water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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WATER USE LICENCE APPLICATION SUMMARY

Vangpan Solar PV and Associated Infrastructure

NAME OF APPLICANT:

Green Gate Energy (Pty) Ltd

Compiled by: Oliver Ligege
Jo-Anne Thomas

Signature:

Date: 14 May 2025

1. Applicant details

Name of applicant: Green Gate Energy (Pty) Ltd
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Midrand,
Gauteng, 1685
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Office number: +2712884800
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2. Person submitting application

Ampfarisaho Oliver Ligege, the principal author of this report and the EAP on this project is registered as a candidate with the South African Council for Natural Scientific Professions (122282), Candidate EAP with EAPASA (2019/1044) and holds a Bachelor of Environmental Sciences degree. He has six (6) years of working experience in the Environmental field and has gained extensive experience in Water Use Licence applications, Stakeholder engagement, Environmental auditing, and Environmental Management plans for a wide range of projects

3. Background and purpose

Savannah Environmental has been appointed by Green Gate Energy (Pty) Ltd, an Independent Power Producer (IPP) to undertake a Water Use Licence Application (WULA) for the abstraction of groundwater and storage of wastewater on portion 1 of the farm Steenbokpan 295. The site is located approximately 43km west of the town of Lephalale, within the jurisdiction of the Lephalale Local Municipality and within the Waterberg District Municipality in the Limpopo Province The site is part of the land owned by Limpopo Legacy CC. The proposed activities involve the utilisation of one onsite borehole for the construction and operation of the proposed 230MW Vangpan Solar PV Facility, at an abstraction volume of approximately 75423.6m³ per annum. The project will utilise a 6.75m^3 conservancy tank to store wastewater during the construction and operational phase of the project.

The project was authorised by the Department of Forestry, Fisheries and the Environment in November 2024 (DFFE Ref No.: 14-12-16-3-3-2-2543).

4. Location of water uses

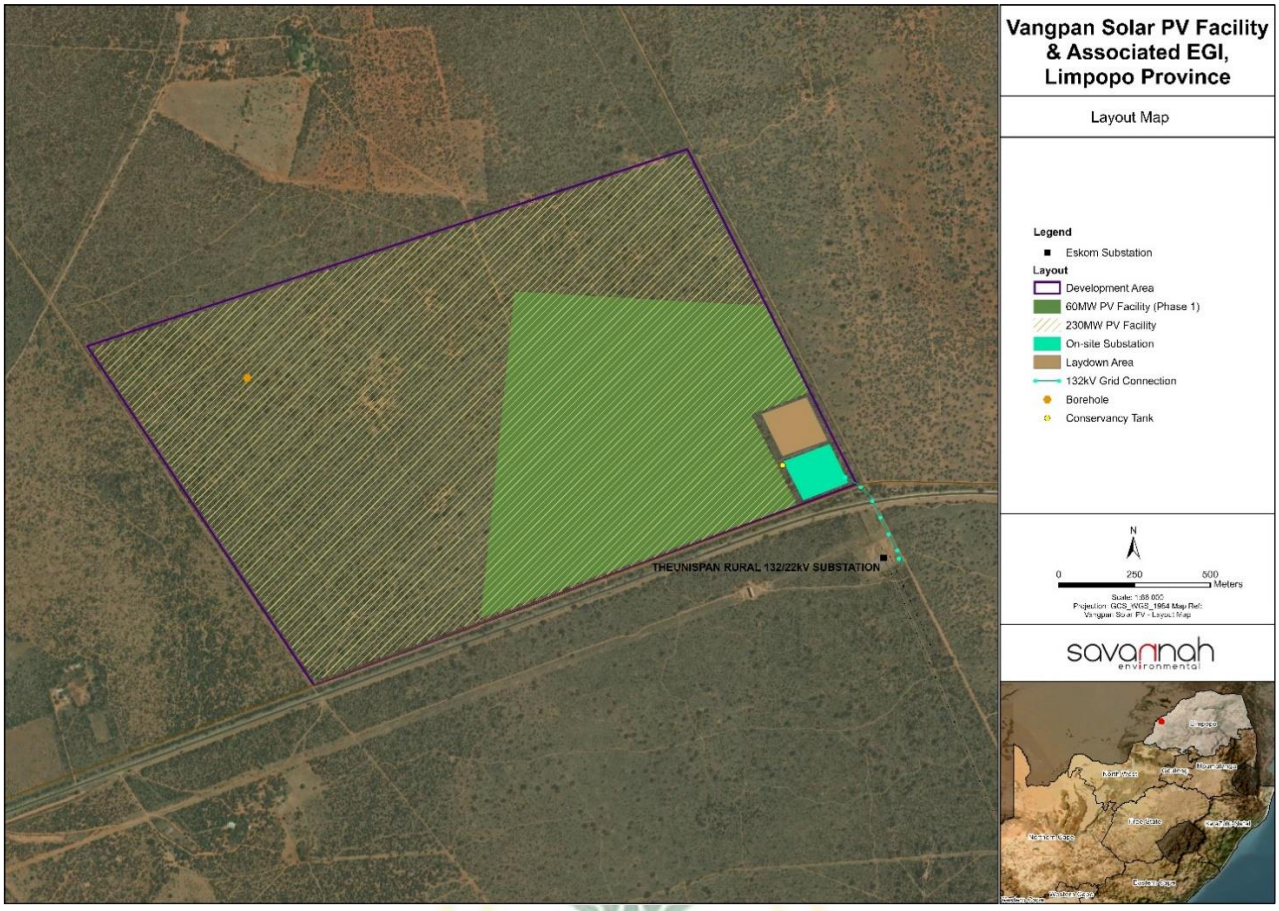

Figure 1: Locality Map for the study area

Table 1: Project location

Province	Limpopo Province
District Municipality	Waterberg District Municipality
Local Municipality	Lephalale Local Municipality
Ward Number (s)	Ward 15
Nearest town(s)	Lephalale (~43km West of the project site)
Farm name(s) and number(s) of properties affected by the Project	Portion 1 of the farm Steenbokpan 295
SG 21 Digit Code (s)	T0LQ00000000029500001
Quaternary Catchment	A41E

Table 2: Property details

Property description	Title Deed number	Owner
Portion 1 of the farm Steenbokpan 295	T10679/2023	Limpopo Legacy CC

Climate

The climate of Lephalale is sub-tropical semi-arid, tempered by altitude, with a very hot, relatively rainy season from November to March and a long dry season from April to October, within which there is a relatively cool period from May to August. In the latter, at night the temperature can drop to about freezing. During the day, it can get very hot all year round, but especially from September to March. In Lephalale, the average temperature of the coldest month (July) is 15.7 °C, and that of the warmest month (February) is 27.3°C.

Temperature conditions can be extreme with temperature ranges between summer and winter. Although thunderstorms occur regularly in summer and hail incidents are infrequent, drought occurs at regular intervals. High winds occur during early and late summer during the change in season. The monthly distribution of average daily maximum temperatures shows that the summer temperatures range between 16 and 46°C and winter brings with it dry, sunny days and chilly nights. The average winter (from May to July) temperature is 15°C but can range from an average of 7 to 23°C in a single day. Monthly Precipitation ranges between 2 mm and 50 mm (refer to Figure 2).

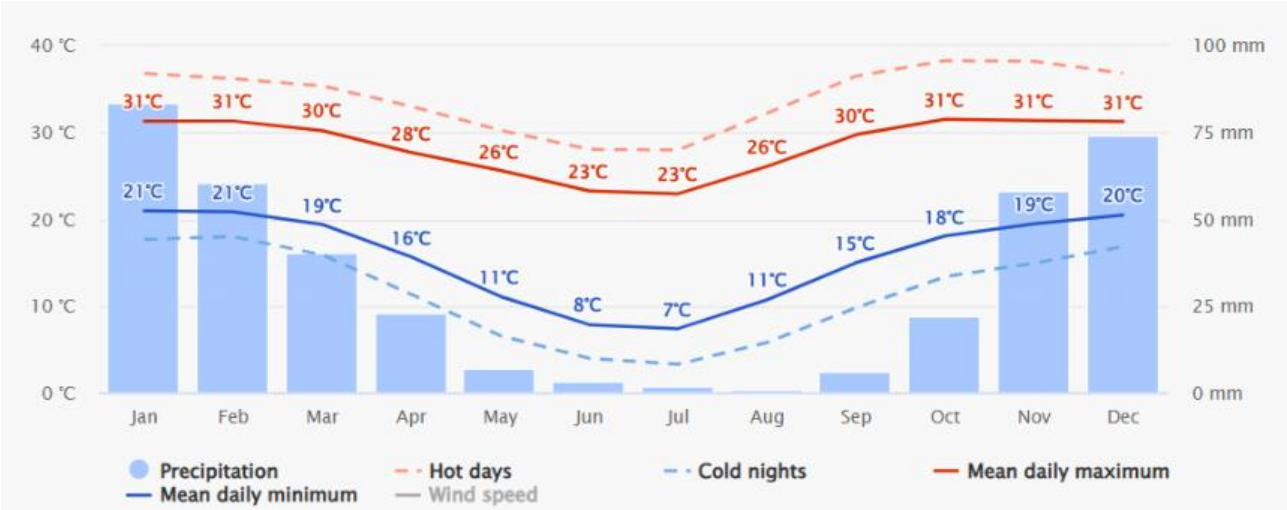

Figure 2: Climate for the study area

Soils and Geology

The proposed development site is mapped to be predominantly underlain by the Wellington Formation (C- Pwe) of the Dwyka Group. The younger Swartsant Formation (Ps) extends toward the north while sandy soil (Qs) of the Quaternary era extends towards the south. The relatively flat plain beneath the proposed Solar PV facility is contributed to by the nature of these surface geologies, overburdened by the general sandy soil distributions. Encompassing alluvium soils are made up of various materials typically including clayey sand, sandy silt, limestone, sand pebbles and small boulders. These Quaternary Era deposits can vary in thickness from 1- 7m deep.

There is a low correlation between topographical variations, mapped surface geology and the low magnetic field strength structures throughout the proposed development footprint. This suggests that associable geological structures do not prominently intrude on the regional surface area. It is expected that a sub-horizontal diabase sill structure of varying extents underlies Alluvium soils and the Wellington Formation beneath the proposed development site more prominently toward the west than to the east of the proposed Solar PV facility footprint. Increased heat and subsurface disturbance caused by the intrusions are expected to increase the transmissivity rates of the sedimentary deposits at contact boundaries. Increased surface-to-groundwater infiltration and groundwater flow rates are expected at these boundaries.

5. Administrative documents and technical reports submitted by applicants

5.1 Administrative documents

5.1.1 Title deed
5.1.2 Company Director certified I.D copy
5.1.3 Company Registration Certificate
5.1.4 Application fee proof of payment

5.2 Reports and other technical documents

5.2.1 List all the technical documents relevant to the application as per WULA Regulation or any other information requested formally indicating compiler and date of compilation.

Table 3: Reports and other technical documents

Name	Compiler	Date of compilation
WULA report	Oliver Ligege of Savannah Environmental (Pty) Ltd	February 2025
Public Participation Advert Notice	Oliver Ligege of Savannah Environmental (Pty) Ltd	February 2025
EIA Report	Shirley Nyalunga of Savannah Environmental (Pty) Ltd	October 2024
Section 27 Motivation	Oliver Ligege of Savannah Environmental (Pty) Ltd	January 2025
Geohydrological Report	SGHS	January 2025

6. Project Description

The Vangpan PV Solar Energy Facility and associated infrastructure is a PV facility that will generate electricity using renewable solar resources. The facility will have a contracted capacity of up to 230MW. During construction and operation phases, the project will source water from a newly drilled borehole on site and a conservancy tank will be used to temporarily store wastewater.

7. Methods statement (only for c and i activity) and mining method/ industrial process

This application is for an activity that does not trigger any (c) and (i) water uses.

8. Stormwater Management Plan

- Prevent the concentration of stormwater flow at any point where the ground is susceptible to erosion.
- Silt traps must be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas.
- Avoid situations where natural or artificial slopes may become saturated and unstable.
- Ensure that the project does not increase the rate of stormwater flow above that which the natural ground can safely accommodate at any point in the sub-catchments.
- Preferably all drainage channels on Project Site and contained within the larger area of the property (i.e. including the buffer zone) should remain in the natural state so that the existing hydrology is not disturbed.
- Minimise the area of exposure of bare soils to minimise the erosive forces of wind, water and all forms of traffic.
- Contain soil erosion, whether induced by wind or water forces, by constructing protective works to trap sediment at appropriate locations.
- Where the construction of a building causes a change in the vegetative cover of the site that might result in soil erosion, the risk of soil erosion by stormwater must be minimised by the provision of appropriate artificial soil stabilisation mechanisms or re-vegetation of the area. Any inlet to a piped system should be fitted with a screen or grating to prevent debris and refuse from entering the stormwater system.

9. Rehabilitation Plan

- Seedlings and saplings removed during the removal of the soil should be transplanted to the outer zone of the site. These individuals may be kept in a nursery until transplanting.
- The collection and spreading of seed are especially important if monitoring indicates that the vegetation cover is insufficient.

» The soil profile must be instated/reinstated in the correct order.

10. Water Uses applied for

The application includes the following water uses:

Table 4: Water Use Applied for

Water use(s) activities	Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/ dimension	Property Description	Co-ordinates
Section 21(a)				
Abstraction of groundwater through Borehole 1	*To provide water for the construction and operation of the Solar PV Energy Facility*	*75 423.6m³ / annum*	*Portion 1 of the farm Steenbokpan 295*	*-23.683295 27.301340*
Section 21(g)				
Conservancy tank	To store wastewater generated from the O&M building during The construction and operational phase	1 000m3/ annum	*Portion 1 of the farm Steenbokpan 295*	-23.684933, 27.318644

11. Impacts and mitigation measures

The potential impacts and mitigation measures that are expected from the proposed activities are presented in Table 3.

Table 3: Summary of impacts and mitigation measures

Water Use activity	Possible causes of the impacts of the activities Impacts to the water resources	Possible Impacts to the water resource and other water users	Mitigation Measures
Section 21 (a)	*Groundwater abstraction*	*Depletion of groundwater resources*	*The abstraction rate and abstraction period as recommended by the geohydrology specialist must be adhered to at all times.*
Section 21 (g)	*Storage of wastewater*	*Groundwater contamination*	*Proper installation and maintenance of the conservancy tank*

12. 9. Water demand and water supply

Water demand

The project requires a total of 75 423.6m³ per annum. The water will be used for the construction and operational purposes of the PV facility. The borehole has a sustainable yield of ~ 75 423.6m³ m³ per annum, which is enough to meet the water demand of the facility.

Water supply

The water will be supplied by the onsite borehole. Borehole 1 has a sustainable yield of about 2.87l/s on a pumping cycle of 20 hours a day.

13. Public participation

The Public participation period started on 28 February 2025 and will end on 05 May 2025. All the comments that are received during this period will be sent to the department in the form of a public participation report, including a Comments and Responses Report in the format below.

Table 4: Outcome of the public participation

Person who commented	Comments (support or object)	Reasons for objection	Applicant's response to the objection

10. Other authorisations applicable to the activity

10.1 The project was authorised by the Department of Forestry, Fisheries and the Environment in November 2024 (DFFE Ref No.: 14-12-16-3-3-2-2543

11. Section 27 Motivation

Section	Content	Vangpan Solar PV and associated EGI
27(1)(a)	Existing lawful water use	The applicant does not have any existing authorisation from DWS.
27(1)(b)	The need to redress the results of past racial and gender discrimination	Limpopo Legacy recognises the need to redress past imbalances. The development will ensure that previously disadvantaged individuals are appointed. This will improve the quality of life for underprivileged individuals, help develop their skill set, and be more valuable to potential future employers. Empowering such individuals helps them to develop positive values and meaningful personal life plans. Eventually, those life plans might manifest themselves in constructive lifestyles characterized by self-mastery, encouragement, creativity, and social interest, among other anticipated key attributes.
27(1)(c)	Efficient and beneficial use of water in public interest	Water needs to be allocated equitably and used beneficially for the public interest, while protecting the environment. As public trustee of the nation's water resources, the National Government, acting through the Minister, is ultimately responsible for this. Section 152 and 153 of the constitution of the Republic of South Africa and The National Spatial Development Perspective (2003) puts forward the objective that local government has an obligation to provide sustainable basic services to all citizens wherever they reside and to give priority to such basic needs of communities. The application will not affect the amount of water available to users downstream since the water being extracted is not from a river or stream but from a borehole and only the sustainable yield will be recommended. The Vangpan PV Solar Energy Facility and associated EGI is in the people's best interest as the operation of the facility will provide electricity to the national grid and will ensure job security for a number of Historically Disadvantaged Individuals (HDIs).

Section	Content	Vangpan Solar PV and associated EGI
27(1)(d)(i)	The socio-economic impact of the water use or uses if authorised	The Vangpan PV Solar Energy Facility will employ previously disadvantaged individuals. The sourcing of material from local service providers will ensure that the community is uplifted. The training that will be provided to local labour will uplift them and ensure that they stand a good chance of either being self-employed or being employable when the project is concluded. Furthermore, the construction and operation of this facility will ensure that there is a boost in the availability of electricity in the country.
27(1)(d)(ii)	The socio-economic impact of the failure to authorise the water use or uses	Failure to authorise the water use will result in benefits stipulated in the EIA not being realised.
27(1)(e)	Any catchment management strategy applicable to the relevant water resource	The DWS have a mandate to manage water resources in a sustainable manner and therefore realises that in its pursuit to stimulate development and social-economic growth, that there will be a negative water quality impact on the environment. The main objective is therefore to ensure a sound and reasonable balance between development impacts and the protection of the resource. Fitness for use by all users and protection of the natural ecosystems must be used as the basis for strategy development. Equitable availability of water to all users forms the cornerstone of the entire water management strategy. This requires that the water resources are available to all users and utilised for the benefit of all.
27(1)(f)	The likely effect of the water use to be authorised on the water resource and on other water users	It is necessary to consider the impact of the water use on the quantity and quality of the water resource being assessed. This must be understood in the context of the equitable treatment of existing and potential water users in the catchment. Based on the geohydrological assessment, the Steenbokpan drainage region has a stress index of 14% meaning that it can be classified as minimally used. The region where the borehole is located has a fast groundwater recharge. Provided that the abstraction recommendations are adhered to, the borehole is expected to deliver long-term sustainable yields. Based on the geohydrological assessments potential impacts have been determined to be of low significance.
27(1)(g)	The class and the resource quality objectives of the water resource	DWS to determine as it is the authority's responsibility to determine the class and resource quality objectives of the water resources.
27(1)(h)	Investments already made and to be made by the water user in respect of the water use in question	The applicant has to date invested a substantial amount into the proposed Vangpan Solar PV and associated EGI.
27(1)(i)	The strategic importance of the water use to be authorised	South Africa has experienced 15 years of intermittent black-outs and in the recent months, the country has yet again faced a considerable shortage in the availability and stability of electricity supply. This has taken its toll on industries that are electricity intensive and has prompted these industries to

Section	Content	Vangpan Solar PV and associated EGI
		consider not only the diversification of their energy mix, but also to change their reliance on State-provided electricity. The Spatial Development Framework (SDF) addresses the need for spatial planning, socio-economic development, infrastructure, and conservation of natural resources. Key socio-economic issues which would require strategic planning provision include employment (including youth and women); poverty eradication; attracting investment; economic growth; HIV / AIDS and other diseases; food security; physical infrastructure (including availability of industrial land); illiteracy; tourism development; population growth, urbanization, and migration. Natural resource issues include inadequate water resources for future development; bush encroachment and alien invasive species; land and soil degradation; and overgrazing. With regard to spatial planning, the legacies of the Apartheid-era policy are identified as a key issue and residents of the Limpopo Province are consequently extremely underdeveloped. As per the Lephalale Local Municipality Integrated Development Plan (2022-2027), The electricity generation and mining sectors together contribute 75% to the region's economy. This project will assist in ensuring that the municipality reaches its short-term goal of providing all households within the municipal area with electricity in line with national targets by 2030. The development of the proposed Project will contribute to economic growth and development, which will in turn help eradicate poverty through job creation, sourcing of materials from local businesses and skills development in the region. In addition, the Project will provide sustainable energy and electricity through the use of a renewable resource (i.e. Solar).
27(1)(j)	The quality of water in the water resource which may be required for the Reserve and for meeting international obligations	DWS to determine as it is the authority's responsibility to determine the reserve of this catchment.
27(1)(k)	The probable duration of any undertaking & which a water use is to be authorised	Duration will be up to 20 years or as required by the off-taker (with the possibility to extend should it be required).

14. Declaration by the applicant with signature confirming that the information submitted is correct

Applicant name : Godfrey Mothobi
Date : 14/05/2024
Signature :

[END OF WATER USE LICENCE APPLICATION SUMMARY]