and whether or not there were any potential fatal flaws or significant no-go areas that might compromise or limit the development of the solar facility. The screening exercise included the consideration of desktop information mainly relating to ecological features and sensitive habitats and features associated with wetlands and birds present within the site.

The approach applied by the Applicant in terms of the site selection for the Dwaalboom Solar 2 PV facility demonstrates due consideration of the sustainability of the site for the

development of Dwaalboom Solar 2, which is in line with a typical mitigation hierarchy (Figure 2.3). The hierarchy is as follows:

1. First Mitigation: avoidance of adverse impacts as far as possible by use of preventative measures (in this instance a sensitivity analysis assisted in the avoidance of identified sensitive areas)
2. Second Mitigation: minimisation or reduction of adverse impacts to ‘as low as practicable’ through implementation of mitigation and management measures
3. Third Mitigation: remedy or compensation for adverse impacts, which are unavoidable and cannot be reduced further.

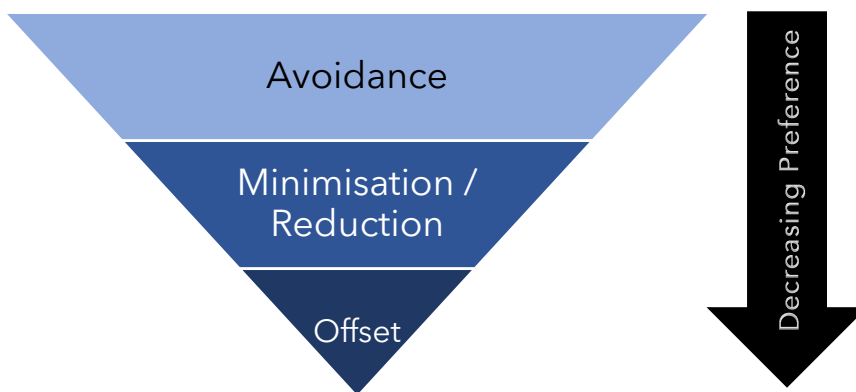


Figure 2.3: Typical mitigation hierarchy

#### 2.4. Alternatives under assessment

This section describes the alternatives under consideration for the Dwaalboom Solar 2 PV facility. In terms of the Regulations only ‘feasible’ and ‘reasonable’ alternatives should be considered for development. The process undertaken by the Applicant for the identification of alternatives has been an iterative process and will continue to be an iterative process between the EAP and the Applicant in order to ensure that the preferred alternative proposed for authorisation is ultimately appropriate from a technical feasibility perspective as well as an environment perspective. Refer to Table 2.3 for an overview of the alternatives being considered.

Table 2.2: Summary of the alternatives considered.

Alternatives considered	Description of the Alternative relating to the development
-------------------------	------------------------------------------------------------

Site specific and Layout Alternatives	One preferred site / development area has been identified for the development of Dwaalboom Solar 2 PV facility based on specific site characteristics such as the solar resource, land availability, topographical characteristics and environmental features. The development area of 481 ha is considered to be sufficient for the development of a solar facility with a contracted capacity of up to 240 MW.
Activity Alternatives	Only the development of a renewable energy facility is considered by Dwaalboom Solar 2 (Pty) Ltd. Due to the location of the site / development area and the suitability of the solar resource, only the development of a solar PV facility is considered feasible considering the natural resources available to the area and the current land-use activities undertaken within the site (i.e., agricultural activities).
Technology Alternatives	Only the development of a photovoltaic solar facility is considered due to the characteristics of the site, including the natural resources available.
Grid Connection Alternatives	The project includes a Loop-in-Loop-out (LILO) overhead 132 kV power line connection between the back-to-back facility substation and Eskom collector switching station and the existing Spitskop–Mamba 132 kV power line. This application excludes the grid connection infrastructure to the national grid – Spitskop Main Transmission Substation (to be assessed via a separate application and Basic Assessment process).
'Do-nothing Alternative	The option to not construct the Dwaalboom Solar 2 PV facility. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within the surrounding areas of the site. The opportunities associated with the development of the solar facility for the Northam area will however not be made available.

The sections below provide more detail on the alternatives under consideration.

### 2.4.1. Site-specific and Layout Alternatives

As indicated in section 2.3 a site selection process has been undertaken by the Applicant for the identification of the development area. The development area is large in extent (481 ha) and therefore represents an opportunity to consider and avoid the sensitive environmental areas and features through the careful planning and placement of the development footprint.

The process to ultimately identify the preferred development footprint/layout alternative will be as follows:

1. The entire extent of the development area (481 ha) will be fully assessed as part of the Scoping Phase and within this draft Scoping Report.
2. The Applicant and EAP will then consider all final and confirmed environmental sensitivities for the site and through the use of spatial mapping consider the areas that need to be avoided and are not available for the placement of infrastructure. This will provide guidance to the Applicant for the design and placement of infrastructure as part of the development footprint to be put forward for assessment as part of the EIA Phase.
3. At the commencement of the EIA Phase the Applicant will provide to the EAP a draft facility layout which will be assessed by the EAP in the EIA Report. This layout will then also be provided to the independent specialists for assessment as part of the impact assessment and thereby also provide feedback on the suitability of the draft layout. The layout will also be made available to I&APs as part of the 30-day review and comment period of the draft EIA Report.
4. Should any further concerns be raised by the specialists regarding the layout (including potential infringement into sensitive environmental features / area) the Applicant will undertake an optimisation process to optimise the draft layout to ensure suitability.
5. The optimised layout will therefore then be put forward for authorisation.

Therefore, the current layout provided as part of the Scoping Phase provides an indication of the 481 ha development area and the preliminary locations of certain associated infrastructure. The layout to be included in the draft EIA Report will be much more detailed and consider the limitations of the site from an environmental perspective. Figure 2.4 provides an indication of the layout currently under assessment as part of the Scoping Phase.

In terms of the location of the associated infrastructure, this will be further defined (spilt-out) during the detailed EIA phase as only a general location for associated infrastructure has been presented in this draft scoping report.

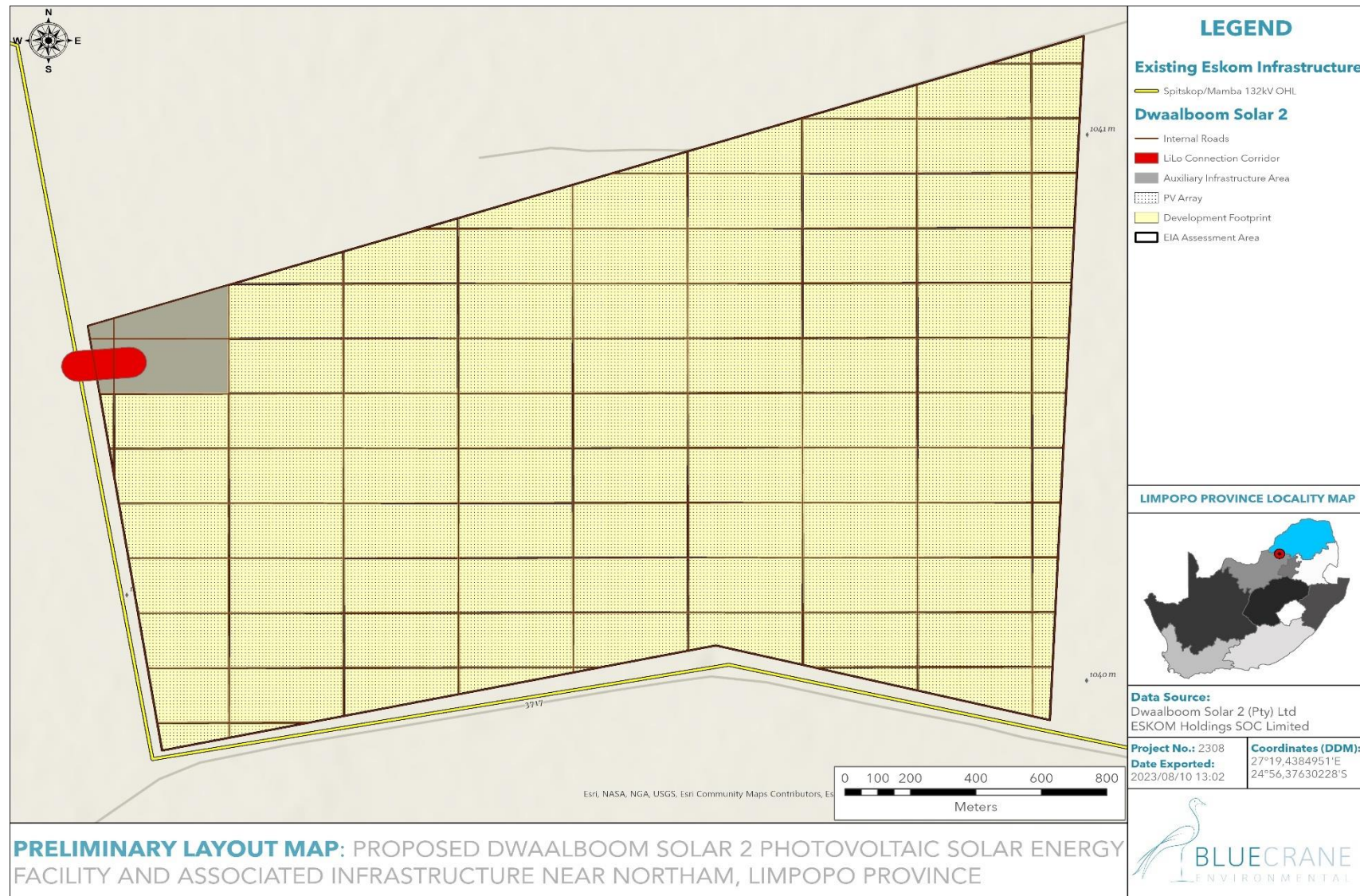


Figure 2.4: Dwaalboom Solar 2 PV Facility layout under assessment as part of the Scoping Phase



### 2.4.2. Activity Alternatives

The activity alternative considers whether the development of a solar facility would be the most appropriate use of the land in terms of energy generation.

When considering Dwaalboom Solar 2 (Pty) Ltd, the company is by trade a renewable energy project development and as such will only consider the development of renewable energy activities. Considering the available natural energy resources within the area and the lack of other natural resources such as water in terms of use for development and operation, it is considered that solar energy developments are preferred within the identified site.

Considering the location of the site and the fact that there are no constructed solar facilities within the surrounding area, the potential for cumulative impacts associated with the development of solar facilities is expected to occur. The cumulative impacts can be mitigated against resulting to a low negative significance on the surrounding environment. The development of the Dwaalboom Solar 2 PV facility in itself is considered a positive addition with regards to implementing this technology in the identified location (i.e., site). Furthermore, the grid connection infrastructure to connect the solar PV facility to the national grid is present within the vicinity of the site.

In terms of alternative renewable energy generation options available wind energy and the use of Concentrated Solar Power (CSP) technology has been considered.

Due to the local climatic conditions a wind energy facility is not considered suitable as the area does not have the required wind resource. Furthermore, the applicant has opted for the generation of electricity via solar power rather than the use of wind turbines based on the renewable energy resource available for the area, which is predominantly a solar resource. This alternative is therefore regarded as not feasible and will not be evaluated further in this report.

CSP technology requires large volumes of water, and this is a major constraint for this type of technology considering the water challenges and limitation experienced in the country as a whole. While the irradiation values are high enough to generate sufficient solar power the water constraints render this alternative not feasible. It must also be noted that the Integrated Resources Plan no longer includes the use of CSP as part of the energy mix of the country. Based on the above, this alternative is not considered feasible or reasonable and will not be considered further in this report.

### 2.4.3. Technology Alternatives

As Dwaalboom Solar 2 (Pty) Ltd is an Independent Power Producer, only renewable energy technologies are being considered for the generation of up to 240 MW of electricity. Considering the local resources available (i.e., wind and solar irradiation) for such technologies, the footprint requirements for such developments and the current land use in the site (i.e. agriculture), the site is considered most suitable for the establishment of a solar facility. This has been confirmed through the global horizontal solar irradiation for the area and other technical characteristics available within the surrounding areas of the site.

For the development of Dwaalboom Solar 2, technology alternatives were considered in terms of the PV panels that may be installed as well as type of Battery Energy Storage System (BESS). These are discussed in the sections below.

#### Photovoltaic Panels

Several types of semiconductor technologies/ monofacial panels are available, however two are the most widely adopted, namely crystalline silicon and thin film.

- Crystalline silicon panels – are constructed by first putting a single slice of silicon through a series of processing steps, creating one solar cell. These cells are then assembled together in multiples to make a solar panel. Crystalline silicon, also called wafer silicon, is the oldest and the most widely used material in commercial solar panels. Two main types of crystalline silicon panels available are Mono-crystalline Silicon and Poly-crystalline Silicon.
- Thin film panels - Thin film solar panels are made by placing thin layers of semiconductor material onto various surfaces, usually on glass. The term thin film refers to the amount of semiconductor material used. It is applied in a thin film to a surface structure, such as a sheet of glass. There are three main types of thin film used, namely, Cadmium Telluride, Amorphous Silicon and Copper, Indium, Gallium, Selenide (CIGS).

Further to the above, bifacial PV panels are also under consideration for the Dwaalboom Solar 2 PV facility. Traditional solar panels use an opaque back sheet. By comparison, bifacial solar panels either have a clear/reflective back sheet or have dual panes of glass. Most of these solar panels are frameless so any issues with potential-induced degradation (PID) are reduced. To efficiently convert light into electricity from both sides, bifacial solar cells have selective-area metallization schemes that enable light to pass between the metallized areas, rather than the conventional thick metal collectors as seen with monofacial solar panels.

In terms of the preference of the PV panels for Dwaalboom Solar 2 the Applicant has indicated that Monofacial or Bifacial PV panels will be utilised. The panels will either be fixed to a single-axis and/or double horizontal tracking structure where the orientation of the panel varies according to the time of the day, as the sun moves from east to west or tilted at a fixed angle equivalent to the latitude at which the site is located in order to capture the most sun.

PV panels with single axis tracking is preferred over fixed-axis or double axis tracking systems due to the potential to achieve higher annual energy yields whilst minimising the balance of system (BOS) costs, resulting in the lowest levelized cost of energy (LCOE). The development of the PV facility will take into consideration during the final design phase the use of either tracker vs fixed-tilt mounting structures. Both options are considered feasible for the site.

### **Battery Energy Storage System (BESS)**

A BESS is a type of energy storage power station that uses a group of batteries to store electrical energy. Conventionally these battery containers would stand in a dedicated area next to each other however, an alternative location is placing the single BESS container located next to the inverters in between the panel arrays.

Two BESS technology alternatives are under consideration for Dwaalboom Solar 2. These include:

- Solid State Battery Electrolytes - Solid state battery electrolytes, such as lithium-ion (Li-ion), zinc hybrid cathode, sodium ion, flow (e.g., zinc iron or zinc bromine), sodium sulphur (NaS), zinc air and lead acid batteries, can be used for grid applications. Compared to other battery options, Li-ion batteries are highly efficient, have a high energy density and are lightweight. As a result of the declining costs, Li-ion technology now accounts for more than 90% of battery storage additions globally (IRENA, 2019).
- Redox-flow Technology - Flow batteries use solid electrodes and liquid electrolytes. The most used flow battery is the Vanadium Redox Flow Battery (VRFB), which is a type of rechargeable flow battery that employs vanadium ions in different oxidative states to store chemical potential energy. Considering the nature of the project, only a solid-state technology type would be envisaged for implementation.

Considering the nature of the project, either a Lithium-ion or other solid-state battery technology would be envisaged for implementation.

Dwaalboom Solar 2 (Pty) Ltd is most likely to locate the BESS in a single dedicated area standing next to each other should this be deemed feasible from an engineering perspective.

#### 2.4.4. Grid Connection Alternatives

The Applicant has identified the existing Eskom Spitskop–Mamba 132 kV overhead power line which traverses the Dwaalboom Solar 2 site / assessment area. As such, the Applicant proposes the construction of a 132 kV overhead power line via a Loop-In-Loop-Out (LILO) connection between the back-to-back facility substation and Eskom collector switching station as well as the existing Spitskop–Mamba 132 kV power line. A 100 m wide LILO grid connection corridor is under assessment for the placement of the overhead power line to evacuate the generated electricity to the national grid. Refer to Figure 2.5 below.

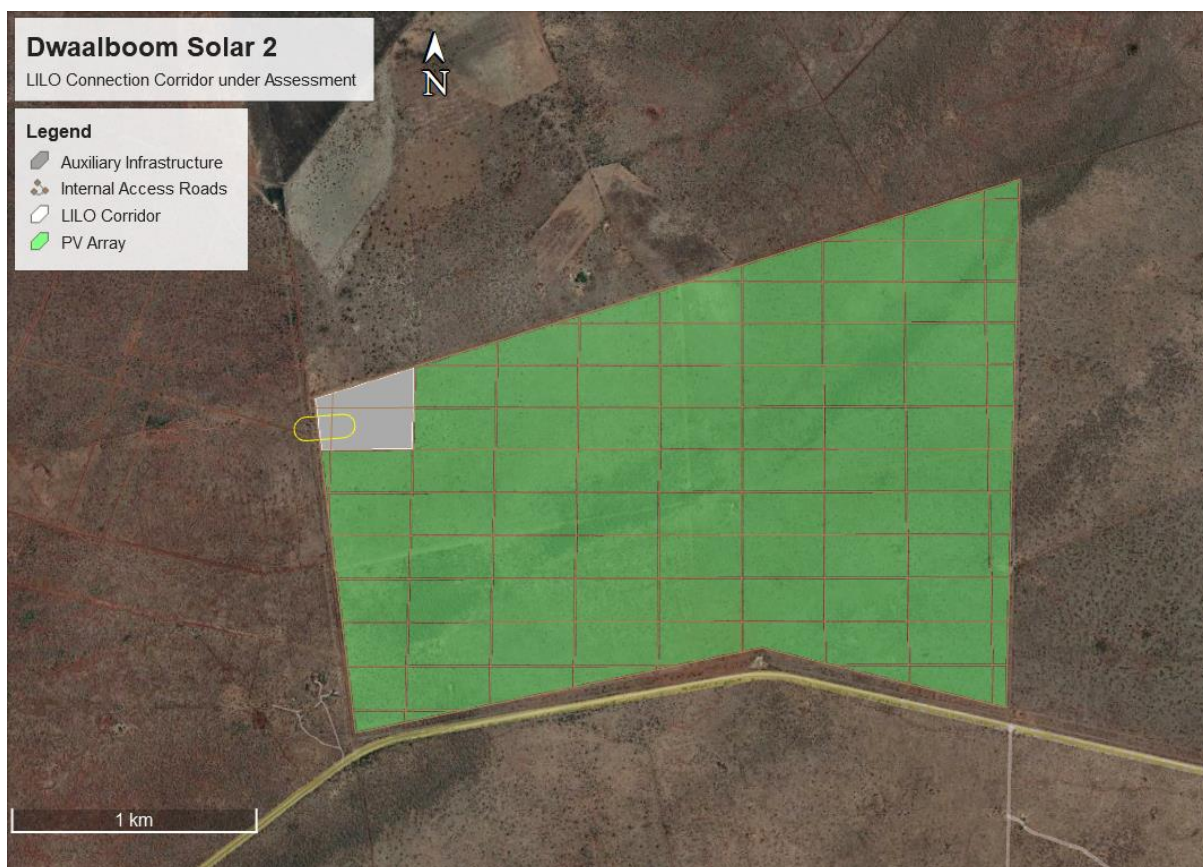


Figure 2.5: Dwaalboom Solar 2 LILo Connection Corridor under assessment for the placement of the overhead power line

*This application excludes the direct grid connection infrastructure to the national grid – Spitskop Main Transmission Substation which will be assessed separately.*

### 2.4.5. 'Do-nothing' Alternative

This alternative considers the option of 'do nothing' and maintaining the status quo of the affected environment. The description provided in section 7 of this report could be considered the baseline conditions (*status quo*) to persist should the no-go / 'no nothing' alternative be preferred. The site is currently zoned for agricultural land uses. Should the proposed activity not proceed, the site will remain unchanged and will continue to be used for the current land uses present. The area associated with the development area has limited agricultural potential (some crop fields present) and with grazing. The potential opportunity costs in terms of alternative land use income through rental for the energy facility and the supporting social and economic development in the area would be lost if the *status quo* persists.

Further to the above, the 'do-nothing' alternative is not a preferred alternative, because if the solar facility is not developed the following positive impacts will also not be realised:

- Job creation from the construction and operation phases.
- Economic benefit to participating landowners due to the revenue that will be gained from leasing the land to the developer.
- Potential relief (albeit to a limited extent) for a stressed area.
- Meeting of future demand for additional generation in a most economic and rapid manner.
- Provision of clean, renewable energy in an area where the renewable energy resource is optimally available.

### 2.5. Project Development Phases and Services Required

This section provides an indication of the activities to be undertaken within the different development phases of the project as well as the services that will be required. Refer to Table 2.4.

**Table 2.3:** Summary of the Activities to be Undertaken in the Development Phases

Design and Pre-Construction Phase	<ul style="list-style-type: none"> <li>• Post-authorisation factors influence the final design of the facility and therefore small-scale modifications of the PV array or associated infrastructure are expected.</li> <li>• The EPC Contractor, responsible for the overall construction of the project, will attempt to comply with the approved facility design as</li> </ul>
-----------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>far as possible. However, the construction process is dynamic and unforeseen changes to the project specifications may take place.</p> <ul style="list-style-type: none"> <li>• Prior to construction commencement, surveys will be required including, but not limited to confirmation of the micro-siting footprint (i.e. the precise location of the PV panels, substations and the plant's associated infrastructure) and a geotechnical survey.</li> <li>• Geotechnical surveys are executed by geotechnical engineers and geologists with the purpose to design earthworks and foundations for structures and to execute earthwork repairs necessitated due to changes in the subsurface environment.</li> </ul>
Construction Phase	<ul style="list-style-type: none"> <li>• The majority of the labour force is expected to be sourced from the surrounding towns, and no labour will be accommodated on-site during the construction period. This is however dependent on the availability of the required skills in the area.</li> <li>• At the peak of construction, the proposed project is likely to create a maximum of 500 employment opportunities. These employment opportunities will be temporary, and will last for a period of approximately 18-24 months (i.e., the length of construction).</li> <li>• Employment opportunities generated during the construction phase will include low skilled, semi-skilled, and skilled opportunities.</li> <li>• Employment opportunities for the proposed PV facility will peak during the construction phase and significantly decline during the operation phase.</li> <li>• Access to the site will be established for the construction of the facility. Within the facility development footprint itself, access will be required from new / existing roads for construction purposes (and limited access for maintenance during operation).</li> <li>• Site preparation activities will include clearance of vegetation. These activities will require the stripping of topsoil which will need to be stockpiled, backfilled and / or spread on site.</li> <li>• The national, regional, secondary and proposed internal access roads will be used to transport all components and equipment required during the construction phase of the PV facility. Some of the components (i.e. substation transformer) may be defined as</li> </ul>

	<p>abnormal loads in terms of the National Road Traffic Act (No. 93 of 1996) (NRTA)<sup>4</sup> by virtue of the dimensional limitations.</p> <ul style="list-style-type: none"><li>• Laydown and storage areas will be required for typical construction equipment. Once the required equipment has been transported to site, a dedicated equipment construction camp and laydown area will need to be established adjacent to the workshop area. The laydown area will be used for the assembly of the PV panels and the general placement / storage of construction equipment.</li><li>• Installation of the PV solar panels and structural and electrical infrastructure will be undertaken that is required for the operation of the facility.</li><li>• For array installations, vertical support posts are driven into the ground. Depending on the results of the geotechnical report, a different foundation method, such as screw pile, helical pile, micropile or drilled post / pile could be used. The posts will hold the support structures (tables) on which the PV modules would be mounted. Brackets attach the PV modules to the tables.</li><li>• The Battery Energy Storage System will be installed as per the factory instructions.</li><li>• The establishment of the auxiliary infrastructure (including the substations) and support buildings will require the clearing of vegetation and levelling of the development site, and the excavation of foundations prior to construction. Laydown areas for building materials and equipment associated with these buildings will also be required.</li><li>• A power line is constructed by surveying the power line route, constructing foundations for the towers, installing the towers, stringing the conductors, and finally rehabilitating disturbed areas and protecting erosion sensitive areas.</li><li>• Once construction is completed and all construction equipment has been removed, the site will be rehabilitated where practical and reasonable. In addition, on full commissioning of the PV facility,</li></ul>
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

<sup>4</sup> A permit will be required in accordance with Section 81 of the NRTA which pertains to vehicles and loads which may be exempted from provisions of the Act.

	<p>any access points which are not required during operation must be closed and rehabilitated accordingly.</p>
Operation Phase	<ul style="list-style-type: none"> <li>• The facility is expected to operate for a minimum of 20-25 years.</li> <li>• The facility will operate continuously, 7 days a week, during daylight hours.</li> <li>• While the PV facility will be largely self-sufficient, monitoring and periodic maintenance activities will be required. Key elements of the Operation and Maintenance (O&amp;M) plan include monitoring and reporting the performance of the PV facility, conducting preventative and corrective maintenance, receiving visitors, and maintaining security.</li> </ul>
Decommissioning Phase	<ul style="list-style-type: none"> <li>• The economic viability of the PV facility following the initial 20-year operational lifespan, will determine if the facility will be decommissioned or the operation phase will be extended.</li> <li>• If it is deemed financially viable to extend the operation phase, existing components would either continue to operate, or be disassembled and replaced with new, more efficient technology / infrastructure available at the time. This replacement will be within the ambit of the Environmental Authorisation.</li> <li>• Site preparation activities include confirming the integrity of the access to the site to accommodate the required decommissioning equipment.</li> <li>• The equipment to be removed will depend on the land use proposed for the site at the time.</li> <li>• All above ground facilities that are not intended for future use at the site will be removed. Much of the above ground wire, steel, and PV panels of which the system is comprised, are recyclable materials and would be recycled to the extent feasible.</li> <li>• The site will be rehabilitated and can be returned to agriculture or another beneficial land-use, to be determined through consultation with the affected landowner.</li> </ul>

Specific services will be required during all phases of the development. This includes water provision, stormwater management, sanitation, waste management and electricity. These are discussed in the sections below.



## 1. Water Provision

Adequate provision of water will be a prerequisite for the development. Four (4) options will be considered,

- a. Water will be supplied from the Local Municipality (LM). The Applicant will approach the LM to enquire whether they can provide all or part of the total water requirements of the Project. Specific arrangements will be agreed with the LM in a Service Level Agreement (SLA), following the appointment of preferred bidder status during the financial close period.
- b. Water supply from a Private Contractor, which may include extraction from any bulk water supply lines nearby to the site.
- c. An existing borehole on site, subject to the National Water Act (NWA) requirements.
- d. A new borehole on site, subject to NWA requirements.

The estimated amount of water required during construction is 34 100 kl. The estimated maximum amount of water required during the operational phase is 9547 kl per annum.

## 2. Stormwater Management

To avoid soil erosion, it is recommended that the clearing of vegetation be limited. Stormwater management and mitigation measures will be included in the Environmental Management Programme (EMPr) to be submitted as part of the EIA Report.

## 3. Sanitation

Chemical toilets will be utilised during the construction phase and removed / emptied by an appointed contractor for treatment at a licensed facility off site.

No effluent will be produced during operation of the facility, except for normal sewage from site and operations staff. This will be collected and treated as per normal standards using a septic or conservancy tank. In cases where the Local Municipality does not permit the use of septic tanks, sewage will be stored in conservancy tank and collected (honey-sucker) by a service provider, either the Local Municipality or a Private Contractor, and treated at an approved facility off site.

## 4. Waste Management

During the construction phase, solid waste will mainly be in the form of construction material, hazardous waste (i.e., fuel, grease, etc.), excavated substrate and domestic solid waste. All

waste will be disposed of in scavenger proof bins and temporarily placed in a central location for removal by an appointed contractor and disposed into a registered landfill site. Where possible the re-use and recycling of waste material will be encouraged. Any other waste and excess material will be removed once construction is complete and disposed of at a registered waste facility. During the EIA phase, the Applicant will request confirmation from the municipality that they have sufficient capacity at the registered landfills for the solid waste.

During the operational phase household waste will be removed to a licensed landfill site by a private contractor or by the local municipality particularly where re-use and recycling is not practical.

## 5. Electricity Provision

Electricity supply during construction will be provided by either on-site diesel generators or arranged with the Local Municipality or Eskom Distribution, via an existing or new 11 kV power line.

During operation, the electricity will be supplied by the PV facility/ via the main grid connection or via the installed construction supply. Efficient electricity appliances will be used as far as possible on site. Where possible, borehole pumps will be powered by solar energy.

### 2.6. Legal Requirements Complied with in Section 2 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(b) the location of the activity, including (i) the 21-digit Survey General code of each cadastral land parcel; (ii) where available, the physical address and farm name, (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The details of the location of the Dwaalboom Solar 2 PV facility is included in section 2.1. This includes the relevant Survey General Codes of the affected properties.
2(c) a plan which located the proposed activity or activities applied for at an	The draft layout plan considered as part of the Scoping Phase is discussed and

<p>appropriate scale, or, if it is (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.</p>	<p>included in section 2.4.1. The formal map is also included as Figure C.</p>
<p>2(d) a description of the scope of the proposed activity, including (ii) a description of the activities to be undertaken, including associated structures and infrastructure.</p>	<p>The details of the infrastructure proposed to be developed is fully described in section 2.2. A description of the activities to be undertaken for the various development phases is included in section 2.5.</p>
<p>2(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including (i) details of all the alternatives considered, (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity</p>	<p>The site selection process followed by the Applicant is described in section 2.3. The details of all alternatives considered as part of this draft Scoping Report is included and described in section 2.4.</p>

---

## 3. POLICY AND LEGISLATIVE CONTEXT

---

This section provides an overview of the policy and legislative context considering the nature of the proposed development and the area within which Dwaalboom Solar 2 is proposed. The section further identifies the relevant legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that may be relevant to Dwaalboom Solar 2.

### 3.1. National, Provincial and Local Policy and Planning Context

Environmental decision making with regards to solar facilities is based on numerous policy and legislative documents on national, provincial and local level. These documents inform decisions on project level environmental authorisations issued by the National Department of Forestry, Fisheries and the Environment (DFFE) as well as comments from local and district authorities. Moreover, it is significant to note that they also inform strategic decision making reflected in the IDPs and SDFs.

The following acts and policies and their applicability to the proposed development are briefly summarised:

#### National Level:

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996).
- National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA].
- The National Energy Act, 2008 (Act 34 of 2008).
- Electricity Regulation Act (Act No. 4 of 2006) (as amended).
- National Water Act, 1998 (Act No. 36 of 1998).
- National Environmental Management: Biodiversity Act (10 of 2004) (NEMBA).
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).
- National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).
- The National Heritage Resources Act, 1999 (Act No. 25 of 1999).
- Conservation of Agricultural Resources Act, 1983 (Act No. 85 of 1983).
- Subdivision of Agricultural Land Act (70 of 1970) (SALA).

- Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013). (SPLUMA).
- The National Forests Act, 1998 (Act 84 of 1998).
- The National Road Traffic Act (93 of 1996) (NRTA).
- The White Paper on the Energy Policy of the Republic of South Africa (1998).
- The White Paper on Renewable Energy (2003).
- Integrated Resource Plan (IRP) for South Africa (2010-2030).
- National Development Plan of 2030.
- National Infrastructure Plan of South Africa (2012).
- New Growth Path Framework (2010).
- Climate Change Bill (2018).
- Climate Change Bill (2021) – for public comment.
- Strategic Integrated Projects (SIPs) (2010 – 2030).
- Strategic Environmental Assessment (SEA) for wind and solar PV Energy in South Africa (2014).

#### **Provincial Level:**

- Limpopo Development Plan (LDP) 2020 – 2025
- Limpopo Provincial Spatial Development Framework (PSDF) (2022)

#### **District Level:**

- Waterberg DM Final Integrated Development Plan (IDP) 2020 – 2021 (2020)
- Waterberg District Spatial Development Framework (SDF) (2021)

#### **Local Level:**

- Thabazimbi Local Municipal Draft Integrated Development Plan (IDP) Review 2020 – 2021 (2021)
- Thabazimbi Local Municipality Spatial Development Framework (SDF) (2018)

The key principles and objectives of each of the legislative and policy documents are briefly summarised in Tables 3.1 and 3.2 to provide a reference framework for the implications for the proposed solar developments.

### **3.2. International Policy and Planning Context**

Further to the above the policy and planning context on an international level is briefly considered.

## 1. United Nations Framework Convention on Climate Change (UNFCCC) and Conference of the Party (COP)

Climate change is one of the major global challenges of the 21st century that require global response. The adverse impacts of climate change include persistent drought and extreme weather events, rising sea levels, coastal erosion and ocean acidification, further threatening food security, water, energy and health, and more broadly efforts to eradicate poverty and achieving sustainable development. Combating climate change would require substantial and sustained reductions in GHG emissions, which together with adaptation, can limit climate change risks. The convention responsible for dealing with climate change is the United Nations Framework Convention on Climate Change (UNFCCC).

The UNFCCC was adopted in 1992 and entered into force in 1994. It provides the overall global policy framework for addressing the climate change issue and marks the first international political response to climate change. The UNFCCC sets out a framework for action aimed at stabilising atmospheric concentrations of GHGs to avoid dangerous anthropogenic interference with the climate system.

The UNFCCC has established a variety of arrangements to govern, coordinate and provide for oversight of the arrangements described in the documentation. The oversight bodies take decisions, provide regular guidance, and keep the arrangements under regular review in order to enhance and ensure their effectiveness and efficiency. The Conference of Parties (COP), established by Article 7 of the Convention, is the supreme body and highest decision-making organ of the Convention. It reviews the implementation of the Convention and any related legal instruments, and takes decisions to promote the effective implementation of the Convention.

At the Sharm el-Sheikh Climate Change Conference (COP27), countries came together to take action towards achieving the world's collective climate goals as agreed under the Paris Agreement and the Convention. The conference took place from 6-20 November 2022 in Sharm el-Sheikh, Egypt.

Five key takeaways from the conference have been identified which will shape the priorities from climate action in 2023 and beyond. These are indicated below:

1. *Establishing a dedicated fund for loss and damage* – An agreement was made to provide loss and damage funding for vulnerable countries hit hard by floods, droughts and other climate disasters. This is in order to enable countries to have financials

capacity to respond to loss and damage associated with catastrophic effects of climate change.

2. *Maintaining a clear intention to keep 1.5°C within reach* – The UN’s Intergovernmental Panel on Climate Change indicates that limiting warming to around 1.5°C requires global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by 43% by 2023. However, current projections show that the world is off course to keep 1.5°C in reach.
3. *Holding businesses and institutions to account* – There is new focus on accountability when it comes to the commitments made by sectors, businesses and institutions.
4. *Mobilizing more financial support for developing countries* – Finance is key to combat climate change. Mitigation, adaptation, loss and damage and climate technology requires sufficient funds to function properly and yield the desired results. COP27 created a pathway to align the broader finance flows towards low emissions and climate resilient development.
5. *Making the pivot toward implementation* – COP27 was expected to focus on implementation for “every corner of human activity”.

## 2. The Equator Principles IV (July, 2020)

The Equator Principles (EPs) IV constitute a financial industry benchmark used for determining, assessing, and managing a project’s environmental and social risks. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. In addition, these principles are used to ensure that projects financed by the Equator Principles Financial Institutions (EPFI) are developed in a manner that is socially responsible and reflects sound environmental management practices. The EPs are applicable to infrastructure projects (such as the proposed project) and apply globally to all industry sectors.

The EPs comprise the following principles:

**Principle 1:** Review and Categorisation

**Principle 2:** Environmental and Social Assessment.

**Principle 3:** Applicable Environmental and Social Standards.

**Principle 4:** Environmental and Social Management System and Equator Principles Action Plan

**Principle 5:** Stakeholder Engagement

**Principle 6:** Grievance Mechanism

**Principle 7:** Independent Review

**Principle 8:** Covenants

**Principle 9:** Independent Monitoring and Reporting

**Principle 10:** Reporting and Transparency

When a project is proposed for financing, the Equator Principle Financial Institution (EPFI) will categorise it based on the magnitude of its potential environmental and social risks and impacts.

Projects can be categorized as follows:

- **Category A:** Projects with potential significant adverse environmental and social risks and / or impacts that are diverse, irreversible or unprecedented.
- **Category B:** Projects with potential limited adverse environmental and social risks and / or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures.
- **Category C:** Projects with minimal or no adverse environmental and social risks and / or impacts.

Based on the above-mentioned criteria, Dwaalboom Solar 2 can be anticipated to be categorised as a Category B project.

Category A and Category B projects require that an assessment process be conducted to address the relevant environmental and social impacts and risks associated with the project. Such an assessment may include the following where applicable:

- An assessment of the baseline environmental and social conditions.
- Consideration of feasible environmentally and socially preferable alternatives.
- Requirements under host country laws and regulations, applicable international treaties and agreements.
- Protection and conservation of biodiversity (including endangered species and sensitive ecosystems in modified, natural and Critical Habitats) and identification of legally protected areas.



- Sustainable management and use of renewable natural resources (including sustainable resource management through appropriate independent certification systems).
- Use and management of dangerous substances.
- Major hazards assessment and management.
- Efficient production, delivery and use of energy.
- Pollution prevention and waste minimisation, pollution controls (liquid effluents and air emissions), and solid and chemical waste management.
- Viability of project operations in view of reasonably foreseeable changing weather patterns / climatic conditions, together with adaptation opportunities.
- Cumulative impacts of existing projects, the proposed project, and anticipated future projects.
- Respect of human rights by acting with due diligence to prevent, mitigate and manage adverse human rights impacts.
- Labour issues (including the four core labour standards), and occupational health and safety.
- Consultation and participation of affected parties in the design, review and implementation of the project.
- Socio-economic impacts.
- Impacts on affected communities, and disadvantaged or vulnerable groups.
- Gender and disproportionate gender impacts.
- Land acquisition and involuntary resettlement.
- Impacts on indigenous peoples, and their unique cultural systems and values.
- Protection of cultural property and heritage.
- Protection of community health, safety and security (including risks, impacts and management of Project's use of security personnel).
- Fire prevention and life safety.

Such an assessment should propose measures to minimise, mitigate, and offset adverse impacts in a manner relevant and appropriate to the nature and scale of the Project. In terms of the EPs, South Africa is a non-designated country (as at 4 March 2020), and as such the assessment process for projects located in South Africa evaluates compliance with the applicable IFC Performance Standards on Environmental and Social Sustainability, and Environmental Health and Safety (EHS) Guidelines.

Dwaalboom Solar 2 is under assessment in accordance with the requirements of the 2014 EIA Regulations, as amended (GNR 326), published in terms of Section 24(5) of NEMA, which is South Africa's national legislation providing for the authorisation of certain listed activities. Through this assessment, all potential social and environmental risks are identified and assessed, and appropriate mitigation measures proposed.

### 3. IFC's Performance Standards on Environmental and Social Sustainability (January 2012)

The IFC's Performance Standards on Environmental and Social Sustainability were developed by the IFC and were last updated on 1 January 2012. The overall objectives of the IFC Performance Standards are:

- To fight poverty;
- To do no harm to people or the environment;
- To fight climate change by promoting low carbon development;
- To respect human rights;
- To Promote gender equity;
- To provide information prior to project development, free of charge and free of external manipulation;
- To collaborate with the project developer to achieve the PS;
- To provide advisory services; and
- To notify countries of any Trans boundary impacts as a result of a project.

The Performance Standards comprise the following:

**Performance Standard 1:** Assessment and Management of Environmental and Social Risks and Impacts.

**Performance Standard 2:** Labour and Working Conditions.

**Performance Standard 3:** Resource Efficiency and Pollution Prevention.

**Performance Standard 4:** Community Health, Safety and Security.

**Performance Standard 5:** Land Acquisition and Involuntary Resettlement.

**Performance Standard 6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources.

**Performance Standard 7:** Indigenous Peoples.

**Performance Standard 8: Cultural Heritage.**

Performance Standard 1 establishes the importance of:

- i) Integrated assessment to identify the social and environmental impacts, risks, and opportunities of projects.
- ii) Effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them.
- iii) The management of social and environmental performance throughout the life of a project through an effective Environmental and Social Management System (ESMS).

Performance Standard 1 requires that a process of environmental and social assessment be conducted, and an ESMS appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts be established and maintained. Performance Standard 1 is the overarching standard to which all the other standards relate. Performance Standard 2 through 8 establish specific requirements to avoid, reduce, mitigate or compensate for impacts on people and the environment, and to improve conditions where appropriate. While all relevant social and environmental risks and potential impacts should be considered as part of the assessment, Performance Standard 2 through 8 describe potential social and environmental impacts that require particular attention specifically within emerging markets. Where social or environmental impacts are anticipated, the developer is required to manage them through its ESMS consistent with Performance Standard 1.

Given the nature of Dwaalboom Solar 2, it is anticipated at this stage of the S&EIA process that Performance Standards 1, 2, 3, 4, 6, and 8 may be applicable to the development.

Table 3.1: Legislative context relevant to Dwaalboom Solar 2

Legislation and Relevant Authority	Summary and Relevance for the Development
<p>The Constitution of South Africa (Act No. 108 of 1996)</p> <p>Administering Authority:</p> <p>National Government</p>	<p>The Constitution is the supreme law of the Republic and all law and conduct must be consistent with the Constitution. The Chapter on the Bill of Rights contains a number of provisions, which are relevant to securing the protection of the environment. Section 24 states that “everyone has the right to (a) an environment that is not harmful to their health or well-being and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The Constitution therefore, compels government to give effect to the people’s environmental right and places government under a legal duty to act as a responsible custodian of the country’s environment. It compels government to pass legislation and use other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development.</p> <p>The development of Dwaalboom Solar 2 and the aspects related thereto considers the creation of an environment which is not harmful or degraded through the implementation of appropriate mitigation measures.</p>
<p>The National Environmental Management Act (Act No. 107 of 1998)</p>	<p>NEMA provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are accountability; affordability; cradle to grave management; equity; integration; open information;</p>

<p><b>Administering Authority:</b></p> <p>National Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment) and the Limpopo Province Department of Economic Development, Environment and (DEDET)</p>	<p>polluter pays; subsidiary; waste avoidance and minimisation; co-operative governance; sustainable development; and environmental protection and justice.</p> <p>The mandate for EIA lays with the National Environmental Management Act (107 of 1998) and the EIA Regulations No. 324, 325, 326, and 327 promulgated in terms of Section 24 of NEMA. The EIA Regulations determine that an Environmental Authorisation is required for certain listed activities, which might have a detrimental effect on the environment.</p> <p>The S&amp;EIA process undertaken for Dwaalboom Solar 2 is in-line with the requirements of NEMA for the Application for Environmental Authorisation.</p>
<p><b>The National Energy Act (Act No. 34 of 2008)</b></p> <p><b>Administering Authority:</b></p>	<p>One of the objectives of the National Energy Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including solar: “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, taking into account environmental management requirements (...); to provide for (...) increased generation and consumption of renewable energies...” (Preamble).</p>

<p><b>Department of Mineral Resources and Energy</b></p>	<p>Considering that Dwaalboom Solar 2 is proposed to make use of PV technology and the solar resource for the generation of electricity, the proposed project is in-line with the Act.</p>
<p><b>Electricity Regulation Act (Act No. 4 of 2006) (as amended)</b></p> <p><b>Administering Authority:</b></p> <p><b>National Energy Regulator of South Africa (NERSA)</b></p>	<p>The Act provides a national regulatory framework for the electricity supply industry. The Act requires registration and licensing of anyone wanting to generate, transmit, reticulate, distribute, trade, or import and export electricity.</p> <p>One of the requirements for the REIPPPP is for the Proponent to hold an environmental authorisation for the proposed project. The REIPPPP is guided by the National Energy Act, one of the purposes of which is to promote sustainable development of renewable energy infrastructure.</p>
<p><b>The National Water Act (Act No. 36 of 1998)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Water Affairs (now known as Department of Water and Sanitation)</b></p>	<p>Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. The intention of the Act is to promote the equitable access to water and the sustainable use of water, redress past racial and gender discrimination, and facilitate economic and social development. The Act provides the rights of access to basic water supply and sanitation, and environmentally, it provides for the protection of aquatic and associated ecosystems, the reduction and prevention of pollution and degradation of water resources.</p> <p>As this Act is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest,</p>

	<p>a person can only be entitled to use water if the use is permissible under the Act. Chapter 4 of the Act lays the basis for regulating water use.</p> <p>The PAOI does not comprise of natural aquatic/wetland features. A small gravel dam/reservoir was identified to the east of the project site within the PAOI; however, this is not a sensitive feature. Should a water use license be required for the project, the National Water Act will be applicable in terms of obtaining the relevant license.</p>
<p><b>National Environmental Management: Biodiversity Act (10 of 2004) (NEMBA)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Forestry, Fisheries and the Environment (DFFE)</b></p>	<p>"The Act calls for the management of all biodiversity within South Africa. The 2007 Threatened or Protected Species Regulations (GN.R. 150, as amended) provides protection through a permit system as well as through the identification of restricted activities. If required, the relevant permits will be applied for."</p> <p>The Act also provides for duty of care with regards to control of alien species.</p>
<p><b>National Environmental Management: Waste Act (Act No. 59 of 2008)</b></p>	<p>NEMWA has been developed as part of the law reform process enacted through the White Paper on Integrated Pollution and Waste Management and the National Waste Management Strategy (NWMS). The objectives of the Act relate to the provision of measures to protect health, well-being and the environment, to ensure that people are aware of the impact of waste on their health, well-being and the environment, to provide for compliance with</p>

<p><b>Administering Authority:</b></p> <p><b>Department of Forestry, Fisheries and the Environment (DFFE)</b></p>	<p>the measures, and to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.</p> <p>Regulations No. R921 (of 2013) promulgated in terms of Section 19(1) of the National Environmental Management: Waste Act (59 of 2008) determines that no person may commence, undertake or conduct a waste management activity listed in this schedule unless a license is issued in respect of that activity. It is not envisaged that a waste permit will be required for the proposed development as no listed activities in terms of waste management are expected to be triggered.</p>
<p><b>National Environment Management: Air Quality Act (Act No. 39 of 2004)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Forestry, Fisheries and the Environment (DFFE)</b></p>	<p>The objective of this Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development.</p> <p>Regulations No. R248 (of 31 March 2010) promulgated in terms of Section 21(1)(a) of the National Environmental Management Act: Air Quality Act (39 of 2004) determine that an Atmospheric Emission License (AEL) is required for certain listed activities, which result in atmospheric emissions which have or may have a detrimental effect on the environment. The Regulation also sets out the minimum emission standards for the listed activities. It is not envisaged that an Atmospheric Emission License will be required for the proposed development.</p>
<p><b>The National Heritage Resources Act (Act No. 25 of 1999)</b></p>	<p>The Act aims to introduce an integrated and interactive system for the management of heritage resources, to promote good governance at all levels, and empower civil society to nurture and conserve heritage resources so that they may be bequeathed to future generations and to lay down principles for governing heritage resources</p>



<p><b>Administering Authority:</b></p> <p><b>South African Heritage Resources Agency (SAHRA)</b></p>	<p>management throughout the Republic. It also aims to establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources, to set norms and maintain essential national standards and to protect heritage resources, to provide for the protection and management of conservation-worthy places and areas by local authorities, and to provide for matters connected therewith.</p> <p>The Act protects and manages certain categories of heritage resources in South Africa. For the purposes of the Heritage Resources Act, a “heritage resource” includes any place or object of cultural significance. In this regard the Act makes provision for a person undertaking an activity listed in Section 28 of the Act to notify the resources authority. The resources authority may request that a heritage impact assessment be conducted if there is reason to believe that heritage resources will be affected.</p> <p>A case file with reference number 21981 has been opened on SAHRIS for the Dwaalboom Solar 2 PV facility and all relevant documents were submitted for their comments and approval. The Heritage Impact Assessment undertaken for the solar PV facility is included as Appendix E6. Due to the low Palaeontological sensitivity of the site, no palaeontological assessment was undertaken.</p>
<p><b>Conservation of Agricultural Resources Act (Act No. 85 of 1983)</b></p> <p><b>Administering Authority:</b></p>	<p>The objective of the Act is to provide control over the utilisation of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.</p> <p>Consent will be required from the Department of Agriculture, Forestry and Fisheries (now known as the DFFE) in order to confirm that the proposed development is not located on high potential agricultural land and to approve</p>

<p><b>National and Provincial Government</b></p>	<p>the long-term lease agreement. A Soils and Agricultural Compliance Statement have been provided for the Dwaalboom Solar 2 PV facility and included as Appendix E3.</p>
<p><b>Subdivision of Agricultural Land Act (70 of 1970) (SALA)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Agriculture, Land Reform and Rural Development (DALRRD)</b></p>	<p>The purpose of this Act is to control the subdivision of agricultural land and, in connection therewith, the use of agricultural land. Applications are lodged with Department of Agriculture, Land Reform and Rural Development (DALRRD) to allow for the subdivision of agricultural land, as well as other prohibited actions in terms of the Act. In order to limit the potential threat that solar energy development could pose to agricultural production and to the agricultural economy, DALRRD created the 10% rule to inform the decision of whether a solar energy development on agricultural land should be approved or not. This rule states that a solar energy facility may not utilise more than 10% of the surface area of a farm. Its aim was to ensure that each farm unit remained predominantly agricultural rather than certain farms abandoning agricultural production in favour of renewable energy generation.</p>
<p><b>Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA)</b></p> <p><b>Administering Authority:</b></p>	<p>This suite of legislation provides the framework for spatial planning and regulates the use and development of land.</p>

<p>Provincial Authority</p>	
<p>The National Forests Act, 1998 (Act 84 of 1998)</p> <p>Administering Authority:</p> <p>Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment)</p>	<p>The purpose of this Act is to:</p> <ul style="list-style-type: none"> <li>(a) promote the sustainable management and development of forests for the benefit of all;</li> <li>(b) create the conditions necessary to restructure forestry in State forests;</li> <li>(c) provide special measures for the protection of certain forests and trees:</li> <li>(d) promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes.</li> <li>(e) promote community forestry;</li> <li>(f) promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.</li> </ul> <p>Section 12(1) read with S15(1) of the NFA stated that the Minister may declare a particular tree, group of trees, woodland; or trees belonging to a particular species, to be a protected tree, group of trees, woodland or species. A list of protected tree species was gazetted in GN.R. 635 of 6 December 2019. The effect of the declaration is that no person may (a) cut, disturb, damage or destroy; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a license granted by the Minister; or in terms of an exemption published by the Minister in the Gazette.</p>

	<p>A Terrestrial and Aquatic Ecological Scoping Phase Assessment has been undertaken for the Dwaalboom Solar 2 PV facility and is included in Appendix E1.</p>
<p><b>National Road Traffic Act (93 of 1996) (NRTA)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Roads and Public Works</b></p>	<p>Certain vehicles and loads cannot be moved on public roads without exceeding the limitations in terms of the dimensions and/or mass as prescribed in the Regulations of the NRTA. Due to the large size of some of the facility’s component, they will need to be transported via “abnormal loads”.</p> <p>The site is in close proximity to the R510 Regional Road therefore providing easy access to the site. Some roads have been identified for upgrade to ensure that the heavy vehicles can reach the site.</p>
<p><b>Limpopo Environmental Management Act (7 of 2003)</b></p> <p><b>Administering Authority:</b></p> <p><b>Limpopo Department of Economic Development,</b></p>	<p>The objectives of the Act are to:</p> <ul style="list-style-type: none"> <li>a) Manage and protect the environment in the Province;</li> <li>b) Secure ecologically sustainable development and responsible use of natural resources in the Province;</li> <li>c) Generally to contribute to the progressive realisation of the fundamental rights contained in section 24 of the Constitution of the Republic of South Africa; and</li> <li>d) Give effect to international agreements effecting environmental management which are binding on the Province.</li> </ul> <p>Furthermore, the Act provides specific Schedules for the province in terms of protected areas, protected animals, game, non-endemic wild animals, undesirable animals, prohibited aquatic growths and protected plants.</p>

<p><b>Environment and Tourism</b></p>	<p>This Act is therefore relevant to the Dwaalboom Solar 2 PV facility as the proposed development is located within the Limpopo Province and therefore the requirements of the Act will need to be adhered to.</p>
---------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 3.2: Policy context relevant to Dwaalboom Solar 2

<p><b>Policy and Relevant Authority</b></p>	<p><b>Summary and Relevance for the Development</b></p>
<p><b>The White Paper on the Energy Policy of the Republic of South Africa (1998)</b>   <b>Administering Authority:</b>   <b>Department of Mineral Resources and Energy</b></p>	<p>The White Paper on the Energy Policy of the Republic of South Africa establishes the international and national policy context for the energy sector, and identifies the following energy policy objectives:</p> <ul style="list-style-type: none"> <li>• Increasing access to affordable energy services</li> <li>• Improving energy governance</li> <li>• Stimulating economic development</li> <li>• Managing energy-related environmental and health impacts</li> <li>• Securing supply through diversity</li> <li>• Energy policy priorities</li> </ul> <p>The White Paper sets out the advantages of renewable energy and states that Government believes that renewables can in many cases provide the least cost energy service, particularly when social and environmental costs are included. The White Paper acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country’s renewable energy resource base is extensive, and many appropriate applications exist.</p>

	<p>The White Paper notes that renewable energy applications have specific characteristics that need to be considered. Advantages include:</p> <ul style="list-style-type: none"> <li>• Minimal environmental impacts in operation in comparison with traditional supply technologies; and</li> <li>• Generally lower running costs, and high labour intensities.</li> </ul> <p>Disadvantages include:</p> <ul style="list-style-type: none"> <li>• Higher capital costs in some cases;</li> <li>• Lower energy densities; and</li> <li>• Lower levels of availability, depending on specific conditions, especially with sun and wind-based systems.</li> </ul> <p>Dwaalboom Solar 2 PV facility is in line with this policy as it proposes the generation of renewable energy from the solar resource.</p>
<p><b>The White Paper on Renewable Energy (2003)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Mineral Resources and Energy</b></p>	<p>This White Paper on Renewable Energy supplements the White Paper on Energy Policy, which recognises that the medium and long-term potential of renewable energy is significant. This Paper sets out Government’s vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa.</p> <p>The White Paper notes that while South Africa is well-endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. Government’s long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidised alternative to fossil fuels. The medium-term (10-year) target set in the White Paper is: <i>10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. The renewable energy is to be utilised for power generation and non-electric technologies such as solar water heating and bio-</i></p>

	<p><i>fuels. This is approximately 4% (1667 MW) of the projected electricity demand for 2013 (41539 MW) (Executive Summary, ix).</i></p> <p>The Dwaalboom Solar 2 PV facility is in line with this paper as it proposes the generation of renewable energy from the solar resource.</p>
<p><b>Integrated Resource Plan (IRP) for South Africa (2010-2030)</b></p> <p><b>Administering Authority:</b></p> <p><b>Department of Mineral Resources and Energy</b></p>	<p>The Integrated Resource Plan for Electricity for South Africa of 2010–2030 (further referred to as the IRP) is a “living plan” which is expected to be revised and updated continuously as necessary due to changing circumstances. According to the Summary of the plan the current IRP for South Africa, which was originally initiated by the Department of Energy (DoE) in June 2010 (the Department is now known as Department of Mineral Resources and Energy), led to the Revised Balanced Scenarios (RBS) for the period 2010–2030.</p> <p>“This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then “balanced” in accordance with qualitative measures such as local job creation”. In addition to all existing and committed power plants, the RBS included 11,4 GW of renewables, which relates to the proposed Dwaalboom Solar 2 PV facility. In 2010 several changes were made to the IRP model. The main changes in the IRP were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP), and wind options (RSA, 2011a).</p> <p>The summary of the IRP further explains that traditional cost-optimal scenarios were developed based on the previously mentioned changes in the IRP. This resulted in the Policy-Adjusted IRP, which stated that:</p> <p>“The installation of renewables (solar PV, CSP and wind) has been brought forward in order to accelerate a local industry; To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6</p>

GW is included in the IRP; The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) is maintained; and Energy efficiency demand-side management (EEDSM) measures are maintained at the level of the RBS" (RSA, 2011a:6).

"The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 GW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources" (RSA, 2011a:6).

The IRP highlights the commitments before the next IRP. The commitments pertaining to the purpose of the proposed project in renewable energy is: *"Solar PV programme 2012-2015: In order to facilitate the connection of the first solar PV units to the grid in 2012 a firm commitment to this capacity is necessary. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first four years from 2012 to 2015 require firm commitment."*

*"Solar PV 2016 to 2019: As with wind, grid upgrades might become necessary for the second round of solar PV installations from 2016 to 2019, depending on their location. To trigger the associated tasks in a timely manner, a firm commitment to these capacities is necessary in the next round of the IRP at the latest. By then, the assumed cost decreases for solar PV will be confirmed"* (IRP, 2011a:17).

In conclusion the IRP recommends that an accelerated roll-out in renewable energy options should be allowed with regards to the benefits of the localization in renewable energy technologies (RSA, 2011a). It is however important to take note that since the release of the IRP in 2011 there has been a number of developments in the energy sector of South Africa. Therefore, the IRP was updated and was open for comments until March of 2017. The new



IRP of 2019 was formally published in October 2019. For the revision scenario, analysis was conducted. The results revealed that for the period ending 2030 that: *“The committed Renewable Energy Independent Power Producers Programme, including the 27 signed projects and Eskom capacity rollout ending with the last unit of Kusile in 2022, will provide more than sufficient capacity to cover the projected demand and decommissioning of plants up to approximately 2025”*; *“Imposing annual build limits on renewable energy will not affect the total cumulative capacity and the energy mix for the period up to 2030”*; and *“the scenario without renewable energy annual build limits provides the least-cost option by 2030”* (RSA, 2018:34).

Lastly, the draft IRP of 2018 also included the scenario analysis for the period post 2030. Here it was observed that: *“Imposing annual build limits on renewable energy will restrict the cumulative renewable installed capacity and the energy mix for this period; adopting no annual build limits on renewables or imposing a more stringent strategy to reduce greenhouse gas emissions implies that no new coal power plants will be built in the future unless affordable cleaner forms of coal-to-power are available; and the scenario without renewable energy annual build limits provides the least-cost option by 2050”* (RSA, 2018:34–35).

In the final IRP of 2019 key considerations were taken into account together with required actions to be taken for the IRP of 2019 to be credible. In terms of renewable energy technologies like solar and wind, the IRP stated that *“The application of renewable build limits ‘smooths out’ the capacity allocations for wind and solar PV which provides a constant pipeline of projects to investment; this addresses investor confidence”*. The decision stated against this key consideration is to *“retain the current annual build limits on renewables (wind and PV) pending the finalization of a just transition plan”* (RSA, 2019:46). Hereby the IRP also recognises renewable technologies’ potential to diversify the electricity mix, create new industries and job opportunities and localize across the value chain (RSA, 2019:13).

	<p>The Dwaalboom Solar 2 PV facility is in line with this plan as it proposes the generation of renewable energy from the solar resource and will contribute to the energy mix of the country as set out in this plan.</p>
<p><b>National Development Plan of 2030</b></p> <p><b>Administering Authority:</b></p> <p><b>The Presidency: National Planning Commission</b></p>	<p>The National Development Plan aims to “eliminate poverty and reduce inequality by 2030” (RSA, undated). In order to eliminate or reduce inequality, the economy of South Africa needs to grow faster in order to benefit all South Africans. In May 2010 a Draft National development Plan was drafted, which highlighted the nine (9) key challenges for South Africa. The highest priority areas according to the plan are considered to be the creation of employment opportunities and to improve the quality of national education. In this regard, the plan sets out three (3) priority areas, namely, to raise employment by a faster growing economy, improve the quality of education, and to build the capability of the state in order to play a more developmental and transformative role. One of the key challenges identified was that the economy is unsustainably resource intensive and the acceleration and expansion of renewable energy was identified as a key intervention strategy to address this challenge.</p> <p>Dwaalboom Solar 2 PV facility will contribute to the intervention strategy as identified within the plan.</p>
<p><b>National Infrastructure Plan of South Africa (2012)</b></p> <p><b>Administering Authority:</b></p> <p><b>Presidential Infrastructure</b></p>	<p>In the year 2012 the South African Government adopted a National Infrastructure Plan (hereafter referred to as the Plan). The aim of this Plan is to transform the economic landscape, while strengthening the delivery of basic services and creating new employment opportunities. This Plan also supports the integration of African communities, and also sets out the challenges and enablers that our country needs in order to respond to the planning and development of infrastructure with regards to fostering economic growth (RSA, 2012). The Plan has developed eighteen (18) strategic integrated projects (further referred to as SIPs). These SIPs stretch over all nine (9) provinces, covering social and economic infrastructure, and projects that enhances development and growth. Of the eighteen (18), five (5) are geographically focused, three (3) spatial, three (3) energy, three (3) social infrastructure, two (2)</p>

<p><b>Coordinating Commission</b></p>	<p>knowledge, one (1) regional integration, and one (1) water and sanitation focussed. The three (3) SIPs according to the Plan, which are energy focused and correlate to the proposed project are as follow:</p> <ul style="list-style-type: none"> <li>• SIP 8: Green energy in support of the South African economy;</li> <li>• SIP 9: Electricity generation to support socio-economic development; and</li> <li>• SIP 10: Electricity transmission and distribution for all.</li> </ul> <p>SIP 8 according to the Plan “support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the IRP 2010 and support bio-fuel production facilities”. The purpose of SIP 9 according to the Plan is to “accelerate the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances”. SIP 9 should also monitor the implementation of major projects such as new power stations like Medupi, Kusile and Ingula. Lastly, SIP 10 aims to “expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development” (RSA, 2012:20).</p> <p>The Dwaalboom Solar 2 PV facility is in line with this plan as it proposes the generation of renewable energy from the solar resource which supports socio-economic development and will contribute to meeting the electricity demand of the country as set out in this plan.</p>
<p><b>New Growth Path Framework Administering Authority:</b></p>	<p>The New Growth Path was developed after 16 years of South Africa’s democracy, to respond to emerging opportunities and risks while building on policies. This framework provides a dynamic vision on how to collectively achieve a more developed, equitable and democratic society and economy. This framework mainly reflects the commitment of the South African Government to create employment opportunities for its people in all economic policies (RSA, 2011b).</p>

<p><b>Department of Economic Development</b></p>	<p>This framework sets out the markers for job creation and growth and identify where there are viable changes in the character and structure of production, in order to create a more inclusive, greener economy in the long-term. It is stated in the framework that in order for this framework to reach its objectives, the Government is committed to:</p> <ul style="list-style-type: none"> <li>• Identify the possible areas of employment creation; and</li> <li>• Develop a policy to facilitate employment creation especially with regards to social equity, sustainable employment and growth in the creation of employment activities (RSA, 2011b).</li> </ul> <p>This framework also identifies investments in five key areas, one of which is energy. This framework also states that the green economy is a priority area, which includes the construction of and investment in renewable energy technologies like solar (RSA, 2011b). In this regard it will also assist creating employment opportunities over the medium- and long-term.</p> <p>Considering that the construction of and investment in renewable energy is a key area identified within the framework, the Dwaalboom solar 2 PV facility is considered to be in-line with the framework.</p>
<p><b>Climate Change Bill (2018)</b></p> <p><b>Administering Authority:</b></p> <p><b>National Department of Environmental Affairs (now known as</b></p>	<p>On 08 June 2018 the Minister of Environmental Affairs published the Climate Change Bill (“the Bill”) for public comment. The Bill provides a framework for climate change regulation in South Africa aimed at governing South Africa’s sustainable transition to a climate resilient, low carbon economy and society. The Bill provides a procedural outline that will be developed through the creation of frameworks and plans. The following objectives are set within the Bill:</p> <ul style="list-style-type: none"> <li>• Provide for the coordinated and integrated response to climate change and its impacts by all spheres of government in accordance with the principles of cooperative governance;</li> </ul>

<p>the Department of Forestry, Fisheries and the Environment)</p>	<ul style="list-style-type: none"> <li>• Provide for the effective management of inevitable climate change impacts through enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to building social, economic, and environmental resilience and an adequate national adaptation response in the context of the global climate change response;</li> <li>• Make a fair contribution to the global effort to stabilise greenhouse gas concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe and in a manner that enables economic, employment, social and environmental development to proceed in a sustainable manner.</li> </ul> <p>The Dwaalboom Solar 2 PV facility comprises a renewable energy generation facility and would not result in the generation or release of emissions during its operation.</p>
<p>Climate Change Bill (2021)</p> <p>Administering Authority:</p> <p>National Department of Forestry, Fisheries and the Environment</p>	<p>The Department of Forestry, Fisheries and the Environment has published a new Climate Change Bill for public comment. The bill notes that climate change represents an urgent threat to human societies and the planet, and requires an effective, progressive and incremental response from both government and citizens.</p> <p>It recognises that South Africa has a global responsibility to reduce greenhouse gasses and that the anticipated impacts arising as a result of climate change have the potential to undermine achieving of the country's developmental goals.</p> <p>The main objective of the bill is to enable the development of an effective climate change response and the long-term, just transition to a climate-resilient and lower-carbon economy and society, and to provide for matters connected therewith.</p>

	<p>The Dwaalboom Solar 2 PV facility comprises a renewable energy generation facility and would not result in the generation or release of emissions during its operation.</p>
<p><b>Strategic Integrated Projects (SIPs) (2010 – 2030)</b></p> <p><b>Administering Authority:</b></p> <p><b>The Presidential Infrastructure Coordinating Committee</b></p>	<p>The Presidential Infrastructure Coordinating Committee (PICC) is integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have five core functions: to unlock opportunity, transform the economic landscape, create new jobs, strengthen the delivery of basic services and support the integration of African economies. A balanced approach is being fostered through greening of the economy, boosting energy security, promoting integrated municipal infrastructure investment, facilitating integrated urban development, accelerating skills development, investing in rural development and enabling regional integration. SIP 8 and 9 of the energy SIPs supports the development of the solar energy facility:</p> <ul style="list-style-type: none"> <li>• SIP 8: Green energy in support of the South African economy: Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010 – 2030) and supports bio-fuel production facilities.</li> <li>• SIP 9: Electricity generation to support socio-economic development: The proposed Dwaalboom Solar 2 PV facility is a potential SIP 9 Project as electricity will be generated and social and economic upliftment, development and growth will take place within the surrounding communities. It would become a SIP 9 project if selected as a Preferred Bidder project by the Department of Mineral Resources and Energy. SIP 9 supports the acceleration of the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances.</li> </ul> <p>The Dwaalboom Solar 2 PV facility could be registered as a SIP project once selected as a preferred bidder under the REIPPP Programme. The project would then contribute to the above-mentioned SIPs.</p>

<p><b>Strategic Environmental Assessment (SEA) for wind and solar PV Energy in South Africa (2014)</b></p>	<p>The Department of Forestry, Fisheries and the Environment (DFFE) has committed to contribute to the implementation of the National Development Plan and National Infrastructure Plan by undertaking Strategic Environmental Assessments (SEAs) to identify adaptive processes that integrate the regulatory environmental requirements for Strategic Integrated Projects (SIPs) while safeguarding the environment. The wind and solar photovoltaic (PV) SEA was accordingly commissioned by DEA in support of SIP 8, which aims to facilitate the implementation of sustainable green energy initiatives.</p>
<p><b>Administering Authority:</b>  <b>National Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment)</b></p>	<p>This SEA identifies areas where large scale wind and solar PV energy facilities can be developed in terms of SIP 8 and in a manner that limits significant negative impacts on the environment, while yielding the highest possible socio-economic benefits to the country. These areas are referred to as Renewable Energy Development Zones (REDZs).</p> <p>The REDZs also provide priority areas for investment into the electricity grid. Currently one of the greatest challenges to renewable energy development in South Africa is the saturation of existing grid infrastructure and the difficulties in expanding the grid. Proactive investment in grid infrastructure is likely to be the most important factor in determining the success of REDZs. Although it is intended for the SEA to facilitate proactive grid investment in REDZs, such investment should not be limited to these areas. Suitable wind and solar PV development should still be promoted across the country and any proposed development must be evaluated on its own merit.</p> <p>The Dwaalboom Solar 2 PV facility is not located within a REDZ, but the development will contribute to the expansion of renewable energy facilities and infrastructure within the country, and provide the positive opportunities associated with it.</p>

<p><b>Limpopo Development Plan (LDP) 2020 – 2025</b></p> <p><b>Administering Authority:</b></p> <p><b>Limpopo Provincial Department</b></p>	<p>The Limpopo Development Plan (LDP) 2020-2025 is the socio-economic development blueprint for the Limpopo Province. It outlines the contribution of the Limpopo Province to the National Development Plan (NDP) and provides a framework for the strategic plans of provincial government departments and municipalities in the province. The LSDF should build on and give spatial expression to the LDP 2020-2025 components, where possible and relevant. The LDP also creates a structure for the constructive participation of private-sector business, organised labour and citizens, towards the achievement of the provincial growth and development objectives.</p> <p>The LDP 2020-2025 defines the provincial long-term vision as “Limpopo – Africa’s New Pride. A resilient, vibrant, prosperous Province inspired by its diverse and creative people and its environment.”</p> <p>The objectives of the Limpopo Development Plan are the following:</p> <ul style="list-style-type: none"> <li>• Ensure sustainable development.</li> <li>• Create decent employment through inclusive economic growth and sustainable livelihoods.</li> <li>• Improve the quality of life of citizens.</li> <li>• Raise the effectiveness and efficiency of a developmental public service.</li> <li>• Promote vibrant and equitable sustainable rural communities.</li> <li>• Prioritise social protection and social investment.</li> </ul> <p>The development of Dwaalboom Solar 2 PV facility is in line with the framework, based on the contributions and opportunities presented by a development of this nature.</p>
<p><b>Limpopo Provincial Spatial Development</b></p>	<p>The spatial vision of the Limpopo Province is as follows:</p>



<p><b>Framework (2022)</b></p> <p><b>Administering Authority:</b></p> <p><b>Limpopo Province</b></p>	<p><i>“The Limpopo PSDF envisions a provincial spatial structure where the natural environment and valuable agricultural land are protected for future generations, with a strong, diverse and growing economy, and that offers its residents high quality living environments and good job opportunities”.</i></p> <p>The Provincial Spatial outcomes contextualized for the Limpopo Province is as follows:</p> <p><b>Provincial Spatial Outcome One</b></p> <p>A network of consolidated, transformed and well-connected urban nodes, regional development anchors and rural service centres that enable Limpopo to derive maximum transformative benefit from urbanisation and concentrated rural settlements, enabling climate change adaptation, inclusive economic development and equal, effective and efficient access to social services in support of equitable and inclusive provincial human capital development.</p> <p><b>Provincial Spatial Outcome Two</b></p> <p>Provincial-scale corridors and productive rural regions enable sustainable livelihoods supported by economic diversification through green industrialisation and participation in the Fourth Industrial Revolution, mutually beneficial urban-rural linkages, and wise management, nurturing and conservation of ecological assets and ecosystem services.</p> <p><b>Provincial Spatial Outcome Three</b></p> <p>Provincial connectivity and movement infrastructure systems are strategically located, extended and maintained, to support a diverse, ecologically sustainable, adaptive, regenerative and inclusive economy, and a set of key provincial, national and regional gateway cities and towns.</p>
------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Provincial Spatial Outcome Four**

Productive rural regions are supported by sustainable resource economies and strong and resilient regional development anchors provide effective, efficient and equitable access to people living in rural areas to the provincial, national and global economy.

**Provincial Spatial Outcome Five**

The provincial ecological infrastructure and natural resource foundation are well-protected and managed, to enable climate change mitigation and sustainable and equitable access to water, high-potential agricultural land, minerals and other natural resources, both for current and future generations.

The Provincial objectives are as follows:

- Capitalise on the Province's strategic location within the SADC region to facilitate trade links and regional cooperation on resource sharing;
- Capitalise on, and improve regional and local connectivity to establish a connected network of nodes and settlements;
- Provide a strategic and coherent rationale for public sector investment, including engineering, community and economic infrastructure, to optimise service delivery;
- Encourage urban and rural spatial restructuring to address spatial injustice and facilitate climate change mitigation and adaptation;
- Aggressively protect and enhance the province's natural resources, including scarce fresh water sources and high biodiversity landscapes;
- Guard valuable agricultural land as a scarce resource and national asset;

	<ul style="list-style-type: none"> <li>• Consolidate and enhance the province’s ecotourism product;</li> <li>• Encourage and institutionalise the sustainable development of its massive mineral potential and encourage diversification and industrialisation through green economy initiatives; and</li> <li>• Create an enabling environment for both large- and small-scale business development (retail, office, commercial, industrial).</li> </ul> <p>The Dwaalboom Solar 2 PV facility is in line with the provincial framework and supports the development of renewable energy generation and seeks to promote such developments as part of improved energy sustainability.</p>
<p><b>Waterberg DM Final Integrated Development Plan (IDP) 2020–2021 (2020)</b></p> <p><b>Administering Authority:</b></p> <p><b>Waterberg District Municipality</b></p>	<p>The Integrated Develop Plan is a mandatory and over arching process run collectively by all role players within the municipality to achieve developmental objectives of local government. Developmental Local Government has an obligation to provide basic services through an interaction between numerous stakeholders within the municipal area. It is through this collective interaction commonly known as the <i>“The Theatre of planning”</i> that we intend to address service delivery challenges facing the municipality and our communities.</p> <p>The vision of the Waterberg DM is <i>“To be the best energy hub and eco-tourism destination in Southern Africa.”</i></p> <p>The Mission Statement is: <i>“To invest in a constituency of talented human capital who are motivated and innovated to build a sustainable economy in the field of energy, minerals and eco-tourism for the benefit of all our communities”</i>.</p> <p>The above vision and mission statements are supported by certain values that drive the attitudes and behaviour of politicians and administration of the Waterberg District Municipality are confirmed as:</p> <ul style="list-style-type: none"> <li>• Honesty</li> </ul>

	<ul style="list-style-type: none"> <li>• Respect</li> <li>• Fairness</li> <li>• Integrity</li> <li>• Accountability</li> <li>• Accessibility</li> <li>• Effectiveness</li> <li>• Ubuntu</li> </ul> <p>The IDP of the municipal area within which the Dwaalboom Solar 2 PV facility is located therefore supports the development of renewable energy generation and seeks to promote such developments as part of improved energy sustainability.</p>
<p><b>Waterberg District Spatial Development Framework (SDF) (2021)</b></p> <p><b>Administering Authority:</b></p> <p><b>Waterberg District Municipality</b></p>	<p>The Waterberg SDF poses the following spatial vision for the district: <i>“A spatially functional and equitable district that is a conducive living environment for all, an energy hub and eco-tourism destination”</i>.</p> <p>The spatial development objectives of the Waterberg SDF are as follows:</p> <ul style="list-style-type: none"> <li>• A spatially functional District: Ensure a spatially functional district that optimises the use of resources and achieve a sustainable balance between macro land uses;</li> <li>• Integrated sustainable human settlements: Ensure that integrated and sustainable human settlements are developed that redress spatial imbalances and promote inclusive and sustainable land development;</li> <li>• Investment in targeted nodes: Ensure that development in higher order urban nodes is prioritised and that such nodes provide a range of development opportunities according to the comparative advantages and needs of the communities;</li> </ul>

		<ul style="list-style-type: none"> <li>• Sustainable rural livelihoods: Improve rural areas by creating integrated and sustainable livelihoods;</li> <li>• A connected District: Ensure a well-functioning District that is connected and provide digital connectivity, convenience and economic prosperity;</li> <li>• Integrated and consolidated service delivery: Ensure a functional District and conducive living conditions for all the residents by following an integrated approach in providing engineering infrastructure by all spheres of government.</li> </ul> <p>The development of the Dwaalboom Solar 2 PV facility will contribute to the goals of the area, albeit to a limited extent.</p>
<p><b>Thabazimbi Municipality Integrated Development Plan 2021-2022 (2021) Administering Authority:</b></p> <p><b>Thabazimbi Municipality</b></p>	<p>Local Draft Plan</p> <p>Local</p>	<p>The IDP for the LM has legal status. It is the instrument for the strategic management of the Municipality and decision-making by Council. The IDP ensures a cooperative approach by the National, Provincial and Local spheres of government to develop and implement projects and programmes on a Priority basis which will empower and benefit the community. The IDP highlights the vision and mission statements of the LM that they strive to achieve.</p> <p>The vision of the LM is to be <i>“a leading eco-tourism Municipality in the provision of sustainable and excellent services”</i>. The vision is supported by the mission statement that is <i>“Promote, co-ordinate, implement the financial and environmental growth and development through a committed staff and partnership with communities and stakeholders”</i>.</p> <p>To further support the vision and mission statements, certain values was identified namely:</p> <ul style="list-style-type: none"> <li>• Accountable</li> <li>• Transparent</li> <li>• Community Centred</li> </ul>

	<ul style="list-style-type: none"> <li>Honest Human Capital</li> </ul> <p>The development of the Dwaalboom Solar 2 PV facility will contribute to the goals of the area, albeit to a limited extent.</p>
<p><b>Thabazimbi LM Local Municipality Spatial Development Framework (2018)</b></p> <p><b>Administering Authority:</b></p> <p><b>Thabazimbi Local Municipality</b></p>	<p>Spatial Rationale seeks to strengthen and create sustainable human settlements through application of spatial planning and land use systems and practices. The Municipality intends to embark on a process of reviewing its Spatial Development Framework 2015 (SDF) and Town Planning Scheme 2014 which must be aligned to Spatial Planning and Land Use Management Act, Act 16 of 2013 (SPLUMA) and its Regulations. The Municipal Systems Act, 2000 mandates the incorporation of the SDF into the IDP as a sector plan with the intension to provide spatial direction. it is therefore important that the SDF and the IDP are aligned. The Limpopo Spatial Development Framework and existing SDF identified the following nodal areas in the Thabazimbi Municipal Area, namely the (i.) Provincial Growth Point (PGP) being the Thabazimbi Town, and (ii.) Municipal Growth Point (MGP) being the Northam Town. Both of these towns play a critical role in the sustenance of the municipality both spatially and economically.</p> <p>The contents of the SDF for the LM are as follows:</p> <ul style="list-style-type: none"> <li>include a written and spatial representation of a five-year spatial development plan for the spatial form of the municipality;</li> <li>include a longer-term spatial development vision statement for the municipal area which indicates a desired spatial growth and development pattern for the next 10 to 20 years; identify current and future significant structuring and restructuring elements of the spatial form of the municipality, including development corridors, activity spines and economic nodes were public and private</li> </ul>

- investment will be prioritised and facilitated; include population growth estimates for the next five years; include estimates of the demand for housing units across different socio-economic categories and the planned location and density of future housing developments;
- include estimates of economic activity and employment trends and locations in the municipal area for the next five years;
- identify, quantify and provide location requirements of engineering infrastructure and services provision for existing and future development needs for the next five years;
- identify the designated areas where a national or provincial inclusionary housing policy may be applicable;
- include a strategic assessment of the environmental pressures and opportunities within the municipal area,
- including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable;
- identify the designation of areas in the municipality where incremental upgrading approaches to development and regulation will be applicable;
- identify the designation of areas in which more detailed local plans must be developed; and shortened land use development procedures may be applicable and land use schemes may be so amended; provide the spatial expression of the coordination, alignment and integration of sectoral policies of all municipal departments;
- determine a capital expenditure framework for the municipality's development programmes, depicted spatially;
- determine the purpose, desired impact and structure of the land use management scheme to apply in that municipal area; and include an implementation plan comprising of sectoral requirements, including budgets and resources for implementation;

- necessary amendments to a land use scheme;
- specification of institutional arrangements necessary for implementation;
- specification of implementation targets, including dates and monitoring indicators; and specification, where necessary, of any arrangements for partnerships in the implementation process.

The development of the Dwaalboom Solar 2 PV facility will contribute to the goals of the area, albeit to a limited extent.



### 3.3. Legal Requirements Complied with in Section 3 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	The entire section 3 provides a description of the policy and legislative context relevant to the proposed Dwaalboom Solar 2.

---

## 4. NEED AND DESIRABILITY

---

The need and desirability of a development is linked to whether the site is appropriate, receptive and desirable for the development of a solar facility and the need for the development on an international, national, provincial and local level.

### 4.1. Need for the Proposed Development

The need for the development has been confirmed from a regulatory perspective considering the results of section 3 that indicates how the Dwaalboom Solar 2 “fits” into and contribute to the electricity generation of the country and the contributions made to the fight against climate change.

Over 90% of South Africa’s electricity generation is coal based, the World bank estimates that this results in an annual, per capita carbon emission of ~8.9 tons per person. Based on 2008 fossil-fuel CO<sub>2</sub> emissions statistics released by the Carbon Dioxide Information Analysis Centre, South Africa is the 13th largest carbon dioxide emitting country in the world and the largest emitter in Africa (Boden, et al. 2011). In August 2021 an article confirmed that South Africa is the 12th highest greenhouse gas emitter in the world (source: <https://www.news24.com/fin24/economy/eskom-will-only-able-to-meet-global-air-quality-standards-by-2050-owing-to-financial-woes-20210818>).

The proposed project is intended to form part of the Department of Mineral Resources and Energy’s (DMREs) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme or any other appropriate energy generation programmes/opportunities. The REIPPP Programme aims to secure 14 725 Megawatts (MW) of new generation capacity from renewable energy sources, while simultaneously diversifying South Africa’s electricity mix. According to the 2021 State of the Nation Address, Government will soon be initiating the procurement of an additional 11 800 MW of power from renewable energy, natural gas, battery storage and coal in line with the Integrated Resource Plan 2019 and fulfilling their commitments under the United Nations Framework Convention on Climate Change and its Paris Agreement which include the reduction of greenhouse gas emissions. Eskom, the largest greenhouse gas emitter of South Africa, has committed in principle to net zero emission by 2050 and to increase its renewable capacity.

During the 2022 State of the Nation Address it was indicated that during the past year the government had taken “firm steps” to bring additional generation capacity online as quickly as possible to close the shortfall in terms of electricity. As a result, it was confirmed that several new generation projects will be coming online over the next few years. During the recent 2023 State of the Nation Address, the government has embarked upon allowing private developers to generate electricity. There are now more than 100 projects, which are expected to provide over 9 000 MW of new capacity over time. A number of companies that have participated in the renewable energy programme will soon enter construction and deliver a total of 2 800 MW of new capacity.

Through the Just Energy Transition Investment Plan, R1.5 trillion will be invested in our economy over the next five years in new frontiers such as renewable energy, green hydrogen and electric vehicles. A number of projects are already underway, including the development of a new facility by Sasol at Boegoebaai in the Northern Cape, the Prieska Power Reserve in the Free State, and the Hydrogen Valley initiative in Limpopo, Gauteng and KwaZulu-Natal.

Besides capacity additions, several assumptions have changed since the promulgation of IRP 2010–2030. Key assumptions that changed include the electricity demand projection, Eskom’s existing plant performance, as well as new technology costs. These changes necessitated the review and update of the IRP which resulted in the draft IRP 2018 that was made available for comment and updated to the draft IRP 2019 as per Table 4.1.

Table 4.1: Published Draft IRP 2019

	Coal	Coal (Decommissioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)
<b>Current Base</b>	37 149		1 860	2 100	2 912	1 474	1 980	300	3 830	499
<b>2019</b>	2 155	-2 278					244	300		Allocation to the extent of the short term capacity and energy gap.
<b>2020</b>	1 433	-557				114	300			
<b>2021</b>	1 433	-1 403				300	818			
<b>2022</b>	711	-844			513	400	1 000	1 600		
<b>2023</b>	750	-555				1 000	1 600			
<b>2024</b>			1 860				1 600	1 000	500	
<b>2025</b>						1 000	1 600		500	
<b>2026</b>		-1 219					1 600		500	
<b>2027</b>	750	-847					1 600	2 000	500	
<b>2028</b>		-475				1 000	1 600		500	
<b>2029</b>		-1 694			1 575	1 000	1 600		500	
<b>2030</b>		-1 050		2 500		1 000	1 600		500	
<b>TOTAL INSTALLED CAPACITY by 2030 (MW)</b>	33 364		1 860	4 600	5 000	8 288	17 742	600	6 380	
<b>% Total Installed Capacity (% of MW)</b>	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1	
<b>% Annual Energy Contribution (% of MWh)</b>	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3	

	Installed Capacity
	Committed / Already Contracted Capacity
	Capacity Decommissioned
	New Additional Capacity
	Extension of Koeberg Plant Design Life
	Includes Distributed Generation Capacity for own use

According to the South African Energy Sector Overview (2021), there is currently 1 723 MW of installed PV capacity, while an additional 2 600 MW and 860 MW from wind and solar has been rewarded as part of Bid window 5 and 6, respectively (latter announced in 2022).

Considering the above, there is a definite need for the development of solar PV facilities in the country.

#### 4.2. Receptiveness of the Site and Desirability of the Development

The receptiveness of the site /development area for the construction and operation of Dwaalboom Solar 2 has been informed by the site selection process undertaken by the Applicant. The site selection process considered specific site characteristics in order to understand whether the site is suitable for the placement of the infrastructure. Refer to section 2.3.

The main aspects considered as part of the site selection process was solar resource, land availability, access to the national grid, geographical and socio-economic considerations,

availability of existing infrastructure, topography and consideration of sensitive environmental features through environmental screening. Through this process the Applicant confirmed the receptiveness of the site for the development.

The feasibility of the site for the development provides an indication of the desirability of the development within the site. The Dwaalboom Solar 2 PV facility is proposed to be constructed outside of the urban edge of the surrounding towns on privately-owned properties currently used for agricultural practises. The affected farm portions have not been considered for an alternative future land use such as urban development, agriculture or mining.

Therefore, the site proposed for the development displays characteristics which contribute to the overall desirability.

The facility's contribution towards sustainable development and the associated benefits to society in general is listed below:

- Utilisation of significant renewable energy resource and increased supply - Given that renewables can often be deployed in a short timeframe and in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality in the short-term, while reducing expensive distribution losses.
- Reduced dependence on fossil fuels - The operation of the Dwaalboom Solar 2 PV facility will have a positive macro-economic impact by reducing South Africa's dependence on fossil fuel generated power and assisting the country in meeting its growing electricity demand.
- Contribution to the fight against climate change - The uptake of renewable energy offers the opportunity to address energy needs in an environmentally responsible manner and thereby allows South Africa to contribute towards mitigating climate change through the reduction of GHG emissions. The development of Dwaalboom Solar 2, and the associated electricity generated as a result of the facility, will result in considerable savings on tons of CO<sub>2</sub> emissions.
- Reduction of Pollution - The use of solar irradiation or wind for power generation is a non-consumptive use of a natural resource which produces zero emissions during its operation. The release of by-products through the burning of fossil fuels for electricity

generation have a particularly hazardous impact on human health and contribute to ecosystem degradation.

- Protection for future generations - Actions to reduce our disproportionate carbon footprint can play an important part in ensuring our role in preventing dangerous anthropogenic climate change, thereby securing the natural foundations of life for generations to come; this is the basis of sustainable development.
- Socio-Economic Benefits - The project activity is likely to have significant long-term, indirect positive social impacts that may extend to a regional and even national scale. The larger scale impacts are to be derived in the utilization of solar power and the experience gained through the construction and operation of the PV facility. In future, this experience can be employed at other similar solar installations in South Africa. As a result of the excellent renewable energy resources and competitive procurement processes, both wind power and solar PV power have now been proven as cheaper forms of energy generation in South Africa than coal power. They offer excellent value for money to the economy and citizens of South Africa while benefitting society as a whole through the development of clean energy.
- Employment - The development, procurement, installation, maintenance and management of renewable energy facilities have significant potential for job creation and skills development in South Africa. The main benefit of the proposed development operating in the area is that local companies or contractors will be hired for the duration of the construction period. The operational phase will provide permanent job opportunities to the local communities from the surrounding area since security guards and general labourers will be required on a full-time basis. Approximately 500 employment opportunities will be created during the construction phase and up to 50 permanent employment opportunities during the operational phase.

#### 4.3. Legal Requirements Complied with in Section 4 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	The need and desirability of the development of Dwaalboom Solar 2 PV facility has been fully considered within section 4.

## 5. APPROACH TO THE PROCESS

The development of Dwaalboom Solar 2 requires Environmental Authorisation in accordance with the requirements of Section 24 of NEMA and the 2014 EIA Regulations (GNR 326). The applicant has appointed Blue Crane Environmental (Pty) Ltd, as the independent environmental consultant responsible for undertaking the S&EIA process required in support of the application for EA.

This section provides an indication of the approach which has been followed as part of the S&EIA Process. A S&EIA process refers to a process undertaken in accordance with the EIA Regulations, 2014, as amended, specifically GN. R 326 of the Regulations. The EIA process involved the consideration and identification of direct, indirect, and cumulative, environmental impacts associated with a proposed project or activity and assess the significance of the identified impacts on the environment. Figure 5.1 below provides an indication of the EIA process followed.

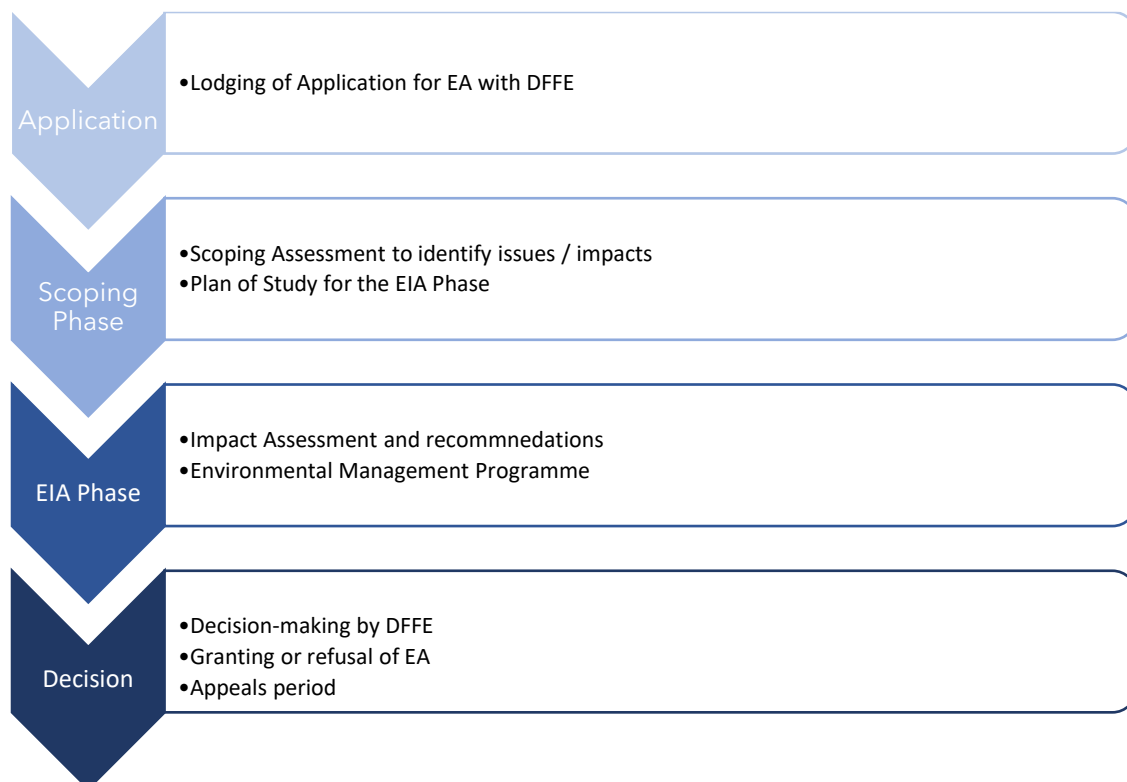
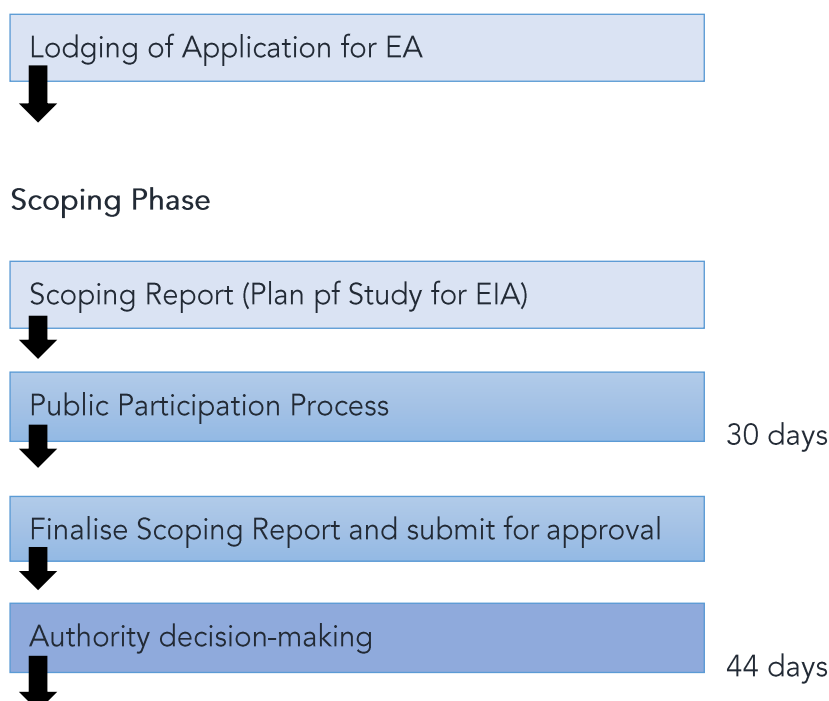


Figure 5.1: The phases of an EIA Process



The National Environmental Management Act (No. 107 of 1998) (NEMA) is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant EA. Due to the fact that Dwaalboom Solar 2 is a power generation facility and therefore relates to the IRP 2010 – 2030, the National Department of Forestry, Fisheries and the Environment (DFFE) has been determined as the Competent Authority in terms of GNR 779 of 01 July 2016. The Provincial Limpopo Department of Economic Development, Environment and Tourism (DEDET) is the Commenting Authority on the project.

In terms of the EIA Regulations, 2014 (as amended) the S&EIA process is subject to prescribed timeframes that must be adhered to. These prescribed timeframes must be adhered to otherwise the Application for Environmental Authorisation will lapse and the process needs to be restarted. Figure 5.2 provides the prescribed timeframes of the S&EIA process underway, including the relevant public participation process timeframes for the collection of comments.



## EIA Phase



**Figure 5.2:** Prescribed timeframes associated with the S&EIA process

The final Scoping Report and Plan of Study for the EIA must be submitted to the competent authority for decision-making within 42 days of lodging the Application for Environmental Authorisation (this timeframe includes a 30-day review and comment period of the draft Scoping Report). The final EIA Report must be submitted to the competent authority for decision-making on the Application for Environmental Authorisation within 106 days of receipt of the Acceptance of Scoping (this timeframe includes a 30-day review and comment period of the draft EIA Report and Environmental Management Programme (EMPr)).

### 5.1. Assessment of Potential Impacts and Issues

As part of the Scoping Phase independent specialists have been appointed to scope out and identify potential environmental impacts and issues that will need to be assessed in detail as part of the EIA Phase of the process. The independent specialists also provide an assessment of the potential impacts and provide preliminary recommendations for the mitigation and management of the identified impacts. The impacts will be assessed in more detail during the EIA Phase of the S&EIA process and the recommendations and mitigation measures will be refined accordingly.

In terms of GN R. 960 (promulgated on 05 July 2019) and Regulation 16(1)(b)(v) of the EIA Regulations, 2014, (as amended), the submission of a Screening Report generated from the national web based environmental screening tool is compulsory for the submission of applications in terms of Regulations 21 – 24 of the EIA Regulations. The requirement for the

submission of a Screening Report for the Dwaalboom Solar 2 facility is applicable as it triggers Regulation 21 of the EIA Regulations, 2014 (as amended).

Table 5.1, 5.2 and 5.3 included below provides an indication of the specialist studies identified by the DFFE Screening Tool Report (STR) (Appendix B) within the different applicable categories, an indication of whether the studies were undertaken or not and a motivation or confirmation of the studies being included or not.

**Table 5.1:** Specialist studies Identified by the DFFE screening tool, solar PV category and specialist studies completed.

Theme	Sensitivity Rating	Specialist Study Undertaken (yes/no)	Comment/Motivation
Agriculture	Very High	Yes	Site Sensitivity Verification and Agricultural Compliance Statement is included as Appendix E3.
Animal Species	Medium	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.
Aquatic Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.
Archaeological and Cultural Heritage	Low	Yes	Heritage Impact Assessment included as Appendix E6.
Avian	Low	Yes	An Avifauna Site Sensitivity Verification is included as Appendix E2.

Civil Aviation (Solar PV)	Medium	No	The Civil Aviation Authority (CAA) has been identified as an I&AP and will be kept informed of the project as the process advances. No comment has been received from the CAA to date.
Defence	Low	No	No defence sites were found to be located nearby. The South African National Defence Force (SANDF) has been identified as an I&AP and will be kept informed of the project as the process advances. No comment has been received from SANDF to date.
Landscape (Solar)	Very High	Yes	A Visual Impact Assessment is included as Appendix E4.
Palaeontology	Medium	No	The Heritage Impact Assessment included as Appendix E6 assesses the paleontological sensitivity as insignificant, therefore, no further studies are required.
Plant Species	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.
RFI	Medium	No	The South African Radio Astronomy Observatory (SARAO) has been identified as

			an I&AP and will be kept informed of the project as the process advances. No comment has been received from SARAO to date.
Terrestrial Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.
Social	Unspecified	Yes	A social impact assessment has been undertaken for the proposed development. Refer to Appendix E5.

**Table 5.2:** Specialist studies identified by the DFFE screening tool, substation category and specialist studies completed.

Theme	Sensitivity Rating	Specialist Study Undertaken (yes/no)	Comment/Motivation
Agriculture	Very High	Yes	Site Sensitivity Verification and Agricultural Compliance Statement is included as Appendix E3.
Animal Species	Medium	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.
Aquatic Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.

Archaeological and Cultural Heritage	Low	Yes	Heritage Impact Assessment included as Appendix E6.
Civil Aviation	High	No	The Civil Aviation Authority (CAA) has been identified as an I&AP and will be kept informed of the project as the process advances. No comment has been received from the CAA to date.
Defence	Low	No	No defence sites were found to be located nearby. The South African National Defence Force (SANDF) has been identified as an I&AP and will be kept informed of the project as the process advances. No comment has been received from SANDF to date.
Palaeontology	Medium	No	The Heritage Impact Assessment included as Appendix E6 assesses the paleontological sensitivity as insignificant, therefore, no further studies are required.
Plant Species	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.

Terrestrial Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.
Social	Unspecified	Yes	A social impact assessment has been undertaken for the proposed development. Refer to Appendix E5.

**Table 5.3:** Specialist studies identified by the DFFE screening tool, power line category (LILCO Connection) and specialist studies completed.

Theme	Sensitivity Rating	Specialist Study Undertaken (yes/no)	Comment/Motivation
Agriculture	Very High	Yes	Site Sensitivity Verification and Agricultural Compliance Statement is included as Appendix E3.
Animal Species	Medium	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.
Aquatic Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.
Archaeological and Cultural Heritage	Low	Yes	Heritage Impact Assessment included as Appendix E6.
Civil Aviation	High	No	The Civil Aviation Authority (CAA) has been identified as an I&AP and will be kept informed

			of the project as the process advances. No comment has been received from the CAA to date.
Defence	Low	No	No defence sites were found to be located nearby. The South African National Defence Force (SANDF) has been identified as an I&AP and will be kept informed of the project as the process advances. No comment has been received from SANDF to date.
Palaeontology	Medium	No	The Heritage Impact Assessment included as Appendix E6 assesses the paleontological sensitivity as insignificant, therefore, no further studies are required.
Plant Species	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1. The Terrestrial study assess both fauna and flora species.
Terrestrial Biodiversity	Low	Yes	A Terrestrial and Aquatic Ecological Scoping Phase Assessment as Appendix E1.
Social	Unspecified	Yes	A social impact assessment has been undertaken for the proposed development. Refer to Appendix E5.



Kindly refer to the Site Verification Report included under Appendix D of this draft Scoping Report. The site verification report further details reasons for exclusion of specialist studies where applicable.

## 5.2. Impact Assessment Methodology

The environmental impacts assessment aims to identify the various possible environmental impacts that could result from the proposed activity. Different impacts need to be evaluated in terms of its significance and in doing so highlight the most critical issues to be addressed. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Impact assessment must take account of the nature, scale, and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the project phases:

- planning
- construction
- operation
- decommissioning

Table 5.4 provides the impact rating system applied in this draft Scoping Report.

**Table 5.4:** Impact rating methodology

NATURE		
Include a brief description of the impact of the environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.

3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).

3	Long term	The impact and its effects will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered indefinite.
<b>INTENSITY/ MAGNITUDE</b>		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component, and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component, and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation often

		unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible, and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or		

potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects
SIGNIFICANCE		
<p>Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.</p> <p>The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.</p>		
Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.

29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

The potential impacts that may be associated with Dwaalboom Solar 2 has been identified and is listed in Section 8 of this draft Scoping Report. An impact assessment is provided of the potential impacts.

### 5.3. Legal Requirements Complied with in Section 5 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint, including (vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Section 5 of this draft Scoping Report provides the process followed in terms of the S&EIA process and also provides the details of the methodology used to assess the potential impacts and the significance thereof.

---

## 6. PUBLIC PARTICIPATION PROCESS

---

The Public Participation Process (PPP) has been undertaken in accordance with the requirements of Chapter 6, Regulations 39 to 44 of the 2014 EIA Regulations, as amended (GNR 326). The availability and sharing of information provides the foundation of the public participation process, which includes creating opportunities for interested and/or affected parties (I&APs) to become actively involved from the commencement of the S&EIA process.

Variables of a development provide an indication of the level of public participation that would be required. The variables considered include:

- The scale / extent of the potential impacts;
- The sensitivity and vulnerability of the affected environment, and its social aspects and the degree to which the project may create controversy; and
- The characteristics and current conditions of the affected parties.

The sections below provide an indication of the tasks which have been completed for the public participation process and the applicable regulation(s) in the EIA Regulations (as amended), that are complied with.

### 6.1. Identification of Stakeholder and Interested and / or Affected Parties

The identification of potentially affected stakeholders and I&APs has been undertaken through a process of networking and referral, obtaining information from existing stakeholder databases, liaison with potentially affected parties in the greater study area and a registration process involving the placement of the site notices on the affected properties and the publishing of an advert in a local newspaper. Furthermore, previous project experience in the Limpopo area has also contributed towards the identification of the potential I&APs for Dwaalboom Solar 2.

Key stakeholders and affected and surrounding landowners have been identified and automatically registered on the project database. Other stakeholders are required to formally register their interest in the project.

All relevant stakeholder and I&AP information has been recorded within a register of I&APs, as per the requirements of Regulation 42 of the EIA Regulations, 2014 (as amended). Refer to Appendix C3 for the list of registered I&APs.



The identification and registration of I&APs will be an on-going process for the duration of the S&EIA Process. The database of I&APs will be updated throughout the process and will act as a record of the I&APs involved in the public participation process.

In terms of the EIA Regulations the following has been complied with:

42 A proponent or applicant must ensure the opening and maintenance of a register of I&APs and submit such a register to the competent authority, which register must contain the names, contact details and addresses of –

(a) All persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;

(b) All persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and

(c) All organs of state which have jurisdiction in respect of the activity to which the application relates.

## 6.2. Formal Notification

The EIA process was announced through the submission of an invitation/notification to the Organs of State, potentially affected and neighbouring landowners and general public to register as I&APs, and thereby obtain access to all project related information. This was achieved through:

- Compilation of a background information document (BID) providing technical and environmental details on the development and how to become involved in the EIA process. The BID has been distributed to identified stakeholders and I&APs (including surrounding and affected landowners) on 24 July 2023. Refer to Figure 6.1 which provides a map of the affected and adjacent landowners to the site under assessment.
- Placement of site notices announcing the EIA process at visible points along the boundary of the site, in accordance with the requirements of the EIA Regulations. Photographs and the GPS co-ordinates of the site notices are contained in Appendix C1. The site notices were placed on 27 June 2023 in Sepedi, English and Afrikaans.
- Placement of an advertisement in English announcing the EIA process for the project and inviting members of the public to register themselves as I&APs on the project

database in the Platinum Bushvelder Newspaper on 30 June 2023. The tear sheet of the newspaper advert is contained in Appendix C1.

- Identified I&APs, including key stakeholders representing various sectors, were directly informed of the EIA process on 24 July 2023 via registered post, telephone calls, WhatsApp's and emails (as relevant). The BID was distributed with the notification. It was expected from I&APs to provide their inputs and comments by 23 August 2023.
- The draft Scoping Report has been made available to all I&APs via courier, Dropbox and/or email (as relevant) for a 30-day review and comment period from **01 September 2023 to 03 October 2023**. Hard copies of the report will be made available on request and where an I&AP does not have the resources to view the report on an online platform. Furthermore, the draft Scoping Report was uploaded to the Blue Crane Environmental website (<https://www.bcrane.co.za/public-documents/>) which enables any party from the public to automatically register on the project database and gain access to the full draft Scoping Report and all appendices.

I&AP's and organs of state were requested to provide their comments on the report in writing by 03 October 2023. All comments submitted during the 30-day review and comment period will be documented and compiled into a Comments and Response Report to be included as part of the Final Scoping Report for decision-making.

In terms of the EIA Regulations the following has been complied with:

- 40.(2)(a) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of –
- (i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and
  - (ii) Any alternative site.
- 40.(2)(b) Giving written notice, in any of the manners provided for in section 47D of the Act, to –
- (i) The occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;

- (ii) Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
  - (iii) The municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (iv) The municipality which has jurisdiction in the area;
  - (v) Any organ of state having jurisdiction in respect of any aspect of the activity; and
  - (vi) Any other party as required by the competent authority.
- 40.(2)(c) Placing an advertisement in –
- (i) One local newspaper; or
  - (ii) Any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- 40.(2)(d) Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and
- 40.(2)(e) Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to –
- (i) Illiteracy;
  - (ii) Disability; or
  - (iii) Any other disadvantage.

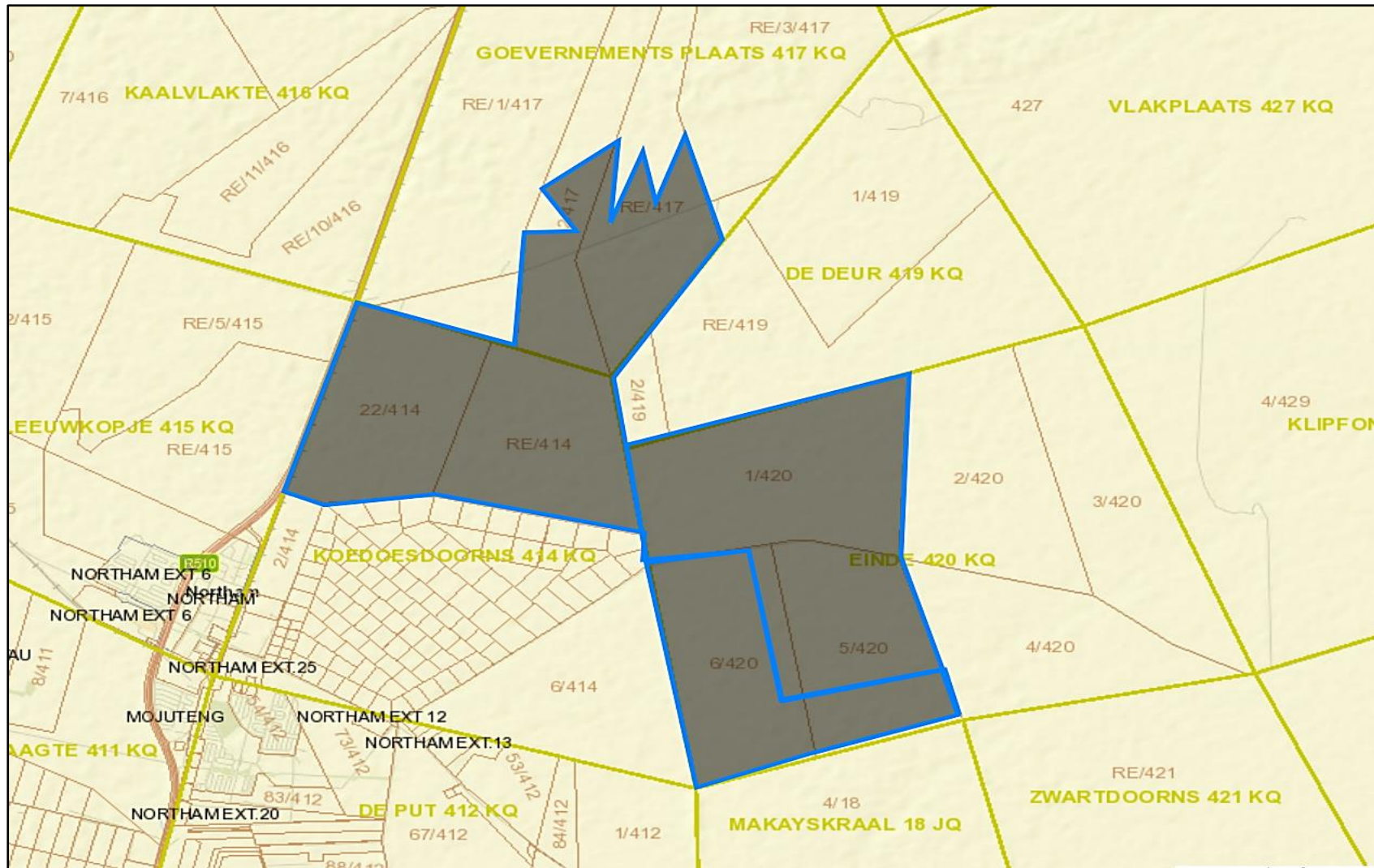


Figure 6.1: Affected properties of Dwaalboom Solar 1-4 (indicated in Blue) in relation to the identified surrounding landowners.

### 6.3. Registered I&APs entitled to comment on the Reports and Plans

All registered I&APs on the database (Appendix C3) has been notified, as appropriate, of the availability of the draft Scoping Report for a 30-day review and comment period. The I&APs have been invited to comment on the draft Scoping Report within the stipulated 30-day timeframe (from **01 September 2023 to 03 October 2023**). The notification has been distributed to the I&APs on 01 September 2023.

Proof of notification and correspondence is included in Appendix C4.

All written comments received following notification of the S&EIA process and prior to the release of the draft Scoping Report for review and comment have been included in the comments and responses report as part of this draft Scoping Report as Appendix C6.

All written comments received during the 30-day review and comment period will be recorded, included and addressed in a comments and responses report to be submitted to the DFFE with the final Scoping Report.

The C&R Report includes detailed responses from members of the EIA project team and/or Applicant to the issues and comments raised during the public participation process.

The C&R report will consist of written comments and issues received:

- on the notification of the EIA process;
- per e-mail, fax or telephonically; and
- during the 30-day review of the draft Scoping Report.

In terms of the EIA Regulations the following has been complied with:

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

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

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

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

- (a) A lack of skills to read or write;
- (b) Disability; or
- (c) Any other disadvantage;

Reasonable alternative methods of recording comments must be provided for.

#### 6.4. Legal Requirements Complied with in Section 6 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint, including (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of supporting documents and inputs	The public participation process, that has been undertaken in terms of Regulation 41 of the EIA Regulations, is fully described and included in Section 6. Proof of all correspondence and proof of the public participation tasks completed is included in Appendix C of this draft Scoping Report.
2(g)(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them	A summary of the issues raised by I&APs during the 30-day review and comment period of this draft Scoping Report will be included in the final Scoping Report to be submitted to the DFFE for decision-making.

---

## 7. DESCRIPTION OF THE AFFECTED ENVIRONMENT

---

The following sections provide general information on the biophysical and socio-economic attributes associated with the preferred alternative (i.e., the location of the development footprint within the affected property). The information provided below aims to assist the reader in understanding the receiving environment within which the project is proposed. This chapter was supplemented by research of existing available information; information gathered from on-site investigations and as received from various specialist investigations. Refer to Table 1.2 above for a list of specialists that were consulted for the proposed Dwaalboom Solar 2.

### 7.1. Description of the Study Area

As presented in the Social Impact Assessment (Appendix E3), the proposed Dwaalboom Solar 2 facility is located within the Limpopo province.

#### Limpopo Province

The Limpopo Province is located in the northernmost part of South Africa bordering Mozambique, Zimbabwe and Botswana. It is flanked by three South African provinces: the North West Province to the south-west, and Gauteng and Mpumalanga to the south. The Limpopo Province is named after the Limpopo River, which flows along its northern border, separating South Africa from Zimbabwe and Mozambique.

Covering an expansive area of 125 754 km<sup>2</sup> and home to a population of 5 799 090 people, the Limpopo Province ranks as the fifth largest province in South Africa in terms of both size and population. Its capital and largest city is Polokwane (formerly known as Pietersburg), centrally located within the province. Other significant towns and cities, such as Bela-Bela (Warmbad), Lephalale (Ellisras), Makhado (Louis Trichardt), Musina (Messina), Thabazimbi, and Tzaneen, are scattered throughout the province.

Geographically, the Limpopo Province comprises Lowveld plains interspersed with several mountain ranges that emerge from the Highveld plateau in the southern and central regions. These ranges include the Soutpans Mountains stretching from east to west, as well as the

Water Mountains in the southwest. The Lowveld spans the eastern, northern, and western parts of the province, adorned with iconic mopani and baobab trees that define its unique landscape.

Within the eastern region lies the untouched splendour of the majestic Kruger National Park. Established in 1926, it was South Africa's first national park and has since become one of the country's most popular tourist destinations. The region's abundant wildlife diversity also contributes to a thriving hunting industry, adding to the province's allure as a tourist hotspot.

The province's economic activity is primarily driven by its rich mineral deposits, which include platinum-group metals, iron ore, chromium, high and middle-grade coking coal, diamonds, antimony, phosphate, copper, gold, emeralds, scheelite, magnetite, vermiculite, silicon, and mica. Additionally, agricultural pursuits thrive in certain climatic regions, allowing for double harvesting seasons. As a result, the province boasts the largest production of various crops, including sunflowers, cotton, maize, peanuts in the Bela-Bela and Modimolle region, as well as bananas, litchis, pineapples, mangoes, pawpaw's, and various nuts in the Tzaneen and Makhado region. Coffee and tea plantations in the province also provide numerous employment opportunities for the local population.

The Limpopo Province serves as a vital cross-border transportation route from South Africa to other southern African countries. The N1 national route connects Cape Town to Mussina in the northern part of South Africa before crossing over to Zimbabwe at the Beit Bridge border over the Limpopo River. In Zimbabwe, the road continues as the A4 and connects South Africa to Harare, the capital of Zimbabwe.

Administratively, the Limpopo province is divided into five district municipalities, which are further sub divided into 22 local municipalities. Refer to Figure 7.1.



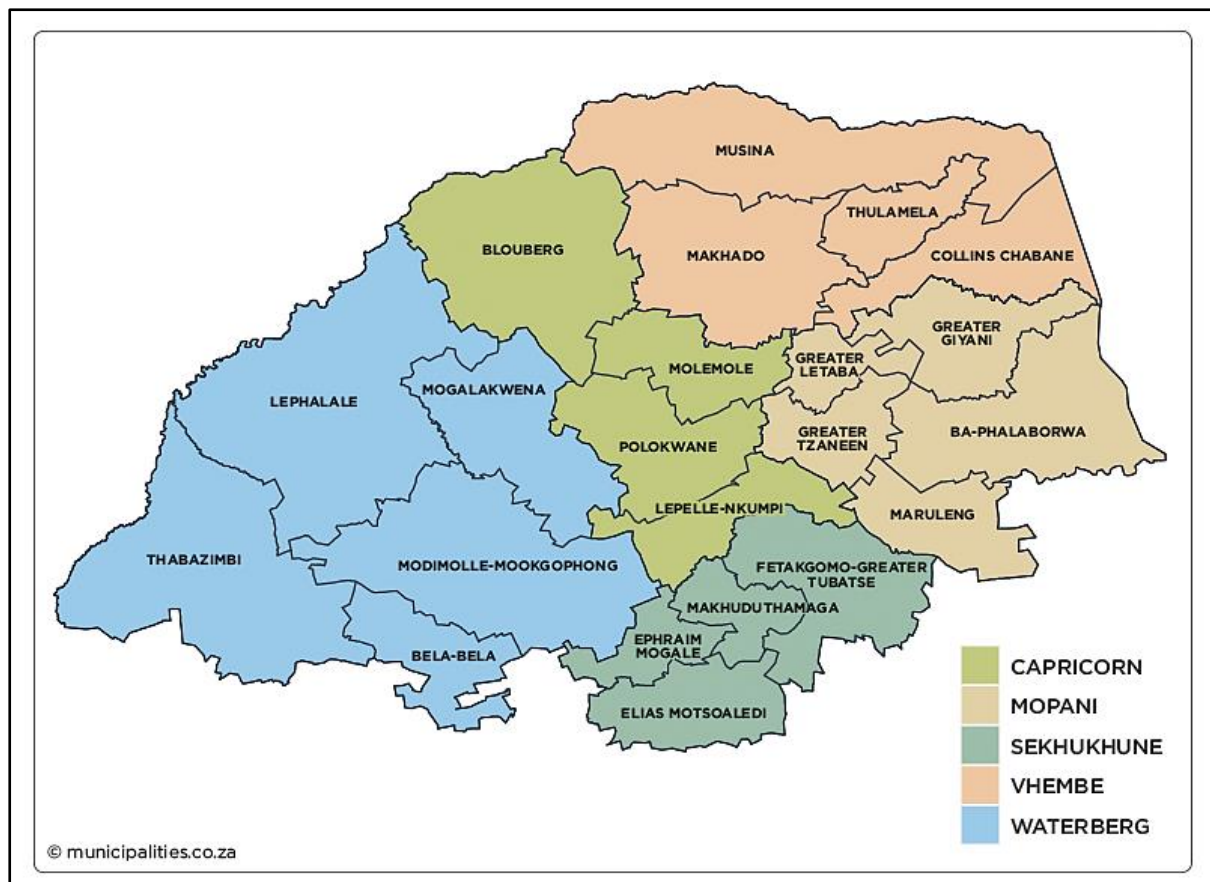


Figure 7.1: District Municipalities of the Limpopo Province.

### Waterberg District Municipality

The Waterberg District Municipality (DM) is a Category C municipality situated in the western part of the Limpopo Province, sharing borders with the Capricorn DM to the north and the Sekhukhune DM to the east. To the south-west, the Waterberg DM is adjacent to the North West Province, while the Gauteng Province lies to its south-east.

As the largest of the five district municipalities in the Limpopo Province, the Waterberg DM encompasses over a third of the province's total area. It plays a significant role as a border control region, with five border control points: Groblersbrug, Stockpoort, Derdepoort, Zanzibar, and Platjan, strategically located along the South African and Botswana border. The major towns within the district include Bela-Bela, Lephalale, Modimolle, Mookgophong, and Thabazimbi.

One notable feature of the region is the Waterberg Biosphere, a UNESCO-designated Biosphere Reserve. This expansive area, spanning approximately 654 033 hectares, showcases an intricate rock formation shaped by millions of years of riverine erosion, resulting in stunning bluff and butte landforms.

The region's economy thrives on mining, tourism, and agricultural activities, with mining serving as the primary economic driver. The Waterberg DM is renowned as one of South Africa's premier ecotourism destinations, offering diverse wildlife, birdlife, and picturesque landscapes throughout the region. Key minerals extracted in the area include platinum, iron ore, coal, and diamonds, with the region contributing 40% of the national coal reserves. The Medupi power station, the fourth largest in the world, is also located in this district, playing a crucial role in power generation for South Africa.

Agriculture in the Waterberg DM is predominantly focused on game farming, although livestock and the cultivation of crops such as cotton, sunflowers, tobacco, and soybeans are also prevalent. The district's tourism industry thrives on the diverse Bushveld region, encompassing privately owned game reserves that provide opportunities for leisure activities and hunting.

The Waterberg District Municipality is further divided into five local municipalities: Bela-Bela LM, Lephalale LM, Modimolle-Mookgophong LM, Mogalakwena LM, and Thabazimbi LM.

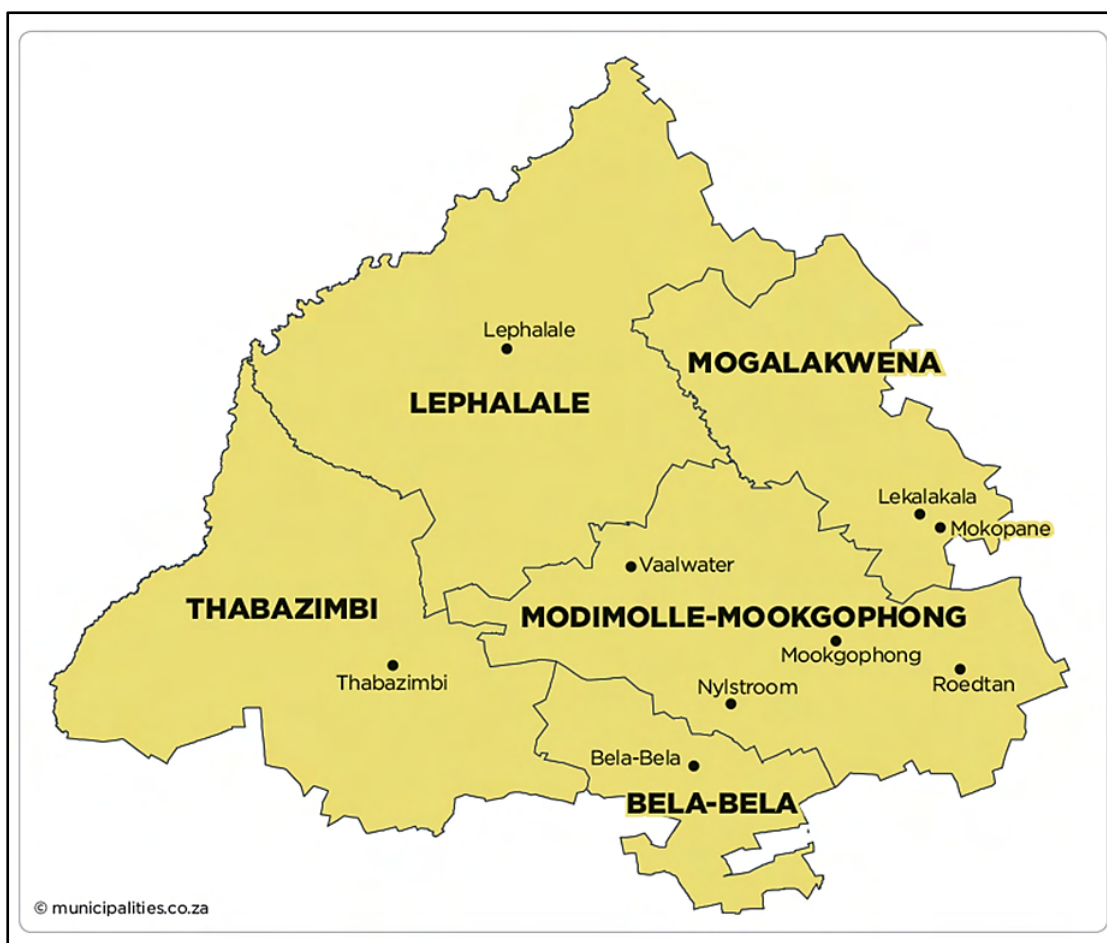


Figure 7.2: Local Municipalities of the Waterberg District Municipality

### Thabazimbi Local Municipality

The Thabazimbi Local Municipality (LM) is a Category B municipality situated within the Waterberg District Municipality, located in the south-western part of the Limpopo Province. It shares borders with the Lephalale LM to the north, and the Modimolle-Mookgophong LM and Bela-Bela LM to the east, all of which are part of the Waterberg DM. The northern boundary of the municipality is shared with Botswana, while its southern boundary adjoins the North West Province. The municipality encompasses the town of Thabazimbi and mining towns like Amandelbult Mine town.

The town of Thabazimbi and the entire municipality derive their name from the Tswana language, meaning "mountain of iron." This name originated from the discovery of abundant iron ore by J.H. Williams at Vliegpoort in 1919. Mining activities in the region began in the 1930s, primarily supporting the production of iron and steel. In addition to iron ore, the area is known for its platinum deposits and andalusite.

Agriculture plays a significant role in driving the local economy, with the production of commodities such as wheat, beans, and maize contributing to the region's prosperity. The Thabazimbi area also attracts tourism, with notable attractions including the Marakele National Park. The National Parks Board supports the park to the same high standards as the renowned Kruger National Park and Mapungubwe.

### **7.2. Biophysical Environment**

The biophysical environment is described with specific reference to soils, agricultural potential, vegetation and landscape features, climate, biodiversity, heritage features (in terms of archaeology and palaeontology), the visual landscape and the social environment to be affected. The area surrounding the proposed development is characterised mostly by agricultural development except to the west where urban development is present, i.e., the town of Northam. The project area is in a rural setting with the current land use of the site being natural grazing. There are no natural aquatic/wetland features found to be located within the proposed development area as well as the potential area of influence for aquatic biodiversity. These features are described in more detail below.

### **7.3. Agricultural Assessment**

An agricultural specialist was required to verify the agricultural sensitivity of the site as per the category rating derived on the national web-based screening tool report (Appendix B).

The agricultural sensitivity of the assessed area, as given by the screening tool, is shown in Figure 7.3 below.

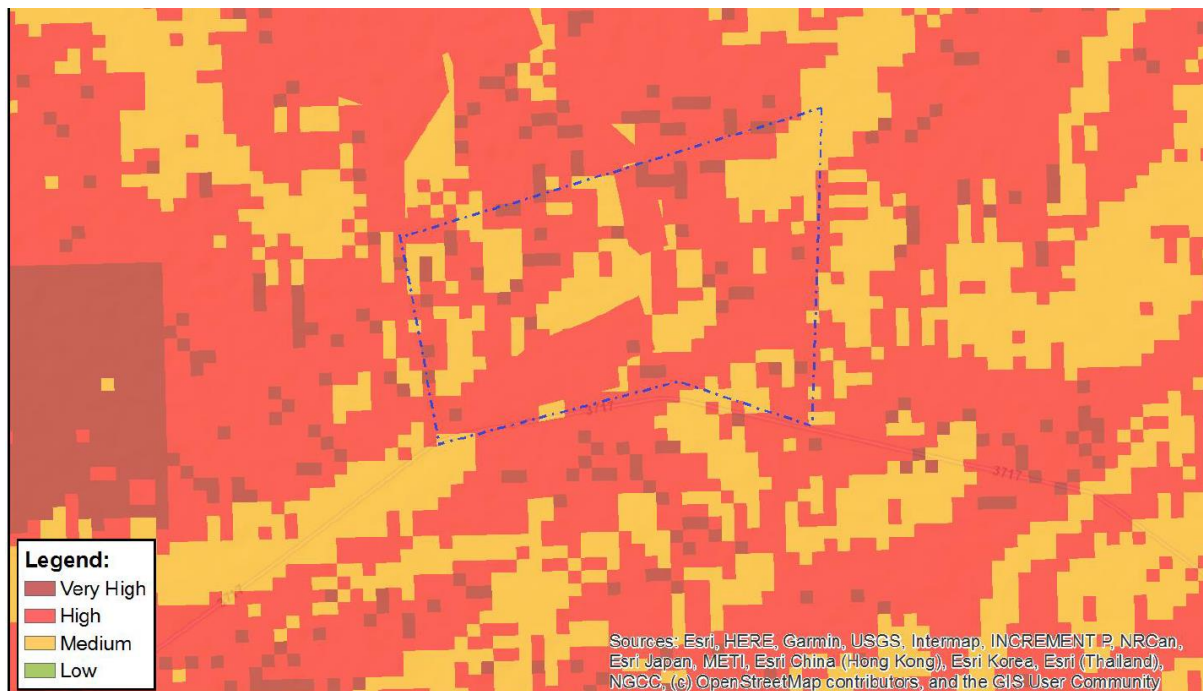


Figure 7.3: Agricultural Sensitivity as per Screening Tool Report

The site sensitivities as per Figure 7.3 above are as follows:

- Green = low
- Yellow = medium
- Red = high
- Dark red = very high

The assessed area covers a range of classified agricultural sensitivities from medium to very high. This is predominantly because of the classified land capability range from 6 to 11. The relationship between land capability and agricultural production potential is that a land capability rating of  $>8$  should denote land that is suitable for viable rain-fed crop production and a rating equal to 8 is somewhat marginal. If land is unsuitable for viable rain-fed crop production, then its verified land capability rating should be less than 8. Based on the assessment of the lack of cropping potential of the site, the classified land capability of  $>7$  is disputed, and the land capability is assessed as being a maximum of 7. This assessment therefore disputes the high and very high sensitivity rating by the screening tool that is based on classified land capability.

Two patches of land within the assessed area are also rated high sensitivity because they are classified as cropland in the data set used by the screening tool. However, that data set is

outdated. All land across the site is no longer used as cropland and there is no evidence, in the record of historical imagery that is available on Google Earth, of it having been cropped within at least the last eighteen years. This land should not, therefore, still be classified as cropland and allocated high sensitivity because of it. This assessment therefore disputes the high sensitivity rating by the screening tool that is based on cropping status.

This assessment disputes the high and very high sensitivity rating by the screening tool and verifies the entire assessment area as being of medium agricultural sensitivity.

#### **7.4. Terrestrial Biodiversity**

According to the DFFE Screening Tool Report (Appendix B) generated for the site, the terrestrial biodiversity theme was rated as low sensitivity. During the site visit it was confirmed that no high/very sensitive features were located within the proposed development area as well as the potential area of influence (PAOI) for terrestrial biodiversity, refer to Figures 7.4 and 7.5 below.

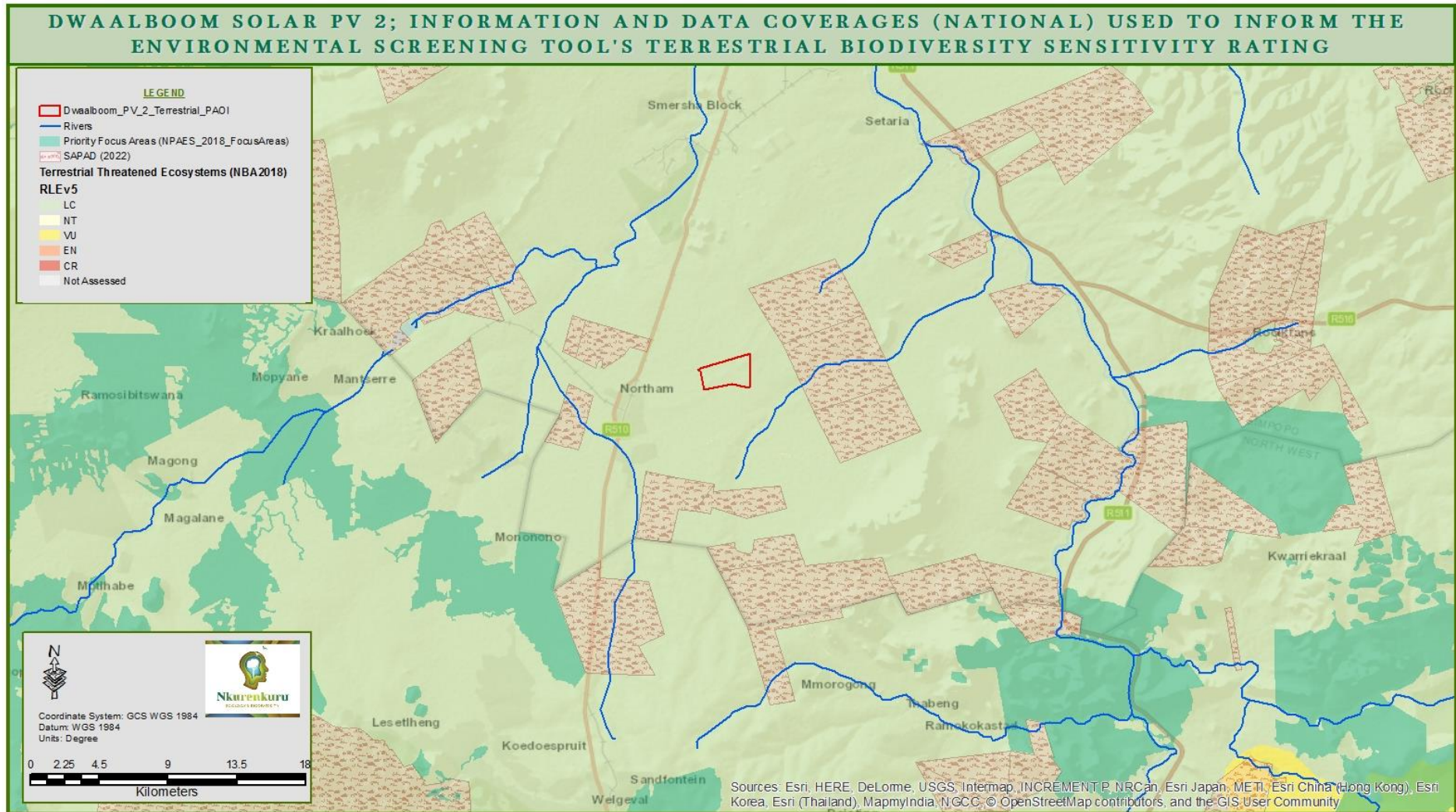


Figure 7.4: Terrestrial Threatened Ecosystems Map

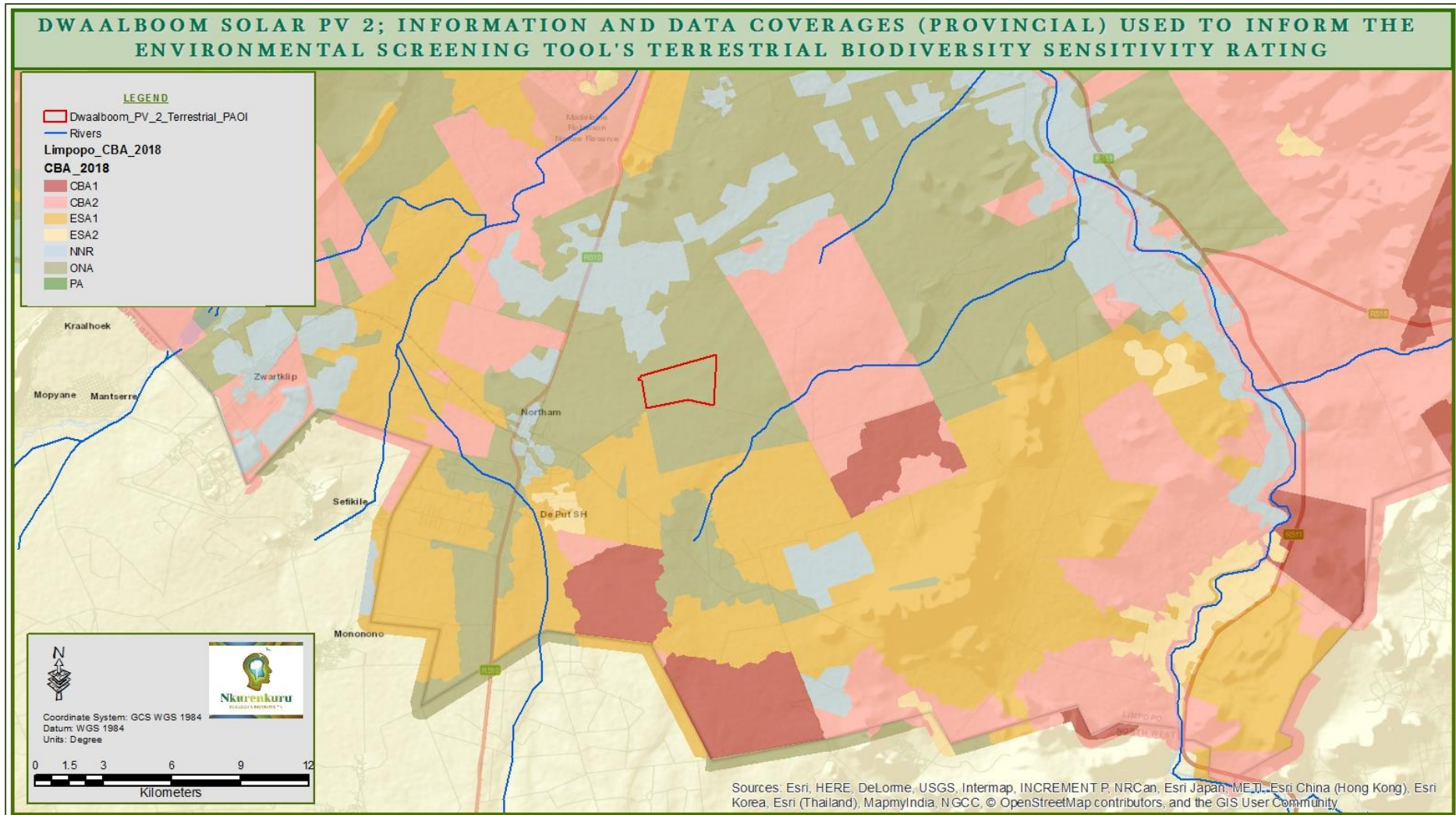


Figure 7.5: Critical Biodiversity Areas Map

#### 7.4.1. Description of the Biome

The PAOI is located within the Savanna Biome. The savanna vegetation of South Africa and Swaziland constitutes the southernmost extension of the most widespread biome in Africa. The savanna biome represents 32.8% of South Africa (i.e., 399 600 km<sup>2</sup>) and 74.2% of Swaziland (i.e., 12 900 km<sup>2</sup>). The savanna biome occupies most of the far-northern part of the Northern Cape, the western and north-eastern parts of the North West Province, extreme western parts of the Free State Province, northern Gauteng with more isolated occurrences in the south of this province, almost the entire Limpopo Province, north-western and north-eastern Mpumalanga, most of central and eastern Swaziland, low-altitude parts of the eastern seaboard, inland of the Indian Ocean Belt in KwaZulu-Natal and the Eastern Cape Provinces, and with the southernmost extension abutting Albany Thicket of the Komga to Albany Districts. Savannas are largely tropical and occupy the greater area of the southern continents and some parts of the northern continents (Mucina & Rutherford et al.; 2006).

#### 7.4.2. Description of the Climate of the Savanna Biome

The savanna biome in South Africa and Swaziland does not occur at high altitudes and is found mostly below 1 500 m and extending to 1 800 m on parts of the highveld mainly along the southern most edges of the Central Bushveld. Temperatures are therefore higher than those of the adjacent Grassland at higher altitudes. The mean daily maximum temperature for February rarely drops below 26°C and exceeds 32°C in the Kalahari region and some low-altitude parts of savanna in the east. In July this temperature remains above 20°C for most of the area, with some temperatures at the highest altitudes dropping to 18°C. The mean daily minimum temperature in February rarely drops below 16°C with the temperature of substantial parts of lower lowveld remaining above 20°C. Minimum temperatures in winter are much more variable across savanna. In limited areas in the extreme east, the mean daily minimum temperature for July remains above 10°C but drops to below 0°C on the highveld (southern edge of the Central Bushveld) and high-altitude parts of the Eastern Kalahari Bushveld such as the Ghaap Plateau (Mucina & Rutherford et al.; 2006).

#### 7.4.3. Description of the Vegetation and Habitat Types

The Dwaalboom Solar 2 development area includes a single vegetation type, namely, Dwaalboom Thornveld. Dwaalboom Thornveld is regarded as Least Concern according to the NEM:BA National list of ecosystems that are threatened and in need of protection, with only 14% being irreversibly transformed, mainly by grazing.



In terms of plant and animal habitats/phyto-communities the PAOI comprise fairly natural tree savanna habitat resembling Dwaalboom Thornveld (SANBI, 2018) . Small variations, in terms dominant species, structure and key species, occurred within the project site, refer to Figure 7.6. Small-scale plant diversity and ecological condition of vegetation varied slightly across the development area and was primarily driven by edaphic, geological and anthropogenic aspects. Soil depth and surface rockiness were determined to be the most important drivers.

Approximately 83% of the PAOI can be regarded as natural to near natural, with only 4% being irreversibly transformed and 13% being largely transformed due to significant bush clearance (in order to improve grazing). A tree and shrub layer have established within this area over time, however, most of these trees are small and shrubby in appearance.

At a broader scale the vegetation of the project site and surrounding areas can be regarded as relative uniform with minimal spatial variation, comprising of fairly common (for the region) and widely distributed species (fairly low beta diversity – low species turnover or nestedness). Furthermore, no highly range restricted or significant endemic species were recorded within the project site. Subsequently the “uniqueness” of botanical biodiversity can be regarded as fairly low.

The Conservation Importance of the vegetation can be regarded as moderate as the development area is located within a vegetation type that is classified as Least Threatened. However, this area contains large tracts of natural thornveld with moderate to low levels of ecological disturbance, and have largely intact natural processes such as pollination, seed dispersal and migration, and thus have higher intrinsic conservation importance. No Species of Conservation Concern (SoCC) were found on site even though these habitats are potentially suitable for them.

The Dwaalboom Solar 2 development area has been classified as Medium Sensitivity (refer to Figure 7.7) due to the following:

- Natural condition of the area;
- the potential for the area to maintain a fairly moderate intrinsic biodiversity value (moderate species richness), including the likely occurrence of SoCC;
- the current functional integrity of the PAOI (ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions), including good habitat connectivity with potentially functional ecological corridors with minor current negative ecological impacts (livestock

grazing, road network, cattle and game fences). Furthermore, there are no signs of major past disturbances (e.g. ploughing and significant bush clearance) and good rehabilitation potential; and

- the moderately low ability to respond to disturbance (moderate resilience, dominant species of intermediate age). This habitat will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.

The development and subsequent disturbance of the proposed footprint will not have a significant impact on the conservation status of the affected vegetation type, or impact the area's resilience to disturbances as well as the functions and services provided within region.

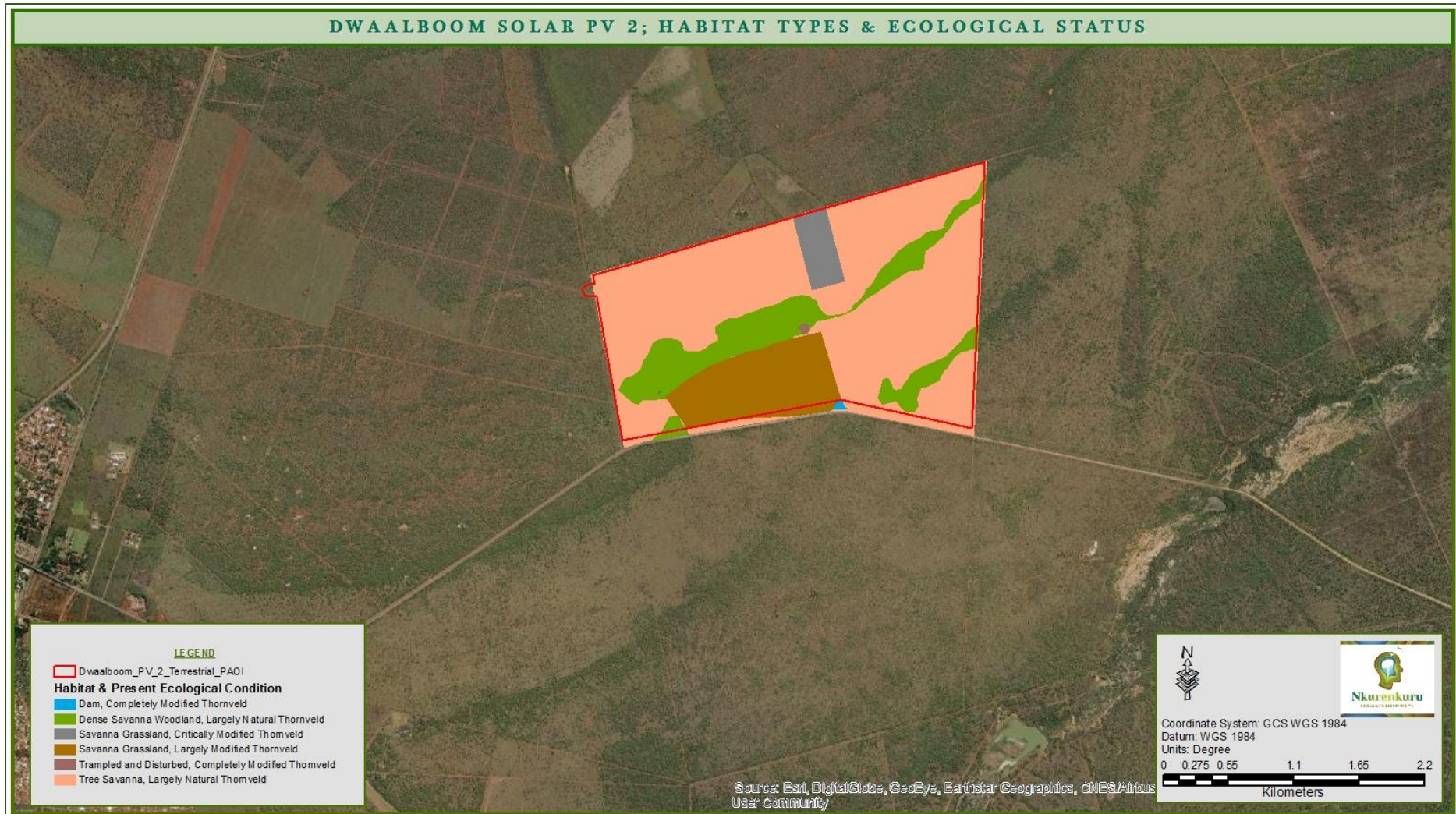


Figure 7.6: Delineated Landscape / Habitat Features and Ecological Status

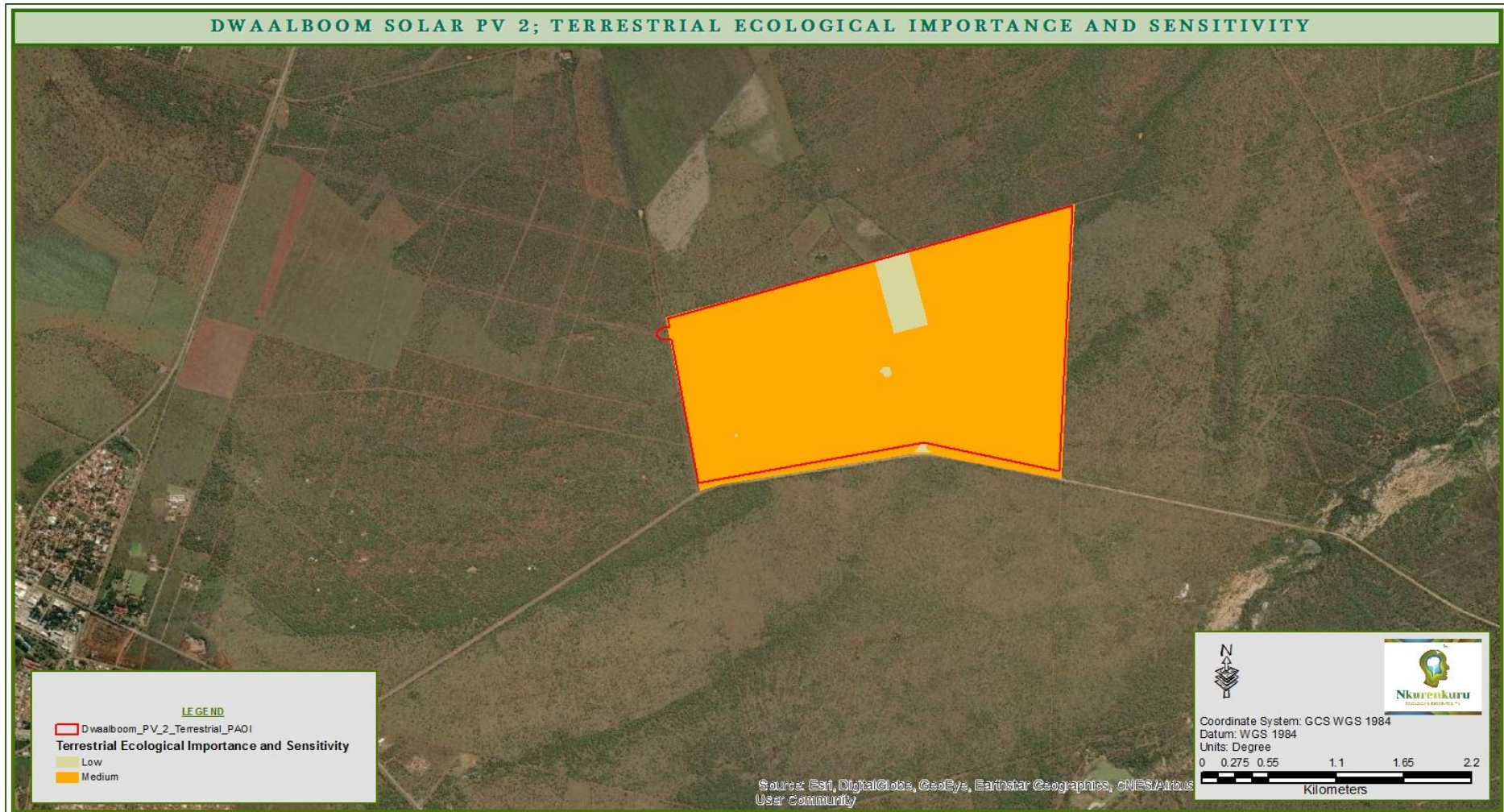


Figure 7.7: Terrestrial Ecological Importance

#### 7.4.4. Floral Assessment

As per the DFFE Screening Tool Report (Appendix B) generated for the site, the plant species theme was rated as low sensitivity. According to the BRAHMS online database, the optimal botanical survey period for the savanna biome is between October and April and may even slightly extend into May, during which time most perennial species characteristic of the vegetation are easily identifiable. At the time of the inspection, plant growth was at its optimal, as the area received above normal rainfall throughout the summer period, the timing of the field survey was therefore ideal in terms of assessing the vegetation condition and flora composition of the site.

No plant Species of Conservation Concern (SCC) have been listed within the screening report, that may potentially occur within the project site. No floral species of conservation concern were observed during the screening site-visit, and as such the classification of the development area as Low Sensitivity, in terms of Plant SCC, within the screening tool, is consistent with the on-site findings.

#### Protected Tree Species

The following national protected trees (protected in terms of the National Forest Act of 1998 (Act 84 of 1998) of South Africa were recorded within the project site:

- *Boscia albitrunca* (Shepherd's Tree); and
- *Sclerocarya birrea subsp. caffra* (Marula).

Both of these species are fairly common within the region and have a fairly wide range within the northern and north-eastern part of South Africa. None of these species were common within the development area. It is highly unlikely that the proposed development will have a significant impact on these species and their populations within the area as these species are also fairly well represented outside of the development area.

#### Protected Plants

Furthermore, the following provincially protected plants were recorded within the project site:

- » *Spirostachys africana*;

» *Aloe greatheadii*;

According to the Limpopo Environmental Management Act of 2003 (Act 7 of 2003), Chapter 8 (Indigenous Plants), Section 64 (Protection of indigenous plants):

(1) No person may without a permit –

(a) pick, be in possession of, sell, purchase, donate, receive as a gift, import into, export or remove from the Province, or convey a specially protected plant; or

(b) pick, sell, purchase, donate, receive as a gift, import into, export or remove from the Province, or convey a protected plant.

(2) No person may without a permit issued in terms of this Act or other document issued in terms of other relevant legislation convey through the Province-

(a) any specially protected plant; or

(b) protected plant.

These species are also fairly common within the region and have a fairly wide range within the northern and north-eastern part of South Africa. None of these species were common within the development area. It is highly unlikely that the proposed development will have a significant impact on these species and their populations within the area as these species are also fairly well represented outside of the development area.

#### 7.4.5. Faunal Assessment

The DFFE Screening Tool Report (Appendix B) generated for Dwaalboom Solar 2 classified the site as having a Medium Sensitivity in the animal species theme. This was due to the potential presence of the following animals:

- *Aves: Aquila rapax* (Tawny Eagle)
- *Aves: Sagittarius serpentarius* (African finfoot)
- Mammalia: Sensitive species 5
- Mammalia: *Crocidura maquassiensis* (Makwassie musk shrew)

Apart from the avifaunal SCC that may potentially inhabit the project site, two mammal SCC have been listed within Screening Report that may potentially inhabit the project site namely;

Sensitive Species 5 (for their protection, the identities of these species will not be made public) and *Crocidura maquassiensis* (Makwassie musk shrew).

#### Sensitive species 5

Sensitive Species 5 is listed as Vulnerable and have been extirpated from over 90% of their former distribution range within South Africa and currently occur only along the northern borders of South Africa and in several isolated protected areas. The population can be regarded as three groups assigned by differences in management intensity and land uses:

- » Free-roaming animals (population size estimated with low confidence at 400–800 individuals): occur unmanaged outside of fenced protected areas mostly on farms/rangelands and are vulnerable to conflict-related killing and live removals;
- » Large, protected areas of the Kruger National Park (KNP; population size assessed with high confidence at 412 individuals) and Kgalagadi Transfrontier Park (KTP; population size estimated with medium confidence at 80 individuals): these species are well protected but are threatened by edge effects like snaring; and
- » Managed metapopulation: a network of fenced reserves into which these species have been reintroduced and are managed as one national population through assisted dispersals. While safe inside these fenced areas, these individuals are reliant on varying degrees of human management to ensure the population remains viable. Mortalities related to veterinary interventions and edge effects are the key threats in this group.

Regionally, key threats include: conflict-related killing, removal for captive trade and poorly regulated captive trade, habitat fragmentation and snaring. The full extent and impact of these threats are unknown. The regional population appears to be stable or perhaps increasing due to the conservation efforts of the managed metapopulation. However, the lack of reliable information on the free-roaming animals is prohibitive in making any reliable conclusions.

The proposed development area is located within the distribution range of the free-roaming population, and due to suitable connected habitat and the availability of sufficient food sources, this area may potentially be utilised by this species. Discussions with numerous landowners within this region, revealed that this species has not been observed within the region for a substantial period of time. These species are highly mobile and are frequently

on the move. This species might at best, only briefly pass through the area, and it is considered unlikely to be present on the site on a regular basis. As such, the classification of this area as Medium Sensitive for this species has been established. Further investigation will be required during the EIA phase, and will comprise of camera trapping and more discussions with surrounding farmers. To conclude, it is unlikely that this development will impact the population status, habitat availability and connectivity within the region, as well as the availability of a stable food source.

#### *Crocidura maquassiensis* (Maquassie Musk Shrew)

*Crocidura maquassiensis* (Maquassie Musk Shrew) is listed as a Vulnerable species and is a rare species endemic to South Africa, Swaziland and Zimbabwe, existing in moist grassland/wetland habitats in the Savannah and Grassland biomes. Although it has a wide inferred extent of occurrence (284,735 km<sup>2</sup>), it appears to be patchily distributed. These habitat patches are severely fragmented as shrews have a poor dispersal ability, and continuing rates of urban and rural expansion (highest rates are 15% and 9%, respectively, in Limpopo Province) may have increased overgrazing and water abstraction, which may reduce the suitability of patches and the corridors between them. Similarly, populations are estimated to be in decline, based on high rates of habitat loss in all provinces.

Based on the screening site survey, suitable habitat was absent from the site, as no moist, wetland habitats are present within the PAOI (terrestrial and aquatic). The nearest suitable habitat are the moist and riparian habitats associated with the Klipspruit river located approximately 1.8 km from the PAOI. As such, this development will not impact the potential regional populations status as well as habitat availability and connectivity.

During the screening site survey, no species of conservation concern (SoCC) was observed. Due to a general low to moderate habitat and structural complexity, as well as the fact that large tracts of land within the region are still largely intact and undisturbed, the site is likely to have a moderate faunal diversity, including other potential SCC. Other SoCC which have a distribution that include the development area and are likely (moderate to high likelihood) to occur within the site due to favourable habitat, include:

- » Mammalian: Serval – *Leptailurus serval* (Near Threatened);
- » Mammalian: Brown Hyena – *Parahyaena brunnea* (Near Threatened);
- » Mammalian: Leopard – *Panthera pardus* (Vulnerable);



- » Mammalian: South African Hedgehog – *Atelerix frontalis* (Near Threatened)

Based on findings of a desktop and in-field survey the bulk of the PAOI, apart from the completely and critically modified habitats, can be classified as Medium Sensitivity and provide some potential habitat for SoCC. All completely and critically modified habitats can be regarded as Low Sensitive areas.

A detailed survey of the development area is recommended during the EIA phase. A Pre-Construction Faunal Walk-Through will have to be conducted in order to identify any sensitive species (protected and SoCC) that may occupy/inhabit the development footprint and to assist in the biodiversity permitting processes.

Through the avoidance/exclusion of sensitive faunal habitats and the implementation of mitigation measures, regional faunal populations will likely not be significantly impacted and impacts on any faunal SoCC should be successfully avoided.

#### **7.5. Aquatic Biodiversity**

During the site visit, it was confirmed that no natural aquatic/wetland features were located within the proposed development area as well as the potential area of influence for aquatic biodiversity. A small gravel dam/reservoir (artificial feature) was identified to the north of the site (and just outside of the aquatic PAOI), refer to Figure 7.8 below. However, this is not a sensitive feature.

Furthermore, the PAOI is located a little more than 1.8 km north-west of the Klipsruit River (nearest aquatic feature), which is an ephemeral to seasonal river, refer to Figure 7.9 below. However, the PAOI is not located within this watercourse's catchment, but within the Bierspruit River's catchment (Quaternary Catchment A24F). This watercourse is also ephemeral and is located approximately 8.3 km to the north-west of the PAOI. Due to the distance between the watercourse and the PAOI and the flat topography of the area, it is highly unlikely that this watercourse will be impacted by the proposed development.

During the screening site visit it was confirmed that the PAOI is indeed of low sensitivity in terms of aquatic biodiversity and no further site investigation/study will be required during the EIA phase. Care should however still be taken to ensure that runoff from the site is

mitigated and addressed in such a manner that any runoff out of the project site simulates the original patterns prior to the development.

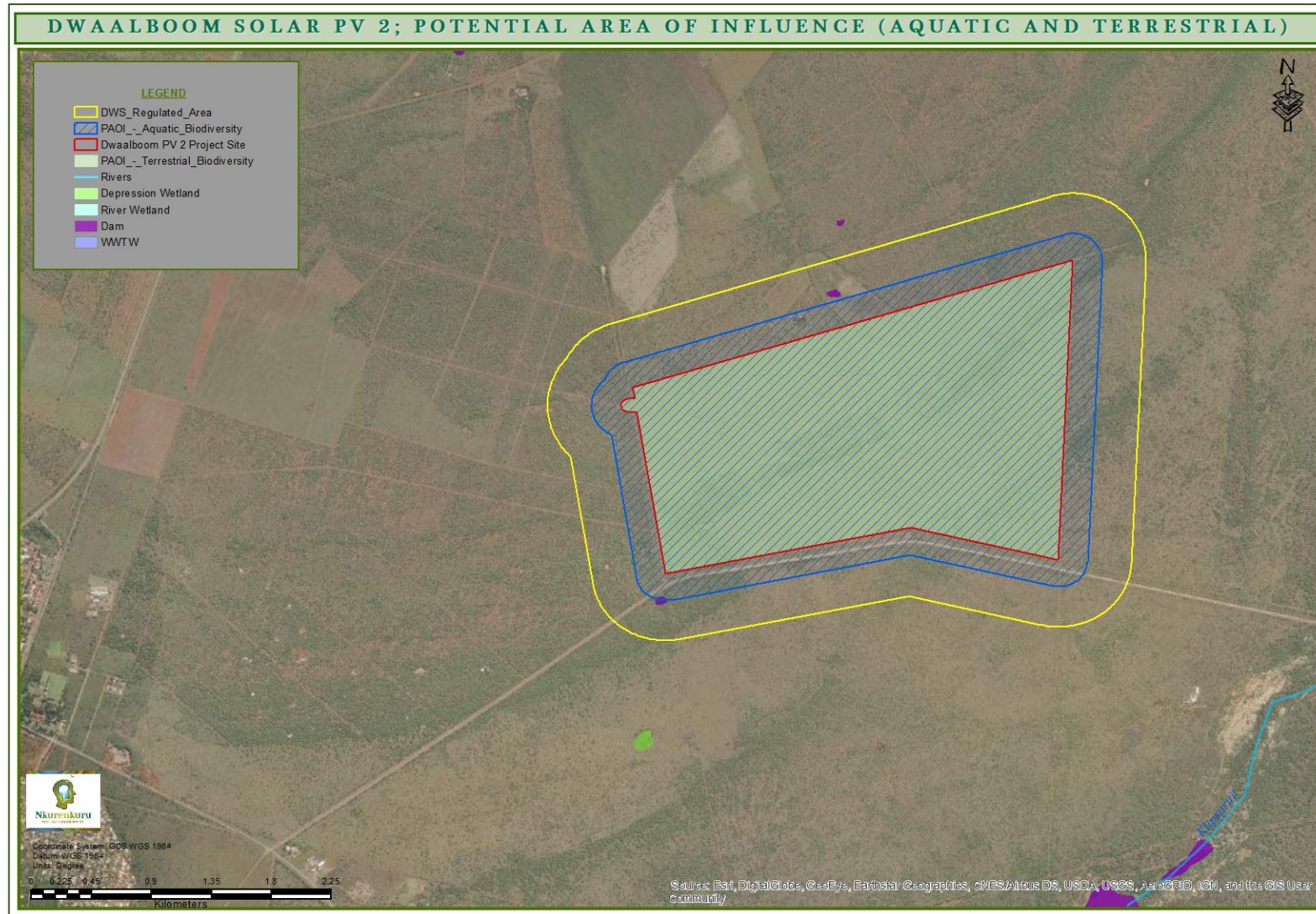


Figure 7.8: Potential Area of Influence for Dwaalboom Solar 2

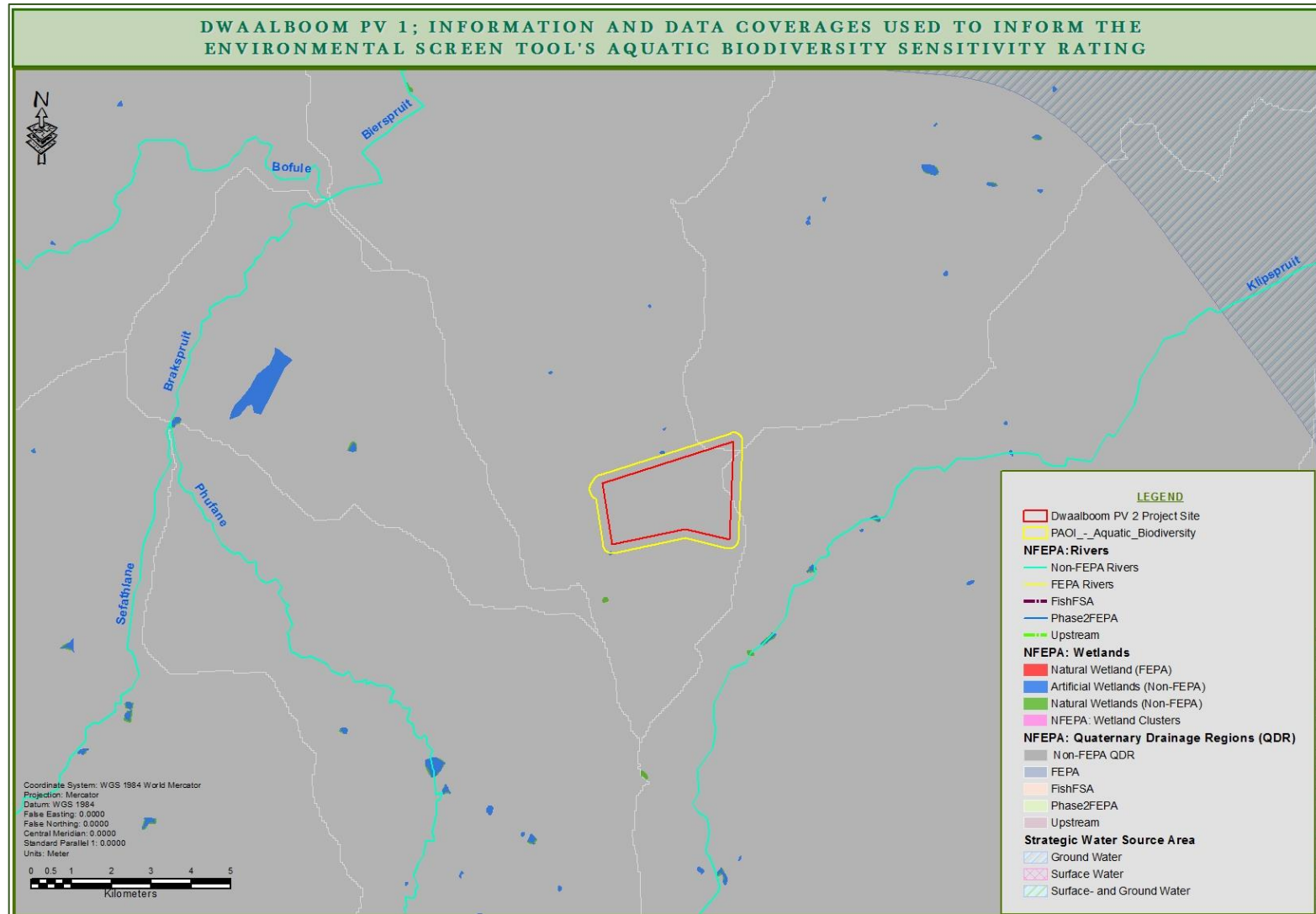


Figure 7.9: Aquatic Biodiversity Map

## 7.6. Avifauna Assessment

An Avifauna Site Sensitivity Verification (Appendix E2) was undertaken by Wildskies Ecological Services (Pty) Ltd using the DFFE Screening Tool Report (Appendix B). The screening tool report generated for Dwaalboom Solar 2 classified the site as having a Medium Sensitivity in the animal species theme. This was due to the potential presence of the following animals:

- Aves: *Aquila rapax* (Tawny Eagle)
- Aves: *Sagittarius serpentarius* (Secretarybird)
- Mammalia: Sensitive species 5
- *Crocidura maquassiensis* (Makwassie musk shrew)

The avian theme is classified as Low Sensitivity and no bird species were highlighted. The terrestrial biodiversity theme is classified as Low Sensitivity.

Site set-up, constraints surveys and pre-construction bird monitoring were conducted during the periods 28<sup>th</sup> March – 2nd April 2023 (late summer/early autumn) and 27<sup>th</sup> June – 1<sup>st</sup> July 2023 (winter). On-site findings for the two avian Species of Conservation Concern (SCC) highlighted by the Screening Tool are as follows:

### Tawny Eagle (*Aquila rapax*)

Tawny Eagle (*Aquila rapax*) is listed as Regionally Endangered (Taylor *et al.* 2015) and Globally Vulnerable (IUCN 2022). The population is declining due to a number of threats such as droughts throughout the continent, habitat alteration, direct and indirect poisoning, drowning in reservoirs and collision with power line infrastructure. Accidental deaths as secondary roadkill have also been documented. (IUCN 2022). The species was not recorded on site or in the broader study area, nor was it present in the SABAP 2 data available for the Dwaalboom Solar 2 (or the entire Dwaalboom PV Cluster). No ad-hoc records are present for the species within this area and further afield. Its presence does not appear to be continuous or predictable within at least 100km of the site, except perhaps for Pilanesberg National Park (SABAP 2, 2023). No Coordinated Avifaunal Roadcount routes exist within 50km of the site.

### Secretarybird (*Sagittarius serpentarius*)

Secretarybird is classified as regionally Vulnerable by Taylor *et al.* (2015) and Globally Endangered (IUCN 2020), having been uplisted from Near-threatened previously. This upgrade was as a result of having undergone more than 30% population reduction in the last ten years. The population in the region is estimated at less than 10 000 birds. Habitat loss is the biggest threat to this species. It is also very susceptible to collision with fences and overhead power lines.

Secretarybird was not detected in the broader study area on the first site visit (late summer 2023), although a trio of birds was observed foraging to the north of the development area on one occasion on the second site visit (winter 2023). It is very likely that this is a family unit of an adult pair and their grown offspring, indicating that the species does breed in the broader area, although our surveys for nests have not identified any such sites. Much of Dwaalboom Solar 2 is a mosaic of thornveld of varying density and relatively more open grassland which appears to be suitable habitat for the species in terms of foraging and roosting/breeding.

The species has been recorded by the SABAP 2 project at a low reporting rate of 4.5%; 3 of the 67 full protocol cards submitted by participants listed at least one sighting. As for Tawny Eagle, no CAR data is available for the province.

The following can be deduced based on the site observations:

**Table 7.1:** On-site confirmation of Species of Conservation Concern (SCC)

Taxonomy	Scientific Name	Red List: Regional, Global* (Endemism**)	S1: Apr 2022	S2: Jun 2022	SABAP2
Vulture, White-backed	<i>Gyps africanus</i>	CR, CR	✓	✓	
Stork, Yellow-billed	<i>Mycteria ibis</i>	EN, LC			✓
Vulture, Cape	<i>Gyps coprotheres</i>	EN, VU	✓		
Falcon, Lanner	<i>Falco biarmicus</i>	VU, LC			✓
Painted-snipe, Greater	<i>Rostratula benghalensis</i>	NT, LC			✓
Roller, European	<i>Coracias garrulus</i>	NT, LC	✓		
Sandgrouse, Yellow-throated	<i>Pterocles gutturalis</i>	NT, LC			✓

Stork, Marabou	<i>Leptoptilos crumenifer</i>	NT, LC			✓
Eagle, Steppe	<i>Aquila nipalensis</i>	LC, EN			✓

The avifauna specialist deviates from the Screening Tool's designation of the site as Medium sensitivity under the Animal Species Theme for Tawny Eagle, and instead rate this as Low sensitivity for the species. The specialist confirms the theme rating for the site as Medium sensitivity for Secretarybird.

The Screening Tool's designation of Low Sensitivity under the Avian Theme does not appear to consider the two SCC listed as per the Animal Species Theme and its assessment is therefore incomplete.

It is to be noted that the Dwaalboom Solar 2 site / development area is located entirely within an Important Bird Area (IBA): the Northern Turf Thornveld (Marnewick et al. 2015). It is recommended that an Avifaunal Impact Assessment be completed for this project. Two seasonal surveys have already been completed by the specialist.

### 7.7. Visual Assessment

Visual impacts occur when changes in the landscape are noticeable to viewers looking at the landscape from their homes or from parks and conservation areas, highways and travel routes, and important cultural features and historic sites.

Visual impacts relate to the changes that arise in the composition of views as a result of:

- Changes to the landscape;
- People's response to those changes; and
- the overall negative effect with respect to the scenic beauty of that landscape, which can be subjective.

Visual impact is therefore measured as the change or contrast to the existing visual environment and the extent to which that change compromises (negative impact) or enhances (positive impact) or maintains the visual quality of the landscape.

### 7.7.1. Visual Features and Sensitive Receptors

According to the Visual Impact Assessment (Appendix E4), the study area is characterised by a variety of landscape features that possess a visual or scenic value. These natural elements along with potential sensitive visual receptors serve as a visual baseline for assessing the surroundings. Table 7.2 represents the landscape features and potential sensitive visual receptors that can be observed within the 10km assessment radius:

**Table 7.2:** Landscape Features and Potential Sensitive Receptors within a 10 km Radius

Scenic Resource	Landscape features within the 10km assessment radius.
Topographic Features	Some ridges, mountains and koppies to the east and south-east from the site at the edge of the 10km assessment radius. Some ridges north-west from Northam. Mountains and ridges in the area possess splendid scenic beauty, captivating with their majestic contrasting presence and breathtaking views.
Water Features	Within the 10km radius, there are several non-perennial dry riverbeds and man-made earth dams serving as reservoirs, with the notable presence of the Bierspruit Dam, near the mining town of Swartklip. This prominent dam not only fulfils its purpose of water storage but also offers recreational opportunities, including a boat club for enthusiasts to engage in water-based activities.
Vegetation Features	The area surrounding the proposed development consist of lush, beautiful Bushveld vegetation.
Cultural Landscapes	The bushveld landscape links to the more prominent "Africa setting" which boasts a variety of traditional (and newer) African cultures seeing the Bushveld as a cultural source of tradition, sense of place, interaction and co-existence with nature. Furthermore, in many households, hunting is also seen as a tradition and part of culture, and the Bushveld is almost synonymous with the word "hunting" giving the hunter the tranquil setting and feel of Africa and a complete African hunting experience.



Sensitive Receptors	Potential sensitive receptors within the 10km assessment radius.
Nature reserves and national parks	Within the 10km radius, eight private nature reserves exist, each proclaimed many years ago between 1955 and 1967 under the Game Ordinance of 1949 of the former Transvaal Province. These reserves encompass a diverse range of developments, including game farming, cattle farming, mining operations, and even residential developments associated with mining activities.
Human settlements and farmsteads	The town of Northam being the main urban development. Some informal settlements are also present just outside the 10km radius, while some residential developments as part of small "mining towns "are within the 10km radius. Some farmsteads are also present within the 10km radius.
Scenic routes and arterial roads	<ul style="list-style-type: none"> <li>• R510 regional road.</li> <li>• D3717, D3712 and D1235 district road.</li> <li>• Tumela Mine road.</li> <li>• Zwartklip-Dwaalboom road.</li> </ul> <p>All roads in the area can be seen as medium scenic significance due to the extensive mining operations and a more aesthetic Bushveld landscape.</p>
Cultural and heritage sites	These form part of the heritage study, if any. A development might have a visual impact on cultural or heritage sites only if these sites are visited frequently by tourists or interested parties.
Tourism facilities / sites	Although game farms can also be seen as tourism, no specific game farms were identified, but the probability is very high that game farms exist within the 10km radius. Many farms in the region are cattle farms, but also provide hunting services and facilities to national and international hunters.

### 7.7.2. Zone of Theoretical Visibility (ZTV) Model

A Zone of Theoretical Visibility (ZTV) is a Geographic Information System (GIS)-generated tool to identify the likely (or theoretical) extent of visibility of a development. The ZTV maps reflects the visibility in term of proximity of viewers to the proposed development within a 10 km radius. The Visual Exposure rating within the different radii are as follows:

**Table 7.3: ZTV Exposure Rating**

Distance (km)	Exposure Rating
0-1	High Exposure
1-3	Moderate High Exposure
3-5	Moderate Exposure
5-10	Low Exposure

Table 7.4 below reflects the outcomes of the visual impact assessment criteria.

Table 7.4: Summary of the Visual Impact Assessment

Specific Criteria for Visual Impact Assessments																					
<p>VISIBILITY OF THE PROJECT</p>	<p style="text-align: center;"><b>HIGH VISIBILITY</b></p> <p>The rating is solely based on the size of the Zone of Theoretical Visibility (ZTV) and serves as an indicator of the potential visual impacts of the development on the surrounding region according to topography, excluding vegetation and infrastructure screening. A high visibility does not necessarily imply a significant visual impact or exposure, although it may have one if the region has a dense population of sensitive visual receptors together with sparse vegetation and infrastructure screening.</p> <p style="text-align: center;"><b>Visibility Coverage: Facility</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Distance (km)</th> <th>Total Buffer Area (ha)</th> <th>Area Visible (ha)</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1747,01</td> <td style="text-align: center;">1315,07</td> <td style="text-align: center;">75,28%</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">4416,2</td> <td style="text-align: center;">1239,78</td> <td style="text-align: center;">28,07%</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">6926,83</td> <td style="text-align: center;">1415,17</td> <td style="text-align: center;">20,43%</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">28303,07</td> <td style="text-align: center;">2935,14</td> <td style="text-align: center;">10,37%</td> </tr> </tbody> </table> <p>The table above (extracted from the ZTV map below) indicates a "High Visibility", according to the Specific Criteria for Visual Impact Assessment (Oberholzer, B. 2005), for the entire 10km radius. Coverage percentage within the 0-1km radius is the highest for the facility and the lowest within the 5-10km radius indicating the intensity will be the highest within the 0-1km radius.</p>	Distance (km)	Total Buffer Area (ha)	Area Visible (ha)	Percentage (%)	1	1747,01	1315,07	75,28%	3	4416,2	1239,78	28,07%	5	6926,83	1415,17	20,43%	10	28303,07	2935,14	10,37%
Distance (km)	Total Buffer Area (ha)	Area Visible (ha)	Percentage (%)																		
1	1747,01	1315,07	75,28%																		
3	4416,2	1239,78	28,07%																		
5	6926,83	1415,17	20,43%																		
10	28303,07	2935,14	10,37%																		

	<p>Furthermore, air quality and atmospheric conditions play a crucial role in determining visibility levels. Poor air quality, characterized by high levels of pollutants and particulate matter, can significantly reduce visibility by scattering and absorbing light. Fine particulate matter, such as smoke, haze, and smog, can absorb and scatter sunlight, creating a hazy or foggy appearance. Similarly, pollutants like sulphur dioxide and nitrogen dioxide can react with other compounds in the atmosphere to form smog, which further impairs visibility. Atmospheric conditions, such as humidity and temperature inversions, also affect visibility. High humidity levels can lead to the formation of fog and mist, reducing visibility to mere meters. Temperature inversions occur when a layer of warm air traps cooler air near the ground, causing pollutants and particulate matter to be trapped closer to the surface and reducing visibility. In summary, air quality and atmospheric conditions are closely linked to visibility, with poor air quality and specific weather phenomena significantly impacting the clarity of our surroundings.</p>		
<p><b>VISUAL EXPOSURE</b></p>	<p>As mentioned above, the exposure rating is based on the ZTV (line of site influenced solely by topography) and not existing visual screening such as vegetation cover and / or other infrastructure. The receptors listed below are exclusively those that have the potential to visually observe or perceive the project. Visual exposure diminishes exponentially with distance.</p>		
	<p>Radius</p>	<p>Sensitive Visual Receptors</p>	<p>Exposure rating in terms of proximity</p>
	<p>0-1km</p>	<p>Facility</p> <ul style="list-style-type: none"> <li>- D3717 district road</li> </ul>	<p>High Exposure</p>

	1-3km	<p>Facility</p> <ul style="list-style-type: none"> <li>- Six farmsteads</li> <li>- Four lodging facilities</li> <li>- D3717 and D3712 district roads</li> <li>- Two private nature reserves</li> </ul>	Moderate-High Exposure
	3-5km	<p>Facility</p> <ul style="list-style-type: none"> <li>- Four private nature reserves</li> <li>- Two farmsteads</li> <li>- Four lodging facilities</li> <li>- R510 regional road</li> <li>- D3717, D3712 and D 1235 district roads</li> <li>- Two private airstrip</li> <li>- Northam</li> </ul>	Moderate Exposure
	5-10km	<p>Facility</p> <ul style="list-style-type: none"> <li>- Six private nature reserves</li> <li>- One private airstrip</li> <li>- Eight farmsteads</li> <li>- Northam</li> <li>- R510 regional road</li> <li>- D3717, D3712 and D 1235 district roads</li> </ul>	Low Exposure

<p><b>VISUAL SENSITIVITY OF THE AREA</b></p>	<p style="text-align: center;"><b>MODERATE VISUAL SENSITIVITY</b></p> <p>The assessment of visual sensitivity in the area reveals a moderate impact, primarily attributed to the presence of two distinct landscapes: the mining landscape and the Bushveld landscape. The proposed development is closely situated to existing mining activities, which set a precedent for development in the area. Some ridges, mountains and koppies are located to the north-west of Northam and east and south-east from the facility which also contribute to the positive aesthetics of the landscape. Settlement patterns are mostly influenced by the mining developments and no settlement is of specific scenic quality. However, the project is located within a Bushveld landscape with good aesthetic qualities.</p>
<p><b>VISUAL SENSITIVITY OF RECEPTORS</b></p>	<p style="text-align: center;"><b>MODERATE RECEPTOR SENSITIVITY</b></p> <p>Please refer to the ZTV map below for an indication of sensitive visual receptors in the area. Receptors encompass a wide spectrum of entities, ranging from private nature reserves to mining developments. This indicates that the term "receptors" includes a diverse array of recipients or entities that can be influenced or impacted by the project in different ways.</p>
<p><b>VISUAL ABSORPTION CAPACITY (VAC)</b></p>	<p style="text-align: center;"><b>HIGH VAC</b></p> <p>The area surrounding the proposed development boasts an excellent Visual Absorption Capacity (VAC) in terms of its lush vegetation. However, it's important to note that this VAC is predominantly limited to the western, eastern and south-eastern region in terms of topography. The area is characterized by dense vegetation, including a variety of trees, which provides effective screening and limits visibility of surrounding activities. During the site visit, it was evident that mining activities and mine heaps were difficult to discern from the road. This underscores the robust visual absorption capacity of the area, with its dense vegetation serving as an effective barrier to visually intrusive elements.</p>

	<p>If people are unaware of the project, they will likely only notice its existence and impact when they are physically near it. However, if individuals have prior knowledge and information about the project, they can extend their perception and understanding of it beyond a limited distance.</p>
<p><b>VISUAL INTRUSION</b></p>	<p style="text-align: center;"><b>MODERATE VISUAL INTRUSION</b></p> <p>The visual landscape surrounding the proposed development is already spoiled by the presence of extensive mining activity, resulting in visual pollution. This ongoing mining activity has contributed to altering the natural aesthetics of the area, potentially leading to a desensitisation among local residents and frequent visitors who have become accustomed to the industrial development. The economy of the area is predominantly reliant on the mining sector, highlighting the significant role it plays in sustaining the local community. As a result, the visual impact of industrial development may be perceived differently by those familiar with the area's economic dependence on mining, as their perspective may be influenced by the understanding of its importance to the local economy. Conversely, it is important to acknowledge that the development itself may encroach upon the natural beauty of the Bushveld landscape.</p>

Figure 7.10 below illustrates the theoretical visibility as listed in Table 7.4 above.

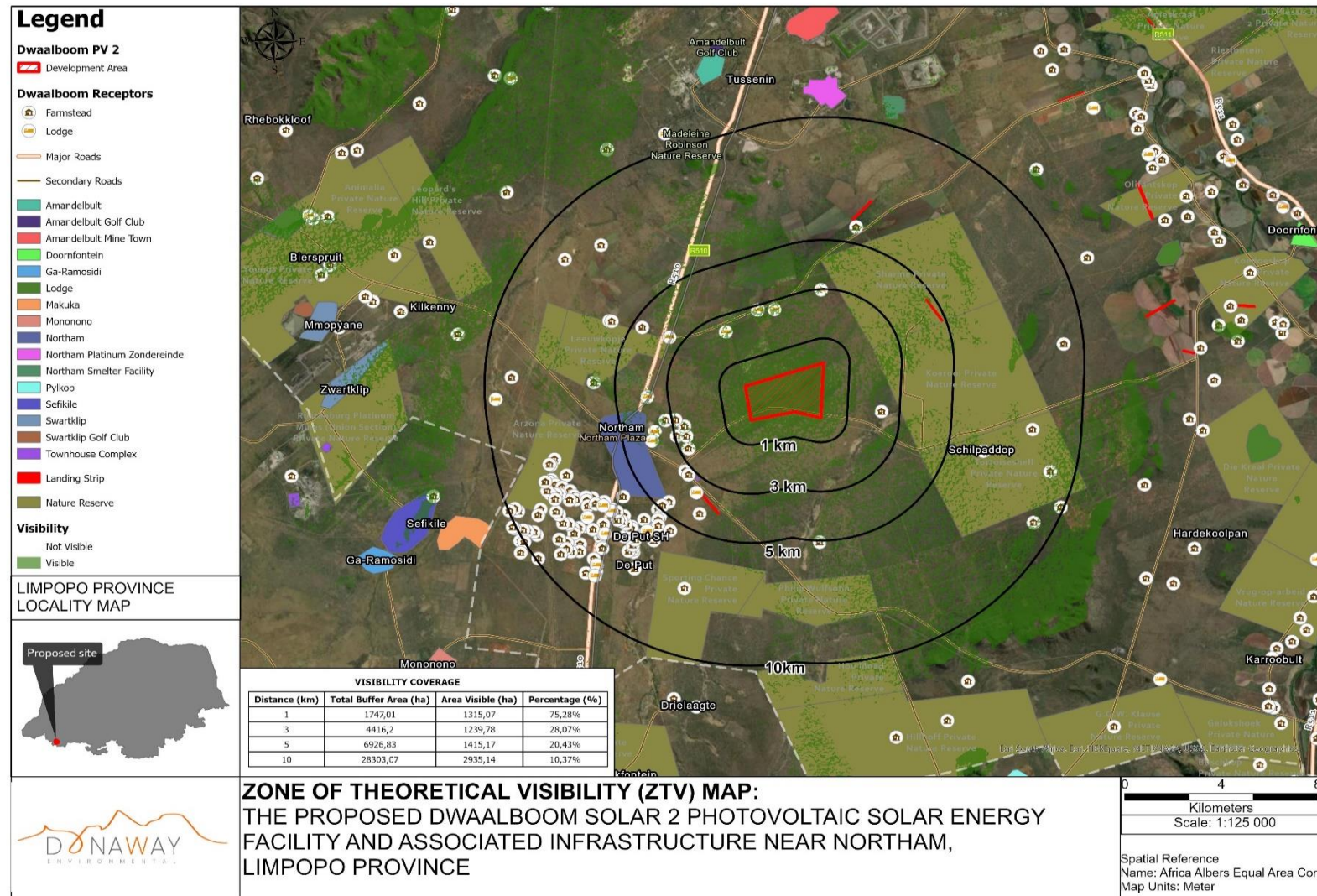


Figure 7.10: Zone of Theoretical Visibility (ZTV) Map



Based on the Visual Impact Assessment report's assessment score, the visual impact of the proposed development will be a "Negative Low Impact" after mitigation and might be visible within a 1km radius from the solar PV facility.

The development is likely to affect the D3717 and D3712 district roads and the R510 regional road, and nearby property owners including lodging facilities. Two private nature reserves are within 3km of the development, while the town of Northam will slightly be affected by the ZTV.

The majority of the landscape still boasts a Bushveld terrain with a better aesthetic appeal. However, given the visual pollution already caused by established mining developments, the sense of place will be marginally impacted. This ongoing mining activity has contributed to altering the natural aesthetics of the area, potentially leading to a desensitisation among local residents and frequent visitors who have become accustomed to the industrial development. The economy of the area is predominantly reliant on the mining sector, highlighting the significant role it plays in sustaining the local community. As a result, the visual impact of industrial development may be perceived differently by those familiar with the area's economic dependence on mining, as their perspective may be influenced by the understanding of its importance to the local economy.

The area surrounding the proposed development boasts an excellent Visual Absorption Capacity (VAC) in terms of its lush vegetation. However, it's important to note that this VAC is predominantly limited to the north-west, east and south-eastern region in terms of topography. The area is characterised by dense vegetation, including a variety of trees, which provides effective screening and limits visibility of surrounding activities.

## **7.8. Cultural Impact Assessment**

A Heritage Impact Assessment (HIA) (Appendix E6) was carried out for the Dwaalboom Solar development site and the impact on heritage resources were found to be low. The aim of the study was to survey the proposed development footprint to understand the cultural layering of the area, and if heritage features are found, to assess their importance within local, provincial, and national context. It further served to assess the impact of the proposed project on non-renewable heritage resources.

The Historical period of the area can be traced back to the 1830s to 1840s when Voortrekkers crossed over the Vaal River and began establishing farms within the region (Bergh 1999). Remains of historical farm houses can still be seen within the region. This marked the first

interaction with the Agropastoralists already settled in the region. Voortrekkers allocated land for the Bafokeng people near current Rustenburg but later evicted them of their allocated farms (Bergh 2005). This along with enforced labour by the Voortrekkers caused tensions to rise.

In 1919, prospector J.H Williams noticed the iron rich mountains of the area, thereafter he obtained the rights to large sections of the iron ore deposits. In 1930, Iscor then obtained rights to the iron ores and began mining iron in the area the following year. Mining activities led to the establishment of the present-day town of Thabazimbi to support infrastructural needs of the growing mining community. As Northam was the nearest town with a train station, ox-wagon were used to transport ore to the station to then get transported elsewhere. The need for a safe way to cross the Crocodile River resulted in the development of a concrete slab in the river to allow for the safe passage for ox-wagons. The crossing, called the Helpmekeer Drift can still be seen today. In 1934, a railway line was established from Northam to Thabazimbi which further enhanced mining activities (Bergh 1999).

In 1924, Andries Lombard showed a platinum ore sample to geologist Hans Merensky which had been found near Lydenburg (Machens 2009). It was then discovered that the area was rich in platinum ores with a large platinum reef found in the area which resulted in the subsequent development of platinum mines. Northam was laid out on the farm Leeukoppie by E.H. Fulls and was proclaimed a town in 1946. The farm had belonged to H. Herd, a British soldier who was given the farm after the end of the Anglo-Boer War. Many farms were allocated to many British soldiers after the end of the war.

#### 7.8.1. Cultural Landscape and Heritage Resources

Although the larger region has well documented Late Iron Age (LIA) sites, the development area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Areas that are more favourable for Iron Age settlements are found to the north along hills and along the rivers like the Bierspruit (van Schalkwyk 1994, van der Walt 2009; 2014, 2016 and 2019, Pistorius 2020). Stones sourced from the hills and rocky outcrops provide building material for the stonewalled settlements as well as lookouts and defensive positions on the elevated areas. In terms of the Stone Age the development area also lacks raw material for manufacturing stone tools and shelters that would have been inhabited or water sources that would have been focal points during the Stone Age. The development area is therefore considered to be of low heritage potential, this was confirmed during the field survey.

The development area is situated in a rural setting characterised by mining activities and farming from historical times with an extensive archaeological layering dating from the Stone Age to Iron Age. These archaeological sites are focussed on and around elevated areas and along rivers that provide focal points in the landscape. The development area itself is used for farming of game and cattle with no focal points that would have been favoured for settlement in antiquity.

During the survey, no heritage resources were recorded.

### 7.8.2. Palaeontological Assessment

According to the SAHRA palaeontological sensitivity map, the study area is indicated of insignificant (grey area) palaeontological sensitivity and no further studies are required, refer to Figure 7.11 below.

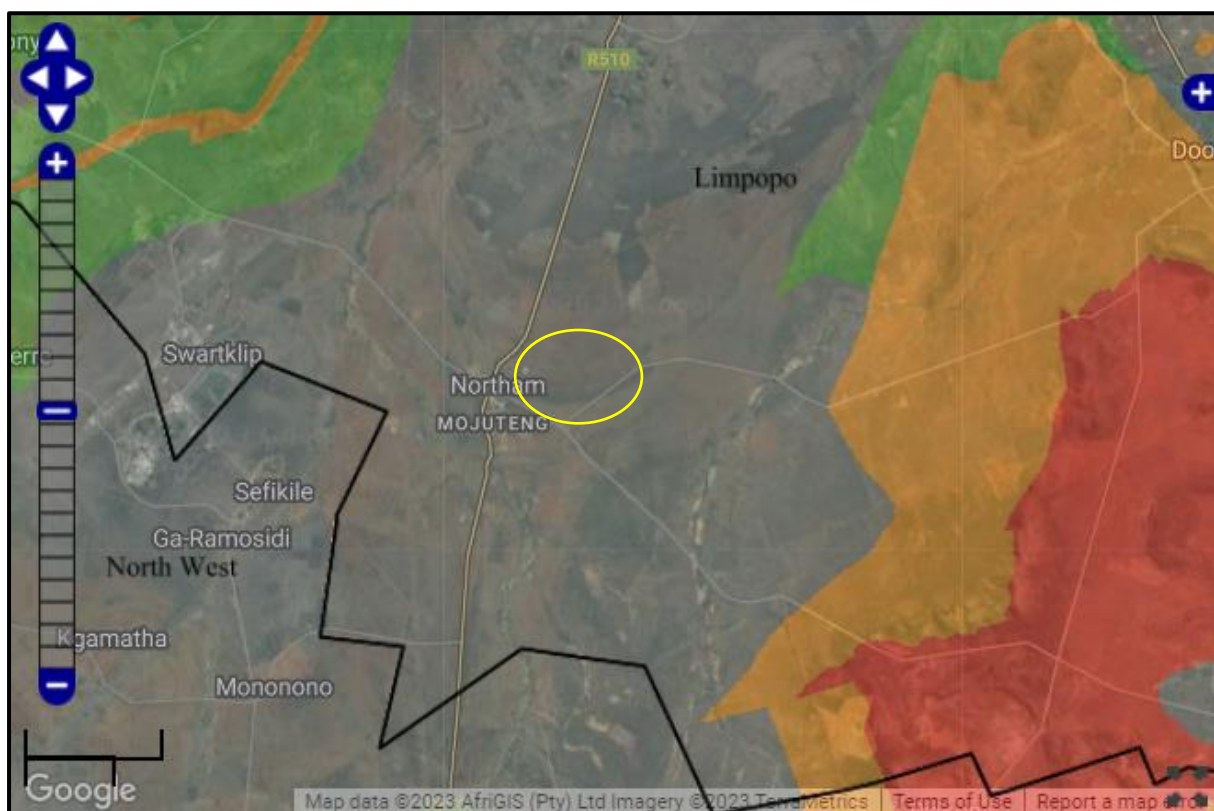


Figure 7.11: Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map

The palaeontological sensitivity rating are as follows:

Table 7.5: Palaeontological Sensitivity Rating

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study; a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map

Based on the above, no further palaeontological studies are required.

### 7.9. Traffic Assessment

The existing external road network, in the vicinity of the Dwaalboom Solar 2 PV facility, consist of R510, D869, D1235 and D1234. These roadways are shown in figure 7.13 below.

The development area can be accessed via the R510 located to the northwest or the D1234 located south of the facility. An internal site road network will also be required to provide access to the solar field and associated infrastructure. The existing external road network is shown in Figure 7.12 below.

A wayleave application for the preferred site access point will need to be lodged with the Thabazimbi Local Municipality prior to site construction activities.

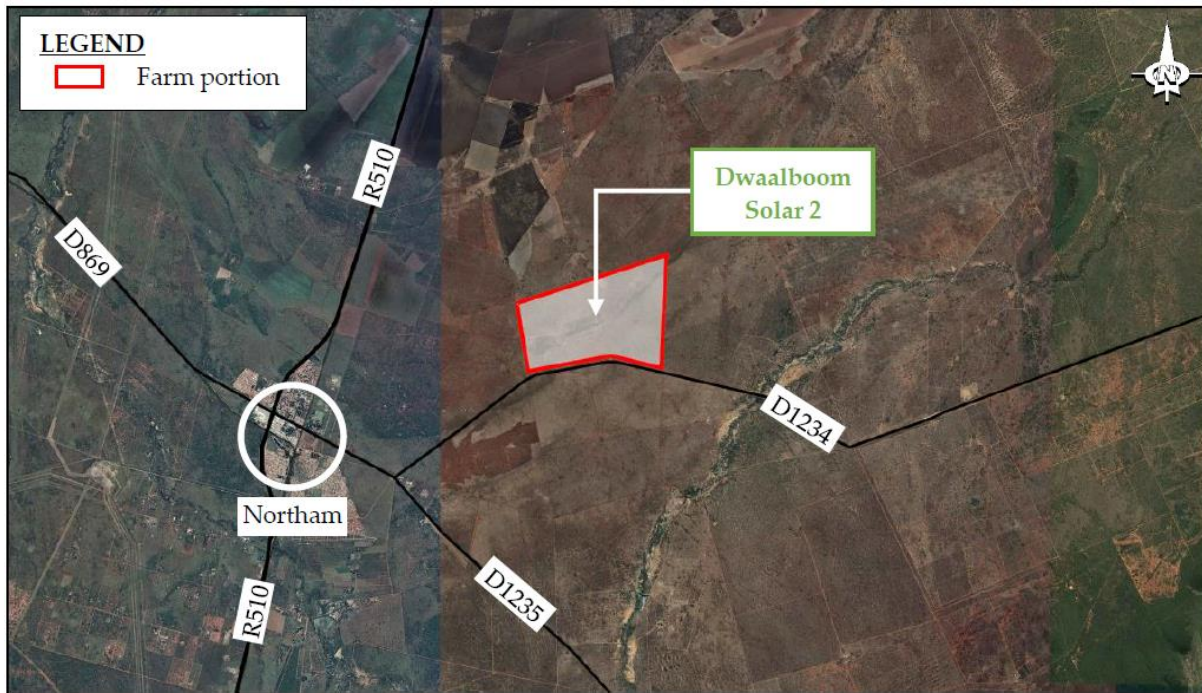


Figure 7.12: Existing External Road Network Surrounding the Dwaalboom Solar 2 Facility

The Traffic Impact Assessment (Appendix E7) recommends that the access shown in Figure 7.13 below is the preferred site access to serve the Dwaalboom Solar 2 Energy Facility. This recommendation is based on the fact that this access is an existing gravel road currently being utilized and comply with the minimum spacing requirement of 660 m.

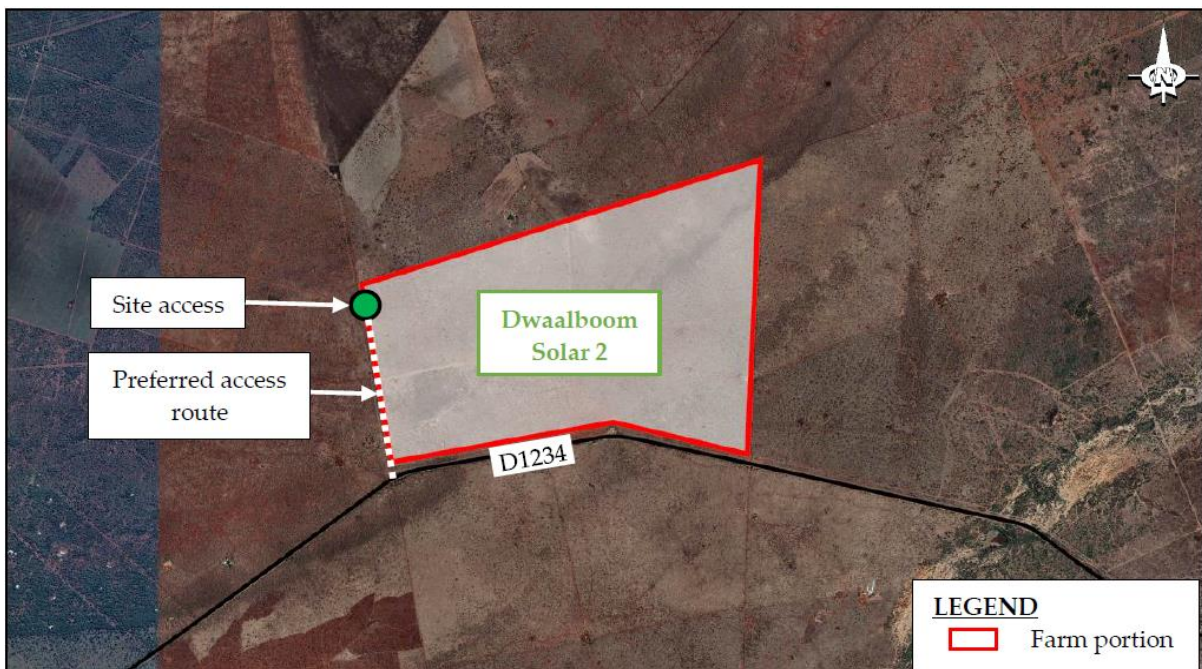


Figure 7.13: Site Access Recommendation

In addition to the above, no sight distance issues are foreseen at the preferred access. It is, however, essential that adequate traffic accommodation signage be erected and maintained on either side of the access on D1234. This should be implemented throughout the construction phase of the facility. This route will also need to be suitably maintained throughout the operational life of the solar energy facility.

The internal roads layout is dependent on the solar module layout; however, it is anticipated that approximately 20 km of internal roads will be required. Furthermore, an additional 20 km of smaller tracks may be required, for cleaning and maintenance of the solar modules.

### 7.10. Concluding Statement

From an environmental perspective the proposed site / development area is considered highly desirable in terms of geology, agricultural potential, vegetation and landscape features, climate, biodiversity and the visual landscape with very minimal environmental sensitivities based on the preliminary assessments. The area proposed for development exclusively consists of natural grazing, with no aquatic features or agricultural activity. Further investigation will be undertaken to inform the detailed EIA phase of the project, as well as the facility layout / development footprint to be put forward for approval..

### 7.11. Legal Requirements Complied with in Section 7 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint, including (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	This chapter provides a description of the environment that may be affected by the proposed Dwaalboom Solar 2 PV facility. The information is provided in order to assist the reader in understanding the receiving environment within which the project is proposed, and features of the biophysical, social, and economic environment that could be directly or indirectly affected by, or alternatively could impact on, the proposed

---

	<p>development. This chapter was supplemented by research of existing available information; information gathered from on-site investigations and as received from various specialist investigations. Copies of the specialist assessment reports are attached as Appendix E.</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

## 8. IMPACT ASSESSMENT OF POTENTIAL ISSUES

---

The development of Dwaalboom Solar 2 has the potential to impact on the affected environment within which the project is proposed. This section of the draft Scoping Report identifies and explores the potential impacts and issues that may arise due to the development.

To appropriately identify, assess and, as far as possible, avoid or mitigate potential impacts and risks that may be associated with the construction, operation and decommissioning of Dwaalboom Solar 2, Blue Crane Environmental commissioned a team of independent specialists with relevant knowledge and expertise in the biophysical (i.e., biotic and abiotic) and socio-economic environments. Input was sought from the following specialist fields through the provision of independent specialist reports:

- Terrestrial and Aquatic Ecological Scoping Phase Assessment (including plant and animal species site sensitivity verification) – refer to Appendix E1
- Avifaunal Site Sensitivity Verification Report – refer to Appendix E2
- Site Sensitivity Verification and Agricultural Compliance Statement – refer to Appendix E3
- Visual Impact Assessment – refer to Appendix E4
- Social Impact Assessment – refer to Appendix E5
- Heritage Impact Assessment (including archaeology and palaeontology) – refer to Appendix E6
- Traffic Impact Assessment – refer to Appendix E7

When considering the development of solar PV facilities, the IFC's Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants (2015), identifies potential environmental impacts and risks. The main impacts are listed below:

- Construction phase impacts, such as temporary air emissions (dust and vehicle emissions), noise, solid waste and wastewater generation, and OHS issues such as the risk of preventable accidents leading to injuries and / or fatalities.
- Water usage, such as the cumulative water use requirement in arid areas where local communities rely upon scarce groundwater resources.



- Land matters, such as land acquisition procedures and in particular involuntary land acquisition / resettlement.
- Landscape and visual impacts, such as the visibility of the project within the wider landscape and associated impacts on landscape designations, character types and surrounding communities.
- Ecology and natural resources, such as habitat loss / fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species.
- Cultural heritage, such as impacts on the setting of designated sites or direct impacts on below-ground archaeological deposits as a result of ground disturbance during construction.
- Transport and access, such as impacts associated with the transportation of materials and personnel on project-affected communities.
- Drainage / flooding, such as the potential for high flood risk associated with the site.

The impacts identified by the independent specialists for Dwaalboom Solar 2 are discussed in the sections below. Impacts are identified for the construction, operation and decommissioning phases as relevant. It must be noted that the identified potential impacts will be assessed further in detail during the EIA Phase and the required mitigation and management measures will be refined and confirmed for the facility layout proposed to be developed.

## **8.1. Assessment of Potential Impacts and Issues**

The potential impacts and issues are discussed per specialist field.

### **8.1.1. Potential Impacts on Avifauna**

As the Avifauna Specialist is yet to produce the impact assessment associated with Dwaalboom Solar 2, which is only expected to be available during the EIA Phase, the following preliminary impacts are identified for the development phases of the project:

#### Construction Phase:

- Disturbance and displacement of avifauna
- Loss of avifaunal habitat
- Mortality due to the operation of machinery on site
- Chemical pollution

Operation Phase:

- Collision with infrastructure
- Electrocutation
- Mortality

Decommissioning Phase:

- Disturbance and displacement of avifauna
- Loss of avifaunal habitat
- Mortality due to the operation of machinery on site

Appropriate mitigation measures will be recommended in the Avifauna Impact Assessment to be included as part of the EIA Report.

An existing kraal is located within the development area which may result in attraction of birds to the feature. However, should the kraal be decommissioned and the feature removed the sensitivity from an avifaunal perspective will be reduced to a negligible level of significance. It will only be confirmed during the EIA phase whether the kraal will be decommissioned by the landowner or avoided by the development footprint. A 100m buffer may be applicable should the landowner indicate that the infrastructure and usage thereof is to remain.

### **8.1.2. Potential Impacts on Terrestrial and Aquatic Ecology**

A Terrestrial and Aquatic Ecological Scoping Phase Assessment was undertaken for the Dwaalboom Solar 2 facility. The expected impacts of the proposed development will mostly be focused on the vegetation (and supporting substrate) and fauna features. Possible impacts could also be expected on small mammals and invertebrates. Potential expected impacts on the biodiversity are listed below, but it must be stressed that this evaluation is preliminary and based on desktop information and will only be finalised after a field study of the area in the EIA phase.

### Impacts on vegetation and protected plant species

As mentioned above the most likely and significant impact will be on the vegetation. At vegetation level, the proposed development may lead to direct loss of vegetation. Consequences of the impact occurring may include:

- general loss of habitat for sensitive species;
- loss in variation within sensitive habitat due to a loss of portions thereof;
- general reduction in biodiversity;
- increased fragmentation (depending on the location of the impact);
- disturbance to processes maintaining biodiversity and ecosystem goods and services; and
- loss of ecosystem goods and services.

At species level, only one species of conservation concern (SCC) has been previously recorded within the region, there is a potential for SCC to occur within the development footprint due to suitable habitat. Such species are especially vulnerable to infrastructure development due to the fact that they cannot move out of the path of the construction activities and are also affected by overall loss of habitat. SCC (red data species) include those listed as critically endangered, endangered or vulnerable. For any other species a loss of individuals or localised populations is unlikely to lead to a change in the conservation status of the species. However, in the case of threatened plant species, loss of a population or individuals could lead to a direct change in the conservation status of the species and possible extinction. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations. Consequences may include:

- fragmentation of populations of affected species;
- reduction in the area of occupancy of affected species; and
- loss of genetic variation within affected species.

These may all lead to a negative change in the conservation status of the affected species, which implies a reduction in the chances of the species' overall survival.

The impacts can be largely mitigated through avoidance of potential sensitive areas and listed species by allowing a minimum clearance of vegetation (restricted to the absolute necessary areas) etc.

### Direct Faunal impacts

Faunal species will primarily be affected by the overall loss of habitat. Increased levels of noise, pollution, disturbance and human presence will be detrimental to fauna. Sensitive and shy fauna would move away from the area during the construction phase as a result of the noise and human activities present, while some slow-moving species and species confined and dependant on specified habitats would not be able to avoid the construction activities and might be killed. Some mammals and reptiles would be vulnerable to illegal collection or poaching during the construction phase as a result of the large number of construction personnel that are likely to be present. This impact is highly likely to occur during the construction phase and would also potentially occur with resident fauna within the facility after construction.

SCC (red data species) include those listed as critically endangered, endangered or vulnerable. For any other species a loss of individuals or localised populations is unlikely to lead to a change in the conservation status of the species. However, in the case of threatened animal species, loss of a population or individuals could lead to a direct change in the conservation status of the species, possibly extinction. This may arise if the proposed infrastructure is located where it will impact on such individual or populations. Consequences may include:

- fragmentation of populations of affected species;
- reduction in area of occupancy of affected species; and
- loss of genetic variation within affected species

These may all lead to a negative change in the conservation status of the affected species, which implies a reduction in the chances of the species' overall survival.

Disturbance of faunal species can be maintained to a minimum and low significance by implanting effective mitigation measures.

#### Soil erosion and associated degradation of ecosystems

Soil erosion is a frequent risk associated with the development of solar PV facility on account of the vegetation clearing and disturbance associated with the construction phase of the development and may continue occurring throughout the operational phase. Service roads and panels will generate an increase in runoff during intense rainfall events and may exaggerate the effects of erosion. These eroded materials may enter the nearby streams and rivers and may potentially impact these systems through siltation and change in chemistry and turbidity of the water.

With effective mitigation measures in place including regular monitoring the occurrence, spread and potential cumulative effects of erosion may be limited to an absolute minimum.

### Alien Plant Invasions

Major factors contributing to invasion by alien invader plants includes habitat disturbance and associated destruction of indigenous vegetation. Consequences of this may include:

- further loss and displacement of indigenous vegetation;
- change in vegetation structure leading to a change in various habitat characteristics;
- change in plant species composition;
- change in soil chemistry properties;
- loss of sensitive habitats;
- loss or disturbance to individuals of rare, endangered, endemic and/or protected species;
- fragmentation of sensitive habitats;
- change in flammability of vegetation, depending on alien species;
- hydrological impacts due to increased transpiration and runoff; and
- impairment of wetland function.

Although the potential severity of this impact may be high, it can be easily mitigated through regular alien control.

The entirety of the site has been classified as Other Natural Areas (ONAs). Some of the impacts on Broad-Scale Ecological Processes are listed with potential mitigation measures in Table 8.1 below.

**Table 8.1:** Summary of the Impacts Identified for Terrestrial Ecology During the Construction and Decommissioning Phases

Issue	Nature of Impact during the Construction and Decommission Phases	Extent of Impact	No-Go Areas
Disturbance to and loss of indigenous natural vegetation.	<p>Construction of infrastructure will lead to direct loss of vegetation, causing a localised or more extensive reduction in the overall extent of vegetation. Consequences of the clearing and loss of indigenous semi – to near-natural vegetation occurring may include:</p> <ul style="list-style-type: none"> <li>• Increased vulnerability of remaining vegetation to future disturbance, including extreme climatic events;</li> <li>• General loss of habitat for sensitive fauna and flora species;</li> <li>• Loss in variation within sensitive habitats due to loss of portions of it;</li> <li>• General reduction in biodiversity;</li> <li>• Increased fragmentation (depending on the location of the impact) and associated reduced viability of species populations;</li> </ul>	Local	No No-Go areas have been identified

	<ul style="list-style-type: none"> <li>• Alteration of the habitat suitable for plant populations by altering surface structure. This will change species composition and associated species interactions;</li> <li>• Disturbance to processes maintaining biodiversity and ecosystem goods and services; and</li> <li>• Loss of ecosystem goods and services.</li> </ul>		
<p>Disturbance or loss of threatened /protected plants.</p>	<p>SCC could potentially occur in the site. Flora is affected by an overall loss or alteration of habitat and due to its limited ability to extend or change its distribution range.</p> <p>In the case of SCC, a loss of a population or individuals could lead to a direct change in the conservation status of the species, possibly extinction. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations. Consequences of this may include:</p> <ul style="list-style-type: none"> <li>• Fragmentation and decline of populations of affected species;</li> </ul>	<p>Local</p>	<ul style="list-style-type: none"> <li>• No plant SCC have been identified within the site.</li> <li>• A few protected plants have been identified within the site.</li> <li>• No No-Go areas have been identified.</li> </ul>

	<ul style="list-style-type: none"> <li>• Reduction in the area of occupancy of affected species;</li> <li>• Loss of genetic variation within affected species;</li> <li>• Alteration of the habitat suitable for plant associations by altering of the surface structure. This will change species composition and associated species interactions and species ability to persist; and</li> <li>• Future extinction debt of particular species of flora and fauna.</li> </ul> <p>These may all lead to a negative change in conservation status of the affected species, which implies a reduction in the chance of survival of the species.</p>		
<p>Loss of habitat for fauna species of conservation concern.</p>	<p>Fauna species of conservation concern are indirectly affected primarily by a loss of or alteration of habitat and associated resources. Animals are mobile and, in most cases, can move away from a potential threat, unless they are bound to a specific habitat that is also spatially limited and will be</p>	<p>Local</p>	<ul style="list-style-type: none"> <li>• No animal SCC were identified within the site.</li> <li>• No No-Go areas have been identified up to date.</li> </ul>



	<p>negatively impacted by a development. Nevertheless, the proposed development will reduce the extent of habitat available to fauna.</p> <p>For any species, a loss of individuals or localised populations is unlikely to lead to a change in the conservation status of the species. However, in the case of threatened animal species, loss of a suitable habitat, population, or individuals could lead to a direct change in the conservation status of the species. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations or the habitat that they depend on. Consequences may include:</p> <ul style="list-style-type: none"> <li>• Loss of populations of affected species;</li> <li>• Reduction in area of occupancy of affected species;</li> <li>• Loss of genetic variation within affected species; and</li> <li>• Future extinction debt of a particular species.</li> </ul>		
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

	<p>There are a number of red data species that have been recorded for the wider area within which the development area / site is located. Their presence and the necessity to keep their habitats intact in the study area needs to be confirmed during a field survey in the EIA phase.</p>		
<p>Disturbance to migration routes and associated impacts to species populations.</p>	<p>Site preparation and construction activities may interfere with the current migration routes of fauna species. This may lead to:</p> <ul style="list-style-type: none"> <li>• Reduced ability of species to move between breeding and foraging grounds, reducing breeding success rates;</li> <li>• Reduced genetic variation due to reduced interaction amongst individuals or populations as a result of fragmentation effects caused by the proposed developments</li> </ul>	<p>Site and surroundings</p>	<ul style="list-style-type: none"> <li>• No No-Go areas have been identified up to date.</li> </ul>
<p>Establishment and spread of declared weeds</p>	<p>Major factors contributing to invasion by alien invader plants include excessive disturbance to vegetation, creating a window of opportunity for the establishment of alien invasive species. In</p>	<p>Local and Regional</p>	<p>No “no-go” areas have been identified to date but the potential for alien invasive species present in or around the development area is regarded as moderate.</p>

<p>and alien invader plants.</p>	<p>addition, regenerative material of alien invasive species may be introduced to the site by machinery traversing through areas with such plants or materials that may contain regenerative materials of such species. Consequences of the establishment and spread of invasive plants include:</p> <ul style="list-style-type: none"> <li>• Loss of indigenous vegetation;</li> <li>• Change in vegetation structure leading to change in or loss of various habitat characteristics;</li> <li>• Change in plant species composition;</li> <li>• Altered and reduced food resources for fauna;</li> <li>• Change in soil chemical properties;</li> <li>• Loss or disturbance to individuals of rare, endangered, endemic and/or protected species;</li> <li>• Fragmentation of sensitive habitats;</li> <li>• Change in flammability of vegetation, depending on alien species;</li> <li>• Hydrological impacts due to increased transpiration and runoff;</li> </ul>		<p>The extent to which the site contains alien plants will be determined in the EIA phase through detailed investigation and field-survey.</p>
----------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	------------------------------------------------------------------------------------------------------------------------------------------------

	<ul style="list-style-type: none"> <li>• Increased production and associated dispersal potential of alien invasive plants, especially to lower-lying wetland areas, and</li> <li>• Impairment of wetland function.</li> </ul>		
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

Table 8.2: Summary of the Impacts Identified for Terrestrial Ecology During the Operational Phase

Issue	Nature of Impact during the Operational Phase	Extent of Impact	No-Go Areas
Disturbance or loss of indigenous natural vegetation.	<p>Hard and engineered surface create areas of altered surface characteristics, rainfall interception patterns. Consequently, it can be expected that within the Facility development footprint, the species composition and topsoil characteristics will change significantly. A sparser or less stable vegetation, together with the altered surface and runoff characteristics may lead to:</p> <ul style="list-style-type: none"> <li>• Increased vulnerability of the remaining vegetation to future disturbance, including erosion;</li> <li>• General loss or significant alteration of habitats for sensitive species;</li> </ul>	Local	No "no-go" areas so far identified.

	<ul style="list-style-type: none"> <li>• Loss in variation within sensitive habitats due to a loss of portions of it;</li> <li>• General reduction in biodiversity;</li> <li>• Increased fragmentation (depending on location of impact);</li> <li>• Future extinction debt of a particular species;</li> <li>• Disturbance to processes maintaining biodiversity and ecosystem goods and services; and</li> <li>• Loss of ecosystem goods and services</li> </ul>		
<p>Altered runoff patterns due to compacted areas.</p>	<p>Hard, engineered surfaces create surfaces of rainfall interception, where rainfall is collected and concentrated at the edges from where it then moves onto the ground in larger, concentrated quantities as opposed to small drops being directly intercepted and raindrop impact dispersed by vegetation, then absorbed by the ground. This may lead to a localised increase in runoff during rainfall</p>	<p>Site and surroundings</p>	<p>No “no-go” areas regarding high-risk erodible soils have been identified to date. This must be verified during a detailed investigation and field-survey as part of the EIA phase.</p>

	<p>events, which may result in localised accelerated erosion.</p> <p>Likewise, access roads and areas where soils have been compacted during construction will have a low rainfall infiltration rate, hence creating more localised runoff from those surfaces. Runoff will therefore have to be monitored and channelled where necessary to prevent erosion over larger areas.</p>		
<p>Establishment and spread of declared weeds and alien invader plants.</p>	<p>The envisaged altered vegetation cover after construction and during the operation phase of the proposed development will create a window of opportunity for the establishment of alien invasive species. In addition, regenerative material of alien invasive species may be introduced to the site by machinery or persons traversing through areas with such plants or materials that may contain regenerative materials of such species. Consequences of the establishment and spread of invasive plants include:</p>	<p>Local to regional</p>	<p>No “no-go” areas have been identified to date but the potential for alien invasive species present in or around the development area is regarded as moderate.</p> <p>The extent to which the site contains alien plants will be determined in the EIA phase through detailed investigation and field-survey.</p>

	<ul style="list-style-type: none"> <li>• Loss of indigenous vegetation or change in vegetation structure leading to an even more significant change in or loss of various habitat characteristics;</li> <li>• Loss of plant resources available to fauna;</li> <li>• Change in soil chemical properties;</li> <li>• Loss or fragmentation of sensitive or restricted habitats;</li> <li>• Loss or disturbance to individuals of rare, endangered, endemic and/or protected species;</li> <li>• Change in flammability of vegetation, depending on alien species;</li> <li>• Hydrological impacts due to increased transpiration and runoff;</li> <li>• Increased production and associated dispersal potential of alien invasive plants.</li> </ul>		
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

### 8.1.3. Potential Impacts on Soil and Agriculture

It should be noted that an Agricultural Compliance Statement is not required to formally rate agricultural impacts by way of impact assessment tables.

An agricultural impact is a change to the future agricultural production potential of land. In most developments, including the one being assessed here, this is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. The significance of an agricultural impact is a direct function of the following three factors:

1. the size of the footprint of land from which agriculture will be excluded (or the footprint that will have its potential decreased)
2. the baseline production potential (particularly cropping potential) of that land
3. the length of time for which agriculture will be excluded (or for which potential will be decreased).

The most significant agricultural impact possible, ignoring the length of time component, is therefore a loss of a large area of high yielding cropland and the least significant impact is a loss of a small area of low carrying capacity grazing land.

Cropping potential is a priority to conserve land for agricultural production and is determined by the scarcity of arable crop production land in South Africa and the relative abundance of land that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

In this case, the total footprint of land, which will be lost for the lifetime of the development, is up to 481 hectares. The production potential of that land is limited to only being suitable as grazing land. The loss of grazing land, of which there is no particular scarcity in the country, represents a minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the agricultural land loss is not of viable cropland the overall negative agricultural impact of the development is assessed here as being of low significance.



#### 8.1.4. Potential Impacts on the Visual Landscape

The visual specialist has undertaken a detailed investigation and impact assessment to identify and consider the visual impacts that could potentially be realised with the development of Dwaalboom Solar 2. Refer to Appendix E4 for the Visual Impact Assessment.

Based on the VIA report's assessment score, the visual impact of the proposed development will be a "Negative Low Impact" after mitigation and might be visible within a 1km radius from the solar PV facility. The development is likely to affect the D3717 and D3712 district roads and the R510 regional road, and nearby property owners including lodging facilities. Two private nature reserves are within 3km of the development, while the town of Northam will slightly be affected by the ZTV.

The majority of the landscape still boasts a Bushveld terrain with a better aesthetic appeal. However, given the visual pollution already caused by established mining developments, the sense of place will be marginally impacted. This ongoing mining activity has contributed to altering the natural aesthetics of the area, potentially leading to a desensitisation among local residents and frequent visitors who have become accustomed to the industrial development. The economy of the area is predominantly reliant on the mining sector, highlighting the significant role it plays in sustaining the local community. As a result, the visual impact of industrial development may be perceived differently by those familiar with the area's economic dependence on mining, as their perspective may be influenced by the understanding of its importance to the local economy.

The area surrounding the proposed development boasts an excellent Visual Absorption Capacity (VAC) in terms of its lush vegetation. However, it's important to note that this VAC is predominantly limited to the north-west, east and south-eastern region in terms of topography. The area is characterised by dense vegetation, including a variety of trees, which provides effective screening and limits visibility of surrounding activities.

The project is anticipated to operate permanently. The development will operate continuously, 7 days a week. Key elements of the Operation and Management (O&M) Plan include monitoring and reporting the performance of the project, conducting preventative and corrective maintenance, receiving visitors, and maintaining security.

The decommissioning phase of the project will result in the same visual impacts experienced during the construction phase of the project. However, it is anticipated that the proposed

development will be refurbished and upgraded to prolong its life. No decommissioning of the development is proposed.

Tables 8.3 – 8.5 below provides the visual impact assessment and mitigation measures of the potential impacts associated with Dwaalboom Solar 2. This impact assessment will be refined and the results and recommendations confirmed during the EIA Phase.

Table 8.3: Visual Impact During the Construction Phase of the Solar PV Facility

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Visual impact of construction activities on sensitive visual receptors and a Bushveld landscape, with a nearby mining landscape	Before mitigation	Negative	2	4	2	3	1	4	3	48	Medium (29-50)	Yes, but only partially	Yes
	After mitigation	Negative	2	4	1	2	1	4	2	28	Low (6-28)		
<p>Mitigation Measures:</p> <p>Planning</p> <ul style="list-style-type: none"> <li>Retain and maintain natural vegetation immediately adjacent to the development footprint.</li> </ul> <p>Construction</p> <ul style="list-style-type: none"> <li>No unnecessary removal of vegetation.</li> <li>Reduce vegetation clearance through planning of laydown areas and construction equipment camps.</li> <li>Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.</li> <li>Ensure that rubble, litter, etc. are appropriately stored (if it can't be removed daily) and then disposed of regularly at a licenced waste site.</li> <li>Reduce and control dust during the day by utilising dust suppression measures.</li> <li>Limit construction activities between 07:00 and 18:00, to reduce the impacts of lighting.</li> <li>Rehabilitate all disturbed areas immediately after the completion of construction.</li> </ul>													

Table 8.4: Visual Impact During the Operational Phase of the Solar PV Facility

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Visual impact of industrial operational infrastructure on sensitive visual receptors, landscape and scenic resources. Change	Before mitigation	Negative	2	3	4	3	3	4	2	38	Medium (29-50)	Yes, but only partially	Yes
	After mitigation	Negative	2	2	2	2	3	3	2	28	Low (6-28)		

in the sense of place of the local area.													
<p>Mitigation Measures:</p> <p>Planning</p> <ul style="list-style-type: none"> <li>Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint.</li> <li>Where insufficient natural vegetation exists next to the property, a 'screen' can be planted if the landowner requests additional mitigation. This can be done using endemic, fast growers that are water efficient.</li> </ul> <p>Operations</p> <ul style="list-style-type: none"> <li>Maintain general appearance of the development as a whole.</li> </ul>													

Table 8.5: Visual Lighting Impacts

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Visual impacts of lighting at night on sensitive visual receptors and the effect of sky glow on rural landscape.	Before mitigation	Negative	2	4	1	2	3	4	2	32	Medium (29-50)	Yes, but only partially	Yes
	After mitigation	Negative	2	2	1	1	3	2	2	22	Low (6-28)		
<p>Mitigation Measures:</p> <p>Planning &amp; Operation</p> <p>As far as practically possible:</p> <ul style="list-style-type: none"> <li>Shield the source of light by physical barriers (walls, vegetation etc.).</li> <li>Limit mounting heights of lighting fixtures, or alternatively use footlights or bollard level lights.</li> <li>Make use of minimum lumen or wattage in fixtures.</li> <li>Make use of down-lighters, or shield fixtures.</li> <li>Make use of low-pressure sodium lighting or other types of low impact lighting.</li> <li>Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.</li> <li>The use of night vision or thermal security cameras are very effective and can replace security lighting entirely, except for lighting as per the SACAA regulations.</li> </ul>													

### 8.1.5. Potential Impacts on the Social Environment

The social specialist has undertaken a detailed investigation and impact assessment to identify and consider the social impacts that could potentially be realised with the development of Dwaalboom Solar 2. Refer to Appendix E5 for the Social Impact Assessment.

This SIA focused on the collection of data to identify and assess social issues and potential social impacts associated with the development of the Dwaalboom Solar 2 PV facility. Secondary data was collected and presented in a literature review and primary data was collected through consultations with affected and adjacent 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.

There are some vulnerable communities within the project area that may be affected by the development of the Dwaalboom Solar 2 PV facility and its associated infrastructure. Traditionally, the construction phase of a PV energy facility is associated with most social impacts. Many of the social impacts are unavoidable and will take place to some extent but can be managed through the careful planning and implementation of appropriate mitigation measures. Several potential positive and negative social impacts have been identified for the project, however an assessment of the potential social impacts indicated that there are no perceived negative impacts that are so significant to allow them to be classified as “fatal flaws”.

The proposed Dwaalboom Solar 2 facility has the potential to generate additional income and employment opportunities for Northam and the surrounding communities. This benefit could be particularly significant to reduce the dependency of job opportunities in the mining sector, with the majority of the economic development and working opportunities associated with the mining activities. As a whole, unemployment in South Africa is significantly high and additional job opportunities would not only benefit the region but the overall South African employment ratio. Positive impacts can be associated with the Dwaalboom Solar 2 PV facility with regard to additional renewable energy facilities and reducing the current load on existing Eskom power generation facilities.

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. Impacts associated with the design and construction phase of a project are usually of a short duration and temporary in nature, but could have

long-term effects on the surrounding social environment if not planned or managed appropriately. It is therefore necessary that the design phase be conducted in such a manner so as not to result in permanent impacts associated with the ill placement of project components or associated infrastructure.

Dwaalboom Solar 2 facility is anticipated to operate for a minimum of 20 – 25 years. The facility will operate continuously, 7 days a week, during daylight hours. While the solar facility will be largely self-sufficient, monitoring and periodic maintenance activities will be required. Key elements of the Operation and Management (O&M) Plan include monitoring and reporting the performance of the solar facility, conducting preventative and corrective maintenance, receiving visitors, and maintaining security.

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. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. However, in the case of Dwaalboom Solar 2 PV facility it is anticipated that the proposed facility will be refurbished and upgraded to prolong its life. No decommissioning of the facility is proposed.

Tables 8.6 – 8.21 below provides the social impact assessment and mitigation measures of the potential impacts associated with Dwaalboom Solar 2. This impact assessment will be refined and the results and recommendations confirmed during the EIA Phase.

**Table 8.6:** Direct and Indirect Employment Opportunities and Skills Development During Construction

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated / enhanced?	Is the impact acceptable?
	Before mitigation	After mitigation											
Direct and indirect employment opportunities and skills development	Before mitigation	Positive	2	4	1	1	1	2	2	22	Low (6-28)	Yes	Yes
	After mitigation	Positive	2	4	1	1	1	3	3	36	Medium (29-50)		
Enhancement: <ul style="list-style-type: none"> <li>• A local employment policy.</li> <li>• Labour should be sourced from the local labour pool.</li> <li>• Training and skills development programmes.</li> <li>• Suppliers should also as far as possible be sourced locally.</li> <li>• Promote gender equality.</li> </ul>													

**Table 8.7:** Economic Multiplier Effects During Construction

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated / enhanced?	Is the impact acceptable?
	Before mitigation	After mitigation											
Significance of the impact from the economic multiplier effects from the use of local goods and services	Before mitigation	Positive	2	2	1	1	1	2	2	18	Low (6-28)	Yes	Yes
	After mitigation	Positive	3	3	1	1	1	3	3	36	Medium (29-50)		
Enhancement: <ul style="list-style-type: none"> <li>• Local procurement policy.</li> <li>• Historically Disadvantaged Individuals (HDIs) which qualify as potential service providers.</li> <li>• Local procurement is encouraged.</li> </ul>													

**Table 8.8: Potential Loss of Productive Farmland During Construction**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
The potential loss in productive farmland during the construction phase, due to factors such as the construction of roads, the preparation of foundations, power lines, offices etc.	Before mitigation	Negative	1	3	2	2	1	2	3	33	Medium (29-50)	Yes	Yes
	After mitigation	Negative	1	2	2	2	1	2	2	20	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>• Dwaalboom Solar 2 PV facility needs to be fenced off prior to the construction phase.</li> <li>• Livestock need to be relocated.</li> <li>• Environmental Control Officer (ECO), monitor disturbances.</li> <li>• Implement, manage and monitor a grievance mechanism.</li> <li>• Mitigation measures from the Agricultural and Soil Report.</li> </ul>													

**Table 8.9: Influx of Jobseekers and Change in Population During Construction**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
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	Before mitigation	Negative	2	2	4	3	4	3	2	36	Medium (29-50)	Yes	Yes
	After mitigation	Negative	2	2	4	3	3	2	2	32	Medium (29-50)		



Mitigation Measures:

- Local procurement policy.
- Local community representatives.
- Transportation for workers, easy access and no relocation.
- Working hours should be kept between daylight hours.
- 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 project site.
- Implement, manage and monitor a grievance mechanism for the recording and management of social issues and complaints.
- Establish clear rules and regulations for access to the proposed 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 times and the duration of the construction phase.
- Establish procedures for the control and removal of loiterers from the construction site.

Table 8.10: Safety and Security Impacts During Construction

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Temporary increase in safety and security concerns associated with the influx of people during the construction phase	Before mitigation	Negative	2	3	1	1	1	3	3	33	Medium (29-50)	Yes	Yes
	After mitigation	Negative	2	2	1	1	1	2	2	18	Low (6-28)		

Mitigation Measures:

- Working hours should be kept within daylight hours.
- Provide transportation for workers to prevent loitering.
- The perimeter of the construction site should be appropriately secured.
- The appointed EPC Contractor must appoint a security company.
- Access in and out of the construction site should be strictly controlled.
- A CLO should be appointed as a grievance mechanism.
- The EPC Contractor should implement a stakeholder management plan.
- Implement a Fire Management Plan.

- The EPC Contractor must prepare a Method Statement which deals with fire prevention and management.

**Table 8.11: Impacts on Daily Living and Movement Patterns During Construction**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Impacts on daily and movement patterns	Before mitigation	Negative	2	3	2	1	1	1	3	30	Medium (29-50)	Yes	Yes
	After mitigation	Negative	2	2	1	1	1	1	2	16	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>All vehicles must be road worthy, drivers qualified, obey traffic rules, follow speed limits and be aware of potential road safety issues.</li> <li>Heavy vehicles should be inspected regularly.</li> <li>Provision of adequate and strategically placed traffic warning signs.</li> <li>Enforce compliance to traffic rules.</li> <li>Avoid heavy vehicle activity during "peak" hours.</li> <li>The developer and EPC Contractor, fencing along access roads is maintained.</li> <li>The developer and EPC Contractor, roads utilised are either maintained or upgraded.</li> <li>The EPC Contractor, damage / wear and tear to the access roads.</li> <li>Communication must be implemented to lodge complaints from the local community.</li> </ul>													

**Table 8.12: Nuisance Impacts During Construction Phase**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Nuisance impacts in terms of temporary increase in noise and dust, and wear and tear on access roads to the site	Before mitigation	Negative	2	3	1	1	1	3	3	33	Medium (29-50)	Yes	Yes
	After mitigation	Negative	2	2	1	1	1	2	2	18	Low (6-28)		
Mitigation Measures:													

- Movement of heavy vehicles, avoid weekends, public holidays, and holiday periods.
- Dust suppression measures must be implemented for heavy vehicles.
- Vehicles are road worthy; drivers are qualified and aware of the potential noise and dust issues.
- A CLO should be appointed, and a grievance mechanism implemented.

**Table 8.13: Increased Risk of Potential Veld Fires During Construction**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Increased risk of potential veld fires	Before mitigation	Negative	2	3	2	3	1	1	3	36	Medium (29-50)	Yes	Yes
	After mitigation	Negative	1	3	1	2	1	1	2	18	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>• A firebreak should be implemented.</li> <li>• Adequate fire-fighting equipment should be provided and readily available.</li> <li>• No staff (except security) should be accommodated overnight, no open fires on site.</li> <li>• Ensure potential fire risks are done in the designated areas.</li> <li>• Precautionary measures, during high wind conditions or winter months.</li> <li>• National Forest and Veld Fires act and the fire management plan.</li> </ul>													

**Table 8.14: Visual and Sense of place Impacts During Construction**

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Intrusion impacts from construction activities will have an impact on the area's "sense of place"	Before mitigation	Negative	2	3	3	1	1	2	3	36	Medium (29-50)	Yes	Yes
	After mitigation	Negative	2	3	2	1	1	2	2	22	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>• Implement mitigation measures identified in the Visual Impact Assessment (VIA).</li> </ul>													

- Limit noise generating activities to normal daylight working hours and avoid weekends and public holidays.
- Movement of heavy vehicles timed to avoid weekends, public holidays, and holiday periods.
- Dust suppression measures implemented for heavy vehicles.
- All vehicles must be road worthy, drivers qualified, obey traffic rules, follow speed limits.
- CLO implement communication, complaints, and grievance channels to the local community.

**Table 8.15:** Direct and Indirect Employment Opportunities and Skills Development During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated/enhanced?	Is the impact acceptable?
	Before mitigation	After mitigation											
The creation of employment opportunities and skills development opportunities during the operation phase for the country and local economy	Before mitigation	Positive	3	3	3	1	3	2	1	15	Low (6-28)	Yes	Yes
	After mitigation	Positive	3	4	4	1	3	3	2	36	Medium (29-50)		
Enhancement: <ul style="list-style-type: none"> <li>• A local employment policy.</li> <li>• Promote gender equality.</li> <li>• Training programs, the development of skills.</li> </ul>													

**Table 8.16:** Development of Non-Polluting, Renewable Energy Infrastructure During Operation

Nature of the Impact	Status	Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated/enhanced?	Is the impact acceptable?
----------------------	--------	--------	-------------	---------------	------------------	----------	-------------------	-----------	---------------------	---------------	-----------------------------------	---------------------------

Development of non-polluting, renewable energy infrastructure	Before mitigation	Positive	4	4	1	2	4	3	2	36	Medium (29-50)	Yes	Yes
	After mitigation	Positive	4	4	1	2	4	3	2	36	Medium (29-50)		
Enhancement: <ul style="list-style-type: none"> <li>None identified.</li> </ul>													

Table 8.17: Potential Loss of Agricultural Land During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
Loss of agricultural land and overall productivity as a result of the operation of the proposed project on an agricultural property	Before mitigation	Negative	1	3	2	2	3	3	2	28	Low (6-28)	Yes	Yes
	After mitigation	Negative	1	2	1	2	3	2	2	22	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>Proposed mitigation measures of the construction phase should have been implemented at this stage.</li> <li>Mitigation measures from the Agricultural and Soil Report, should also be implemented.</li> </ul>													

Table 8.18: Contribution to Local Economic Development (LED) and Social Upliftment During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated/enhanced?	Is the impact acceptable?
Contribution to LED and social upliftment during	Before mitigation	Positive	4	4	2	1	3	2	3	48	Medium (29-50)	Yes	Yes

the operation of the project	After mitigation	Positive	4	4	3	1	3	3	4	72	High (51-73)		
<p>Enhancement:</p> <ul style="list-style-type: none"> <li>• A CNA must ensure that LED and social upliftment programmes are meaningful.</li> <li>• Communication and reporting are required to ensure that maximum benefit is obtained from the programmes.</li> <li>• Review programmes on an ongoing basis to ensure that they are best suited to the needs of the community at the time.</li> </ul>													

Table 8.19: Impact on Tourism During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated/enhanced?	Is the impact acceptable?
	Before mitigation	Positive / Negative											
The potential impact on tourism due to the establishment of the solar energy facility	Before mitigation	Positive / Negative	2	3	1	1	3	2	2	24	Low (6-28)	Yes	Yes
	After mitigation	Positive / Negative	2	3	1	1	3	2	2	24	Low (6-28)		
<p>Enhancement:</p> <ul style="list-style-type: none"> <li>• Due to the extent of the project no viable mitigation measures can be implemented to eliminate the visual impact of the PV panels, but the subjectivity towards the PV panels can be influenced by creating a “Green Energy” awareness campaign, educating the local community and tourists on the benefits of renewable energy. Tourists visiting the area should be made aware of South Africa’s movement towards renewable energy. This might create a positive feeling of a country moving forward in terms of environmental sustainability.</li> </ul>													

Table 8.20: Visual and Sense of Place Impacts During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	Negative											
Visual impacts and sense of place impacts	Before mitigation	Negative	2	3	1	3	3	2	3	42	Medium (29-50)	Yes	Yes

associated with the operation phase of the solar energy facility	After mitigation	Negative	2	3	1	2	3	2	2	26	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>To effectively mitigate the visual impact and the impact on sense of place during the operational phase of the proposed Dwaalboom Solar 2 PV facility, it is suggested that the recommendations made in the Visual Impact Assessment (specialist study) should be followed in this regard.</li> </ul>													

Table 8.21: Vegetation Clearance During Decommissioning

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
Vegetation clearance as part of the construction phase activities	Before mitigation	Negative	2	3	3	3	2	2	3	45	Medium (29-50)	Yes	Yes
	After mitigation	Negative	1	2	2	2	1	1	3	27	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>Demarcate areas to be developed.</li> <li>Avoid all sensitive environmental features.</li> </ul>													

### 8.1.6. Potential Impacts on Heritage Resources

A Heritage Impact Assessment (HIA) was carried out and the impact on heritage resources were found to be low (Appendix E6). The aim of the study was to survey the proposed development footprint to understand the cultural layering of the area, and if heritage features are found, to assess their importance within local, provincial, and national context. It further served to assess the impact of the proposed project on non-renewable heritage resources.

The main cause of impacts to heritage resources is physical disturbance of the cultural material itself and its context during removal of topsoil and vegetation as well as the excavations associated with the establishment of infrastructure. In terms of this project the main source of impacts will happen during the following activities in the construction phase.

- Establishment of new roads and upgrade of existing roads;
- Earthworks for temporary infrastructure including laydown areas;
- Visual impact of the PV Facility and power lines on the landscape and sense of place;
- Excavation and levelling of the PV facility footprint;
- Trenches for cables and erection of power lines;
- Influx of people into the area;
- Excavations during construction of the sub stations.

Based on the current layout the recorded ruin at DB02 will be directly impacted on by the development. Although the structures are of low heritage significance the possibility of graves in the area cannot be excluded and if confirmed the impact will be high. Additionally, if graves are confirmed the project could result in the restriction of access to the graves for family members.

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.



- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

The overall impact of the project with the recommended mitigation measures is considered to be low and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the project.

The main recommendations are as follows:

- Avoidance of the area at DB02 with a 30 m buffer,
- Confirmation of the presence of graves through social consultation;
- Heritage walk-down of the final development footprint prior to construction;
- Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2 of the HIA;

Impact Assessment for the construction, operational, decommissioning phases, and cumulative impacts of the project are assessed in Tables 8.22 – 8.24 below.

Table 8.22: Impact to Heritage Resources During Construction

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Loss of heritage resources	Before mitigation	Negative	3	3	3	3	4	1	3	51	High (51-73)	Yes	No
	After mitigation	Negative	3	1	3	3	4	1	1	15	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>Avoidance of the area at DB02 with a 30 m buffer.</li> <li>Confirmation of the presence of graves through social consultation.</li> <li>Heritage walk-down of the final development footprint prior to construction.</li> <li>Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2 of the HIA.</li> </ul>													

Table 8.23: Impact to Heritage Resources During Operation

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
	Before mitigation	After mitigation											
Loss of heritage resources	Before mitigation	Negative	1	2	3	3	4	1	1	14	Low (6-28)	Yes	Yes
	After mitigation	Negative	1	1	1	3	4	1	1	11	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>Implementation of a Heritage Chance Find Procedure.</li> </ul>													

**Table 8.24:** Impact to Heritage Resources During Decommissioning

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
Loss of heritage resources	Before mitigation	Negative	1	2	3	3	4	1	1	14	Low (6-28)	Yes	Yes
	After mitigation	Negative	1	1	1	3	4	1	1	11	Low (6-28)		
Mitigation Measures: <ul style="list-style-type: none"> <li>• Implementation of a Heritage Chance Find Procedure.</li> </ul>													

### 8.1.7. Traffic Impact Assessment

The expected effects of traffic that would be generated by the proposed Dwaalboom Solar 2 PV Facility were analysed as follows:

- The background traffic volumes were determined for the study network near the site, as well as the transportation routes;
- The future traffic volumes for the years 2024 and 2025 (construction years) were predicted and is based on a trendline analysis. The future traffic volumes for the operation and decommissioning years were also based on a similar approach;
- Construction, operation, and decommissioning phase traffic (site generated trips) were estimated for the proposed solar energy facility;
- The solar energy facility traffic was added to the background traffic volumes to determine the total traffic conditions with the solar energy facility in place, and
- An impact rating system was used to determine the significance of impact of the Dwaalboom Solar 2 PV Facility during the construction, operation, and decommissioning phases.

The potential risks related to traffic are assessed below in Tables 8.25 to 8.27.

**Table 8.25:** Traffic Impacts Relating to the Construction Phase of the Dwaalboom Solar 2 PV Facility

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
During the construction phase, the road network leading to the solar facility will include national and regional roads from Durban and/ or Richards Bay. There will be an increase in traffic volumes, for both light and heavy vehicles, influencing traffic congestion and road safety.	Before mitigation	Negative	3	3	1	1	2	2	2	24	Medium (29-50)	Yes	Yes
	After mitigation	N/A											
Mitigation Measures:													
<ul style="list-style-type: none"> <li>All construction vehicles must be roadworthy, and drivers must have the relevant licenses for the type of vehicles they are operating and all vehicle drivers need to strictly adhere to the rules of the road.</li> </ul>													

**Table 8.26:** Traffic Impacts Relating to the Operational Phase of the Dwaalboom Solar 2 PV Facility

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
The road network, surrounding the solar facility, will be affected. There will be an increase in traffic influencing traffic congestion and road	Before mitigation	Negative	2	3	1	1	3	1	1	11	Low (6-28)	Yes	Yes

<p>safety. However, vehicles used for the operations and maintenance phase will be light vehicles. The extent of the road network that will be affected is small, as staff will be living in neighbouring towns. The operations and maintenance phase traffic will only be temporary, and no major impact is anticipated on the road network.</p>	<p>After mitigation</p>	<p>N/A</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> <li>All operations and maintenance vehicles must be roadworthy, and drivers must have the relevant licenses for the type of vehicles they are operating and all vehicle drivers need to strictly adhere to the rules of the road.</li> </ul>				

Table 8.27: Traffic Impacts Relating to the Decommissioning Phase of the Dwaalboom Solar 2 PV Facility

Nature of the Impact	Status		Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
<p>The road network, surrounding the solar facility, will be affected. There will be an increase in traffic influencing traffic congestion and road</p>	<p>Before mitigation</p>	<p>Negative</p>	<p>2</p>	<p>2</p>	<p>1</p>	<p>1</p>	<p>1</p>	<p>1</p>	<p>1</p>	<p>8</p>	<p>Low (6-28)</p>	<p>Yes</p>	<p>Yes</p>

<p>safety. However, the extent of the impact will be very small and local of nature. The traffic during the decommissioning phase will only be temporarily and have an insignificant impact on the road network.</p>	<p>After mitigation</p>	<p>N/A</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> <li>All decommissioning vehicles must be roadworthy, and drivers must have the relevant licenses for the type of vehicles they are operating and all vehicle drivers need to strictly adhere to the rules of the road.</li> </ul>				

## 8.2. Consideration of Potential Cumulative Impacts

The EIA Regulations, 2014 (as amended) determine that cumulative impacts, “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.”

A geographic area must be determined within which the effected of the potential cumulative impacts will be relevant and experienced, and therefore the spatial boundary within which the cumulative impact assessment will be undertaken. The spatial boundary evaluated in this cumulative assessment generally includes an area of a 30 km radius surrounding the proposed development.

Within the geographic area under consideration (i.e., 30 km radius) other known approved solar energy projects / developments are present. It is unclear whether other projects not related to renewable energy is or has been or will be constructed in this area. In general, development activity in the area is focused on agriculture, natural grazing and mining activity.

Dwaalboom Solar 2 facility is proposed in an area which has historically been used for mining and agricultural activities with the site being specifically used for natural grazing at present. The Northam area and its surrounds (within which Dwaalboom Solar 2 is proposed) receive a suitable annual amount of solar radiation which is considered appropriate for the development of solar energy facilities. It can therefore be expected that the area will be developed for solar energy facilities, adding to the cumulative impact of the overall area.

Table 8.28 provides a summary of related projects that may have a cumulative impact, in a 30 km radius of the development area. This information was obtained from the National Department of Forestry, Fisheries and the Environment (DFFE) website and is also based on knowledge from Blue Crane Environmental. Also refer to Figure 8.1.

**Table 8.28:** Renewable energy facilities within a 30 km radius from the proposed development

Project name	Distance from	Proposed generating capacity	DFFE reference	EIA processes	Project status
--------------	---------------	------------------------------	----------------	---------------	----------------



	study area				
Projects included in the REEA database (May 2023)					
Daphne Energy Pty Ltd	5 km	40 MW	12/12/20/2129	Scoping and EIA	Approved
Platinum Solar Park	9 km	30 MW	12/12/20/2526	Scoping and EIA	In Process
Spitskop Solar Park	7 km	Unspecified	14/12/16/3/3/2/702	Scoping and EIA	In Process
10MW solar energy plant on the Farm Liverpool 543	16 km	10 MW	14/12/16/3/3/1/969	BAR	Approved
Zondereinde PV Facility and Associated Infrastructure (Letsatsi PV (Pty) Ltd)	10 km	100 MW	12/1/9/2-W99	Scoping and EIA	In Process
Projects not yet included in the REEA database					
Vanadium Solar Power Plant	~ 8 km	150 MW	14/12/16/3/3/2/2348	Scoping and EIA	In Process
Palladium Solar Power Plant	~ 8 km	250 MW	TBC	Scoping and EIA	In Process

Copper Solar Power Plant	~ 8 km	250 MW	TBC	Scoping and EIA	In Process
Dwaalboom Solar 1	~ 0 km	150 MW	TBC	Scoping and EIA	In Process
Dwaalboom Solar 3	~ 0 km	180 MW	TBC	Scoping and EIA	In Process
Dwaalboom Solar 4	~ 2.5 km	180 MW	TBC	Scoping and EIA	In Process

The impact of solar energy facilities on landscape connectivity is considered likely to be a key issue in certain parts of South Africa where there is a growing number of solar energy facility applications. Cumulative impacts are expected to be associated with the following:

- Loss of vegetation and species of conservation concern;
- Impacts on faunal habitats and sensitive faunal species, including avifauna;
- Impacts on soil resources, land use, and agricultural potential;
- Impacts on CBAs as defined by the Limpopo provincial authorities and broad-scale Ecological processes;
- Loss of heritage resources (including archaeological and palaeontological resources);
- Visual impacts; and
- Impacts on the social environment (both positive and negative).

In addition to cumulative impacts associated with the proposed development and other similar developments in the area, cumulative impacts are also to be considered at a site level. The potential direct cumulative impacts associated with the development is expected to be associated predominantly with the potential ecology impact, potential soil impacts, and potential impacts on visual and social aspects and features in the surrounding areas.

The above-mentioned impacts are considered to be probable, although it is anticipated that the extent, duration, and magnitude of these impacts can be minimised to levels where this impact can be regarded as having low significance through the implementation of appropriate mitigation measures. The impact associated with the proposed development is

expected to be local, affecting mainly the immediate environment and surrounding areas, as well as other renewable energy facilities within the vicinity.

The operational lifespan of the project and other solar energy facilities within the surrounding areas is expected to be long-term (i.e., a minimum of 20 – 25 years) and subsequently the impact is also expected to be long-term.

Cumulative impacts will be fully assessed and considered in the EIA Phase. Each independent specialist report will consider and assess the cumulative impacts of proposed, approved and authorised renewable energy projects in the area.

In terms of the desirability of the development of renewable energy, it may be preferable to incur a higher cumulative loss in such a region as this one (where the landscape has already experienced degradation), than to lose land with a higher environmental value elsewhere in the country.

Cumulative impacts will be further explored and assessed as part of the EIA Phase.

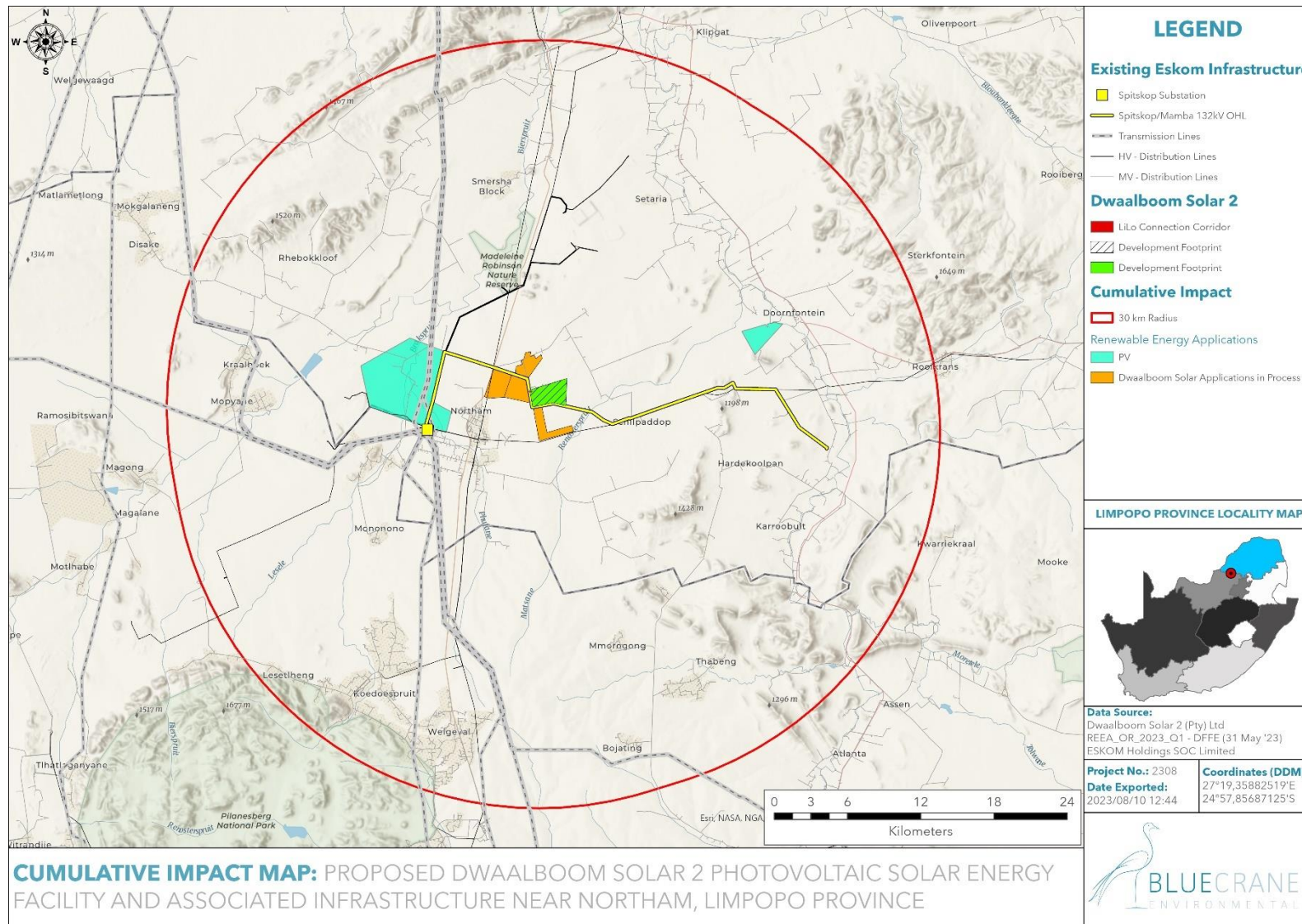


Figure 8.1: Cumulative Map for the Dwaalboom Solar 2 Facility

### 8.3. Site Sensitivity Analysis for the Facility Layout Design

A site sensitivity analysis is presented as part of the draft Scoping Report to consider the potential sensitive environmental features and areas present within the development area that will need to be considered by the Applicant for the placement and design of the development footprint.

The mitigation hierarchy explored as part of the site selection process (section 2.3) is further applied as part of the design of the development footprint. The Applicant will essentially be considering all confirmed and ground-truthed environmental sensitivities, and the recommended buffers, and thereby design a facility layout which avoids these no-go areas to ensure no disturbance is undertaken, including the placement of infrastructure.

As the independent specialists are still in process of undertaking the fieldwork, the environmental sensitivities will only be refined in the EIA Phase, during which the draft facility layout will also be assessed to consider compliance of the layout with the environmental sensitivities and limitations. Further optimisation of the layout will then be undertaken by the Applicant where needed. Refer to section 2.4.1 for further detail in this regard.

From the inputs of the independent specialist studies to date areas of high, medium to low sensitivity are likely to be present within the development footprint. These areas are still to be confirmed and refined by the specialists. These include:

- The presence of an Important Bird Area (IBA). The northernmost section of the project overlaps with the Northern Turf Thornveld IBA.
- An existing kraal is located within the development area which may result in attraction of birds to the feature. However, should the kraal be decommissioned and the feature removed the sensitivity from an avifaunal perspective will be reduced to a negligible level of significance. It will only be confirmed during the EIA phase whether the kraal will be decommissioned by the landowner or avoided by the development footprint. A 100m buffer may be applicable should the landowner indicate that the infrastructure and usage thereof is to remain.
- A ruin with unverified graves is present within the southwestern corner of the development area. This area must be appropriately buffered (30m) and avoided.

Figure 8.2 provide the preliminary environmental sensitivity map for the development area that will be refined in the EIA Phase.

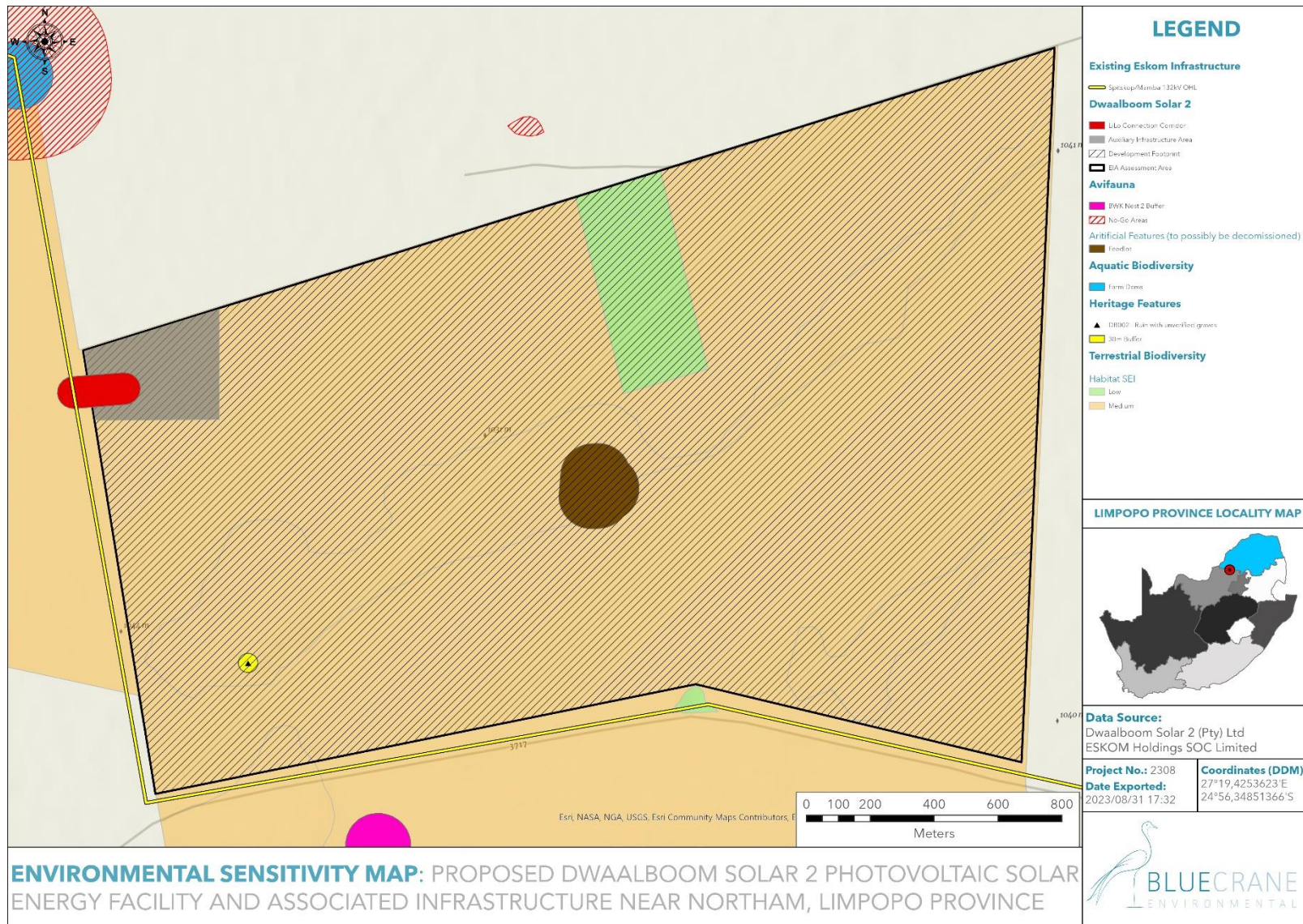


Figure 8.2: Preliminary Environmental Sensitivity Map of the Dwaalboom Solar 2 Development Area

#### 8.4. Legal Requirements Complied with in Section 8 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint, including (v) the impacts and risks which have informed each alternative, including the nature, significance, consequence extent, duration and probability of such identified impacts, including the degree to which these impacts (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated.	The potential impacts and risks identified to be associated with the development of Dwaalboom Solar 2 is considered in section 8.1.
2(g)(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The potential positive and negative impacts and risks identified to be associated with the development of Dwaalboom Solar 2 facility is considered in section 8.1. These impacts have been identified from the inputs provided by the various independent specialist reports included in Appendix E.
2(g)(viii) the possible mitigation measures that could be applied and the level of residual risk.	Preliminary mitigation measures and recommendations for the management of the potential impacts and environmental sensitivities have been included in section 8.1.

---

## 9. EIA PLAN OF STUDY

---

The Plan of Study for the EIA Phase provides a description of how the EIA Phase will process and includes the details of the independent specialist studies.

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

### 9.1. Description of the Aspects to be Assessed

The EIA Report will be drafted with the objective of assessing the direct, indirect and cumulative environmental impacts and benefits associated with each phase of development including design, construction, operation, and decommissioning. The EIA Report will further provide the competent authority (in this case the Department of forestry, Fisheries and the Environment (DFFE) with detailed and sufficient information to make an informed decision on the Application for Environmental Authorisation.

The sections below provide an indication of the aspects to be assessed for Dwaalboom Solar 2.

#### 9.1.1. Aspects of the Development

A draft facility layout will be provided by the Applicant for assessment as part of the EIA Phase which considers the identified environmental sensitivities included in this Scoping Report. The draft layout will be assessed by Blue Crane Environmental and a range of independent specialists. The draft layout will illustrate the proposed locations of all infrastructure associated with the development of Dwaalboom Solar 2, including the associated grid connection infrastructure.

#### 9.1.2. Consideration of Alternatives

The following project alternatives will be investigated in the EIA Phase:



Alternatives considered	Description of the Alternative
Site specific and Layout Alternatives	One preferred site / development area has been identified for the development of Dwaalboom Solar 2 facility based on specific site characteristics such as the solar resource, land availability, topographical characteristics and environmental features. The development area of 481 ha is considered to be sufficient for the development of a solar facility with a contracted capacity of up to 240 MW. The proposed / draft development footprint will be assessed in terms of the environmental appropriateness for the development area.
Activity Alternatives	Only the development of a renewable energy facility is considered by Dwaalboom Solar 2 (Pty) Ltd. Due to the location of the site / development area and the suitability of the solar resource, only the development of a solar PV facility is considered feasible considering the natural resources available to the area and the current land-use activities undertaken within the site (i.e., agricultural and mining activities).
Technology Alternatives	Only the development of a photovoltaic solar facility is considered due to the characteristics of the site, including the natural resources available.
Grid Connection Alternatives	The project includes the Loop-In-Loop-Out (LILO) overhead 132 kV power line connection between the back-to-back facility substation and Eskom collector switching station and the existing Spitskop–Mamba 132 kV power line. This application excludes the direct grid connection infrastructure to the national grid – Spitskop Main Transmission Substation (to be assessed via a separate application).
'Do-nothing Alternative	The option to not construct the Dwaalboom Solar 2 PV facility. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within the surrounding areas of the site. The opportunities

	associated with the development of the solar facility for the Northam area will however not be made available.
--	----------------------------------------------------------------------------------------------------------------

### 9.1.3. Aspects to be Assessed by the Independent Specialists

Specialists in their field of expertise will consider baseline data and identify and assess impacts based on the results of the completed fieldwork. Specialists will also recommend essential ways in which to mitigate negative impacts and enhance positive impacts. Further, specialists will, where possible, take into consideration the cumulative effects associated with this and other projects which are either developed or in the process of being developed in the local area. The specialist is reminded to follow the latest DFFE protocols.

Specialists' reports must comply with Appendix 6 of GNR. 326 published under sections 24(5), and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, where the DFFE protocols are not relevant to be complied with.

The following specialist studies will be undertaken as part of the EIA Phase:

- **Heritage Impact Assessment:** To determine whether the proposed activity will impact on any heritage or archaeological artifacts.
- **Terrestrial Biodiversity, Plant and Animal Species Impact Assessment:** To determine what the impact of the proposed activity will be on the ecology (fauna and flora) in the area.
- **Avifauna Impact Assessment:** To determine what the impacts of the proposed activity will have on the birds (avifauna) in the area.
- **Visual Impact Assessment:** To determine to what extent the proposed activity will be visually intrusive to the surrounding communities or other receptors.
- **Social Impact Assessment:** To determine how the proposed activity will impact on the socio-economic environment.
- **Traffic Impact Assessment:** To determine the impacts that the development activity will have on the volume of traffic in the area.

It must be noted that no further aquatic and agricultural studies are required based on the scoping phase aquatic ecology and agricultural compliance statements.

It must be noted that no further palaeontological studies are required based on the results of the Scoping Phase HIA and the location of the project in terms of the SAHRA Palaeosensitivity map.

The results of the specialist studies will inform the facility layout that will be put forward for environmental authorisation for Dwaalboom Solar 2.

Table 9.1 below provides a summary of the aspects that will be assessed in detail in the EIA Report. The aspects are also linked to specialist information obtained.

**Table 9.1:** Aspects to be assessed by the independent specialists

Aspects	Potential impacts	Specialist studies / technical information
Construction of the solar energy facility	Impacts on the fauna and flora	Terrestrial Ecological Assessment and Avifauna Impact Assessment
	Impacts on existing services infrastructure	Confirmation from the Local Municipality
	Temporary employment, impacts on health and safety	Social Impact Assessment
	Impacts on heritage resources	Heritage Impact Assessment
Operation of the solar energy facility	Impacts on the fauna and flora	Terrestrial Ecological Assessment and Avifauna Impact Assessment
	Increased consumption of water	Confirmed volumes to be provided by the Applicant
	Visual Impact	Visual Impact Assessment
	Provision of employment and generation of income for the local community	Social Impact Assessment
	Socio-economic impacts (loss of employment)	Social Impact Assessment
Cumulative Impacts	Cumulative biophysical impacts resulting from similar developments in close	All independent specialist studies results are to be analysed by the EAP to consider the impact of the

	proximity to the proposed activity.	project in isolation and the combined cumulative impact significance
--	-------------------------------------	----------------------------------------------------------------------

## 9.2. Methodology to be Utilised for the Impact Assessment

Impact assessment must take account of the nature, scale, and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the project phases:

- planning
- construction
- operation
- decommissioning

Table 9.2 provides the impact rating system applied in this draft Scoping Report.

**Table 9.2:** Impact rating methodology for the Impact Assessment.

NATURE		
Include a brief description of the impact of the environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		

1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not

		occur in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component, and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component, and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		

1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible, and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.

2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects

## SIGNIFICANCE

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.



51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

### 9.3. Consultation with the Competent Authority

Consultation with the regulating authorities (i.e., DFFE and Limpopo DEDET) will be undertaken and will continue throughout the EIA Phase. On-going consultation will include the following:

- Submission of a Final Scoping Report following the 30-day public review period (and consideration of comments received).
- Submission of a draft EIA Report, inclusive of an Environmental Management Programme, for review and comment.
- Submission of a Final EIA Report following a 30-day public review period (and consideration of comments received).
- Consultation with DFFE and Limpopo DEDET (if required) in order to discuss the findings and conclusions of the Final EIA Report.
- Follow-up with the DFFE regarding the decision and provide feedback where queries for certainty are required from the Department.

### 9.4. Public Participation during the EIA Phase

A public participation process will be undertaken during the EIA Phase. Consultation with key stakeholders and I&APs will be on-going and through this consultation process, stakeholders and I&APs will be encouraged to verify that their issues were recorded in the Scoping Phase and to identify additional issues of concern or highlight positive aspects of

the proposed project, and to comment on the findings of the EIA Phase. To accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA Phase of the process, as follows:

- Telephonic consultation sessions where significant comments are raised and the I&APs have a need for discussion and further consultation, outside of written correspondence.
- Written, faxed or e-mail correspondence.

A draft EIA Report will be made available for a 30-day review period prior to finalisation and submission to the DFFE for decision-making. A non-technical summary will be distributed to all registered I&APs with the notification of the availability of the draft EIA Report for review and comment. All comments received during the public review period will be included within the final report to be submitted to the DFFE for review and decision-making.

#### 9.5. Legal Requirements Complied with in Section 9 as per the Requirements of the EIA Regulations, 2014 (as amended)

This section of the report includes the following information required in terms of Appendix 2: Content of the scoping report:

Requirement	Relevant Section
2(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.	A description of the alternatives to be considered in the EIA Phase is discussed in section 9.1.2.
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process.	A description of the development aspects to be assessed in the EIA Phase is included in section 9.1.

(iii) aspects to be assessed by specialists.	A description of the aspects to be assessed by the independent specialists in the EIA Phase is included in section 9.1.3.
(iv) a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists.	The method to be applied for assessing the environmental aspects and impacts is included in section 9.2.
(v) a description of the proposed method of assessing the duration and significance.	The method to be applied for assessing the environmental aspects and impacts is included in section 9.2.
(vi) an indication of the stage at which the competent authority will be consulted.	The consultation to be undertaken with the competent authority is described in section 9.3.
(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process.	The particulars of the Public Participation Process to be undertaken is included in section 9.4.
(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process.	The tasks to be undertaken for the EIA Phase of the EIA process are fully described in section 9.
(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	The independent specialists will identify suitable management and mitigation measures which will be listed in the EIA Report and EMPr.

---

## 10. CONCLUSION

---

The draft Scoping Report was undertaken with the main aim of identifying the potential impacts that may occur with the development of the proposed Dwaalboom Solar 2 facility.

The development of a solar energy facility on a site located on Portion 1 of the Farm Einde No. 420 may potentially result in both negative and positive environmental impacts that may need to be mitigated to ensure that the development is appropriate from an environmental perspective. The entire extent of a 481 ha Development Area, and a LILCO connection corridor have been assessed as part of this draft Scoping Report

Key environmental impacts have been identified for the development through inputs provided from independent specialists. The impacts and the significance of the impacts listed below is without the implementation of the required mitigation measures.

### Construction Phase Impacts:

- Impacts on avifauna including 1) disturbance and displacement of avifauna, 2) loss of avifaunal habitat and 3) mortality due to the operation of machinery on site.
- Impacts on fauna and flora including 1) destruction, loss and fragmentation of habitats, ecosystems and the vegetation community (- Medium), 2) introduction of Invasive Alien Plant (IAP) species and invasive fauna (- Medium), 3) destruction of protected plant species (- Medium), and 4) displacement of the indigenous faunal community (- Medium).
- Direct disturbance / degradation / loss to wetland soils or vegetation (- Medium) and increased erosion and sedimentation (- Medium).
- Visual impact of construction activities on sensitive visual receptors in close proximity to the Solar PV facility (- Medium).
- Loss of Land Capability (- Low).
- Loss or damage to sites, features or objects of cultural heritage significance (burial sites and homestead site located on site) (- Low).
- Social impacts including 1) creation of direct and indirect employment opportunities (+ Low), 2) influx of jobseekers and change in population in the study area (- Medium), 3) temporary increase in safety and security concerns associated with the influx of people (- Medium), 4) temporary increase in traffic disruptions and movement patterns

(- Medium), 5) nuisance impact (noise and dust) (- Medium) and 6) increased risk of potential veld fires (- Medium).

#### Operation Phase Impacts:

- Impacts on avifauna including 1) collision with infrastructure, 2) electrocution and 3) mortality.
- Impacts on fauna and flora including 1) continued fragmentation and degradation of natural habitats and ecosystems (- Medium), 2) continuing spread of IAP and weed species (- Medium) and 3).
- Potential for increased stormwater runoff leading to Increased erosion and sedimentation (- Medium) and potential for increased contaminants entering the wetland systems (- Low).
- Loss of Land Capability, soil erosion and compaction effects (- Low).
- Social impacts including 1) creation of employment opportunities and skills development (+ Medium), 2) development of non-polluting, renewable energy infrastructure (+ Medium), 3) contribution to Local Economic Development (LED) and social upliftment (+ High).

#### Decommissioning Phase Impacts:

- Impacts on avifauna including 1) disturbance and displacement of avifauna, 2) loss of avifaunal habitat and 3) mortality due to the operation of machinery on site.
- Potential loss or degradation of nearby wetlands through inappropriate closure (- Low).

From the independent specialist studies undertaken specific preliminary environmental sensitivities have been identified within the Development Area that may need to be avoided by the placement of the development footprint / facility layout. The areas not available for development will be confirmed once the specialist fieldwork and site surveys have been completed and the sensitive areas have been accurately delineated. The two most prominent features in the landscape that need to be considered for the design of the layout is:

- The presence of an Important Bird Area (IBA). The northernmost section of the project overlaps with the Northern Turf Thornveld IBA.
- An existing kraal is located within the development area which may result in attraction of birds to the feature. However, should the kraal be decommissioned and the feature removed the sensitivity from an avifaunal perspective will be reduced to a negligible level of significance. It will only be confirmed during the EIA phase whether the kraal will be decommissioned by the landowner or avoided by the development footprint.

A 100m buffer may be applicable should the landowner indicate that the infrastructure and usage thereof is to remain.

- A ruin with unverified graves is present within the southwestern corner of the development area. This area must be appropriately buffered (30m) and avoided.

The large extent of the Development Area (i.e., 481 ha) results in an opportunity for the avoidance of the sensitive environmental features and areas through the careful placement of the development footprint and infrastructure layout. The Applicant will consider all environmental sensitivities during the EIA Phase and design an appropriate facility layout that is considered to be acceptable, which will be further considered and assessed by the independent specialists during the EIA Phase. The acceptability of the preferred layout for the development will also be confirmed by the relevant independent specialists as part of the EIA Report, and where required further optimisation of the layout will be undertaken accordingly.

Based on the results of the draft Scoping Report, it is confirmed that no fatal flaws are relevant to the proposed development.

Blue Crane Environmental therefore confirms the suitability of the development within the assessed development area subject to the avoidance of the identified sensitive environmental features through the careful placement of the development footprint. The recommendation is therefore that the Scoping Phase (Scoping Report) and Plan of study for the EIA Phase be approved by the DFFE, after which the EIA Phase will commence as required in terms of Regulations 23 to 24 of the EIA Regulations, as amended.

---

## 11. REFERENCES

---

ACTS see SOUTH AFRICA

ANON. nd. Guidelines for Environmental Impact Assessments. <http://redlist.sanbi.org/eiaguidelines.php>

BODEN, T.A., G. MARLAND, and R.J. ANDRES. 2011. Global, Regional, and National Fossil-Fuel CO<sub>2</sub> Emissions. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn., U.S.A.

BOTHA, G. 2023. The Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province: Terrestrial Biodiversity (Fauna and Flora) and Ecological Scoping/Screening Phase Assessment. Nkurenkuru Ecology and Biodiversity.

BOTHA, J. and CLOETE, M. 2023. Social Impact Assessment – The Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province. Donaway Environmental.

BOTHA, J. and CLOETE, M. 2023. Visual Impact Assessment – The Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province. Donaway Environmental.

CONSTITUTION see SOUTH AFRICA. 1996.

DEPARTMENT OF ENERGY (DoE). Integrated Resource Plan 2010-2030

DEPARTMENT OF MINERALS AND ENERGY (DME). 2003. White Paper on Renewable Energy.

ENERGY BLOG. 2015. Energy Blog – Project Database. [Web:] <http://www.energy.org.za/knowledge-tools/project-database?search=projectlookup&task=search> [Date of assess: 28 September 2015].

FIRST SOLAR. 2011. PV Technology comparison.

INTERNATIONAL FINANCE CORPORATION (IFC). 2012. International Finance Corporation's Policy on Environmental and Social Sustainability.

IFC & WORLD BANK GROUP. 2007. Environmental, Health, and Safety General Guidelines.

LANZ, J. 2023. Site Sensitivity Verification and Agricultural Compliance Statement for the Proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province.

MUCINA, L. AND RUTHERFORD, M.C. 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

NATIONAL DEPARTMENT OF AGRICULTURE. 2006. Development and Application of a Land Capability Classification System for South Africa.

NERSA. 2009. South Africa Renewable Energy Feed-in Tariff (REFIT) – Regulatory Guidelines.

SANBI. 2016. Guidelines for Environmental Impact Assessments. [Web:] <http://redlist.sanbi.org/eiaguidelines.php>. Date of access: 26 April 2016.

SMALLIE, J. AND SMITH, D. 2023. Dwaalboom Solar 2 Avifaunal Site Sensitivity Verification Report (SSV). WildSkies Ecological Services (Pty) Ltd.

SOLARGIS. 2011. Global Horizontal Irradiation (GHI). [Web:] <http://solargis.info/doc/71> [Date of access: 7 May 2014].

SOUTH AFRICA (a). 1998. The Conservation of Agricultural Resources Act, No. 85 of 1983. Pretoria: Government Printer.

SOUTH AFRICA. 1996. Constitution of the Republic of South Africa as adopted by the Constitutional Assembly on 8 May 1996 and as amended on 11 October 1996. (B34B-96.) (ISBN: 0-260-20716-7.)

SOUTH AFRICA (a). 1998. The National Environmental Management Act, No. 107 of 1998. Pretoria: Government Printer.

SOUTH AFRICA (b). 1998. The National Water Act, No. 36 of 1998. Pretoria: Government Printer.



SOUTH AFRICA. 1999. The National Heritage Resources Act, No. 25 of 1999. Pretoria: Government Printer.

SOUTH AFRICA. 2004. The National Environment Management: Air Quality Act, No. 39 of 2004. Pretoria: Government Printer.

SOUTH AFRICA (a). 2008. The National Energy Act, No. 34 of 2008. Pretoria: Government Printer.

SOUTH AFRICA (b). 2008. The National Environmental Management: Waste Act, No. 59 of 2008. Pretoria: Government Printer.

SOUTH AFRICA. 2010. Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998. (GNR. 543, 544 and 545. 2010.). Pretoria: Government Printer.

SOUTH AFRICA. Minister in the Presidency: Planning (2009). Medium Term Strategic Framework. – A Framework to guide Governments Programme in the Electoral Mandate Period 2009-2014.

SWINGLER, S. 2006. Statistics on Underground Cable in Transmission networks, Final Report of CIGRE Working Group B1.07.

VAN DER MERWE, D. 2023. Traffic Impact Assessment for the Transportation of Solar Energy Equipment to the Dwaalboom Solar 2 Energy Facility near Northam, Limpopo Province. BVi Consulting Engineers Western Cape (PTY) LTD.

VAN DER WALT, J. 2023. Heritage Impact Assessment for the proposed Dwaalboom Solar 2 Photovoltaic Solar Energy Facility and Associated Infrastructure near Northam, Limpopo Province. Beyond Heritage.

WORLD BANK GROUP. 2006. The Equator Principles.