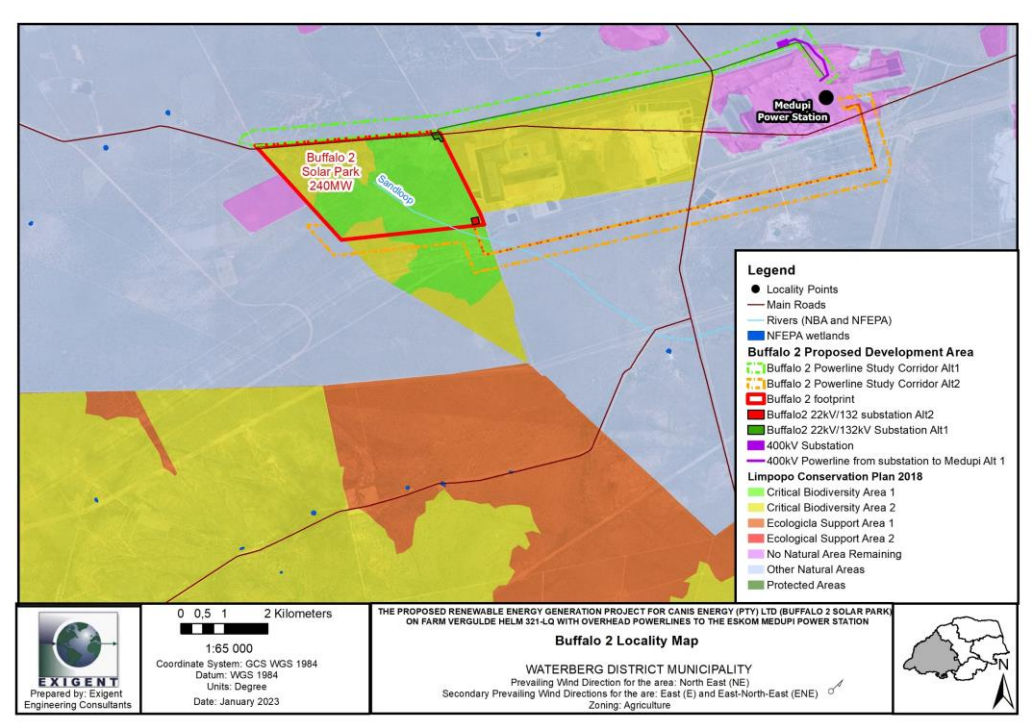
FEBRUARY 2023

FINAL

ENVIRONMENTAL SCOPING REPORT

CANIS ENERGY (PTY) LTD (BUFFALO 2 SOLAR PARK) RENEWABLE ENERGY GENERATION PROJECT ON FARM VERGULDE HELM 321 LQ WITH OVERHEAD POWERLINES TO THE ESKOM MEDUPI SUBSTATION, WITHIN THE LEPHALALE LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY.



Compiled by

Compiled for

CANIS ENERGY (PTY) LTD

EXIGENT

PROJECT INFORMATION

Applicant and project information	
Contact person:	Ernst Jordaan Burger
Physical address:	No 49 14th Street, Menlo Park, Pretoria
Project title	Canis Energy (Pty) Ltd (**Buffalo 2 Solar Park**) Renewable Energy Generation Project Farm Vergulde Helm 321 LQ with Overhead Powerlines to the Eskom Medupi Substation, within the Lephalale Local Municipality, Waterberg District Municipality.
Buffalo 2 Solar Park	
Enterprise name:	Canis Energy (Pty) Ltd.
Business registration number:	2022/367172/07
Details of the Environmental Assessment Practitioner	
Enterprise name:	Exigent Engineering Consultants CC
Contact person:	Jacolette Adam
Contact details:	jacolette@exigent.co.za
Main report contributors and roles:	Jacolette Adam (Reviewer) Salona Reddy (Reviewer) Michelle Boshoff (Reviewer) Brittany Schultz (Mapping) Amanda Masikane (Author)

Project information	
DFFE ref nr:	14/12/16/3/3/2/2290
Local Municipality:	Lephalale Local Municipality
District Municipality	Waterberg District Municipality
Province:	Limpopo
Date of distribution on Final Scoping Report	06 February 2023

ACRONYMS AND ABREVIATIONS

BID	Background Information Document
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CRR	Comments and Response Report
DM	District Municipality
DAFF	Department of Agriculture, Forestry and Fisheries
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water Affairs and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
ESAs	Ecological Support Areas
EXIGENT	Exigent Engineering Consultants
GN	Government Notice
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IWULA	Integrated Water Use License Application
LED	Local Economic Development
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
NBA	National Biodiversity Authority
NBF	National Biodiversity Framework
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEMAQA	National Environmental Management: Air Quality Act
NEMWA	National Environmental Management: Waste Act
NFEPA	National Freshwater Ecosystem Priority Areas
NGOs	Non-Government Organizations
NHRA	National Heritage Resources Act
NWA	National Water Act, Act 36 of 1998
PPP	Public Participation Process
SAHRA	South African Heritage Resource Agency
SANBI	South African National Botanical Institute
TOR	Terms of References

EXECUTIVE SUMMARY

Canis Energy (Pty) Ltd, are proposing the development, construction and operation of a renewable energy generation facilities (Photovoltaic Power Plants) and associated infrastructure, and structures on Farm Vergulde Helm 321 LQ, located within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

This report is part of a project titled "***Carina Energy (Pty) Ltd (Buffalo 1 Solar Park) and Canis Energy (Pty) Ltd (Buffalo 2 Solar Park) Renewable Energy Generation Projects on Farms Buffelsjagt 744-LQ and Farm Vergulde Helm 321 LQ with Overhead Powerlines to the Eskom Medupi Substation, within the Lephalale Local Municipality, Waterberg District Municipality***.". Department of Forestry, Fisheries and Environment has requested a Scoping Report submission for each Solar Park.

The projects envisage the establishment of a solar power plant with a maximum generation capacity at the delivery point (Maximum Export Capacity) of up to 240 MW. The proposed Buffalo 2 Solar Park will deliver the electrical energy to the Medupi Power station through a new power line of approximately 12 km in length. Two 132 kV feeder bays will be commissioned and equipped at the Eskom Medupi substations.

The Scoping Phase is being undertaken in line with the requirements of the National Environmental Management Act Environmental Impact Assessment Regulations of 2014 (GNR 326), as amended. The proposed development requires environmental authorisation in terms of the National Environmental Management Act Regulations 326. The information contained in this Scoping Report provides a comprehensive description of the need and desirability of the proposed solar park development, specifically relating to sustainability in the economic, social and environmental spheres.

An important part of any Scoping Phase is public participation. Stakeholder engagement was initiated from the outset of the project to ensure that all stakeholders were adequately and effectively consulted. The Draft Scoping Report will be made available for public and stakeholder review for a period of 30 days. All comments received and issues raised will be documented and addressed and responded to in the Environmental Impact Assessment Phase and Report.

The Scoping Report also aimed to identify the main impacts associated with the proposed solar park development. The main concerns raised during the public process to date was the effect on the environment, the economy and the social life of the local residents. Limited to no specific concerns were raised other than requests to be notified of proceedings in this regard.

The Scoping Report highlights the need for further investigation which will be conducted as part of the Impact Assessment phase. Various specialist studies will be undertaken and measures for mitigation and management will be identified for inclusion in an Environmental Management Programme.

The Plan of Study for the Environmental Impact Assessment Phase has been included as part of this Scoping Report, indicating the purpose of the Environmental Impact Assessment Phase and providing the framework for the next phase in the authorisation process. The Plan of Study includes the Terms of References for the proposed specialist studies, a description of the risk rating methodology to be used and details of the overall deliverables of the Environmental Impact Assessment process.

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1 INTRODUCTION

Canis Energy (Pty) Ltd (2022/367172/07) is proposing the development, construction and operation of a renewable energy generation facilities (Photovoltaic Power Plants) and associated infrastructure, and structures on **Farm Vergulde Helm 321 LQ** located within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The competent authority (CA) responsible for considering of this proposal is the National Department of Forestry, Fisheries and Environment (DFFE). The application is undertaken in terms of EIA Regulations published in terms of Government Notice No. R. 362 of 7 April 2017 under Section 24(5), and 44 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended, the intent to carry out the Environmental Impact Assessment Process (in terms of Listing Notice 1 – GN R324, Listing Notice 2 – GN R325 and Listing Notice 3 – GN R327) for various listed activities.

This Scoping Report has been compiled in accordance with the requirements of NEMA, in particular, GNR 326, published on 7 April 2017, which outlines the requirements of Scoping for purposes of an EIA undertaken to apply for environmental authorisation for activities listed in Government Notice Regulation 324, 325 and 327. Appendix 2 of GNR 326 promulgated in terms of NEMA, Act 107 of 1998 stipulates the minimum requirements and issues that need to be addressed in a scoping report. This scoping report strives to address all these requirements as per regulations. Table 1-1 indicates the regulations that have been addressed and the section of the scoping report where these requirements can be found.

Table 1-1 Requirements of Appendix 2 (2) of GNR 326, as amended

GNR 326 APPENDIX 2	DESCRIPTION OF REGULATION	SECTION	PAGE
2 (a)	Details and expertise of the EAP	1.1	11
2 (d)	Description of the proposed activity	3	17
2 (h)	Description of alternatives	7	58
2 (b)	Description of the property and location of the activity on the property	2	11
1 (e)	Description of the affected environment	6	51
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2(h) and (i) to (vii)	Details of the Public Participation Process	9	74
2 (f)	Need and desirability of the proposed activity	8	62
2 (h)(vii)	Identification, advantages and disadvantages of proposed activity.	8	62
2(h) (i)	Plan of Study for the EIA		81
2 (l)	Required information by the Competent Authority.	N/A	N/A
2 (m)	Any other matters required in terms of sections 24(4)(a) and (b) of the Act.	N/A	N/A

1.1 Environmental Assessment Practitioner

Exigent was established in 1998 providing multidisciplinary engineering and environmental services. The Exigent Environmental Business Unit provides sustainable answers within an environmental developmental framework. Our foundations are built upon ecological principles with wide ranging expertise in environmental management and assessment processes. The qualifications and experience of the primary assessors and report compilers are listed in Table 1-2

Table 1-2. Environmental Assessment Practitioner details

EAP	QUALIFICATION	EXPERIENCE
Ms Jacolette Adam	MSc, LLM (Environmental Law)	22 years of professional experience in the environmental sector and has been a certified Professional Natural Scientist since 2002 (400088/02) and a registered Environmental Assessment Practitioner (EAPASA). She has successfully completed numerous environmental assessments throughout South Africa for a wide range of clients.

2 PROJECT LOCATION

Buffalo 2 Solar Park: on Farm Vergulde Helm 321 LQ (The Project Site), With Overhead Powerlines up to the Eskom Medupi Substation, potentially crossing Farms Naauw Ontkomen 509 – LQ, Turfvlakte 463 – LQ, Hieromtrent 460 – LQ, Remaining Extent Of The Farm Vaalpensloop 313 – LQ, Portion 1 Of The Farm Vaalpensloop 313 – LQ, Vergulde Helm 321 – LQ, Buffelsjagt 744 – LQ, Remaining Extent Of The Farm Kuipersbult 511 – LQ, Portion 1 Of The Farm Kuipersbult 511 – LQ, Kromdraai 690 – LQ, Hooikraal 315 – LQ, located in the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province. The site is located within the Quaternary Degree Grid Cell (QDGC) 2327CB and 2327DA.

Figure 2-1. Photos of the study area

The chosen site (Figure 2.1) IS suitable for the installation of a photovoltaic (PV) power plant. They are appropriate morphologically (flat terrain) and regarding the favourable radiation conditions. The available radiation allows a high rate of electric energy production. The proposed developments will have footprints up to **600 ha**.(Table 2.1 & Figure 2.2)

Table 2-1 The extent and centre point coordinates of the proposed development site.

PORTION		GEOGRAPHICAL COORDINATES		EXTENT (HA)
		LATITUDE	LONGITUDE	
FARM VERGULDE HELM 321 LQ	BUFFALO 2 SOLAR PARK	23° 43' 14" S	27° 29' 10" E	600

The 21-digit surveyor general code of the cadastral land parcels are:

BUFFALO 2 SOLAR PARK DEVELOPMENT SITE:

T	0	L	Q	0	0	0	0	0	0	0	0	0	3	2	1	0	0	0	0	0

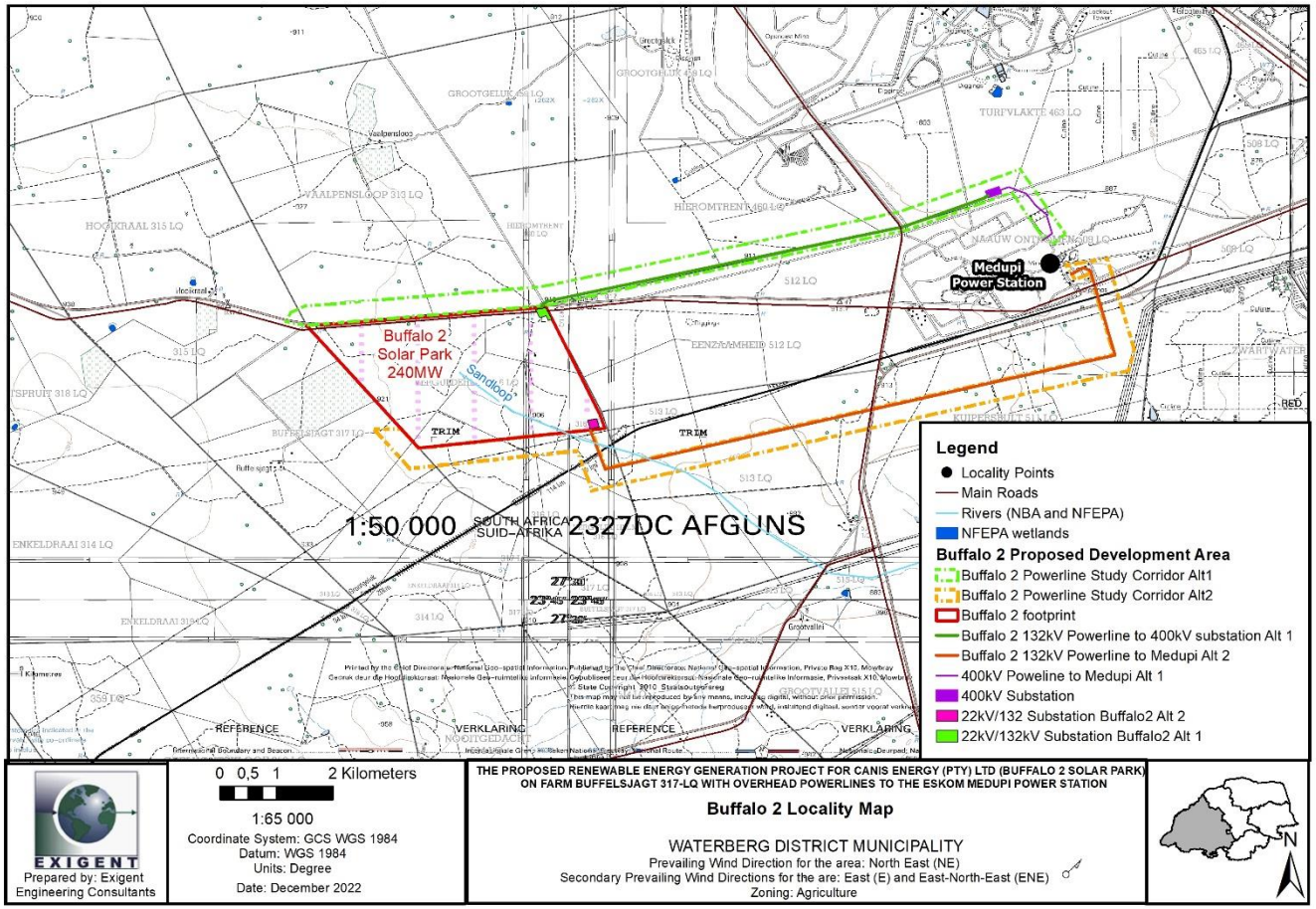

Figure 2-2 Locality map of the proposed development

2.1 Historical land use

Historically the site was used for agricultural practises. Based on the available Google Earth imagery, there has been limited changes in the land use of the study site itself, since 1985.

2.2 Land use

Farm Vergulde Helm 321 LQ (600 ha), is used as agricultural unit mostly for grazing purposes and the land use status is "Agriculture". The new rights as approved by the Lephalale Municipality would however permit the use of the existing farm portion for a Renewable Energy Generation Project (PV Solar Plant).

The proposed solar park development will not permanently affect the agricultural or grazing value of the site as the re-growth of grass will take place under the panels as the mounting systems are at least 1m above ground level. The renewable energy facility is expected to have a lifespan of approximately 30 to 40 years and the power plant infrastructure would be decommissioned once it has reached the end of its economic life: all structures will be removed, and the land will return to agricultural land. This will enable natural re-growth of indigenous vegetation and fauna re-population as well as the reuse of the area for agricultural and grazing purposes.

2.3 Surrounding areas

The Buffalo 2 Solar Park are located in close proximity to the ESKOM Medupi Power Station (Figure 2.3).

The Buffalo 2 Solar Park property is located west of the Medupi Power station in an area that is already affected by various electrical overhead power lines. On the northeast of the site there is Grootegeluk Coal mine. The surrounding land uses and zonings are indicated in Table 2.2 & Figure 2.4 below:

Table 2.2 Surrounding Land Use and Zoning

Direction	Land Use	Zoning
North	Vacant land	Agriculture
South	Vacant land	Agriculture
East	ESKOM Sub-station Power plant	Agriculture
West	Vacant	Agriculture

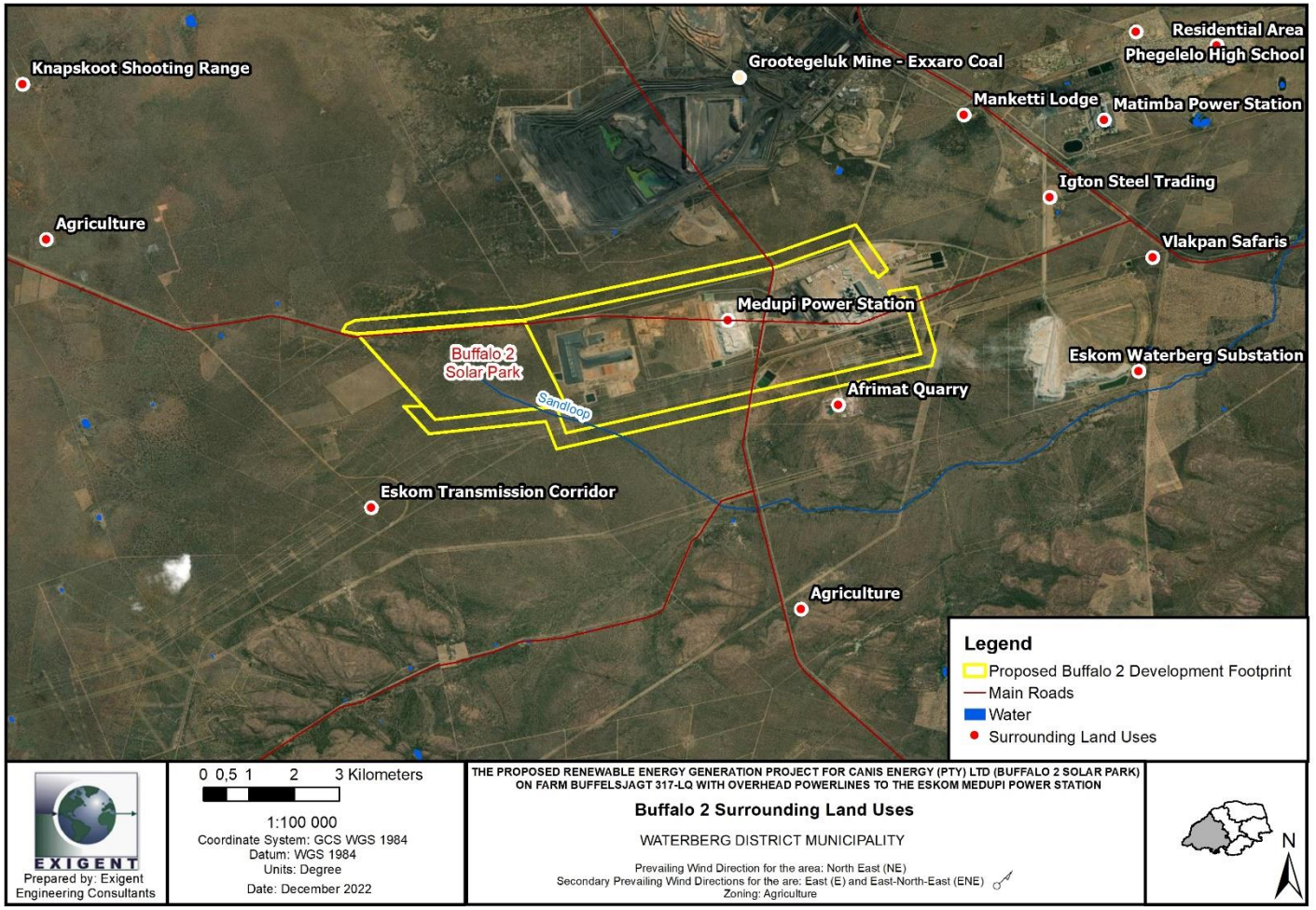

Figure 2-3. Surrounding Land use map.

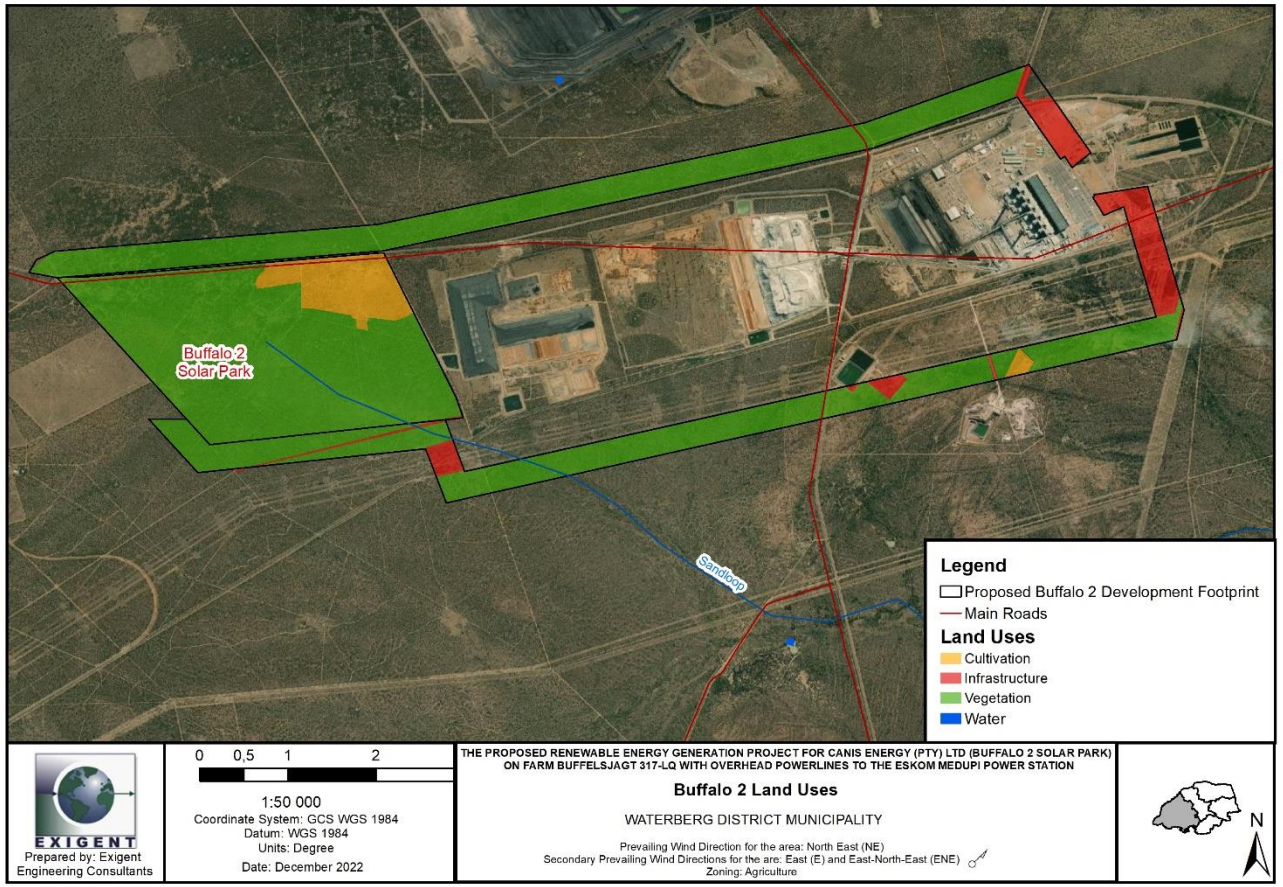

Figure 2.4. Current Land use map.

3 PROJECT DESCRIPTION

3.1 Technical data spreadsheet

Table 3-1.1: Technical Data Spreadsheet

Component	Descriptions/dimensions
Output capacity of the PVPP	240 MW
Height of PV panels	Up to 4.5 m
Area of the PV Array	Total area of the PV Array: 174.71 ha (considering 625,000 PV modules of 2.795 m^2 each)
Number of inverters required	Each Medium voltage station will be equipped with DC/AC inverters that convert Direct Current (DC) into Alternate Current (AC) at a low voltage (typically 600 V). There will be 100 medium voltage stations of 3.0 MW each throughout the proposed development. PV technology is in constant and rapid evolution, this means that the final choice of the type (e.g. central inverters or string inverters) and model of inverter can be taken at the time of the commission date, on the basis of the availability of inverters of the worldwide market and of the cost-efficiency curve. In any case, the total installed capacity of the inverters (AC side) will be up to 300 MWac.
Area occupied by inverter/transformer stations/substations	There will be 100 medium voltage stations throughout the proposed development. Each will have an area of approximately 30 m^2. Therefore, the combined area of the medium voltage stations will be 3000 m^2.
Control rooms	The substation will be equipped with 2 control rooms. The control rooms will have a length of 30 m and a width of 11 m. Therefore, each of the control room will have an area of 330 m^2.
Workshops/Warehouses	Two warehouses / workshops will be constructed within close proximity to the on-site substation and switching station. The three warehouses will have an area of approximately 300 m^2 each: 900 m^2 in total.
Capacity of on-site substations	The **on-site 22kV/132kV step-up substation and 132kV switching station** will host two 250 MVA 22kV/132kV transformers (one as spare). **Should the connection solution proposed by Eskom be at 400kV, additional infrastructure is required - outside the project footprint:** **For Buffalo 2 Solar Park:** • one 132kV/400kV step-up substation with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), **to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1).**
Area occupied by both permanent and construction laydown areas	Project footprint / fenced area is up to approximately **600 ha** per project. Surface area (within the project footprint) will be covered by PV modules, internal roads, MV stations, HV substation and switching station, control buildings, warehouses and Battery Energy Storage System (BESS). The construction camp (temporary) will be up to 20 ha in extent and will correspond to the area used for BESS.
Areas occupied by buildings	Medium-voltage stations occupy a footprint up to 3,000 m^2. On-site substation and switching station occupy a footprint of approx. 11,250 m^2. This area includes the control buildings. Workshop & Warehouse occupy a footprint of approx. 300 m^2 each. In total, 3 warehouses are foreseen. Therefore, the total area occupied by buildings (MV stations, HV substation, Workshop & Warehouse) amounts to approx. 15,150 m^2 (1.5 ha). The Battery Energy Storage Systems (BESS) will be located in the area where the camp site will be for the purpose of the construction phase. This area will be approximately 20

Component	Descriptions/dimensions
	ha in size. **Should the connection solution proposed by Eskom be at 400kV, additional infrastructure is required - outside the project footprint:** **For Buffalo 2 Solar Park:** one 132kV/400kV step-up substation and switching station, **to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS),** with a footprint of approx. 22,500 m^2. **(Connection Alternative 1)**
Length of internal roads	Approximately 40,000 m
Width of internal roads	Up to 8.0 m, with a road reserve up to 13.5 m
Access roads	The project footprints / development areas will have direct access from the **District Road Road D1675 towards Steenbokpan.**
Proximity to the grid connections	• One 132 kV power line (double circuit), approximately **9.8 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the **Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2).** **Should the connection solution proposed by Eskom be at 400kV, additional infrastructure is required:** **Buffalo 2 Solar Park:** • One 132kV/400kV step-up substation with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) **(Connection Alternative 1).** • One 400 kV power line, approximately **1.3 km long**, connecting the on-site 400kV switching station to the 400 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) **(Connection Alternative 1).**
Height of fencing	3.0 m
Type of fencing	Wire mesh fencing with video-surveillance system.
Height of overhead powerlines	132kV: up to 25 m above the ground level 400 kV (if required): up to 45 m above the ground level
Length and width of servitude of 132kV powerlines	One 132 kV power line (double circuit), approximately **9.8 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the **Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2).** **Should the connection solution proposed by Eskom be at 400kV:** • **For Buffalo 2 Solar Park:** one 132 kV power line (double circuit), approximately **6.6 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the 132kV/400kV step-up substation and 400kV switching station to be built in proximity of the **Eskom Medupi Main Transmission Substation (Connection Alternative 1).** Servitude width: **36 m** (18 m from each side of the center line).
Length and width of servitude of 400kV powerlines	**Should the connection solution proposed by Eskom be at 400kV, additional infrastructure is required:** **For Buffalo 2 Solar Park:** One 400 kV power line, approximately **1.3 km long**, connecting the on-site 400kV switching station to the 400 kV busbar of the **Eskom Medupi Main Transmission Substation (Connection Alternative 1).** Servitude width: **55 m** (27.5 m from each side of the center line)
On-site substation and switching station	For each project, one on-site 22kV/132kV step-up substation and 132kV switching station is required, having a footprint of 11,250 m^2 each.
400kV Substation dimensions	**Should the connection solution proposed by Eskom be at 400kV, additional infrastructure is required - outside the project footprint:** **For Buffalo 1 and 2:** one 132kV/400kV step-up substation and switching station, **to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS),** with a footprint of approx. 22,500 m^2 **(Connection Alternative 1).**

Component	Descriptions/dimensions
Battery Energy Storage Facility	BESS with a Maximum Export Capacity up to 240 MW each and a 6-hour storage capacity up to 1440 MWh, with a footprint up to 20 ha within the proposed PV plant footprint / fenced area

3.2 Primary components of the proposed development

The proposed development (the Photovoltaic (PV) Power Plants and its connection infrastructure) consists of the installation of the following equipment:

- Photovoltaic modules (mono-crystalline, poly-crystalline, mono or bi-facial modules)
- Mounting systems for the PV arrays (single-axis horizontal trackers or fixed structures) and related foundations
- Internal cabling and string boxes
- Medium voltage stations, hosting DC/AC inverters and LV/MV power transformers
- Medium voltage receiving station(s)
- Workshops & warehouses
- Two **on-site 22kV/132kV step-up substations (one per project)** with high-voltage power transformers, stepping up the voltage from 22kV (or 33kV) to 132kV, and one 132kV busbar with metering and protection devices (switching station)
- **Buffalo 2 Solar Park:** one **132 kV power line (double circuit), approximately 9.8 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2)
- **Should the connection solution proposed by Eskom be at 400kV** (Connection Alternative 1):
    - **Buffalo 2 Solar Park: one 132 kV power line (double circuit), approximately 6.6 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the 132kV/400kV step-up substation and 400kV switching station to be built in proximity of the Eskom Medupi Main Transmission Substation (Connection Alternative 1)
    - **Buffalo 2 Solar Park:** one **132kV/400kV step-up substation** with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)
    - **Buffalo 2 Solar Park:** One **400 kV power line, approximately 1.3 km long,** connecting the on-site 400kV switching station to the 400 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)
- An **extension of the 132kV and/or 400kV busbar of the Eskom substation(s)** may be required
- **Battery Energy Storage System (BESS) (one per project),** with a Maximum Export Capacity up to 240 MW each and a 6-hour storage capacity up to 1440 MWh, with a footprint up to 20 ha within the proposed PV plant footprint / fenced area
- Electrical system and UPS (Uninterruptible Power Supply) devices
- Lighting system

- Grounding system
- Internal roads
- Fencing of the site and alarm and video-surveillance system
- Water access point, water supply pipelines, water treatment facilities
- Sewage system

During the construction phase, the site may be provided with additional:

- Water access point, water supply pipelines, water treatment facilities
- Pre-fabricated buildings
- Workshops & warehouses

to be removed at the end of construction.

The connection may also entail interventions on the Eskom grid, according to Eskom's connection requirements/solution.

3.3 Energy generation and avoided production of CO_2

The projects envisages the establishment of a solar power plant with a maximum generation capacity at the delivery point (Maximum Export Capacity) of **up to 240 MW.**

The construction timeframe is estimated to be approximately 24 months.

The preferred technical solutions envisage:

- **mono/polycrystalline PV modules, mono or bi-facial.**
- **fixed mounting systems** or **horizontal 1-axis trackers.**

The estimated annual energy production is calculated in approximately:

- **2050 kWh/kWp/year** (load factor = 0.234), in the case of PV modules mounted on fixed mounting systems; or
- **2400 kWh/kWp/year** (load factor = 0.274) in the case of bi-facial PV modules mounted on trackers.

Therefore, each of the two Solar Parks will generate:

- **768.7 GWh per year** in the case of PV modules mounted on fixed mounting systems; or
- **900.0 GWh per year** in the case of PV modules mounted on trackers.

The Global Horizontal Irradiation of the site is 2070 kWh/m^2/year (source: https://solargis.info/imaps/).

The energy generated by the Solar Park will reduce the quantity of pollutants and greenhouse gases emitted into the atmosphere. The reduced amount of CO_2 will be the emissions that would have been generated by a thermal power plant using fossil fuels for producing the same quantity of energy that it is produced by the Solar Parks.

The quantity of the avoided CO_2 is calculated as follows: the energy produced by each Solar Park (up to 768.7 GWh/y or 900.0 GWh/y) is multiplied by the Eskom's average emission factor which is 1.015 t CO^2/MWh (source: Energy Research Centre, University of Cape Town. (2009 Carbon accounting for South Africa).

This means that, in the case of a Solar Park, the avoided CO_2 emissions are approximately 757,389 tons of CO_2 per year in the case of PV modules mounted on fixed mounting systems, or 886,700 tons of CO_2 per year in the case of PV modules mounted on trackers.

Considering that 1 kg of coal generates approximately 3.7 kWh (supposing a caloric value of 8000 kcal/kg and a coal plant efficiency of 40%), the coal saved by each Solar Park will be approximately 207,770 tons of coal / year in the case of PV modules mounted on fixed mounting systems, or 243,243 tons of coal / year in the case of PV modules mounted on trackers.

The detailed description of the characteristic and functioning of the PV plants and its connection is given in the following paragraphs.

3.4 Detailed descriptions of the project components

PV technology (Project functioning)
Solar energy facilities using PV technology convert sun energy to generate electricity through a process known as the Photovoltaic Effect, which consists of the generation of electrons by photons of sunlight in order to create electrical energy.

The preferred technical solutions are:

- Mono / bi-facial mono / polycrystalline modules, mounted on:
- fixed mounting systems or mounted on horizontal 1-axis trackers,

which at present represent the best performing options in terms of reliability and costs/efficiency.

The PV technology is in constant and rapid evolution, this means that the final choice of the type of solar modules (mono-crystalline or polycrystalline, mono or bi-facial) and mounting system (fixed or tracker) can be taken at the time of the commission date, on the basis of the availability of PV modules and mounting systems, of the worldwide market and of the cost-efficiency curve.

The required footprint - corresponding on the fenced area - will not exceed 600 ha, and the maximum height of the structures (PV modules and support frames) will be approximately 4.5 m above the ground level. Therefore. the impacts and mitigation measures will not change.

PV modules will be assembled on zinced steel or aluminium frames, to form PV arrays. The metal frames that sustain PV arrays are set to the ground by fixed support poles.

A. <u>In the case of PV modules mounted on fixed mounting systems</u>

Each mounting frame will host several PV modules along two or more parallel rows consisting of PV modules placed side by side, with the position of the PV arrays northwards and at an optimized tilt. The rows are mounted one on top of the other, with an overall mounting structure height up to 4.5 meters above ground level. Please see Plate 3.1 & 3.2.

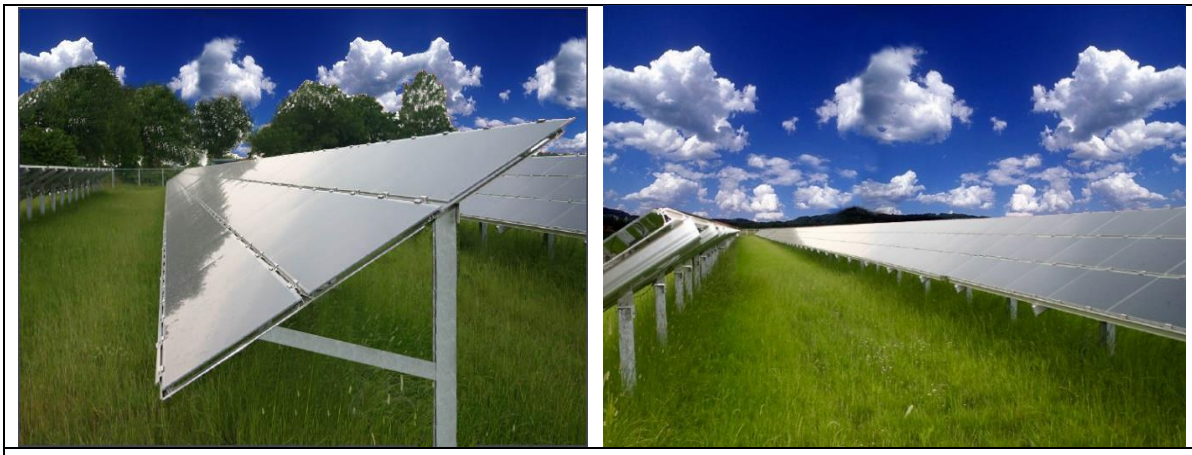

Plate 3-1: Lateral views of PV arrays mounted on fixed mounting systems

Plate 3-2: Frontal view of PV arrays mounted on fixed mounting systems

B. <u>In the case of PV modules mounted on trackers:</u>

Each PV array is composed of several PV modules disposed along one or more parallel rows consisting of PV modules placed side by side. Each tracker is composed by several PV arrays North-South oriented and linked by a horizontal axis, driven by a motor. The horizontal axis allows the rotation of the PV arrays toward the West and East direction, in order to follow the daily sun path. The maximum mounting structure height will be up to 4.5 meters above ground level. Please see Plate 3.3 & 3.4.

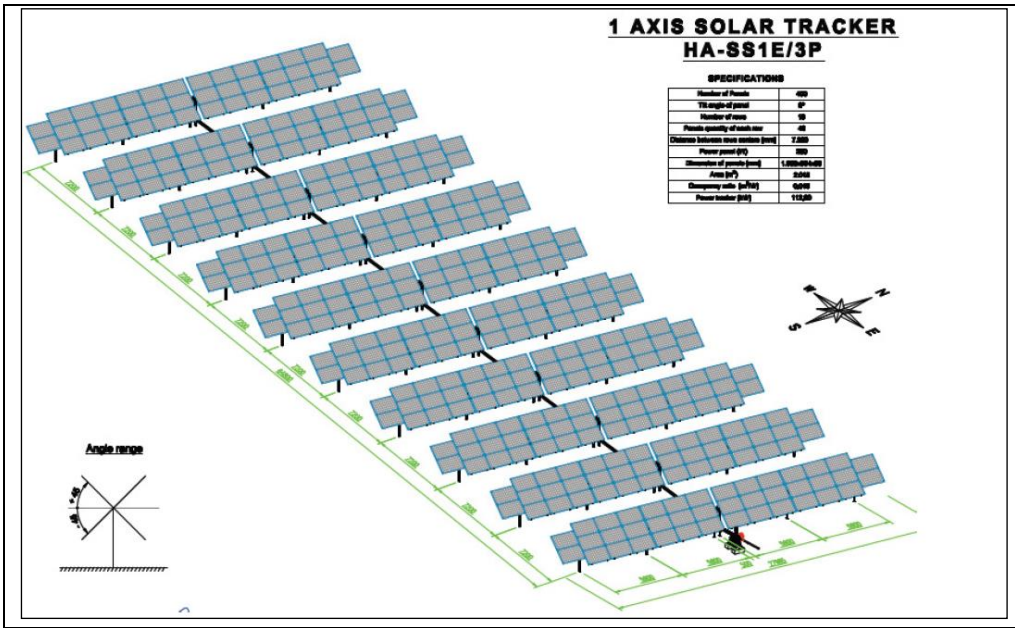

Plate 3-3: Simulation views of the PV arrays mounted on 1-axis horizontal tracker

Plate 3-4: Frontal views of the PV arrays mounted on horizontal 1-axis tracker

C. <u>In both cases (where both alternatives are used)</u>

PV modules are series-connected outlining PV strings made of several modules, so that the PV string voltage fits into the voltage range of the inverters. PV strings are set up in order to be connected to DC-connection boxes. Each String Box allows the parallel connection of several PV strings (also called "PV sub-field").

String Boxes monitor the currents in photovoltaic modules and can promptly diagnose faults. String boxes are also designed with a circuit breaker in order to disconnect the photovoltaic sub-fields from the inverters.

The PV sub-fields are thought to be linked to central inverters, located in medium voltage stations. Each station comprises prefabricate buildings designed to host DC/AC inverters and a medium voltage power transformer. The DC/AC inverters are deemed to convert direct current (DC) into alternate current (AC) at low voltage (typically 600 V); subsequently the AC will pass through a medium-voltage transformer in order to increase the voltage up to 22 kV (or 33 kV).

The energy delivered from the medium voltage stations will be collected into one (or more) medium voltage receiving station(s), parallel connecting all the PV fields of the PV generator.

From the medium voltage receiving station, the energy will be delivered to one step-up transformer of 250 MVA (plus one as spare), which will step up the electric energy from the medium voltage level (22 kV or 33 kV) to 132 kV. The power transformers will be connected to an on-site 132 kV busbar (the so called "switching station"), to be equipped with protection and metering devices.
The new on-site 33kV/132kV substation and 132kV switching station will need to be equipped with circuit breakers upstream and downstream, in order to disconnect the PV power plant and/or the power line in case of failure or grid problems.

3.4.1 Powerlines and infrastructure for the connection to the Eskom Grid

For **Buffalo 2 Solar Park**, two Connection Alternatives have been proposed:

a) **Connection Alternative 1**: to the **400 kV busbar** of the **Eskom Medupi Main Transmission Substation (MTS)**, via the **Powerline Corridor 1**, **12 km long**.

In this case, the following connection infrastructure is required:

- **For Buffalo 2 Solar Park: one 132 kV power line (double circuit), approximately 6.6 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the 132kV/400kV step-up substation and 400kV switching station to be built in proximity of the Eskom Medupi Main Transmission Substation (Connection Alternative 1)
- **For Buffalo 2 Solar Park: one 132kV/400kV step-up substation** with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)
- **For Buffalo 2 Solar Park: one 400 kV power line, approximately 1.3 km long,** connecting the on-site 400kV switching station to the 400 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)

b) **Connection Alternative 2**: to the **132 kV busbar** of the **Eskom Medupi Main Transmission Substation (MTS)**, via the **Powerline Corridor 2**, **14 km long**.
In this case, the following connection infrastructure is required:

- **For Buffalo 2 Solar Park: one 132 kV power line (double circuit), approximately 9.8 km long** (depending on the selected powerline corridor, alternative 1 or 2), connecting the on-site 132kV switching station to the 132 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2)

Please find below a Table 3-2 summarizing the **Connection Alternatives for Buffalo 2 Solar Park**:

Table 3-2. Connection Alternatives for Buffalo 2 Solar Park.

Alternative connection solutions	Buffalo 2 Solar Park
Alternative 1 Powerline Corridor	12 km
Connection Alternative 1	Eskom Medupi substation @ 400Kv
132 kV Powerline (double circuit)	6.6 km
400kV substation / switching station	1 in common, next to Eskom Medupi substation
400 kV Powerline	1 in common, 1.3 km long
Alternative 2 Powerline Corridor	13 km
Connection Alternative 2	Eskom Medupi substation @ 132kV
132 kV Powerline (double circuit)	9.8 km
400kV substation / switching station	NA
400 kV Powerline	NA

3.4.2 Battery Energy Storage Systems (BESS)

A Battery Energy Storage System (BESS) (one per project) with an output capacity up to 240 MW and a storage capacity up to 1440 MWh (6-hour storage) will be installed next to the on-site step-up substation and switching station, within the footprint and fenced area of the Solar Park.

Lithium-ion batteries will store energy at times of low energy demand and release the energy to the grid at times of pick demand. The battery energy storage system can also provide other grid services (if required by Eskom) aimed to improve grid stability and power quality, by turning on and off in fractions of a second, such as “Fast Frequency Response” (FFR).

Each Battery Storage Facility (one per project) will have a footprint of **up to 20 hectares** and will comprise of the following equipment:

- Up to 288 containers (each up to 40 m^2), each with a storage capacity of up to 5 MWh and on a concrete platform. These will house the batteries, management system and auxiliaries.
- Up to 120 transformer stations (up to 35 m^2 each).
- Up to an additional 10 m^2 per container for cooling units.
- Internal access roads up to 8.0 m wide between rows of containers.
- BESS will be connected:
  - to the PV plant by means of DC/DC inverters, and

- to the 22 kV (or 33 kV) bus-bay of the on-site step-up substation by means of kiosk transformers, medium-voltage overhead lines and/or underground cables;
- Temporary infrastructure including a site camp and a laydown area.

The batteries to be installed in the containers will be of the Lithium-ion type and the battery cells will be pre-assembled at the supplier factory prior to delivery to the site. NO electrolytes will be transported to and handled on site.

The Battery System (Plate 3-5) shall be able to store electrical energy and charge and discharge electrical energy when connected to a Power Conversion Unit (PCU), which performs the current conversion from LV DC to MV AC (and vice versa). The battery is commonly connected at AC MV level to the Renewable Power Plant for HV conversion and grid interconnection.

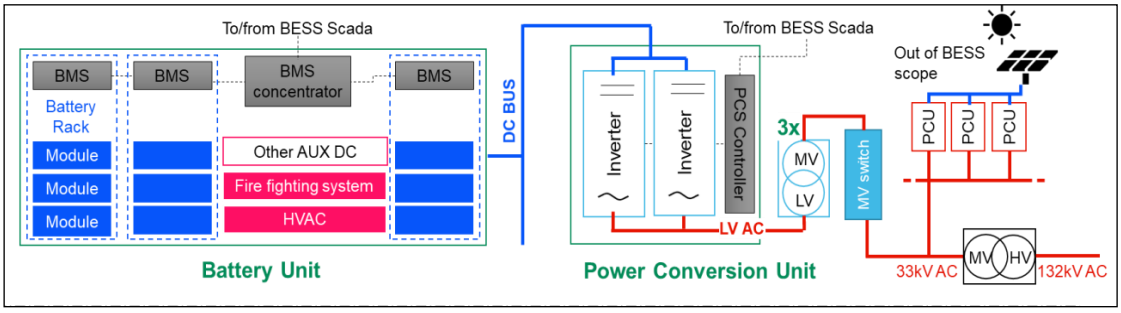

Plate 3-5: Battery Energy Storage Systems (BESS)

Battery Storage in combination to solar power plants is capable to provide multiple services to the plant and to the power transmission network adding flexibility to the system. Possible applications include amongst others: renewable generation time shifting, unbalancing reduction, curtailment avoidance, frequency regulation, voltage support, spinning reserve.

3.4.3 Access road and internal roads

During construction and operation, access and internal roads will be up to 8 m wide with a road reserve up to 13.5 m. Internal roads will consist of gravel roads designed in accordance with engineering standards. The roads will have a width up to 8.0 meters allowing for the slow-moving heavy vehicles. Once the solar farm is in operation, the internal roads will mainly be used for maintenance and inspections. The vertical alignment of the roads will not present significant challenges due to the flatness

of the terrain. The entire development will be contained inside a fenced area and the roads are not intended for public use.

3.4.4 Lighting system

The lighting system will consist of the following equipment (per project):

- Floodlight-towers: maximum 10 meters high, with directional lamps (LED type) of 120 W, installed around the HV loop-in loop-out substation. Normal lighting: 15 lux; up to 40 lux in case of emergency.
- Street lighting along internal roads, for the stretch from the access point up to the HV substation inside the property: 1 streetlamp, maximum 5.5 meters high, every 20 meters, having a LED lamp of 120 W.
- 2x120 W spotlights (LED type) mounted on the top of medium-voltage stations.

The lighting of the MV stations and of the on-site HV substation will be on only in case of intrusion/emergency or necessity to reach the MV stations / HV substation during the night.
During the night, the video-surveillance system will use infra-red (or micro-wave) video-cameras, which do not need a lighting system (which could reduce the functioning).

3.4.5 Water requirements

Water consumption during the construction phase

This section describes the water requirements of the during the **construction phase** (per project). The overall and average water consumption during construction is detailed in Table 3-3.

Table 3-3. Water consumption during the construction phase of the proposed development.

WATER REQUIREMENT DURING THE CONSTRUCTION PHASE OF THE PROJECT		
DESCRIPTION	**UNIT**	**BUFFALO 2 SOLAR PARK**
Timeframe of the construction activities	*Months*	24
Timeframe of the construction activities - calendar days	*Days*	720
Overall water consumption for internal roads	m^3	9,000
Overall water consumption for sanitary use	m^3	3,960
Overall water consumption for concrete production	m^3	6,000
OVERALL WATER CONSUMPTION	***m^3***	**18,960**
Daily water consumption (average over 720 calendar days)	***m^3/day***	**26.3**

A. Construction of internal gravel roads

- Water is necessary for the construction of internal gravel roads, in order to get the gravel compacted to optimum moisture content (OMC).
- The surface of internal gravel roads will be approximately 150,000 m^2.
- 50 liters of water / m^2 of internal of roads will be required for the proposed project.

- Water consumption for internal roads will be:
  - 180,000 m^2 x 50 l/m^2 = 9,000 m^3.

B. Workers

- Approximately 150 people are expected to be employed during the construction period, although this number can increase to 300 for short spaces of time during peak periods. This number can be higher in the case the Project Company - once being selected as Preferred Bidder by the Department of Mineral Resources and Energy (DMRE) and having finalized the Connection Agreement with Eskom, where in particular it is agreed the envisaged connection timeline - evaluates to build the proposed Solar Park in a timeframe shorter than 24 months (i.e. 528 working days). For example, in the case the construction works are planned to last only 18 months (i.e. 396 working days), the average number of workers required on site during construction is 200.
- Each worker needs 50 liters / 8 working hours for sanitary use.
- Water consumption will be:
    - 150 people x 50 l/person x 528 working days = 3,960 m^3 over 24 months, or
    - 200 people x 50 l/person x 396 working days = 3,960 m^3 over 18 months.

C. Concrete production

- Concrete is necessary for the basements of the medium-voltage stations, the high-voltage substation, the control buildings, the warehouses and the basement of the BESS. The overall amount of concrete to be produced will be approximately 30,000 m^3.
- 200 litres of water are needed for 1 cubic meter of concrete.
- Water consumption will be:
    - 30,000 m^3 x 200 l/m^3 = 6,000 m^3.

D. Vehicle cleaning

As mitigation measure, the cleaning of vehicles like excavators, mechanical diggers and pile rammers will be done once or twice per month and not during working days, also in order to limit the water requirement during the construction activities. In order not to waste a large amount of water, high pressure cleaners will be used. Overall, the water requirement for cleaning activity is very low.

During construction, storage tanks will be sized in order to provide a reserve of water of approximately **200 cubic meters.**

Water consumption during the operational phase

This section describes the water requirements of the during the **operational phase** (per project). During operation, water is only required for the operational team on site (sanitary use), as well as for the cleaning of the solar panels. Further water consumption may be only for routine washing of vehicles and other similar uses. The overall and average water consumption during operation is detailed in Table 3-4.

Table 3-4. Water consumption during the operational phase of the proposed development.

WATER REQUIREMENT DURING THE OPERATIONAL PHASE		
DESCRIPTION	**UNIT**	**BUFFALO 2 SOLAR PARK**
Average daily water consumption for sanitary use	*l/day*	3,750
Average daily water consumption during cleaning activity (over 24 working days, twice per year)	*l/day*	76,667
Average monthly water consumption for sanitary use (over 30 days)	*l/month*	112,500
Annual water consumption for sanitary use	***m³/year***	**1,370**
Annual water consumption for PV modules cleaning activities (twice/year)	***m³/year***	**3,500**
ANNUAL WATER CONSUMPTION DURING OPERATION	***m³/year***	**4,870**
DAILY WATER CONSUMPTION DURING OPERATION (average over 365 day)	***m³/day***	**13.34**

A. A) Water for sanitary use

Approximately 35/40 people will be employed during the operation phase of each PV power plant, which will have a lifetime of 30 to 40 years.
Each Solar Park will be in operation 7 days per week; therefore, personnel will operate in shifts. The surveillance team will be present during daytime, night-time and weekends. The average number of people working on site will be of 17 people daytime and 8 people at night.
The average daily water consumption for sanitary use is estimated to be 150 litres/day/person for 25 people (17 people daytime and 8 people at night). The daily water consumption will be approximately 3750 litres/day (**1,370 m³ per year**).

B. Water consumption to clean the PV modules

The cleaning activities of the solar panels will take place twice per year. It is assumed that up to 1.0 liters per m² of PV panel surface will be needed. Therefore, the amount of water for cleaning is up to 1,750 m³ per cleaning cycle and **3,500 m³ per year**.
PV modules cleaning activity can last less than 1 month. If the cleaning activity lasts approximately 4 weeks (25 working days), the daily water consumption will be approximately 72,917 liters/day, over 24 days.

C. Conclusion

The daily water requirement will be approximately 3,750 liters/day over 12 months for sanitary use (i.e. 112,500 l/month and 1,370 m³/year) in each Solar Park.
The water consumption will increase up to 76,667 liters/day during the cleaning of the solar modules (72,917 liters/day for cleaning activity and 3,750 for sanitary use), which will last less than a month and will occur twice per year during the dry period.

It is further proposed that 90,000 litres of water will be stored in storage tanks for fire, emergency and washing of panels twice a year.

Water needs for the construction phase (**18,960 m³** over approximately 24 months) and the operational phase (**4,870 m³/year**) can be obtained from the Lephalale Local Municipality and/or from on-site boreholes. The Lephalale Local Municipality will be consulted in this respect.

3.4.6 Sewerage

Considering that the proposed development will not include formal residential properties there is no need to connect the municipal sewer reticulation system. Sewer reticulation will be handled by a suitable patented and commercially available wastewater treatment system.

The sewer system will consist of an installation to serve the offices of the control buildings. The system will be installed in line with the requirements of the manufacturer. Typical systems consist of a conservancy tank (built underground on site), and a patented digester. Most systems require electricity to power the pumps and fans used in aeration process, although some systems use wind power (whirlybird). The system could require chlorine tablets available commercially. The effluent from the wastewater treatment system will be suitable for irrigation of lawns, or re-use in the dwellings as water for the flushing of toilets, or for fire-fighting purposes. This could reduce the overall water requirement of the development substantially.

The volume to be treated by the system will be maximum 3,750 litres/day. In this respect, a Water Use License Application will be submitted.

3.4.7 Refuse removal

During the construction phase, solid waste will mainly consist of vegetation material as a result of the clearance of vegetation. Other type of solid waste will include, amongst others, wood from packaging, boxboards, expanded polystyrene and household waste. Vegetation material from clearing activity can be recycled to be re-used as organic fertilizer. Other solid wastes will be recycled as much as possible. Non-recyclable waste will be delivered to the closest legal landfill site.

During the operational phase (30 to 40 years), solid waste will mainly consist of household waste from the operational team. Other type of solid waste will come from the maintenance activity in case of failure of some components.

At the end of the project lifetime, the PV plant will be decommissioned. Silicon of the PV modules and cables (copper and/or aluminium conductor) will be recycled, as well as the aluminium (or zinced steel) frames and piles of the mounting systems.

No refuse will be buried or incinerated on site. Measures to manage waste has been included in the EMPr.

Canis Energy (Pty) Ltd, will enter into an agreement with the Lephalale Municipality for the disposal of refuse at the nearby municipal refuse site.

3.4.8 Stormwater collection system

Given the low rainfall, flat topography and low flow speed of run-off, no formal storm water structures are required as the proposed gravel roads will be developed at ground level so as not to disturb the natural flow of storm water. This means that run-off will not be concentrated, and the existing drainage patterns will be left undisturbed.

There is no visible erosion anywhere and the flood line of the water course crossing the Property will not be affected. The storm water system, where required, will consist of open grass lined channels and nominal concrete culverts.

3.4.9 Temporary Construction Camps

The construction camp (approximately 20 ha) will be located within the planned development area, close to the new on-site substation, at the planned location of the BESS. Consequently, the construction site area will be gradually reduced at the completion of the BESS. The optimal location of the construction site is important during the planning phase in order to minimize impacts on the surrounding environment. The site's location has been dictated by the nature of the works to be undertaken, specialist studies, site restrictions, town planning intended uses and access.

The area identified for the construction site had to meet the following requirements:

- sufficient size;
- proximity to existing roads;
- availability of water and energy;
- low environmental and landscape value;
- sufficient distance from residential areas; and
- proximity to the worksite.

In addition, to ensure environmental compatibility, the following factors have been considered:

- restrictions on land use (landscape, archaeological, natural, hydrological, etc.);
- terrain morphology;
- presence of high environmental value areas (e.g. wetlands); and
- sand & stone supply.

The establishment of the construction site will be divided into four distinct phases. The steps individuated hereinafter do not follow a time sequence, but it should be considered as overlapping and simultaneous events.

Phase I

The area will be fenced to prevent intrusion of animals and to protect against materials theft within the site. A video surveillance system will be provided.

Phase II

During the fencing operation as described in Phase I, the most valuable trees, if any, will be removed and placed temporarily in a safe location for future planting at the end of work. This procedure is required for environmental mitigation. The other low value tree species will be cut and transferred to facilities for wood processing.

Phase III

At completion of the works defined in Phases I and II, the following step will be the site clearing and the construction of the internal roads. The internal road network should ensure a two-way traffic of heavy goods vehicles in order to minimize trips. The road system is planned for a width of 8 meters. Roads will be of dry and compacted materials. The facility will require constant access control, a weigh-house for heavy trucks, removable structures for the storage of yard tools and temporary storage areas. During Phase III, the installation of MV/LV transformers connected to the Eskom grid is also planned, as well as the laying of underground electrical cables.

Phase IV

Temporary storage areas of materials and workshops will be constructed and used for:

- temporary storage of photovoltaic modules (covered with compacted dry material to avoid direct contact with the ground);
- temporary storage for frames and piles of the mounting systems of the PV arrays;
- storage and processing of building material for construction (sand, gravel, concrete batching and mixing plant, steel, etc.);
- drinking water storage for human consumption;
- worker care facilities and site management buildings, prefabricated housing modules for workers who may require accommodation inside the site (it is foreseen that only key personnel should be allowed to stay overnight);
- technical cabins and management offices;
- medical care unit in a prefabricated module, to allow immediate first aid and minor surgical emergency;
- recreation area and canteen (prefabricated modules);
- parking lots for employees (located close to the staff housing), for visiting staff (located close to the offices area), and for trucks and work vehicles during inactivity;
- workshop and storage facilities on the site for contractors;
- electrical network for living units, offices and service structures;
- water supply for living units through polyethylene pipes connected to storage;
- Lilliput or similar sewer treatment system. The treated water will be used to moisten dusty areas and reduce dust gathering due to windy actions;
- solid waste collection area.

Earthworks will be required during the construction of internal roads. The vertical alignment of the roads will not present any significant challenges due to the flatness of the terrain so that no deep cuts or fills will be required. Considering a road pavement thickness of 300 mm and an overall road surface of approx. 180,000 m^2, the amount of cut or fill is estimated to be approx. 54,000 m^3.

Further items of earthworks would be required where temporary storage areas will be prepared for the storage of the photovoltaic modules and other equipment during construction of the solar park. Small earthworks will be required for the installation of the PV modules and of the medium-voltage stations. None of these activities should require earthworks in excess of 500 mm cut or fill.

Only the foundation plate for the high-voltage substations may require earthworks in excess of 500 mm cut or fill. The footprints will be of approximately 11,250 m^2 for the on-site 22kV/132kV substations and 132kV switching stations, and of approximately 22,500 m^2 for the 132kV/400kV substations and 400kV switching stations to be built next to the Eskom substations.

The topsoil stripping will result in temporary spoil heaps which must be spread over the site upon completion of the project. Concrete necessary for the basements of the medium-voltage stations, the medium-voltage receiving stations, the high-voltage substation, the control building and the warehouse will be manufactured using aggregate and sand from commercial sources or will be supplied by a Readymix Company. Gravel necessary for the construction of internal roads may be provided from one borrow pit on site. The material from this borrow pit will only be utilized for work on this particular site only.

3.5 Project phases

3.5.1 Pre-construction phase

The pre-construction phase of the proposed project includes the planning of the project, by considering the best strategic approach for layout and component design, construction and operation of the proposed development. This is done to minimize the risks during the construction phase on the environment.

Based on the environmental impacts, e.g. natural vegetation, potential graves and natural water resources, as well as engineering design considerations and existing servitudes, various alternative layout options were considered.

3.5.2 Construction phase

The Buffalo Solar Park will be located in Lephalale, with the grid connection powerline leading from the proposed PVPP to the existing Eskom Medupi Main Transmission Substation located towards the east of the proposed PVPP project.

The construction phase for the proposed development will be separated into two phases, namely the 1) site preparation phase, and the 2) construction and installation phase.

The construction phase of the proposed development is expected to take 24 months. It is estimated that between 150 and 200 laborers will be employed.

3.5.3 Site preparation phase:

The following preparations will take place:

- PV modules and all steel structures will be transported to the proposed development site.

- The main transformers, graders, drill rigs, 10 m^3 tipper truck, tractors, trailers, water tanker truck, track-loader backhoes (TLBs) and trenching machines will be delivered to site.
- Vegetation clearance will take place.
- The area will be graded and levelled according to the required specifications, using the 20-ton roller.
- Throughout the entirety of the construction phase, water spray (using the water tanker truck) will be used to control excessive dust blow off.
- Internal access roads, as indicated on the layout plans, will be established on site. These access roads will allow for easy vehicular access to each panel system within the proposed development. All roads will be gravel roads with a width of up to 8 m. (Once the proposed PVPPs are operational, the roads will mainly be used for maintenance and inspections.)
- For the purpose of the construction phase of the proposed development, water access point, water supply pipelines, water treatment facilities, pre-fabricated building, workshops and warehouses will be installed during the site preparation phase.

3.5.3.1 Construction and installation phase

- As part of the construction and installation phase, concrete transformer pads for each row of solar panels and a switch panel for connection to the power grid and control sheds will be constructed on site.
- Electrical systems development will take place in conjunction with the installation of the rest of structures on site (such as the sewer wastewater treatment works (WWTW) and all supporting infrastructure). The electrical systems installations will include electrical cabling and trenching (field trenching in and around the site where the units will be installed). These structures connect the solar units, collects the energy from them and then routes the energy to a point within the utility infrastructure system.
- A sewer reticulation system will also be installed on site. This will be done to service the offices of the control building and will be done in accordance with the specifications of the SABS. The systems will consist of an underground conservancy tank and a patented digester. These systems require electricity to power the pumps and fans used as part of the aeration process.
- During the construction phase, solid waste will mainly consist of vegetation material from the clearance of vegetation which will be recycled to be re-used as organic fertilizer. Other type of solid waste will include, amongst others, wood from packaging, boxboards, expanded polystyrene and household waste, which will be recycled as much as possible. Non-recyclable waste will be delivered to the closest permitted landfill site.

Water needs for the construction and operational phases will be obtained from the local municipality. The TLM will be consulted in this respect.

3.6 Management of the solar park during operation

Approximately 35/40 people will be employed during the operation phase of each PV power plant, which will have a lifetime of 30 to 40 years. The proposed Solar Park will be in operation 7 days per week; therefore, personnel will operate according to shifts. The surveillance team will be ensured during day-time, night-time and weekends.

The operational team will be composed by the following figures:

- 1 person as plant manager
- 2 person for administration
- 5 people as technicians / plant operators
- 9 people for electric and generic maintenance
- 18 people as guards

The "fire team" will be composed by the people for generic maintenance, who will attend a comprehensive firefighting training program. After this training programme, the fire team will be able to drive/use/manage properly the fire extinguishers and the fire fighting vehicle, that will be available on the site.

3.7 Powerline servitudes

Please see below the property potentially crossed by the new power lines, within the proposed Powerline Corridors 1 and 2. New servitudes are being negotiated over the following portions:

Buffalo 2 Solar Park Powerline Corridors 1 and 2:

- Farms Naauw Ontkomen 509 – LQ,
- Turfvlakte 463 – LQ,
- Hieromtrent 460 – LQ,
- Remaining Extent of the farm Vaalpensloop 313 – LQ,
- Portion 1 of the farm Vaalpensloop 313 – LQ,
- Vergulde Helm 321 – LQ,
- Buffelsjagt 744 – LQ,
- Remaining Extent of the farm Kuipersbult 511 – LQ,
- Portion 1 of the farm Kuipersbult 511 – LQ,
- Kromdraai 690 – LQ,
- Hooikraal 315 – LQ

3.8 Approved Solar Parks as identified by the DFFE screening tool

As per the site Screening report extracted from the DFFE website, it was indicated that numerous projects were previously approved within close proximity to the proposed development area. Table 3-5 lists the previous Solar PV applications within proximity to the proposed development that has been approved. Figure 3.1 indicates the location of the approved Solar PV farms in relation to the proposed development.

Table 3-5. Previous applications within proximity to the proposed development.

Map reference nr	EIA reference nr	Application Title	Distance from proposed development area
Approved as indicated in the Screening Tool document (Buffalo 2 Solar Park)			
1	12/12/20/2306	Exxaro Photovoltaic Plant	10.7 km
2	12/12/20/2152	Delta Solar Park	5.5 km
	14/12/16/3/3/2/700		

Map reference nr	EIA reference nr	Application Title	Distance from proposed development area
3	14/12/16/3/3/2/444	Vangpan Solar Park	14.3 km
4	14/12/16/3/3/2/300	Lephalale Solar Park	30 km

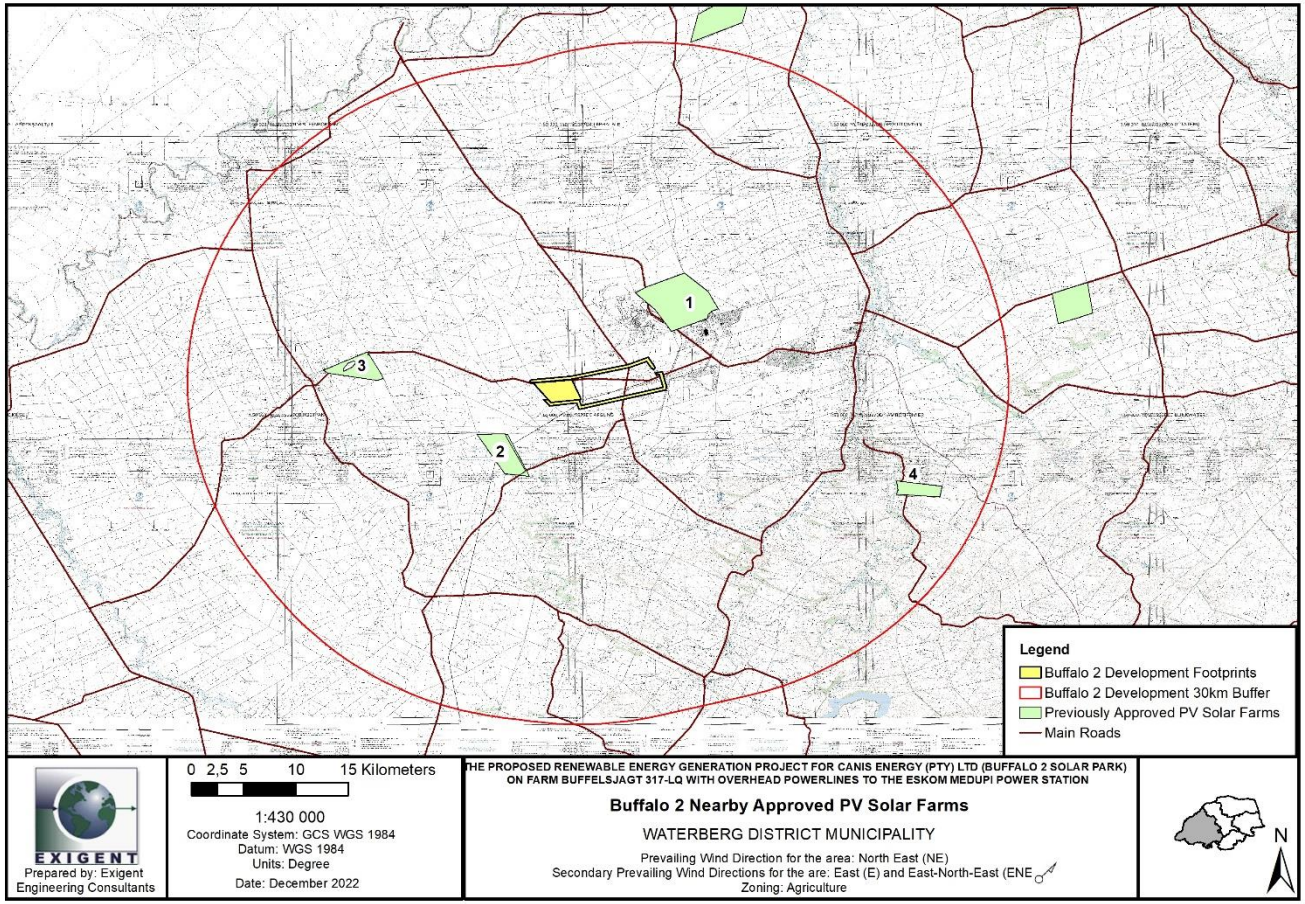

Figure 3.1. Approved Solar PV farms within a 30 km radius of the proposed development.

4 APPROACH TO SCOPING PHASE

4.1 EIA Process and Methodology

An EIA process is a planning and decision-making tool. It identifies potential negative and positive impacts of a proposed project and recommends ways to enhance the positive impacts and mitigate the negative impacts. The EIA will address the impacts associated with the project and provide an assessment of the project in terms of the biophysical, social and economic environments to assist the environmental authority in making decisions regarding authorization of the proposed project. The process is largely comprised of the Environmental Scoping Phase and the EIA phase.

The aim of the Environmental Scoping Phase is to provide information regarding the current environmental, social and possible economic conditions on the site that is being applied for and to provide information regarding the type and extent of the proposed project. Furthermore, the identification of any possible impacts (environmental, social or economic) will take place. This possible impact identification is being done in conjunction with stakeholder and public interest involvement through a Public Participation Process.

The Scoping and EIA process is illustrated in Figure 4.1.

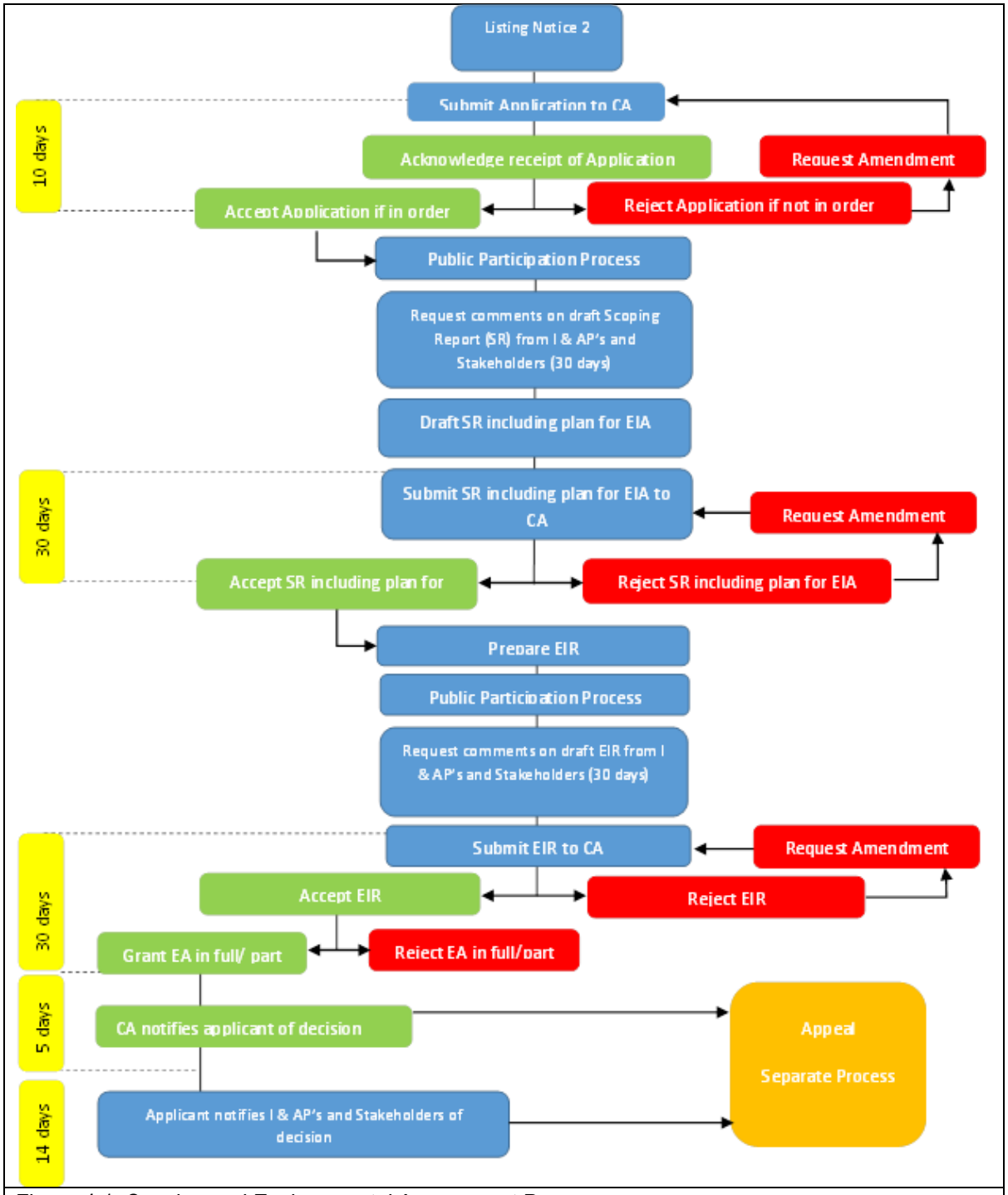

Figure 4.1. Scoping and Environmental Assessment Process

4.2 Application for Authorisation

An Application for an Environmental Authorisation (EA) will be submitted to the National DFFE together with Draft Scoping Report.

4.3 Stakeholder and Public Engagement

The NEMA EIA Regulations of 2014 (Sections 41-44) require an inclusive, transparent process of engagement. Any and all persons who may be affected by and/or have an interest in a proposed project are entitled to be informed and submit comments.

Procedures for informing stakeholders about a project and engaging their participation have become standard practice. The stakeholder consultation process was undertaken in English.

4.3.1 Compilation of Stakeholder Database

The compilation of a stakeholder database entails the development and maintenance of an electronic database for the duration of the project where stakeholders and affected parties can register (Appendix D1). The process begins with an initial scan of national, provincial and local authorities and service providers such as ESKOM and Transnet to identify potential stakeholders.

The identification and registration of stakeholders will be an on-going activity during the Scoping and EIA phases of the project.

4.3.2 Notification

4.3.2.1 Site notices

The NEMA EIA Regulations of 2017 require that a site notice be fixed at a place conspicuous to the public at the boundary of the site where the activity to which the application relates is to be undertaken, and on any alternative sites. The purpose of the site notice is to notify neighbours of the project and to provide details for registration as a stakeholder. Four site notices were placed on each Solar Park. Refer to Appendix D2.4 for a copy of the site notice placed and Appendix E for the photographs of the site notices.

4.3.2.2 Background Information Document (BID)

Notice was given to:

- Owners and occupiers of land adjacent to the site where the activity is to be undertaken via various methods;
- Municipal ward councillor in which the site and alternate site is situated;
- Municipality who has jurisdiction of the area;
- Any organ of state having jurisdiction in respect of any respect of the activity; and
- Any other party as required by the CA.

The purpose of the BID was to provide written background information to parties interested in and/or affected by the proposed development, to afford them the opportunity to register and become involved in the EIA process and to provide information of the EIA process to be followed.

The BID's were distributed to I&AP's through email notification. The Lephalale Local Municipality, Waterberg District Municipality as well as relevant stakeholders such as ESKOM, and DWS received the BID through e-mail. A copy of the BID is included in Appendix D2.

4.3.2.3 Advertisement

An English newspaper advertisement was placed in the Platinum Bushvelder Local Newspaper on 12 August 2022 in the legal section and the erratum was advertised on the 19th August 2022 (Appendix D2.1).

4.3.3 Comments and responses

Following publication of the adverts, placing of the site notices and circulation of the BID, I&AP's were registered on the I&AP list and comments were recorded on the Comments and Responses Report (CRR) (Appendix D4).

4.3.4 Public review of draft Scoping Report

The Scoping Report will be made available to I&APs for 30 calendar days to review it and to respond and provide comments. Following the period of public review, the Draft Scoping Report will be updated, and the Final Scoping Report will be submitted to DFFE. DFFE will consider the Final Scoping Report, where after the Department will indicate whether or not the project may proceed to the EIA Phase.

4.4 Specialist studies

The objective of the Scoping Phase is to identify what information is required to adequately assess the environmental impacts of the project. Thus, this phase is designed to focus subsequent data collection and investigations on issues of concern and importance. A number of specialist studies were identified to obtain adequate information to conduct the assessment on the proposed development. The Terms of Reference for the specialist studies are included in Appendix F.

The following specialist studies will be included in the EIA study:

- Ecological Assessment;
- Avifaunal Assessment;
- Heritage and Palaeontological Impact Assessment;
- Land capability and agricultural Assessment
- Aquatic Biodiversity Assessment
- Geotechnical Assessment;
- Socio-economic Assessment;
- Visual Impact Assessment; and
- Engineering Services Report.

4.5 Alternatives

A requirement of the EIA process is to identify and evaluate feasible alternatives to the project. This could include alternative locations, activities and sources. The alternatives of the project are discussed in detail in Section 7 of the report.

4.6 Identification of potential issues and impacts

Issues were identified as a result of the project team's understanding of the project and previous experience on projects of a similar nature. Potential environmental impacts are addressed in more detail in Section 10.1 of the report.

4.7 Plan of study for EIA

The Plan of Study for EIA lays out the process for and inputs to the detailed impact assessment. The Plan of Study is the final product of the Scoping Phase, because it must ensure that all issues raised during the stakeholder engagement process and technical scoping are captured in the scope of work for the EIA such that they will be addressed, if found significant, in the management plans.

The details of the completion of the EIA process are laid out in the plan of study for EIA in Section 11.

4.8 Submission of scoping report to competent authority

Following the review and commenting period of 30 days, any comments received will be incorporated into this report and responded to. The final version of the Scoping Report will be submitted to DFFE for review. If DFFE is satisfied that the Scoping Report contains all the necessary information, the report will be accepted and the EIA Phase will commence

5 LEGAL FRAMEWORK

5.1 The Constitution and framework environmental legislation

5.1.1 Constitution of the Republic of South Africa Act (No 108 of 1996)

The Constitution of the Republic of South Africa Act places a duty on the State and citizens to protect the environment. Section 24 provides that:

"*Everyone has the right –*

(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.

iii) secure ecologically sustainable development and use of natural resources while promoting

iv) justifiable economic and social development".

5.1.2 National Environmental Management Act (NEMA), Act 107 of 1998

The National Environmental Management Act (NEMA) (Act 107 of 1998) is an all-encompassing act regulating various aspects of natural resource use, integrated environmental management and pollution control. The Act provides for:

- the right to an environment that is not harmful to the health and well-being of the South African people;
- sustainable development, environmental protection, equitable distribution of natural resources; and;
- the formulation of environmental management frameworks.

5.1.3 NEMA listing notices

Environmental regulations were promulgated in terms of NEMA in 2014 to guide environmental management. These regulations include:

- GNR. 326. The Minister of Environmental Affairs, hereby make the regulations pertaining to environmental impact assessments, under sections 24(5) and 44 of the National Environmental Management Act,1998 (Act No.107 of 1998).
- GNR. 327. The purpose of this Notice is to identify activities that would require environmental authorizations prior to commencement of that activity and to identify CAs in terms of section 24(2) and 24(D) of the Act.
- GNR. 325.The purpose of this notice is to identify activities that would require an environmental authorization prior to the commencement of that activity and to identify CAs in terms of sections 24(2) and 24(D) of this Act.
- GNR. 324. The purpose of this notice is to list activities and identify CAs under sections 24(2) and 24(D) of the Act, where environmental authorisation is required prior to commencement of that activity in specific identified geographical area only.

Listed activities from these Regulations which will be triggered by the proposed project are provided in the Table 5-1.

Table 5-1. List of R327, 325 and R324, as amended activities applicable to the proposed solar park development.

RELEVANT GOVERNMENT NOTICE	ACTIVITY	LISTED ACTIVITY	APPLICABILITY TO THE PROJECT
Listing Notice 1: No. R. 327 of 2017			**BUFFALO 2 SOLAR PARK**
Listing Notice 1: No. R. 327 of 2017	11	*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;*	The Buffalo 2 Solar Park will entail the construction and operation of: •an on-site 22kV/132kV step-up substation, equipped with high-voltage power transformers, stepping up the voltage from 22kV (or 33kV) to 132kV, and one 132kV busbar with metering and protection devices (switching station); •one 132 kV power line (double circuit), approximately 9.8 km long, connecting the on-site 132kV switching station to the 132 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2). Should the connection solution proposed by Eskom be at 400kV (Connection Alternative 1): •One 132 kV power line (double circuit), approximately 6.6 km long, connecting the on-site 132kV switching station to the 132 kV busbar of the 132kV/400kV step-up substation and 400kV switching station to be built in proximity of the Eskom Medupi Main Transmission Substation (Connection Alternative 1). The connection may entail the extension of the 132kV busbar of the Eskom Medupi MTS for the establishment of new 132kV bus-bays
Listing Notice 1: No. R. 327 of 2017	12	The development of – (xii) infrastructure or structures with a physical footprint of 100m^2. or more (c) within 32m of a watercourse, measured from the edge of a watercourse	The proposed development plan will intercept wetlands that have been identified as per the National Freshwater Priority Areas (NFEPA) database and as per specialist study. The interception of these watercourses will exceed an area of 100 m^2.
Listing Notice 1: No. R. 327 of 2017	19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres	The proposed development will intercept wetlands that have been identified as per the delineation of the appointed wetland specialist. The interception of these watercourses will exceed a volume of 10 m^3.
Listing Notice 1: No. R. 327 of 2017	24	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres	Multiple internal roads will be constructed for the purpose of servicing the solar parks. Widths of the proposed internal roads are approximately 8 m. During construction phase, access points and some of the internal roads will have a reserve wider than 13.5 m to allow the transportation of abnormal goods (e.g. power transformers, etc.).

RELEVANT GOVERNMENT NOTICE	ACTIVITY	LISTED ACTIVITY	APPLICABILITY TO THE PROJECT
Listing Notice 1: No. R. 327 of 2017	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The footprint of the proposed Buffalo 2 Solar Park will have an extension of approximately 600 ha. During the construction phase, the existing vegetation within the proposed footprint will be cleared.
Listing Notice 2: No. R. 325 of 2017			
Listing Notice 2: No. R. 325 of 2017	1	*The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.*	The Maximum Export Capacity of the proposed Buffalo 2 solar project will be up to 240 MW at the delivery point.
Listing Notice 2: No. R. 325 of 2017	9	Development of facilities or infrastructure for transmission and distribution of electricity with a capacity of 275 kV or more, outside urban areas or industrial complex. excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (c) within an existing transmission line servitude	Should the connection solution proposed by Eskom be at 400kV, the proposed project will require the construction and operation of: • one 132kV/400kV step-up substation with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1); • One 400 kV power line, approximately 1.3 km long, connecting the on-site 400kV switching station to the 400 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1). The connection may entail the extension of the 400V busbar of the Eskom Medupi MTS for the establishment of new 400kV bus-bays.
Listing Notice 2: No. R. 325 of 2017	15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed development will see to the clearance of approximately 600 ha of indigenous vegetation.
Listing Notice 3: No. R. 324 of 2017			
Listing Notice 3: No. 1R. 324 of 2017	4	*The development of a road wider than 4 metres with a reserve less than 13,5 metres.* *e. Limpopo* *i. Outside urban areas:*	In order to provide access to the various sections of the proposed development, the construction of numerous access roads will be required. It is expected that these roads will have a width up to 8 m. During construction phase, access points and some of the internal roads will have a reserve wider than 13.5 m to allow the transportation of abnormal goods (e.g. power transformers, etc.).

RELEVANT GOVERNMENT NOTICE	ACTIVITY	LISTED ACTIVITY	APPLICABILITY TO THE PROJECT
		(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; *(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(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 areas of a biosphere reserve, excluding disturbed areas;*	
Listing Notice 3: No. R. 324 of 2017	12	*The clearance of an area of 300 square metres or more of indigenous vegetation* *e. Limpopo* *ii. Within critical biodiversity areas identified in bioregional plans*	The proposed development will see to the clearance of approximately 600 ha of vegetation and it is a CBA 1 and CBA 2.
	14	*The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs—* *(a) within a watercourse;* *e. Limpopo* *i. Outside urban areas:* *(aa) A protected area identified in terms of NEMPAA, excluding conservancies;* *(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(hh) 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 of a biosphere reserve.*	The proposed development will intercept wetlands that have been identified as per the National Freshwater Priority Areas (NFEPA) database. The interception of these watercourses will exceed an area of 10 m2. The proposed Solar Park is located in a ESA 1, CBA 1 and CBA 2 Buffalo 2 Solar Park is located within Tierkop Private Nature Reserve (that is partially developed through the Medupi Powertation) and approximately 4.5 km from Koedoe Private Nature Reserve

5.2 Other applicable legislation

5.2.1 National Water Act, Act 36 of 1998

The National Water Act ([NWA] Act 36, 1998) identifies consumptive and non-consumptive water uses which must be authorised under a tiered authorisation system. Section 27 of the NWA specifies that the following factors regarding water use authorisation must be taken into consideration:

- The efficient and beneficial use of water in the public interest;
- The socio-economic impact of the decision whether or not to issue a licence;
- Alignment with the catchment management strategy;
- The impact of the water use, resource directed measures; and
- Investments made by the applicant in respect of the water use in question.

Section 21 of the NWA identifies water uses for which a Water use License should be obtained. The applicable Section 21 water uses include:

- Impeding or diverting the flow of water in a water course;
- Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- Disposing of waste in a manner which may detrimentally impact on a water resource;
- Altering the bed, banks, course or characteristics of a watercourse;

Authorisation of these water uses will form part of a separate process to the DWS.

5.2.2 National Heritage Resources Act, Act 25 of 1999

In terms of Section 38 of the Heritage Resources Act (Act No 25 of 1999), a Heritage Impact Assessment has to be undertaken for the following developments:

- Any development or other activity which will change the character of a site
  - Exceeding 5 000 m^2 in extent; or
  - Involving three or more existing even or subdivisions thereof; or
  - Involving three or more even or divisions thereof which have been consolidated within the past five years; or
  - The costs of which will exceed a sum set in terms of regulations by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority;
- The re-zoning of a site exceeding 10 000 m^2 in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

5.2.3 National Environmental Management: Waste Act, Act 59 of 2008

The National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA, Act 59 of 2008) was implemented on 1 July 2009 and section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed.

The objectives of NEMWA, Act 59 of 2008 involve the protection of health, well-being and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and treating and safely disposal of waste as a last resort.

In general, the act seeks to ensure that people are aware of the impact of waste on their health well-being and the environment, and in the process giving effect to section 24 of the constitution, in ensuring an environment that is not harmful to health and well-being.

Government Notice 718 lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment (BA), and Category B activities, which require a full EIA (Scoping followed by Impact Assessment). EIA Regulation GNR 326 defines the process requirements that must be followed for Basic Assessment and full EIA.

The NEMWA has no sections of relevance to the proposed solar park development.

5.2.4 National Environmental Management: Air quality Act, Act 39 of 2004

The National Environmental Management Air Quality Act (NEMAQA) was a landmark act which focused on the ambient air quality and the receptor as opposed to the previous act which defined air quality by regulating the emissions which impact air quality. As a result of the NEMAQA, standards for ambient air quality have been developed which are managed through the local municipalities or provincial municipalities.

The NEMAQA enabled the publication of the Listed Activities and Minimum Emission Requirements, which require emitters to apply for and obtain an Atmospheric Emissions License (AEL) related to installations such as combustion installations in various industries.

The NEMAQA has no sections of relevance to the proposed solar park development.

5.2.5 National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) addresses, amongst others:

- Biodiversity planning and monitoring;
- Protection of threatened or protected ecosystems;
- Protection of threatened or protected species; and
- The control of alien species, invasive species and genetically modified organisms.

5.2.6 Conservation of Agricultural Resources Act, Act 43 of 1327

The Conservation of Agricultural Resources Act ([CARA] Act 43, 1327) provides for the:

- Protection of wetlands; and
- Requires the removal of listed alien invasive species.

The National Department of Agriculture, Fisheries and Forestry (DAFF) is the responsible authority for enforcing the CARA. This Act also requires that any declared invader species on the proposed site must be controlled according to their declared invader status.

The EMPr, which will be included within the EIAR, will include the compulsory removal of invader plants from the study area. Regulation 2 of CARA deals with the cultivation of virgin soils. It is required that an application be submitted to the extension office of Department of Agriculture, Forestry and Fisheries (DAFF) in terms of Section 4A of the Forest Act (Act No 68 of 1972) at least three months prior to initiating the cultivation of virgin soil.

5.2.7 National Forest Act, 1998 (Act 84 of 1998)

The National Forest Act, 1998 (Act 84 of 1998), aims to reform the laws on forest protection and relating matters. The Act provides principle guidelines for sustainable forestry management, special measures used to protect forests and trees within natural forests and protected areas. The Act also provides uses for forests. Failure to comply with the Act may result in prosecution under the National Forest Act, 1998 (Act 84 of 1998).

5.3 Other applicable environmental guidelines

The following additional guidelines will be considered during the impact assessment phase.

- DEAT, 2002. Integrated Environmental Management, Information series 2: Scoping;
- DEAT, 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement;
- DEAT, 2002. Integrated Environmental Management, Information series 4: Specialist Studies;
- DEAT, 2002. Integrated Environmental Management, Information series 12: Environmental Management Plans;
- DWAF, 2008. Updated manual for the identification and delineation of wetlands and riparian areas. Department of Water affairs and Forestry. Pretoria. South Africa.
- DEAT, 2004. Integrated Environmental Management Information Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- DEAT, 2010. NEMA Draft Implementation guideline. Public participation.
- DEAT, 2010. NEMA Draft Implementation guideline. Companion Document on the Environmental Impact Assessments Regulations

6 ESCRIPTION OF RECEIVING ENVIRONMENT

The Proposed solar park development is located within the Savannah Biome within the Limpopo Sweet Bushveld type (Mucina & Rutherford, 2006). The following sections are a description of the characteristics of the study area that may be affected by the proposed solar park development.

6.1 Climate

The area in general is characterized by summer rainfall with dry winters including the shoulder months of May and September. The mean monthly maximum and minimum temperature is 38.2 ºC and 2.1 for December and June respectively. The area is generally warm with extreme weather, heat wave and drought.

Climate in the broad sense is a major determinant of the geographical distribution of species and vegetation types. However, on a smaller scale, the microclimate, which is greatly influenced by local topography, is also important.

The proposed development site falls within the Limpopo Sweet Bushveld vegetation type, where summer rainfall and dry winters occur. The climate area varies, becoming both warmer and drier from south to north. The long-term average annual rainfall is around 400-600 mm per year, with most rainfall occurring mainly during summer.

6.2 Geology and soils

Geology is directly related to soil types and plant communities that may occur in a specific area (Van Rooyen & Theron, 1996). A Land type unit is a unique combination of soil pattern, terrain and macroclimate, the classification of which is used to determine the potential agricultural value of soils in an area. The land type, geology and associated soil types is presented in Table 6-1 below as classified by the Environmental Potential Atlas, South Africa (ENPAT, 2000). The major geological formation in Lephalale Municipality includes Arenite, Gneiss and Sedimentary formation. Our study site is generally flat, making it suitable for development, the terrain is level plain with some relief.

In the Spatial Development Framework of Lephalale Local Municipality the study area is classified as having soils that are freely drained and structure less. They are highly erodible and have low natural fertility. The dominant soil types of the site are soils with calcrete and surface limestone layers, brownish sandy, clayey-loamy soils on the plains and low-lying areas, with shallow, gravelly, sandy souls on the slightly undulating areas.

Table 6-1 Land types, geology and dominant soil types of the proposed development site

Land type Soils Geology	Land type Soils Geology
Ae, Ah and Fc	quartzite sandstone, shale, and gneisses, metasediments and metavolcanics of Malala Drift group, basalt of Letaba Formation.

More than 60% of Lephalale Local Municipality area has moderate or better soil potential, but climate (especially rainfall) is the greatest limiting factor, so that irrigation is the preferred method of cultivation to obtain long-term results. The agricultural potential of the area is intimately associated with topographical, pedological (soil) and climate determinants.

6.3 Vegetation

The development site lies within the Savannah biome (Figure 6.1), which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The environmental factors delimiting the biome are complex and include altitude, rainfall, geology and soil types, with rainfall being the major delimiting factor. Fire and grazing also keeps the grassy layer dominant. The most recent classification of the area by Mucina & Rutherford is the Limpopo Sweet Bushveld vegetation type.

The Limpopo Sweet Bushveld Thornveld vegetation type has a least threatened conservation status, with 19% transformed and 1% statutorily conserved. This vegetation type in its pristine state is characterized by short open woodland, in disturbed areas thickets of *Acacia erubescens*, *A. melifera* and *Dischostachys cinerea*.

The screening tool has identified areas which are essential to meeting conservation targets for specific vegetation types, i.e. Critical Biodiversity Areas (CBA), and other elements of high conservation importance. It has identified the Buffalo 2 Solar Park proposed location as a CBA 1 and CBA 2, FEPA sub catchment and it is within the Tierkop Private Nature Reserve and approximately 4.5 km from Koedoe Private Nature Reserve. The Tierkop Private Nature Reserve was established in 1962 and has undergone some land use changes in the recent past whereby the site is partially developed by the Medupi Power Plant.

6.4 Species of conservation concern:

The screening tool identified high sensitivity for the fauna. Animals that were identified in Buffalo 2 Solar Park are *Gyps africanus* (add common name), *Terathopius ecaudatus*, (Bateleur eagle), *Dasymys robertsii*, (Roberts shaggy rat), *Lycaon pictus*(African wild dog), *Aquila rapax*(Tawny eagle).

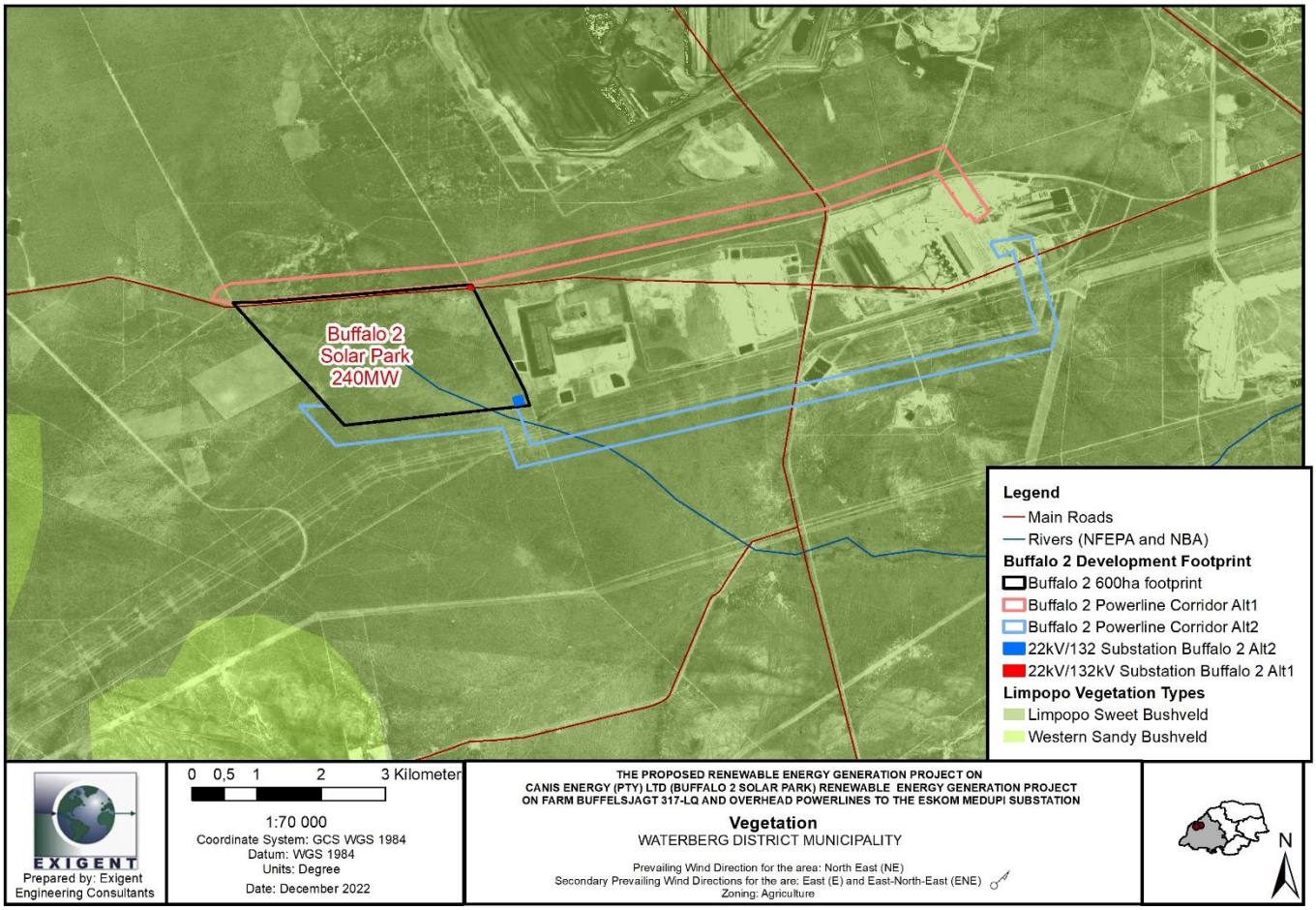

Figure 6-1. Surrounding vegetation

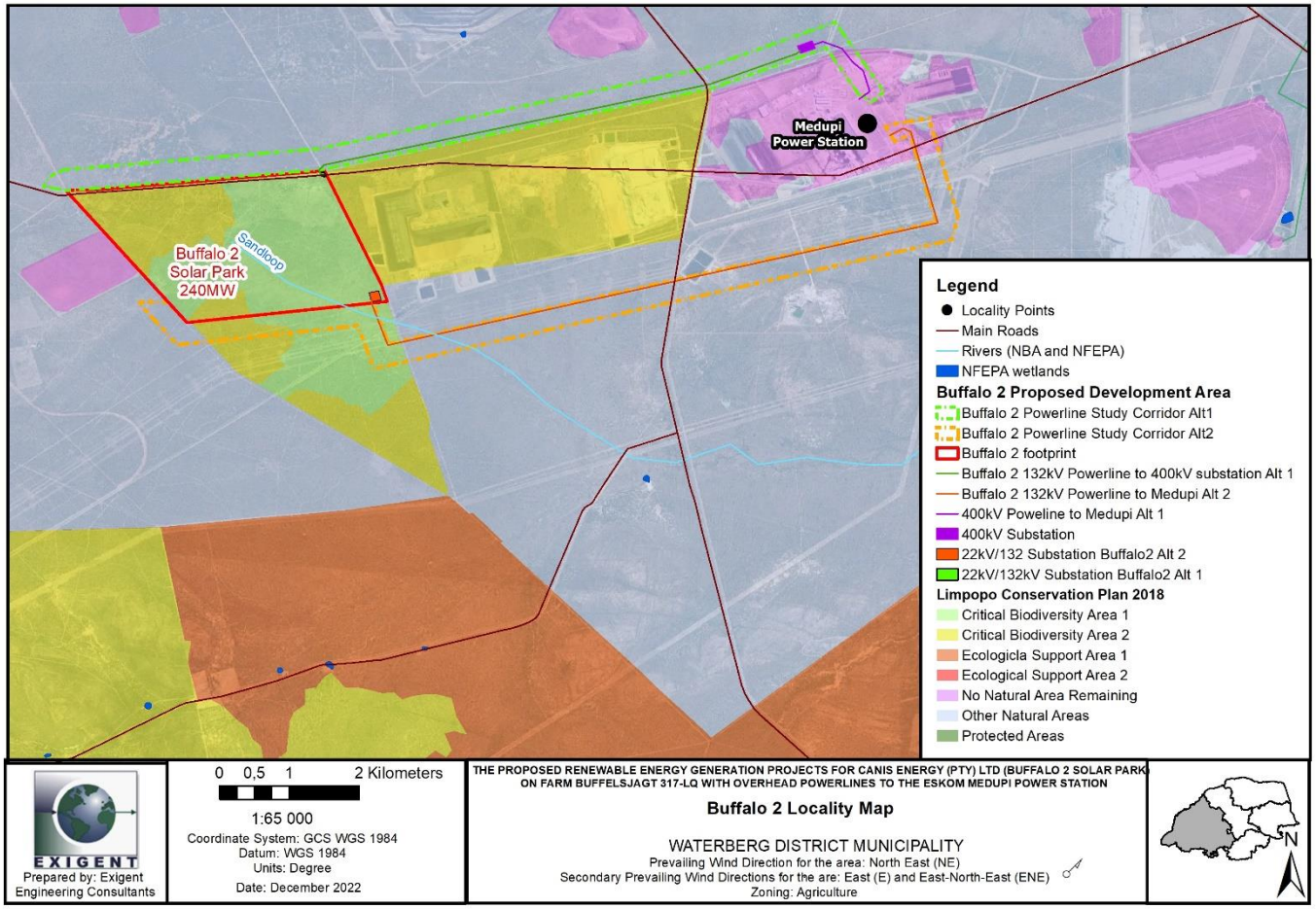

Figure 6-2. Conservation plan

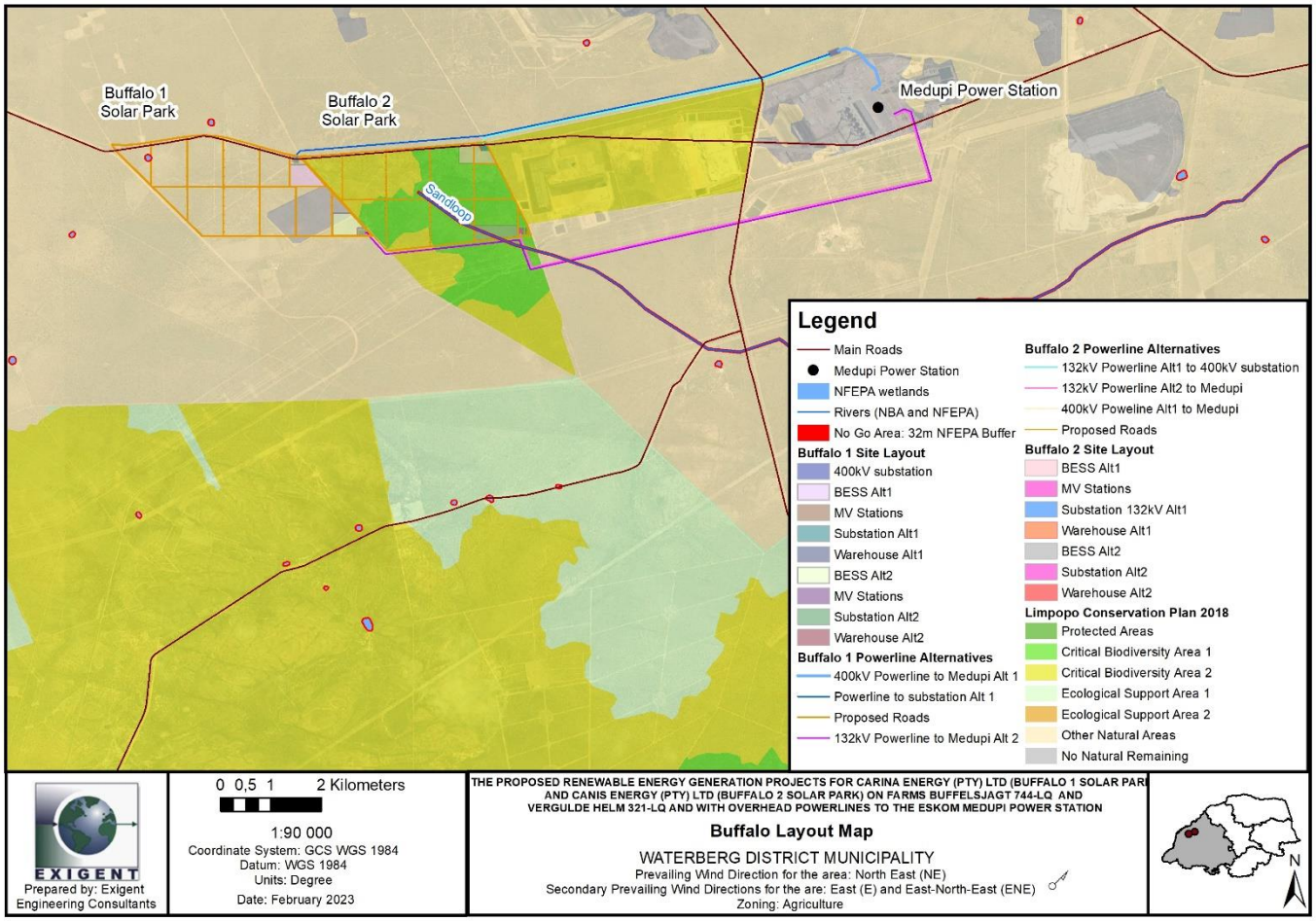

Figure 6-3. Buffalo 1 and Buffalo 2 Solar Park surrounding land Conservation status

6.5 Hydrology

Buffalo 2 Solar Park will intercept wetlands that have been identified as per the National Freshwater Priority Areas (NFEPA) database. The Mokolo River intercepts the south side of the site and it falls within the Quaternary Catchment A24 J, part of Marico Water Management Area (WMA 1).

6.6 Social and socio-economic environment

Lephalale is situated approximately 280 km north-west of Pretoria and covers an area of 13 826.1 km^2. It is the largest of the local municipalities within the Waterberg district. The Lephalale Local Municipality has a population of approximately 140,000. The town is expanding rapidly. The increase in population may be linked to the skills development centres and job opportunities in the Municipality because of the Waterberg coalfield.

Lephalale is defined by Limpopo Growth and Development Strategy as a coal mining and petrochemical cluster. The area is currently experiencing growth driven by mining expansion. Medupi project has already been commissioned at various phases and completion of the project has led to demobilization of staff on completed project phases. The coal to liquid project that was investigated by Sasol and currently placed on hold could broaden the opportunities for cluster formation. The local economy is dominated by the coal mine and the power station. Three clusters that are most relevant to Lephalale are firstly coal & petrochemical, secondly red meat and thirdly tourism.

The national and local economies will benefit from civil contractor work, labour and building materials that will be required on site. On the whole, a minimum share of approximately 20% of total CAPEX (investment costs) will be sourced locally. This share is likely to increase once there will be a specific and competitive industry in the Republic of South Africa able to supply PV modules and other technological components.

Raising of the capital to finance the installation of solar electricity generation capacity by the Applicant entities represents a significant benefit for the South African economy.

After approval, the project will take approximately 18 months to be built and could have a lifetime of 30-40 years. Approximately 400 people are expected to be employed during the construction period, although this number can increase to 600 for short spaces of time during peak periods. During operational phase, the power plant will require a permanent staff of approximately 50 people. That impact will be positive also in consideration of the slowing down of the recruitment rate due to mining stabilization activities.

Approximately 50% of the operation costs will have a local economic return (mostly for maintenance works by local sub-contractors), then the impact will also be positive during operation phase (30-40 years).

The most important economic benefit is likely to be the experience that will be gained with regard to solar electricity generation in Limpopo and in South Africa, considering that this forms part of a national

strategic plan, but from a zero base. This experience will be essential for the roll-out of the strategy, for efficiency improvements and for the establishment of a local manufacturing supply chain for equipment requirements. The project will also make a contribution towards reducing the carbon emissions per unit of electricity generated in South Africa, albeit very small to start with.

The proposed project is consistent with national, provincial and municipal development. It provides an opportunity to launch the implementation of the national renewable energy generation programme, with particular reference to solar energy. The important issue emerging from the local economic development strategy is the imperative of local recruitment.

7 ALTERNATIVES

An alternative, in relation to the proposed activity, means different means of meeting the general purpose and requirements of the activity. This can be through identifying an alternative property on which the activity can take place, the type of activity to be undertaken, a change in the design or layout of the activity, the technology used in the activity or the operational aspects of the activity. It also includes the option of not implementing the activity, called the no-go alternative.

7.1 Alternative sites for development

Several sites have been inspected in order to find out the best solution for the PV power plant. The following selection criteria were applied:

- Connection availability and proximity
- Land availability
- Proper land surface area (minimum 600 ha)
- Current land use
- Low environmental impact (low biodiversity)
- Low agricultural potential
- High solar radiance
- Socio-economic issues (land cost and local community unemployment)

The macro area of Lephalale and surrounding farms was investigated, due to the high value of solar irradiation and to the presence of high-voltage Eskom substations (Eskom Medupi substations).

The following properties have been found suitable and available:

- Farm Vergulde Helm 321 LQ (Buffalo 2 Solar Park);

7.2 Technology Alternatives

The alternative to PV for producing energy from the sun is the thermal solution. There are different forms of this technology: linear Fresnel, parabolic trough or tower. These technologies can also be with or without thermal storage and they can use diathermic oils or, the more sophisticated ones can use water and/or molten salts.

The final choice made was the PV option because these kinds of projects results:

- Lower construction costs;
- Lower operating and maintenance costs;
- It is simpler, quicker and more experienced technology; and
- Lower environmental impact, considering that, amongst other factors, the PV Solution requires a minor quantity of water.

Another alternative to PV for producing energy from the sun is electrical energy form wind. A wind energy facility has a significant visual impact especially where it is located in a relative flat topographical area.

Most important, the project site is not windy enough to be considered suitable for a wind farm. The PV option is thus still a better choice than wind energy based on the same reasons given above.

7.3 Layout Alternatives

The proposed layout will consider the existing roads, infrastructure, as well as sensitive areas, e.g. drainage lines, topography. The location of the planned footprint will be further assessed (and amended - if required) in the Draft and Final Environmental Impact Assessment Reports, once all the specialist studies (ecological, avifauna, wetland delineation, agricultural, geo-technical and geo-hydrological, visual, heritage) are available. All inputs and comments arising from the Public Participation Process will be taken into account.

For Buffalo 2 Solar Park, two layout plans have been proposed, because the location of the on-site substations will depend on the connection solution proposed by Eskom (Eskom Medupi 132kV or 400kV busbar).

Preferred technical solutions for the proposed solar park entail PV modules mounted on fixed mounting systems (alternative option 1) or horizontal single-axis trackers (alternative option 2).

The tracking solution is the best performing in terms of efficiency, because its energy production is approximately 20% more if compared with fixed systems. This type of technology is characterized by higher technical complexity and higher installing and maintenance costs, if compared with the fixed mounting solution.

The selected tracking system is the horizontal single-axis tracker (SAT), which doesn't differ from the fixed system, except for the presence of the tracking devices and the orientation of the rows of the PV arrays (north - south instead of west – east direction). The technology of mounting systems is under continuous evolution. Consequently, the final decision about the mounting system technology will be taken only at the commissioning date.

The selection of fixed mounting system or horizontal single-axis trackers will not affect the layout of the PV power plant or imply any additional visual or environmental impacts that will necessitate specific or different mitigation measures. The development will not exceed the currently planned footprint (600 ha) and the height of the structures (PV modules and support frames) will be maximum 4.5 m above the ground level.

Both fixed and horizontal single-axis tracking solutions grant the reversibility of the development in respect of the terrain's morphology, geology and hydrogeology. This means that at the end of the PV plant's lifetime, the site can easily be returned to its status prior to the establishment of the PV plant.

7.4 Connection Alternatives

For Buffalo 2 Solar Park, two Connection Alternatives have been proposed:

c) **Connection Alternative 1**: to the 400 kV busbar of the Eskom Medupi Main Transmission

Substation (MTS), via the Powerline Corridor 1, 12 km long.

In this case, the following connection infrastructure is required:

- **For Buffalo 2 Solar Park: one 132 kV power line (double circuit), approximately 6.6 km long**, connecting the on-site 132kV switching station to the 132 kV busbar of the 132kV/400kV step-up substation and 400kV switching station to be built in proximity of the Eskom Medupi Main Transmission Substation (Connection Alternative 1)
- **For Buffalo 2 Solar Park: one 132kV/400kV step-up substation** with high-voltage power transformers, stepping up the voltage to 400kV, and one 400kV busbar with metering and protection devices (switching station), to be built in proximity of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)
- **For Buffalo 2 Solar Park: one 400 kV power line, approximately 1.3 km long,** connecting the on-site 400kV switching station to the 400 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 1)

d) **Connection Alternative 2**: to the **132 kV busbar** of the **Eskom Medupi Main Transmission Substation (MTS)**, via the **Powerline Corridor 2**, **14 km long**.
In this case, the following connection infrastructure is required:

- **For Buffalo 2 Solar Park: one 132 kV power line (double circuit), approximately 9.8 km long** (depending on the selected powerline corridor, alternative 1 or 2), connecting the on-site 132kV switching station to the 132 kV busbar of the Eskom Medupi Main Transmission Substation (MTS) (Connection Alternative 2).

7.5 BESS Technology Alternatives

Batteries store electrical energy in chemical form. The range of electrochemical technologies include:
a) batteries with solid electrolyte, as Lithium-ion battery;
b) batteries with liquid electrolyte, as Na–S battery, Lead–Acid (PbA) battery, nickel - cadmium (Ni–Cd) battery or other types of liquid metal battery

The preferred technology for the Battery Energy Storage System ("BESS") is Lithium-ion battery cells, which will be pre-assembled at the supplier factory and installed in the containers prior to delivery to the site. Lithium-ion cells technology offers the highest energy density (compared to the other cell technologies), does not suffer from memory effect and is low maintenance.

Typical lithium-ion cells used for BESS hold a solid rechargeable electrolyte (the energy accumulator), therefore they don't hold any liquid or gas. The main benefit of solid ceramic electrolytes is that there is no risk of leaks, which is a serious safety issue for batteries with liquid electrolytes.

A BESS does not emit any gas to the atmosphere during construction and/or normal operation. The containers of the batteries are equipped with a firefighting system conceived to effectively detect smoke and high temperatures and automatically activate the extinguishers to prevent fire. Furthermore, the external metallic surface of the cells is conceived to resist to fire.

The preferred technology is therefore Lithium-ion battery cells with solid rechargeable electrolyte.

Batteries with liquid electrolytes are not preferred for the risk of leakage and consequent potential impacts on environment.

7.6 No go alternative

The no-go alternative means that no renewable energy facility is constructed, and the current land use remains abandoned farming practices

8 NEED AND DESIRABILITY

The National EIA Regulations require that the Need and Desirability of a proposed project be outlined as part of the Scoping Report. The following section will describe the motivation, benefits, need and desirability of the proposed solar park development as set out in General Notice 891 of 2014. The Guideline on need and desirability in terms of the EIA Regulations 2010 will be addressed by answering the questions on the specific impacts.

8.1 Key drivers and principles of need and desirability assessment

In the General Notice 891 of 2014, it is stated that, consistent with national priorities, environmental authorities must support "increased economic growth and promote social inclusion", whilst ensuring that such growth is "ecologically sustainable". Furthermore, the New Growth Path (2010) highlights that in essence the aim is to target our limited capital and capacity at activities that maximise the creation of decent work opportunities. To that end, we must use both macro and micro economic policies to create a favourable overall environment and to support more labour-absorbing activities. The main indicators of success will be jobs (the number and quality of jobs created), growth (the rate, labour intensity and composition of economic growth), equity (lower income inequality and poverty) and environmental outcomes.

The National Development Plan 2030 (NDP) (2012) stresses that the threat to the "environment and the challenge of poverty alleviation are closely intertwined" and as such environmental policies should not be framed as a choice between the environment or economic growth.

Sustainable development is the process that is followed to achieve the goal of sustainability. Sustainable development implies the selection and implementation of a development option, which allows for appropriate and justifiable social and economic goals to be achieved, based on the meeting of basic needs and equity, without compromising the natural system on which it is based (National Strategy for Sustainable Development and Action Plan 2011 - 2014 (NSSD 1) (2011)).

Consistent with the aim and purpose of EIAs, the concept of "need and desirability" relates to, amongst others, the nature, scale and location of development being proposed, as well as the wise use of land. While essentially, the concept of "need and desirability" can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place, "need and desirability" are interrelated and the two components collectively can be considered in an integrated and holistic manner (GN 891 of 2014).

8.2 Motivation for the proposed project

This project forms part of the promulgated IRP 2010-2030 plan that identified electricity generation technology (specifically renewable energy – solar PV) to meet the expected demand growth up to 2030. This project aims to produce distributed generation and to provide off-grid electricity.

The Buffalo 2 Solar Park Facility is proposed in response to the identified objectives of national and provincial government and local and district municipalities to develop renewable energy facilities for power generation purposes. It is the developer's intention to bid the Buffalo 2 Solar Park Facility under the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme or possibly a similar private programme, with the aim of distributing the generated power into the national grid. This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP) published by the Department of Minerals Resources and Energy, with the Buffalo 2 Solar Park Facility set to inject up to 240MW of electricity into the national grid. Similarly, the location of the new generation in the Limpopo Province is important in the context of the Just Energy Transition (JET). The Buffalo 2 Solar Park Facility will provide valuable jobs and socio-economic benefits that are required in an area where coal fired generation will be phased out over the next 30 years in South Africa. This project will be vitally important if the JET is to be successfully implemented and is a transition for everyone. describes the current status quo of the IDPs and SDFs of the District and Local municipalities. As can be clearly seen from within the municipalities, there is a combined drive for development of the solar park sector. There is a high and urgent need for increased energy creation, linked to a sustainable utilisation of resources, taking into consideration the land use and job creation opportunities.

8.2.1 Solar Park proposed alternative

This proposed layout incorporates the requirements of the current area, as well as considers the strategic planning documents of the area, such as the IDP and SDF. The proposed development incorporates upgrades to roads within the surrounding area as well as service infrastructures, such as sewer and water supply.

8.3 Benefits of the proposed project

8.3.1 6.3.1 Employment and Economic Benefits of the Solar Park Alternative

Permanent job creation on the proposed project could be 30 people. More jobs will emerge within the value chain for the manufacturing of components. An important new range of renewable energy industry skills will be acquired, which are essential for the local competitiveness of this industry.

8.4 Need

In providing for the Need for a project, the applicant has to explain how a development would benefit the local/regional/national community. By emphasising how communities would benefit from the development, the need for a project is emphasized. It will be dealt with by answering the questions as set out in General Notice 891 of 2014, Guideline on need and desirability in terms of the EIA Regulations 2010.

Table 8-1 summarises the key questions and thought process which has been followed during the Scoping Process and which will be followed further during the EIA Phase to ensure the needs motivation has been adequately assessed.

Table 8-1 Needs motivation and assessment guideline

"SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES"			
Question			**Scoping outcome response**
1.	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?		
	1.1.	How were the following ecological integrity considerations taken into account? • Threatened Ecosystems; • Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure; • Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"); • Conservation targets; • Ecological drivers of the ecosystem; • Environmental Management Framework; • Spatial Development Framework; and • Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.)	• The study site is located on Limpopo Sweet Bushveld Thornveld vegetation which is Least threatened ecosystem as Section 52 of National Environmental Management Biodiversity Act, (Act No. 10 of 2004). • The Screening Tool has identified areas which are essential to meeting conservation targets for specific vegetation types, i.e. Critical Biodiversity Areas (CBA), and other elements of high conservation importance. It has identified the Buffalo 2 Solar Park proposed location as a CBA 1 and CBA 2, FEPA sub catchment and it is within Tierkop Private Nature reserve. (Figure 6.2)
	1.2	• How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? • What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? • What measures were explored to enhance positive impacts?	These impacts will be highlighted in the Draft Environmental Impact Report and will be further assessed in the specialist studies.
	1.3	• How will this development pollute and/or degrade the biophysical environment? • What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? • What measures were explored to enhance positive impacts?	These impacts will be highlighted in the Draft Environmental Impact Report and will be further assessed in the specialist studies.
	1.4	• What waste will be generated by this development?	• Limited waste will be generated by the proposed solar park development. • Waste will be managed by the applicant and municipality, as part of their recycling efforts.

"SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES"			
Question			**Scoping outcome response**
		• What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? • What measures have been explored to safely treat and/or dispose of unavoidable waste?	
	1.5	• How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? • What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? • What measures were explored to enhance positive impacts?	The Heritage Impact Assessment will assess these potential impacts.
	1.6	• How will this development use and/or impact on non-renewable natural resources? • What measures were explored to ensure responsible and equitable use of the resources? • How have the consequences of the depletion of the non-renewable natural resources been considered? • What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? • What measures were explored to enhance positive impacts?	These impacts has been highlighted in the Scoping Report and will be further assessed in the EIAR.
	1.7	• How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? • Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? • What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? • What measures were taken to ensure responsible and equitable use of the resources?	• The study site overlaps with the Least threatened ecosystem as Section 52 of National Environmental Management Biodiversity Act, (Act No. 10 of 2004). • The context of the site locality in terms of vegetation and wetlands will be included in the specialist studies, in order to provide an overall assessment.

"SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES"			
Question			**Scoping outcome response**

		• What measures were explored to enhance positive impacts?
		  • Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life).
		  • Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)
		  • Do the proposed location, type and scale of development promote a reduced dependency on resources?	

	1.8	• How were a risk-averse and cautious approach applied in terms of ecological impacts?
		  • What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?
		  • What is the level of risk associated with the limits of current knowledge?
		• Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?
			This assessment will be concluded based on the outcomes of the various specialist studies.

	1.9	• How will the ecological impacts resulting from this development impact on people's environmental right in terms following: o Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	This assessment will be concluded based on the outcomes of the various specialist studies.

"SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES"			
Question			**Scoping outcome response**
		○ Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	
	1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	This assessment will be concluded based on the outcomes of the various specialist studies.
	1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	The study site is located on Limpopo Sweet Bushveld Thornveld vegetation which is Least threatened ecosystem as Section 52 of National Environmental Management Biodiversity Act, (Act No. 10 of 2004). The proposed development will exclude areas with wetlands.
	1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	This assessment will be concluded based on the outcomes of the various specialist studies.
	1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	This assessment will be concluded based on the outcomes of the various specialist studies.

8.5 Desirability

Desirability relates to the placement of an activity. The motivation must indicate why the location of a development in this particular area would be more desirable than establishing in another area. It will be dealt with by answering the questions as set out in GNR 326 of 2014, Guideline on need and desirability in terms of the EIA Regulations 2010.

Table 8-2 summarises the key questions and thought process to be followed during the EIA Phase to ensure the desirability of the project has been thoroughly assessed.

Table 8-2 Assessment for desirability

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
2.	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?		
	2.1	• The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area; • Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.); • Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.); and • Municipal Economic Development Strategy ("LED Strategy").w	Lephalale is the largest of the local municipalities within the Waterberg district. It has a population of approximately 140,000. The town is expanding rapidly. The increase in population may be linked to the skills development centres and job opportunities in the Municipality because of the Waterberg coalfield. Lephalale is defined by Limpopo Growth and Development Strategy as a coal mining and petrochemical cluster. The area is currently experiencing growth driven by mining expansion. Medupi project has already been commissioned at various phases and completion of the project has led to demobilization of staff on completed project phases. The coal to liquid project that was investigated by Sasol and currently placed on hold could broaden the opportunities for cluster formation. The local economy is dominated by the coal mine and the power station. Three clusters that are most relevant to Lephalale are firstly coal & petrochemical, secondly red meat and thirdly tourism. The most important economic benefit is likely to be the experience that will be gained with regard to solar electricity generation in Limpopo and in South Africa, considering that this forms part of a national strategic plan, but from a zero base. This experience will be essential for the roll-out of the strategy, for efficiency improvements and for the establishment of a local manufacturing supply chain for equipment requirements. The

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
			project will also make a contribution towards reducing the carbon emissions per unit of electricity generated in South Africa, albeit very small to start with.
	2.2	• Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? • Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.3	• How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.4	• Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? • Will the impact be socially and economically sustainable in the short- and long-term?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.5	• In terms of location, describe how the placement of the proposed development will: o result in the creation of residential and employment opportunities in close proximity to or integrated with each other; o reduce the need for transport of people and goods; o result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport); o compliment other uses in the area; o be in line with the planning for the area; o for urban related development, make use of underutilised land available with the urban edge; o optimise the use of existing resources and infrastructure; o opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the	• This proposed development will create job opportunities. • The study site overlaps with the Least threatened ecosystem as Section 52 of National Environmental Management Biodiversity Act, (Act No. 10 of 2004). • The context of the site locality in terms of vegetation and wetlands will be included in the specialist studies, in order to provide an overall assessment. • The context of the site locality in terms of vegetation and wetlands will be included in the specialist studies, in order to provide an overall assessment. • The cultural aspects will be covered by the Heritage Impact Assessment.

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
		settlement that reflects the spatial reconstruction priorities of the settlement); o discourage "urban sprawl" and contribute to compaction/densification; o contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs; o encourage environmentally sustainable land development practices and processes; o take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.); o the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential); o impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area; and o in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	
	2.6	• How were a risk-averse and cautious approach applied in terms of socio-economic impacts? o What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? o What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? o Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.7	• How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	More specific details of the impacts of the proposed development will be included in the EIA.

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
		○ Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? ○ Positive impacts. What measures were taken to enhance positive impacts?	
	2.8	• Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.9	• What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The optimum practicable environmental layout option will be considered after the various specialist studies have been drafted.
	2.10	• What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? • Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	The optimum practicable environmental layout option will be considered after the various specialist studies have been drafted.
	2.11	• What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	The proposed residential development will create new job opportunities, both during construction and operation.
	2.12	• What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	These measures will be included in the project specific EMPr to be included in the EIAR.
	2.13	• What measures were taken to: ○ ensure the participation of all interested and affected parties;	The public participation process will be followed during the Scoping Process and has been described within this report. The process followed hereafter will be included in the EIAR.

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
		○ provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation; ○ ensure participation by vulnerable and disadvantaged persons; ○ promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means; ○ ensure openness and transparency, and access to information in terms of the process; ○ ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge; and ○ ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted?	
	2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	The main issue for this area is job creation, which will be discussed in the EIAR, based on specialist input.
	2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	These measures will be included in the project specific EMPr to be included in the EIAR.
	2.16	• Describe how the development will impact on job creation in terms of, amongst other aspects: ○ the number of temporary versus permanent jobs that will be created; ○ whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area); ○ the distance from where labourers will have to travel;	The detail aspects of this will be assessed by the EIAR.

"PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT"			
Question			**Scoping outcome response**
		○ the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits); and ○ the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 residential jobs, etc.).	
	2.17	• What measures were taken to ensure: ○ that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment; and ○ that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	All relevant parties were informed during the PPP stage. The DSR and DEIAR will also be shared with all relevant stakeholders
	2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	This assessment will be concluded based on the outcomes of the various specialist studies.
	2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	This assessment will be concluded based on the outcomes of the various specialist studies. The EMPr will include the long-term operational phase.
	2.20	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	The proposed management measures of all specialists will be included in the EIAR and site-specific EMPr. The EMPr will include the short-term construction impacts as well as the long-term operational phase.
	2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	This will be depicted in the final proposal alternative, which will include all the impacts and proposed mitigation measures.
	2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	This will be included in the EIAR. It will be a combination of the outcomes of the specialist studies and proposed mitigation measures.

9 PUBLIC PARTICIPATION PROCESS

9.1 Objectives

The primary objectives of the Public Participation Process (PPP) include:

- Meaningful and timeous participation of I&APs;
- Identification of issues and concerns of key stakeholders and I&AP with regards to the proposed development, i.e., focus on important issues;
- Promotion of transparency and an understanding of the proposed project and its potential environmental (social and biophysical) impacts;
- Accountability for information used for decision-making;
- To serve as a structure for liaison and communication with I&APs.

9.2 Land owners

Landowner for Farm Vergulde Helm 321 LQ is H J L Hills Boerdery (PTY) LTD (Title Deeds attached in Appendix B).

9.3 Approach

9.3.1 7.3.1 Identification of and Consultation with Key Stakeholders and Landowners

The first step in the PPP entails the identification of key I&APs and Stakeholders, including:

- Local and provincial government.
- Affected and neighbouring landowners; and
- Environmental Organisations.

Identification of I&APs takes place through existing databases, door to door interaction, responses to newspaper advertisements, networking and a proactive process to identify key I&APs within the study area. All I&AP information (including contact details), together with dates and details of consultations and a record of all issues raised will be recorded within a comprehensive database of affected landowners (and occupiers where relevant). This database is updated on an on-going basis throughout the project process and will act as a record of the communication/involvement process. This database was prepared by Exigent and will be utilised to record I&APs and stakeholder responses. The database was continually updated throughout the process. Landowners and key stakeholders were given the opportunity to comment during the public registration period on the proposed solar park development.

9.3.2 Advertising

In accordance with the EIA Regulations, the commencement of the EIA Process for the project was advertised in the local newspaper. An English advert was placed in the Platinum Bushvelder Local Newspaper on 12 August 2022 in the legal section on Page 06 (Appendix D2.1). In order to ensure that the widest group of I&APs were informed regarding the proposed project, site notices was placed at 16

strategic points on the outer boundaries of the site. Copies of the newspaper advertisements and photos of the site notices placed on site are attached in Appendix D2.

9.3.3 Background Information Document

A BID was compiled and distributed to I&APs and relevant stakeholders providing information regarding the proposed development and well as the environmental authorisation process. The aim of the BID is to provide a brief outline of the proposed project, provide I&APs and stakeholders with a map of the study area, provide preliminary details regarding the EIA, and to explain how I&APs can become involved in the project.

9.3.4 Public and Authority review of the draft Scoping and EIA Reports

The draft Scoping report is available for review from 06 February 2023 to 07 March 2023 for download from public.exigent.co.za

Hard copies will be posted to the pre-identified key stakeholders and electronic copies will be distributed to all registered I&APs.

A 30-calendar day period will be allowed for this review process. All I&APs and Stakeholders registered on the project database will be notified of the availability of this report by letter, facsimile or e-mail. Copies of the draft report will be submitted to the DFFE. The DFFE will request all state departments that administer a law relating to a listed activity to comment on the draft Scoping and EIA Reports within 30 calendar days from date of submission.

9.3.5 Issues Trail (Comments and Response Report)

Comments sent by I&AP's was compiled in the CRR (Appendix D4) and a rely was sent. No issues were raised during the initial PPP, if issues are raised during the draft scoping phase, they will be added into the CRR, where responses will be provided by Exigent and the project team. Information from the PPP held during the EIA Process will be incorporated into the EIA Report.

From this CRR, an action list will be compiled detailing those actions which needs to undertake to address specific issues raised.

9.4 Key issues from I & AP's and Stakeholders

Following publication of the adverts, placing of the site notices and circulation of the BID, no comments were received from I&AP's and stakeholders with regards to the proposed solar park development.

10 IMPACT ASSESSMENT

10.1 Potential Impacts of the project

The different aspects pertaining to the environment must be considered when assessing the impact of the development on the environment. Table 10-1 indicates some of the environmental issues associated with the development that will be addressed in the EIA and management measures in the EMPr. It also indicates if investigations additional to those already done will be necessary to assess this impact.

Table 10-1 Potential environmental issues

ASPECT	ISSUE TO BE CONSIDERED	INVESTIGATIONS
PHYSICAL		
Soil	Loss of agricultural land	Land use specialist Study
	Erosion	EMPr Land use specialist Study
Hydrology and geohydrology	Potential pollution of the groundwater	EMPr Land use specialist Study
	Change in runoff and potential impacts on	
BIODIVERSITY		
Vegetation	Habitat fragmentation, clearing of vegetation	Vegetation and wetland Specialist study
	Alien species may establish due to disturbance during construction, as well as landscaping activities	
	Loss in Red Listed plant species	
	Impact on the wetlands	
FAUNA		
Fauna	Impact on animal species	EMPr Ecological Impact Assessment
HERITAGE		
Heritage	The site may impact on heritage artefacts.	Heritage Impact Assessment.
SOCIO-ECONOMIC		
Socio-economic	The impact on the surrounding community should the land use of the study area change to solar park.	EAIR Socio-economic Impact study

10.2 Methodology in assessing potential impacts

The impacts of the proposed development and each alternative will be assessed according to the criteria in Table 10.2 and will include the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.

Table 10-2 Criteria by which impacts will be assessed.

ASPECT	IMPACT RATING
Status of the impact: A statement of whether the impact is positive (a benefit), negative (a cost), or neutral.	
Direct impacts	Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.
Indirect impacts	Impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not **manifest** immediately when the activity is undertaken or which occur at a different place as a result of the activity.
Cumulative impacts	Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.
Nature of the impact: The evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce: • Positive. • Negative.	
Extent: A description of whether the impact would occur on a scale limited to within the study area (local), limited to within 5 km of the study area (area); on a regional scale i.e. local Municipality and Limpopo Province; or would occur at a national or international scale.	
Duration: A prediction of whether the duration of the impact would be Immediate and once-off (less than one month), more than once, but short term (less than one year), regular, medium term (1 to 5 years), Long	

Local	1
Area	2
Region	3
National	4
International	5

term (6 to 15 years), Project life/permanent (> 15 years, with the impact ceasing after the operational life of the development, or should be considered as permanent).

Immediate	1
Short term	2
Medium term	3
Long term	4
Project life/permanent	5

Severity (extent +duration + intensity)

Intensity: This provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium, high or very high. This is based on the following aspects:

- an assessment of the reversibility of the impact (permanent loss of resources, or impact is reversible after project life);
- whether or not the aspect is controversial;
- an assessment of the irreplaceability of the resource loss caused by the activity (whether the project will destroy the resources which are easily replaceable, or the project will destroy resources which are irreplaceable and cannot be replaced);
- the level of alteration to the natural systems, processes or systems.

Negligible	The impact does not affect physical, biophysical or socio-economic functions and processes.	1
Low/potential harmful	The impact has limited impacts on physical, biophysical or socio-economic functions and processes.	2
Medium/slightly harmful	The impact has an effect on physical, biophysical and socio-economic functions and processes, but in such a way that these processes can still continue to function albeit in a modified fashion.	3
High/Harmful	Where the physical, bio-physical and socio-economic functions and processes are impacted on in such a way as to cause them to temporarily or permanently cease.	4
Very high/Disastrous	Where the physical, bio-physical and socio-economic functions and processes are highly impacted on in such a way as to cause them to permanently cease.	5

Incidence (frequency + probability)

ASPECT	IMPACT RATING

Frequency: This provides a description of any repetitive, continuous or time-linked characteristics of the impact: Once Off (occurring any time during construction or operation); Intermittent (occurring from time to time, without specific periodicity); Periodic (occurring at more or less regular intervals); Continuous (without interruption).

Once Off	Once	1
Rare	1/5 to 1/10 years	2
Frequent	Once a year	3
Very frequent	Once a month	4
Continuous	≥ Once a day/ per shift	5

Probability of occurrence: A description of the chance that consequences of that selected level of severity could occur during the exposure.

Highly unlikely	The probability of the impact occurring is highly unlikely due to its design or historic experience.	1
Improbable	The probability of the impact occurring is low due to its design or historic experience.	2
Probable	There is a distinct probability of the impact occurring	3
Almost certain	It is most likely that the impact will occur	4
Definite	The impact will occur regardless of any prevention measures	5

Risk rating

The risk rating is calculated based on input from the above assessments. The incidence of occurrence is calculated by adding the Extent of the impact to the duration of the impact. The Severity of the impact is calculated based on input from the extent of the impact, the duration and the intensity.

Risk = Severity (extent +duration + intensity) x Incidence (frequency + probability)

Significance: The significance of the risk based on the identified impacts has been expressed qualitatively as follows:

- **low** – the impact is of little importance/insignificant, but may/may not require minimal management
- **medium** - the impact is important, management is required to reduce negative impacts to acceptable levels.

ASPECT	IMPACT RATING
	○ **high** - the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot be reduced to acceptable levels and/or if they are not balanced by significant positive impacts, management of negative impacts is essential.

Low risk	0 – 50
Medium risk	51 – 100
High risk	101 - 150
Low positive	0 – 50
Medium positive	51 – 100
High positive	101 - 150

11 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

11.1 Introduction to the EIA phase

The purpose of this Plan of Study for EIA is to ensure that the EIAR produced satisfies the requirements of the DFFE, by ensuring that the Department is satisfied with the aspects discussed in this document, before the study commences.

11.2 Key issues identified during the scoping process

The key issues and impact of the proposed project are included in Table 10.1 above. The key issues are:

- Impact on ecology on the study area, including flora and wetlands;
- Impacts on archaeological artefacts and historical buildings;
- Impacts on agricultural land use and soil potential;
- Socio-economic aspects including change in land use and rural area surrounds; and
- Noise impacts during construction.

11.3 Authority consultation

The process as set out in the NEMA and regulations will be followed in terms of submissions as well as review periods. DFFE will therefore be able to provide comments and raise their concerns throughout the environmental impact assessment process.

11.4 Method of assessing impacts

The method of assessing the impacts is included in Section 10.1 above.

11.5 Public Participation Process

The comments of the I&APs on the draft Scoping Report will be included in the Scoping Report that will be submitted to DFFE.

The draft EIAR will be made available for public review for 30 days. All registered I&APs will be notified of the timeframe for review. Key stakeholders will be issued with a hard copy and an electronic version of the EIAR. All comments will be included in the final EIAR that will be submitted to DFFE for decision-making.

11.6 Specialist studies

The following specialist studies will be conducted, or have already been conducted to determine the impact of the proposed development on the site:

- Ecological Assessment;
- Wetland Functionality Assessment;
- Avifaunal Assessment;
- Heritage and Palaeontological Assessment;
- Land capability and agricultural potential study;

- Geotechnical Assessment;
- Socio-economic Assessment;
- Visual Impact Assessment; and
- Engineering Services Report.

Table 11-1: Specialist studies to be undertaken based on the screening tool.

Theme	Very High Sensitivity	High Sensitvity	Medium Sensitivity	Low Sensitivity	Specialist Study
Agriculture Theme		x			x
Animal Species Theme		x			x
Aquatic Biodiversity Theme	x				x
Archaeological and Cultural Heritage Theme		x			x
Avian Theme	x				x
Civil Aviation (Solar PV) Theme				x	No study
Defence Theme				x	No study
Landscape (Solar) Theme	x				x
Paleontology Theme	x				x
Plant Species Theme				x	x
RFI Theme				x	No study
Terrestrial Biodiversity Theme	x				x

11.7 Licensing

As part of the NEMA review process, a licence application will be submitted to DWS to authorise the identified water uses, as stipulated in Section 21 of the National Water Act (Act No. 36 of 1998).

11.8 Environmental Impact Assessment methodology

As outlined in Section 26 of GNR. 326 the EIAR will include the following:

- Details and expertise of the EAP who conducted the EIA and compiled the report;
- A detailed description of the proposed activity;
- A description of the proposed project and distribution lines;
- A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity. Details of the public participation process conducted;

- A description of the need and desirability of the proposed activity and identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;
- An indication of the methodology used in determining significance of potential environmental impacts;
- A description and comparative assessment of all alternatives identified during the EIA process;
- A summary of the findings and recommendations of any specialist report or report on a specialised process;
- A description of all environmental impacts and risks that were identified during the EIA process, in terms of nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts:
    - can be reversed;
    - may cause irreplaceable loss of resources; and
    - can be avoided, managed or mitigated.
- A description of any assumptions, uncertainties and gaps in knowledge;
- An opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- An environmental impact assessment statement;
- A draft EMP;
- Copies of any specialist reports and reports on specialised processes;

An EMPr will be prepared in accordance with Appendix 4 of GNR. 326 and incorporated into the EIAR to include the following:

- Details and expertise of the person who prepared the EMPr;
- Detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;
- A map indicating the proposed activity with its associated structures and infrastructures on the environmental sensitivities including buffer zones;
- A description of impact management objectives, management statements, management outcomes and management actions, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the EIA process for all phases including:
    - planning and design;
    - pre-construction and construction activities;
    - rehabilitation of the environment after construction and where applicable post closure; and
    - where relevant, operation activities.
    - The method and frequency of monitoring the implementation of the impact management actions which includes:
        - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
        - comply with any prescribed environmental management standards or practices;
        - comply with any prescribed provisions of the Act regarding closure or financial provisions for rehabilitation, where applicable.

- An indication who will be responsible for the implementation of the impact management actions, the time periods in which it must be implemented and the mechanism for monitoring the compliance. It will also include a program for reporting compliance.
- An environmental awareness plan describing the manner in which the applicant intends to inform his/her employees of the environmental risk which may result from their work; and
- risks must be dealt with in order to avoid pollution or degradation of the environment.
- Any other specific information that may be required by the CA.

12 CONCLUSION

The Scoping Phase was undertaken in line with the requirements of the NEMA EIA Regulations R326. The proposed development requires environmental authorisation in terms of the NEMA Regulations (GNR 326, as amended). The information contained in this Scoping Report provides a comprehensive description of the need and desirability of the proposed solar park development, specifically relating to sustainability in the economic, social and environmental spheres.

An important part of any Scoping Phase is public participation. Stakeholder engagement was initiated from the outset of the project to ensure that all stakeholders were adequately and effectively consulted. The Draft Scoping Report will be made available for public and stakeholder review for a period of 30 days. All comments received and issues raised will be documented and addressed and responded to in the EIA Phase and Report.

The Scoping Report also aimed to identify the main impacts associated with the proposed solar park development. Further investigation is required as part of the Impact Assessment phase to assess significant issues, for example, loss of agricultural soil, impact on wetlands and vegetation, socio-economic impacts such as during construction. Various specialist studies will be undertaken and measures for mitigation and management will be identified for inclusion in an EMPr.

The Plan of Study for the EIA Phase has been included as part of this Scoping Report, indicating the purpose of the EIA Phase and providing the framework for the next phase in the authorisation process. The Plan of Study includes the TORs for the proposed specialist studies, a description of the risk rating methodology to be used and details of the overall deliverables of the EIA process.

13 REFERENCES

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