

Draft Scoping Report

April 2026



**Proposed 1.6GW Photovoltaic (PV) Solar Facility in Hopefield,
Western Cape Province.**

 Phelan Energy Phelan eFuels Phelan gEPCs	HOPEFIELD SOLAR ENERGY FACILITY EIA			 ENVIRONMENTAL COMPLIANCE MANAGERS
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LIST OF ABBREVIATIONS

CBA	Critical Biodiversity Area
CFP	Cullinan Fourways Properties (Pty) Ltd
DFFE	Department of Fisheries, Forestry and Environmental Affairs
DSR	Draft Scoping Report
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
DWS	Department of Water and Sanitation
EMP	Environmental Management Plan
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
NEMA	National Environmental Management Act (Act 107 of 1998)
SBM	Saldanha Bay Municipality
NSBA	National Spatial Biodiversity Assessment
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SR	Scoping Report

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GLOSSARY OF TERMS

Applicant	Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in the NEMA (Act 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2017. In this report Applicant refers to CFP (Pty) Ltd.
Biodiversity	The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and their ecological complexes.
Catchment	The area from which any rainfall will drain into the watercourse or watercourses or part of the water course, through surface flow to a common point or common points.
Contamination	The introduction into the environment of any substance by the action of man.
Ecology	The study of the inter relationships between organisms and their physical environments.
Environment	All physical, chemical and biological factors and conditions that influence an object and/or organism; the surroundings within which humans exist and are made up of the land, water, atmosphere, plant and animal life (micro and macro), interrelationship between the factors and the physical or chemical conditions that influence human health and well-being.
Environmental Impact Assessment	An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.
Environmental Management Plan	A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by responsible parties throughout the duration of the proposed project.
Hydrological	The study of movement, distribution and quality of surface water.
Public Participation Process	A process of involving the public in order to identify issues and concerns and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on or raise issues relevant to specific matters.
Study Area	Refers to the entire study area compassing the total area of the land parcels as indicated on the study area map included in this report.
Sustainable Development	Development that has integrated social, economic and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.
Water use license	An authorisation from the Department of Water and Sanitation to a designated water user to use water. The authorisation will provide details on the time-frames and conditions for the designated water use.
Water Resource	A water resource includes any watercourse, surface water, estuary or aquifer. Watercourses include rivers, springs, and natural perennial and non-perennial channels. Wetlands, lakes, dams, or any collection identified as such by the Minister in the Government Gazette.

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EXECUTIVE SUMMARY

Phelan Green Saldanha Energy (PGSE), which is an affiliate of Solar Capital (Pty) Ltd under the umbrella of Phelan Group, is proposing the establishment of a commercial solar energy photovoltaic facility to generate electricity from solar energy in Hopefield. The proposed development site spreads over the following farms:

1. Remainder of the Farm Portugeesche Fontyn No 167 (1 594,24 ha)
2. Remainder of Portion 1 (Annex Portugeesfontein) of the Farm No 166 (53,7 ha)
3. Portion 2 of Farm Portugeesche Fontyn No 167 (343,37 ha)
4. Portion 2 (Portion of Portion 1) of Farm No 166 (84,89 ha)
5. Remainder of Farm Hopefield B Number 315 (1 176,76 ha)

The proposed development located along the R45 between Malmesbury and Hopefield towns. The south-eastern border of the study area is located across the existing Hopefield Wind Farm and the proposed site is approximately 1km from Hopefield town (Garden Street). The proposed development study area is approximately 3252ha, however, the actual development footprint will be smaller and will be developed in phases over time.

The proposed project is envisaged to make use of the photovoltaic (PV) technology with a maximum output of approximately 1.6GW which will mainly be connected to a green hydrogen and green methanol campus to be established in Hopefield and options to connect excess power generated to the national grid through Aurora substation are being considered. The establishment of the green hydrogen facility and possible powerlines to the grid will be subject to a different EIA process. The study area is located within the jurisdiction of the Saldanha Bay Local Municipality. The nature and extent of the proposed facility is explored in more detail in the Final EIA report. The EIA process is a legal requirement in terms of National Environmental Management Act, 107 of 1998 (NEMA).

The proposed project consists of the following infrastructure development but not limited to:

- Construction of the solar facility bulk infrastructure (power blocks, collector substation, underground cables, etc)
- Solar panel arrays;
- x3 Onsite substations (i.e. Alpha, Delta & Bravo Substations)
- Hybrid Pooling and Switching Station
- Building infrastructure;
- Storm water & drainage;
- Telecommunication systems;
- Subsoil & topsoil stockpile area;
- Internal access roads; and
- Workshop & office areas
- An onsite control room

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In terms of the EIA regulations, a feasible and reasonable alternative has to be considered within the EIA process, including “No Go” option. All identified, feasible and reasonable alternatives are required to be identified in terms of social, biophysical, technical and economic factors.

The EIA process for the proposed 1.6GW solar energy facility comprises of two phases; the Scoping and the Impact Assessment Phases.

Key tasks undertaken within the scoping phase

- Identify important characteristics of the affected environment
- Ensure openness and transparency of the EIA process
- Assessment and determination of possible impacts of the proposed project on the biophysical, socio-economic environment and associated mitigation measures, and
- Ensure compliance to the relevant and applicable legislation
- Identification of stakeholders
- Consultation with the relevant authorities
- Undertaking desktop studies

Evaluation of the Proposed Project

Issues identified through the scoping study as being potentially associated with the proposed project and associated infrastructure includes:

- Impacts on biodiversity including habitat alteration
- Impacts on heritage resources
- Impacts on avifauna
- Impacts on water resources
- Visual impacts
- Social-economic impacts (positive and negative)

The main issues identified through this scoping study associated with the proposed solar energy facility are summarised below. Based on the studies and site visits undertaken to date, no environmental flaws were identified that would prohibit the project from continuing as this stage of the process. However, site inspections undertaken by the specialists have recommended that certain areas be excluded from the study such as the drainage lines that are found within the study areas.

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Conclusions drawn from the evaluation of the proposed site indicate that the majority of potential impacts associated with the proposed development are anticipated to be localised and restricted to the development footprint itself; apart from the social impacts which could have more of a regional positive impacts. However, the operation phase range from local to regional and national

The potential impacts identified are:

1. BIODIVERSITY IMPACTS

Vegetation

The proposed development site terrain is characterised by coastal sand plains, flat to undulating and also including localised inland dune fields. The vegetation is moderately tall shrubland and dense herbs. Fynbos is extensive and also occurs in seeps and along the watercourses. According to the studies undertaken, the following vegetation types are modelled as overlaying the study area

- Hopefield Sandy Fynbos
- Swartland Shale Renosterveld

The Hopefield Sandy Fynbos has been assigned a provincial threat status of Vulnerable and is considered Hardly Protected in terms of its protection status. More than 40% has been transformed through cultivation of cash crops (wheat) and livestock grazing (mainly sheep farming). Probably the greatest threat to the remaining natural areas of this unit is the proliferation of alien vegetation. Increased occurrence of aliens such as *Acacia saligna*, *A. cyclops* as well as various species of *Pinus* and *Eucalyptus* is of concern. A very small percentage of the vegetation type is conserved, including an additional 2% in Hopefield and Jakkalsfontein Nature Reserves.

In terms of the conservation status of Swartland Shale Renosterveld, it is considered Critically Endangered. According to the site visit undertaken as part of the EIA process, no Swartland Shale Renosterveld occurs on the proposed development site.

This Swartland Shale Renosterveld vegetation type is characterised by tall, open shrubland growing over undulating valleys and plains. It usually grows in clay soils that are derived from the Malmesbury Group Shales. Termite mounds create large, round hummocks that are a prominent feature of this vegetation type, appearing as pale spots on the landscape. Indigenous trees and older thicket often occur around these features.

In terms of its conservation status, the Swartland Shale Renosterveld is considered Critically Endangered. The vast majority of Swartland Shale Renosterveld has been lost (90% is already completely transformed for farming). Remnants survive in tiny isolated patches within farmland, usually only on rougher, steeper ground that cannot be

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cultivated. Only a few pockets are actually protected, and most surviving areas are threatened by invasive alien plants such and a variety of other invasive trees, grasses and herbs. The vegetation type is Hardly Protected in terms of its protection status.

Mammals

The study site has undergone significant habitat alteration and transformation as a result of widespread agricultural land use and poor vegetation management. Disturbances related to historic crop cultivation and livestock keeping in particular have resulted in loss of optimal habitat and subsequently in diminished mammal pollutions. Spoor and dung encountered at the eastern boundary fence of the site indicated the presence of a small sized mammal. There is a likelihood of *Ictonyx striatus* (polecats) residing in the vicinity of the disturbed grasslands, most likely using the area for foraging and habitat. No Red Data listed mammals were recorded within the study area associated with the project and the likelihood of any threatened mammal species being encountered within the area is considerably low

The watercourses (stream and wetlands) recorded within the study site, particularly the Sout River, are noteworthy as movement corridors for terrestrial faunal species, especially those with a preference for temperate conditions such as small rodent species and may be connected to other more suitable areas for foraging and roosting. The watercourses could also provide suitable habitat for sensitive and non-sensitive fauna species including amphibians. Furthermore the wetlands could provide breeding, foraging and roosting areas for a variety of fauna species

Avifauna

According to the Biodiversity study, a total of 37 bird species were recorded within the study site (Table 5-9 of the Biodiversity Study). Thirteen (13) of the recorded bird species are common residents around settlements and have a generalist diet. This coupled with their generalist habitat requirements facilitates their presence within this disturbed environment. Approximately twelve (12) bird species (33%) are associated with disturbed grasslands. Approximately 25% of the bird species showed an affinity for freshwater habitat.

It must be emphasised that avifauna will, by virtue of their mobility, utilise almost any area in a landscape from time to time. However, certain habitats (such as the riparian area of a watercourse) may present foraging opportunities and therefore are likely to harbour a high avian species diversity.

The watercourses (such as the Sout River) proximal to the study site were observed to have the highest species richness and abundance of bird species within the study area; surrounding ecosystems and habitats closest to the

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study site such as the Hopefield residential areas and disturbed agricultural lands were noted to be least productive. Avian species recorded closest to the riparian zone included: Southern Red Bishop, Spur-winged Goose, Yellow Weaver, Laughing Dove, Helmeted Guineafowl, Cape Turtle-Dove, Grey-headed Bush-shrike, Long-tailed Paradise Whydah, Grey Heron and Dark-capped Bulbul.

No threatened species (Red Data species) were recorded within the study site during the survey. The increased levels of anthropogenic disturbance and associated habitat transformation and degradation, has likely resulted in the displacement of specialist avian species as well as threatened species. In most cases these are species sensitive to habitat disturbances and display secretive behaviour characteristics. However, the occurrence of Lanner Falcon (*Falco biarmicus*) were projected as moderate the study area.

Reptiles

All reptilian species are sensitive to habitat modification and fragmentation. Due to the site having undergone modification and adjacent to a highway with high traffic flow, it is anticipated that mortalities of reptilian populations within the study area may have occurred to a certain degree. No species of conservation significance were modelled as present within the study area. The probability of occurrence of Red Data Species along the proposed project site is projected as very low due to anthropogenic disturbances that have occurred, however the fynbos vegetation community and watercourses associated with the study site may provide suitable habitat for some reptiles due to an abundance of frogs and rodents.

Potential Nocturnal Wildlife

According to the study undertaken, it is accepted that the study area does have nocturnal wildlife. The project area is home to diverse nocturnal fauna, including bats, owls and some invertebrates (Sinclair et al, 2020). Solar energy facilities offer sustainable energy solutions but can have negative ecological impacts if not planned and managed properly (Hernandez et al, 2014).

Potential impacts on nocturnal wildlife include; habitat loss and fragmentation, light pollution, disturbance from human activities mainly during construction phase. Proper mitigation measures must be applied to significantly reduce these impacts. This include the use of low-intensity, motion activated, avoid upward-directed and broad spectrum lights (Rich & Longcore, 2006). Site selection and final layout must give preference to low-biodiversity areas informed by ground-truthing prior to development of the final layout plans.

HERITAGE IMPACTS

A Notice of intent to develop was submitted to SAHRA in terms of Section 38(1) of the National Heritage Resources Act (Act 25 of 1999), no objections were received from the heritage authority regarding the proposed development. Specific

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conditions were put in place to safeguard any possible unearthing of heritage resources during excavations. A Heritage Resources Management Plan will be developed to ensure that any heritage resources discovered are protected.

VISUAL IMPACTS

The proposed site location is very favourable for the purpose of power generation. The surrounding area is situated across the Western and Central Power Corridor for renewable energy. The project area is very well suited for the proposed PV solar infrastructure. The flat topography and surrounding vegetation secludes most of the project area from the public. The only anticipated high visibility area for the proposed infrastructure will be for motorists travelling on the R45 road as well as along the R27 towards Velddrif and a local farm roads adjacent to the project area, but this can easily be reduced to a low-level visual impact with the recommended mitigation measures. Although there are a number of designated nature reserves close-by, the project area is well secluded to not have a negative impact on these reserves. The sense of place has furthermore dramatically changed with the construction of the Hopefield Wind Energy Facility, located along the R45 road to Hopefield.

AGRICULTURAL IMPACTS

The overall conclusion of this assessment is that the proposed development is acceptable because it leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential. This assessment disputes the high sensitivity classification of the assessed area by the Department of Fisheries, Forestry and Environment (DFFE) Screening Tool and rates the entire assessed area as being of low to medium agricultural sensitivity because of the site's assessed agricultural production potential and current agricultural land use.

The cropping potential of the site is limited by the combination of climate and soil constraints. The dominant constraint is the very low water and nutrient holding capacity of the very sandy soils. In combination with the relatively low rainfall the soils retain too small a moisture reservoir for viable crop production. Because of these constraints, the site is completely unsuitable for viable rainfed crop production.

An agricultural impact is a change to the future agricultural production potential of land. In this case, the entire proposed footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the development on the preferred site will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable. From an agricultural impact point of view, it is recommended that the proposed

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development be approved. According to the specialists, the conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

TRAFFIC IMPACTS

Potential impacts associated with the proposed project include: Construction Phase

- Potential congestion and delays in the surrounding road network:** Congestion and delays on the surrounding road network are identified as a potential impact as a result of increased traffic volumes relating to the trip generation of the facility during the peak hour periods. This impact is rated as neutral, with a local spatial extent and a medium-term duration. The impact is rated with a high reversibility (meaning that the potential impact is highly reversible at the end of the project life); and is rated as replaceable (meaning the resources i.e. road network is replaceable). The potential impact is allocated a slight consequence and likely probability, which will render the impact significance as very low, without the implementation of mitigation measures. With the implementation of mitigation measures, the significance of the impact is also rated as very low
- Potential impact on traffic safety and increase in road accidents:** Traffic safety and increase in accidents with other vehicles and animals is identified as a potential impact as a result of more vehicles travelling on the road to and from the facility, increasing the likelihood of incidents. The proposed mitigation measures include ensuring that all vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator. Implement speed control by means of a stop and go system and speed limit road signage within the construction site. With the implementation of mitigation measures, the significance of the impact is also rated as low.
- Potential change in the quality of the road surface conditions:** The potential change in the quality of the surface condition of the roads is identified as a potential impact as a result of the increase in especially heavy vehicle traffic on the roads. Mitigation measures include regular maintenance of internal farm roads and restoration of private access roads to pre-construction condition. This impact is rated as neutral, with a local spatial extent and a medium-term duration. The impact is rated with a high reversibility (meaning that the potential impact is highly reversible at end of the project life); and is rated as replaceable (meaning the resources i.e. road network is replaceable). The potential impact is allocated a slight consequence and likely probability, which will render the impact significance as very low, without the implementation of mitigation measures. With the implementation of mitigation measures, the significance of the impact is also rated as very low.
- Potential dust and noise pollution:** The potential of dust & noise pollution are identified as a potential impacts as a result of increased traffic volumes and drilling equipment during the construction phase of the project. With proper mitigation measures such as adequate dust suppression on gravel roads and implementation of speed control within the construction site. Proper scheduling for delivery times can help reduce the noise pollution impacts. With the implementation of mitigation measures, the significance of the impact is also rated as low

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- Potential impacts during Operation Phase

The traffic generated during the operational phase will not have a significant impact on the surrounding road network.

- Potential impacts during Decommissioning Phase

The impacts associated with the traffic generation of the proposed PV Facility during the decommissioning phase will be similar to the potential impacts during the construction phase

POTENTIAL SOCIAL IMPACTS

The section below provides an overview of the identified social impacts (positive and negative impacts) associated with the proposed project.

- Creation of employment and business opportunities: The proposed project is expected to generate over 1000 jobs, and once completed, it is anticipated to support more than 500 permanent specialized positions. This ranges from unskilled, skilled and specialised labour. Great opportunities for local businesses such B&B's, hotels, security companies, transport, petrol stations, etc
- Skills development opportunities: Skills development will benefit some community members, employees and local businesses. Upskilling local labour will form an integral part of the proposed development and social responsibility. This will help local community members when they need to apply for jobs at similar projects.
- Economic Growth: The proposed project has the potential to stimulate local economies by attracting investment, fostering innovation, and promoting the growth of related industries such as renewable energy, transportation, and storage solutions the quality of life by improving environmental sustainability and reducing the district's carbon footprint.
- Impacts associated with influx of job seekers: The proposed project will likely result in population influx which is mostly associated with negative socio-economic consequences. Priority will be given local people and businesses, and should the need arise, labourers from neighbouring towns will be considered. Those will be bused into the construction site in the morning and back to their respective homes in the afternoon. A skills pool database must be developed to ensure that local community members are allocated in appropriate positions within the project lifecycle.
- Impacts on community health and safety: potential increase in crime due to the solar energy facility is a possibility and a concern. The developer will work closely with the SAPS in supporting initiatives to support the SAPS in proactively prevent crime. The site will be secured by security personnel from local security companies, surveillance cameras will also be installed to deter potential criminals.
- Altered sense of place: The proposed project is expected to alter the sense of place in Hopefield, a quiet rural area in the Saldanha Bay Municipality. The introduction of large-scale industrial activities and infrastructure, associated with the proposed project could disrupt the peaceful, rural character that residents and visitors associate with the area. The construction of the Hopefield Wind Farm along the R45 near Hopefield has altered the sense of place visually,

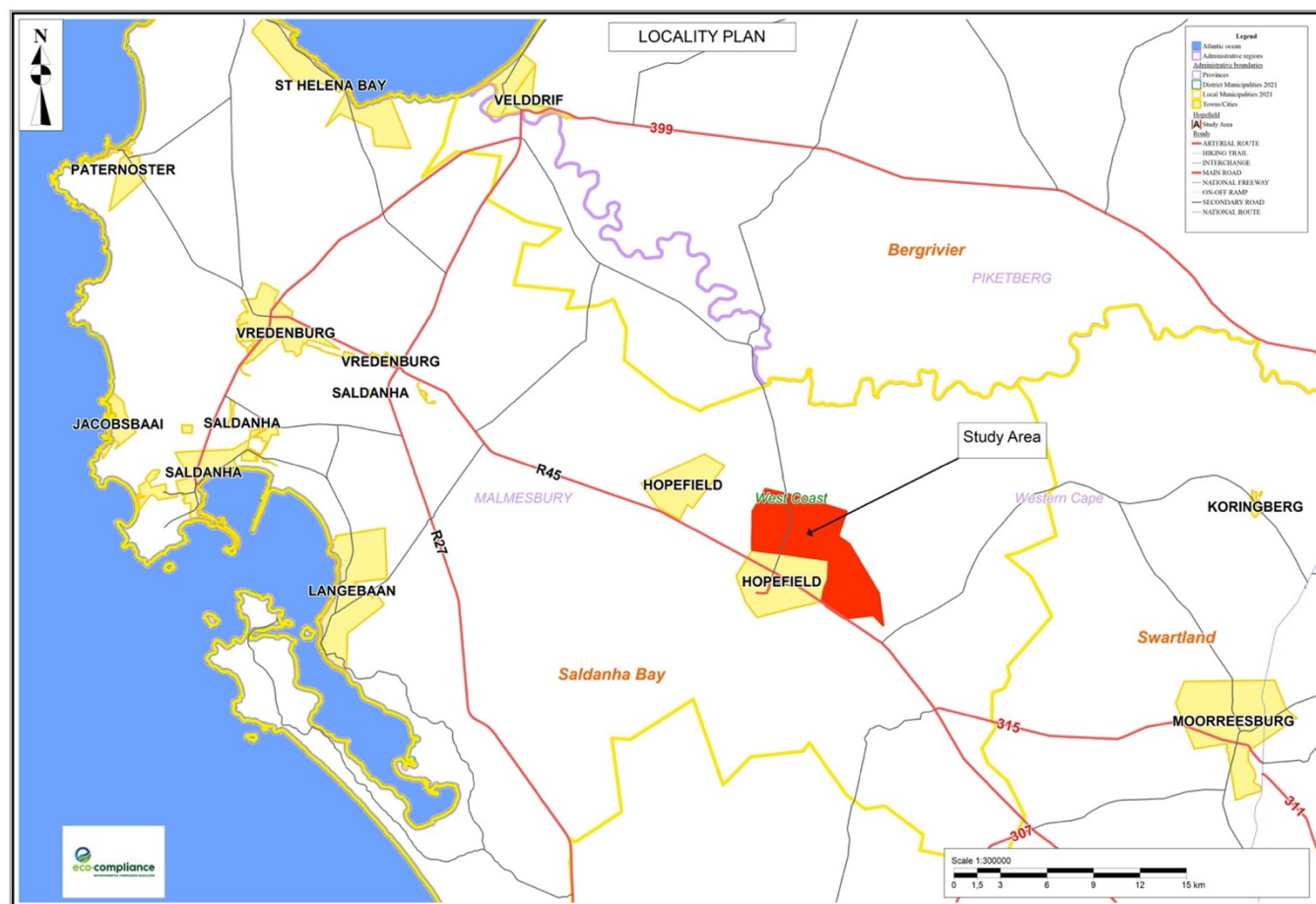
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however, solar panels are 1m high and with proper screening along the R45, visual receptors can be significantly mitigated.

- **Nuisance impacts:** Impacts such as noise, dust, and safety concerns related to construction activities and vehicles are anticipated during the construction phase of the proposed project. However, mitigation measures such as dust suppression, appropriate scheduling of noisy construction activities and limit them to daytime hours and not at night or weekends, will help reduce these potential impacts.
- **Tourism:** Fossils were discovered in Hopefield which included the skull of the so-called 'Saldanha Man'. A replica of this is on display in the information office picturing life in the region some five hundred thousand years ago. Hopefield also forms part of the Cape West Coast Biosphere Reserve. Attractions in the area include the archaeological site on the farm Elandsfontein where fossil bones and human artefacts date back to the early Stone Age. The nearby Fossil Park is a must-see for any tourist. The beautiful Hopefield Dutch Reformed Church built in 1879 and examples of the Hartebeeshuisie or reed house, traditional homes of the area, all forms part of the main attractions in the area. Other activities include hiking within the local Reserve. According to the Heritage Impact Assessment undertaken, the proposed development site will not have a negative impact on Elandsfontein. It has been proven that solar energy project can co-exist with old architectural buildings without diminishing their history and beauty. Solar energy facility, can potentially add to the attraction in the area. This is evident in a solar facility operated by the project applicant in Loeriesfontein, where there are organised and guided tours into the facility so that people, especially school learners can understand how these facilities operate.

CUMULATIVE IMPACTS

The cumulative impacts associated with large solar facility developments are largely linked to the impacts on the sense of place and visual impacts. Due to other renewable energy facility being constructed in proximity to the proposed site, significance of potential cumulative impacts, specifically on the landscape, sense of place and visual impacts has to be assessed thoroughly during the EIA process. The above-mentioned impacts will be assessed and rated; the associated mitigation measures will be outlined as part of the EIA report. This will ensure that both the positive and negative effects of the proposed project are thoroughly evaluated, and appropriate strategies are put in place to minimize any adverse impacts on the community and environment and enhance positive impacts associated with the proposed project.



A Summary of Potential impacts

	Positive / Negative Impacts	Extent
construction / Decommissioning Phase Impacts		
Destruction / loss of indigenous vegetation due to construction activities	-	L
loss of habitat for fauna	-	L
Damage to drainage lines / stream	-	L
Establishment and spread of declared weeds and alien vegetation	-	L
Soil loss / erosion / degradation	-	L
Loss of heritage resources	-	L
Temporary visual intrusions / impacts / disturbance to people during construction	-	L
Job creation and skills development of local people during construction	+	L-R
Economic opportunities for local community	+	L
Safety and security risks to site and surrounds	-	L
Social nuisances / temporary disruptions such as dust, construction traffic to local residents / public	-	L
Operation Phase Impacts		
Habitat transformation	-	L
Change in runoff and drainage patterns due to the presence of drainage lines on site	-	L
Soil erosion / contamination from maintenance activities	-	L
Visual Impacts	-	L
Limited long term employment opportunities such as maintenance, security, vegetation clearance and cleaning of solar modules	+	L-R
Safety and security risks to site and surrounds	-	L
Contribution to clean energy	+	N
Positive / negative effects on tourism	-/+	R

L = Local R = Regional N = National

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INTRODUCTION AND OVERVIEW

1.1 Introduction and Background

The proposed Hopefield Photo Voltaic (PV) Solar Energy Facility is owned by Phelan Green Saldanha Energy Pty (Ltd) (PGSE), the Applicant. The Applicant proposes the establishment of a 1.6GW solar energy facility for production of electricity from renewable energy which will be used to mainly power a green hydrogen and green methanol facility within the study area. The option of evacuating some of the power generated from the site into the national grid are being considered, however, those will be subject to a different EIA process. Proposed operations will include the engineering of solar panels in phases over time with three (3) new onsite 132kv substations. The overall proposed study area will be on approximately 3252ha and the exact development area will determined in the EIA phase.

Ecocompliance is an independent Environmental Assessment Practitioners (EAP) appointed to carry out a Scoping and Environmental Impact Assessment (EIA) process to evaluate the potential environmental impacts of the proposed solar PV project. The EIA is being done in terms of the EIA Regulations and with guidance from the Amendments to the Environmental Impact Assessment Regulations of 2014.

The first phase of the Scoping and EIA process allows for inputs from various Interested and Affected Parties (I&APs) before the submission of this Scoping Report to the competent authority. A comprehensive pre-application consultation process was undertaken in a form of newspaper adverts, community meeting and comments and responses in order to understand the issues that may affect the Hopefield community as a result of the proposed development. With the proposed activity being a Renewable Energy Large Scale Solar PV Development, the Competent Authority for the consideration and processing of Environmental Authorisations for activities related to the IRP 2010-2030 is the Minister of the Department of Forestry, Fisheries and Environment (DFFE) in line with GN 779 of July 2016. The DFFE is the identified Competent Authority in terms of S24C(2)(a)(i).

The purpose of this Scoping Report (DSR) is to describe the background environmental setting of the proposed project, the proposed project description, the process followed to date, to present the site constraints identified by the desktop studies of the site on baseline investigations and provide the Impact Assessment plan of study. Once comments from I&AP's are recorded and responded to, the FSR will be submitted to the competent authority for decision making. A comments and response report of the consultation already undertaken is included as Annexure D1 of this report, however, any additional comments received will be added to the final report to be submitted to DFFE.

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Details of the EAP to send comments are as follows:

Name of EAP : Ecocompliance Environmental Consultant
Compiler : Mr Percy Ngidi & Ms Nkule Mbasane
Review & Signature : Ms Nonkululeko Mbasane (EAPASA: 2020/2888)
Physical Address : 19 Slade Street, Milnerton Rural, Cape Town, 7441
Telephone : 082-802-3728
Contact Person : Percy Ngidi
Email : percy@ecocompliance.co.za

1.2 Project description

The proposed activities at Hopefield PV Solar Plant are expected to have a Solar farm life of 30 years with approximately 5yrs of construction in phases over time. The Applicant proposes the development of PV solar energy facility and associated infrastructure as part of a larger project to establish a green hydrogen and green methanol facility in Hopefield.

An indication of the anticipated development will look like a typical PV solar plant in the figure below with:

- An array of solar modules
- Inverter boxes
- Internal access roads
- Three (3) 132kv/33kv onsite substations
- A 5.4GWh Battery Energy Storage System (BESS)
- Interconnected underground cables
- Laydown areas
- Control building



Figure 1: Picture of solar PV plant development

1.3 Details of Environmental Assessment Practitioner (EAP)

Ecocompliance Environmental Consultants is an environmental consulting company determined to contribute to environmental protection and sustainable development. The current Environmental Regulations require that relevant details of the Environmental Assessment Practitioner to be included in the Scoping Report. A team of experts are responsible for this Scoping and EIA process. To meet this requirement, details for the lead consultant are provided below:

Name :	Nonkululeko Mbasane
Qualifications:	BSc Biological Science (UniZul) & Hons Bachelor of Science (Unisa)
Experience:	13+ years Compilation, Review and Assessment of EIA
Membership:	Professional Natural Scientist (SACNASP) International Association for Impact Assessment (IAIA) South Africa Environmental Assessment Practitioners South Africa (EAPASA)

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Name : Percy Ngidi
 Company: Ecocompliance
 Qualifications: BSc Biological Science (UniZul), Environmental Management (University of Pretoria)
 Experience: 19+ years Compilation, Review and Assessment of EIA
 Membership: Environmental Assessment Practitioners South Africa (EAPASA)
 (Registration in Process)

In line with the EIA Regulations, all consultants and specialists have signed a declaration of independence which confirms that they have no vested interest in the proposed project, as indicated in Section 11.

1.4 Motivation for the proposed project

The purpose of the construction of the proposed new PV solar energy facility is to provide sustainable green energy source to the green hydrogen and green methanol production facility (eFuel) without putting pressure on the already strained national grid. This will ensure that the proposed eFuel production facility does not contribute or result to load shedding due to its energy demands.

1.4.1 Economic growth

Preliminary feasibility studies were done on potential for solar energy facility in Hopefield and sufficient GHI is available to construct the proposed development. Due to the extremely high temperatures experienced during most months of each year, there is great potential to harvest solar energy into energy production in the area. The Applicant intends to use mainly local service providers and where a certain skill is not available within SBM, only then outside resources will be considered. The positive economic gains to the community and local businesses will be very high. Previously disadvantaged communities will benefit immensely from the proposed development through skills development, community upliftment programmes through the Social Economic Development Programmes and job opportunities. However, this must be done in a manner that balances the need for sustainable development and protection of the environment.

Being a renewable resource, the proposed project will be carried out in a manner that evolves with technology for optimum functionality and solar energy production, with continued maintenance and servicing of equipment.

The unused land will support natural ecosystems and form part of natural corridors within the project site. Evidence from other solar energy facilities operated by Phelan Group (a subsidiary of Phelan Green Group) in De Aar and Loeriesfontein

has proved this to be highly possible. The proposed solar project is also in line with the government’s plans to reduce carbon footprint over time, a priority area in the National Development Plan.

1.4.2 Local development

The proposed project will contribute to local development in Hopefield and overall West Coast District Municipality. The proposed development will bring in local economic investment for the municipality and at the same time creating employment opportunities mainly for local residents and businesses. Anticipated environmental impacts are mainly positive, with minimal reversible negative impacts that allow overall local development on minimal environmental expenses. As a fairly new industry in Hopefield, the solar facility will also contribute to local economic value and status of the municipalities. This also include domestic tourism to a certain extent.

Hopefield is located within the larger West Coast District Municipality (WCDM) in the Western Cape Province. The Western Cape is positioning itself as a hub for green energy innovation, with several academic and vocational institutions actively contributing to the development of a Solar energy skills pipeline. The University of the Western Cape (UWC), through its South African Institute for Advanced Materials Chemistry (SAIAMC), is leading pioneering proof-of-concept hydrogen projects in Vredendal and delivering training workshops on hydrogen and Power-to-X (PtX) technologies (UWC, 2024). The proposed project is in line with the direction the Western Cape is taking as a Province.

1.4.3 Social development

It is expected that the proposed solar energy project in Hopefield will contribute to the social upliftment of the Local and District Municipalities through this large investment in the area, skill development and job creation. More than 2500 job opportunities have been anticipated relating to the project initiation which will benefit the local communities and businesses. The proposed development will also attract related businesses and service provision for both goods and service suppliers around the district. The WCDM is an economically diverse region, with a significant portion of its population engaged in various sectors such as agriculture, fisheries, mining, tourism, and services. Despite the area’s economic potential, there are challenges related to unemployment.

The WCDM IDP (2022-2027) reveals that in 2019, the primary sector accounted for 38.0% of total employment with 69,688 jobs. The agriculture sector was the largest employer, contributing 37.8% to total employment, but it only contributed 16.4% to the district’s GDP, highlighting its reliance on labour-intensive and unskilled work. Between 2015 and 2019, the agriculture sector created an average of 1,257 jobs annually. In contrast, the mining sector was the only one to lose jobs, shedding an average of 12 jobs per year.

According to Wesgro (2024), in 2023, the unemployment rate in the district was estimated at 14.49%, significantly lower than the provincial rate of 21.77%. During the same year, there were 182,266 employed residents, 30,884 unemployed residents, and 139,899 residents who were not economically active.

The total population of SBM is 154,635, with 99,193 of these individuals residing in the more urbanized areas of the municipality. This reflects a growing population, with both urban and rural areas experiencing development and changes in socio-economic dynamics. A growing population also means a growing need for job opportunities for communities to sustain themselves. The proposed project will make a significant contribution towards job creation in Hopefield and the overall Municipality.

Like most provinces in South Africa, the unemployed people within WCDM range from the seasonal workers who were presently unemployed, and individuals who cannot not find work at all. The Covid-19 pandemic also contributed to fewer employment opportunities and retrenchment of those who were employed. This contributed to the country's increasing unemployment rate.

1.4.4 Environmental Advantage

By nature of their design and size, solar energy facilities will have an impact on the environment but with relevant & practical mitigation measures, these impacts can be managed. Experience from other solar energy facilities constructed by Phelan Group indicate that with proper Environmental Management Plans, any potential negative impact can be minimised or avoided and positive impacts enhanced.

1.4.5 Project feasibility

South Africa has a significant solar resource potential to produce renewable solar powered PV energy due to substantial levels of sun radiation across the country. Certain areas such as the Northern Cape Province have higher temperatures and low rainfalls annually and that makes them ideal for such developments. The Applicant follows development requirements with the authorisation processes underway. Therefore, with engagement of stakeholders, local government support, I&AP support, as well as reassessment of potential impacts and recommendations for mitigation measures would allow for sustainable implementation of the proposed project.

Approximately 18 renewable energy projects have been identified within 30km of the proposed site, with the Hopefield Wind Farm being the most prominent as it is already in Operation Phase.

Table 1: Some Identified renewable energy projects within 30km

No	EIA Reference	Classification	Status	Distance
1	14/12/16/3/3/1/2348	Solar PV	Approved	24
2	12/12/20/1781/AM2	Wind	Approved	28
3	12/12/20/2126/AM6	Solar PV	Approved	21
4	12/12/20/1781/A1	Wind	Approved	21
5	12/12/20/2126/AM5	Solar PV	Approved	21
6	14/12/16/3/3/2/779	Wind	Approved	23
7	12/12/20/2126/1/AM2	Solar	Approved	21
8	12/12/20/2126/AM7	Solar	Approved	21
9	12/12/20/1302/AM5	Solar	Approved	5.1
10	12/12/20/2126/1/AM5	Solar	Approved	22
11	12/12/20/1781	Wind	Approved	28
12	12/12/20/2126	Solar	Approved	21
13	14/12/16/3/3/1/1099	Solar	Approved	6
14	12/12/20/1302	Wind	Approved	5
15	14/12/16/3/3/1/1099/AM1	Solar	Approved	6

1.5 Purpose of Scoping Work

The Scoping Phase of the EIA refers to the process of determining the spatial and temporal boundaries for the EIA. The objectives of the scoping exercise were adopted from Regulation 326, and amendments to the EIA Regulations, GN R 902 of 2014. These include, in brief to:

- Motivate for the need of the proposed development in proposed location (Section 1.4)
- Clarify the project scope to be covered (Section 1.9)
- Confirm the preferred site for the preferred activity (Section 2.2.2)
- Identify relevant pieces of legislation applicable to the proposed activity (Section 5)
- Identify various feasible and reasonable alternatives (Section 4)
- Describe the environment affected (Section 6)
- Confirm the process to be followed and opportunities for stakeholder engagement (Section 7)
- Describe environmental issues and potential impacts (Section 8)
- Plan the study and roadmap for EIA (Section 9)

The Scoping Process is supported by a review of relevant background literature on the local area. Through this comprehensive process, the environmental assessment can identify and focus on key issues requiring assessment. The primary objective of the Scoping Report is to present key stakeholders (including affected organs of state) with an overview

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of the project and key issues that require assessment in the EIA Phase and allow the opportunity for the identification of additional issues that may require assessment.

The issues raised in response to the Draft Scoping Report (released for a 30-day comment period) will be captured in the Comments and Response report (Annexure D1 of the Public Participation report) which will be submitted to the Competent Authority for decision-making. This approval is planned to mark the end of the Scoping Phase after which the EIA Process moves into the impact assessment and reporting phase.

1.6 Legal requirements for Scoping

The proposed activity is a Renewable Energy Large Scale Solar PV Development in Hopefield, Western Cape Province, and several pieces of legislation are triggered by the proposed activities. The major legislation related to solar energy production and environmental management centre around the Electricity Regulation Act 4 of 2006 and the National Environmental Management Act (Act 107 of 1998) (NEMA) and related regulations. For environmental authorisation, an application is underway in terms of National Environmental Management Act, 1998 (Act No. 107 of 1998), (“NEMA”) and the Environmental Impacts Assessment (“EIA”) Regulations, 2014 (as amended). Details of legislative requirements are detailed in Section 5.

1.7 Approach to Study

The project team comprises of applicant representatives, the EAP, and various specialists following subtopics that were considered important to the proposed project, as indicated from the screening process using the National Screening Tool. A Scoping and EIA process is followed as guided by the EIA regulations.

1.7.1 Terms of Reference

The following terms of reference to the scoping exercise have been set by the EAP, with guidance from requirements set out in Appendix 2 of the EIA regulations (GNR 982):

- To screen the proposed property of environmental sensitivities.
- To prepare a baseline Environmental Scoping Report that considers the biophysical and social environment against the proposed project description.
- To motivate for proposed alternative with assessment of potential alternatives.
- To assess the responses of stakeholders, and all reachable Interested and Affected Parties (I&APs) to the proposed development.
- To determine preliminary environmental impacts of the proposed solar development.

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1.7.2 Scope of Work

To achieve the objectives of scoping and meet the required level of content for submission to the I&APs and eventually to the Competent Authority, the scope of work was adhered to, with reference to Appendix 2 of the EIA regulations (GNR 982). The scope of work is summarised in the following table, that summarises the content of the Scoping report.

Table 2: Content of Final Scoping Report

Requirement	Reference in FSR
Details of: - the EAP who prepared the report; and - the expertise of the EAP, including a curriculum vitae.	Section 1.3
The location of the activity, including: - the 21-digit surveyor general code of each cadastral land parcel; - where available, the physical address and farm name; and - where the requirement information in terms (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	Section 2.3
A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 2.3
A description of the scope of the proposed activity: - all listed and specified activities triggered; and - a description of the activities to be undertaken, including associated structures and infrastructure.	Section 2
A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning framework and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 1.8
A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 3
Period for which the EA is required.	Section 2.5
A full description of the process followed to reach the proposed preferred activity, site and location within the site.	Section 4
Details of all the alternatives considered.	Section 4
Details of the PPP undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Section 7

Requirement	Reference in FSR
A summary of the issues raised by I&APs, and an indication of the manner in which the issues were incorporated, or the reasons for not including them	Annexure D
The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	Section 6
The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts can be reversed; and that may cause irreplaceable loss of resources; and can be avoided, managed, or mitigated.	Section 8
The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Section 8
Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 8
The possible mitigation measures that could be applied and level of residual risk.	Section 8
Alternative locations for the activity where they were investigated, If no alternatives are possible the motivation for not considering such.	n/a
A concluding statement indicating the preferred alternatives, including preferred location of the activity	n/a
A plan of study for undertaking the environmental impact assessment process to be undertaken.	Section 9
A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity	Section 9.3
A description of the aspects to be assessed as part of the environmental impact assessment process.	Section 9.4
Aspects to be assessed by specialists.	Section 9.1
A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists.	Section 9.3
A description of the proposed method of assessing duration and significance.	Section 9.4
An indication of the stages at which the competent authority will be consulted.	Section 9.2
Particulars of the PPP that will be conducted during the EIA process.	Section 9.2
A description of the tasks that will be undertaken as part of the EIA process.	Section 9
Identification of suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	n/a

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Requirement	Reference in FSR
Where applicable, any specific information required by the CA	n/a
Any other matter required in terms of section 24(4)(a) and (b) of the Act.	n/a
An undertaking under oath or affirmation by the EAP in relation to: - the correctness of the information provided in the report. - the inclusion of comments and inputs from stakeholders and I&APs; and - any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by I&APs	Section 11.1
An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the EIA.	Section 11.2

1.7.3 Scoping Methodology

The FSR is compiled from the study of background and baseline information available from the public domain and specialist studies. This included available literature collected and assessed for relevant information. Advisory consultations with provincial authorities, local authorities, environmental specialists, other interested and affected parties were scheduled for public participation to supplement the available information. Site surveys were carried out to get better understanding of the site under study and to verify the sensitivities identified by the National Screening tool. Geographical Information System (GIS) investigations and informed the current environmental status of the physical environment.

1.8 Assumptions and Limitations

1.8.1 Assumptions

Assumptions to this DSR include the following:

- information researched and provided by the applicant as existing information is correct, factual and truthful to the proposed project activities and property affected.
- the discrepancies in the digital mapping and software programs are acceptable to give a reasonable description of proposed project components and affected property.
- information provided is in line with requirements of the EIA regulations and therefore I&APs and regulatory authorities to whom the reports are submitted will take time to review and provide their concerns, opinions and recommendations to inform the EIA process.
- final layout plan will be developed when all studies have been considered on the EIA phase.

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- due consideration will be given to all aspects of the environment affected.
- the proposed development supports the local IDP for WCDM.
- proposed mitigation measures will be implemented by the applicant to ensure minimal negative impacts and maximum environmental benefits.

1.8.2 Limitations

The Scoping Report is based on available literature search and information provided by the Applicant for the proposed project.

2. DESCRIPTION OF THE PROPOSED ACTIVITY

2.1 Background of Project

The proposed project is a 1.6GW Solar energy facility with a PV plant for generation of electricity and A 5.4GWh battery energy storage system. Details of the proposed project is summarised in Table 4 below.

Table 3: Details of the Proposed Project

Applicant Name	Phelan Green Saldanha Energy (Pty) Ltd
Project Name	Hopefield Solar Energy Facility
Property details	Remainder of the Farm Portugeesche Fontyn No 167 (1 594,24 ha), Remainder of Portion 1 (Annex Portugeesfontein) of the Farm No 166 (53,7 ha) Portion 2 of Farm Portugeesche Fontyn No 167 (343,37 ha) Portion 2 (Portion of Portion 1) of Farm No 166 (84,89 ha). Remainder of Farm Hopefield B Number 315 (1 176,76 ha)
Local Municipality	Saldanha Bay Municipality
District Municipality	West Coast District Municipality
Province	Western Cape
Neighbouring towns	Saldanha Bay, Velddrif, Langebaan

2.2 Particulars of Applicant

The proposed solar project is owned a private company with details in Table 6 below:

Table 4: Details of Applicant

Applicant Name	Phelan Green Saldanha Energy (Pty) Ltd.
Company registration	2025/88695/07
BBEEE Level	Level 4
Physical Address	47 Main Road, Green Point, Cape Town, 8005
Postal Address	P. O. Box 1199, Green Point, Cape Town, 8051
Telephone	+27 21 433-0336
Email	razeen@phelangreen.com
Contact Person	Mr. Razeen Levy

2.3 Particulars of Proposed Activity

The proposed activity involves production of electrical energy from solar energy for use within the eFuel Production Facility located within the study area as well as potential addition to the national grid. The extent of the study area is approximately 2880ha. However, the final footprint will be smaller as some of the sensitive areas will be excluded for the final layout plan.

2.2.1 Nature of Activity

The activity entails renewable energy production for approximately 1.6GW and 5.4GWh BESS as part of a larger project of eFuel Production.

2.2.2 Location and Access

The project site is located within Saldanha Bay Local Municipality and West Coast District Municipality (Figure 3). The site can be viewed along the R45 between Malmsbury and Hopefield towns and can be accessed via R27 road to Velddrift.

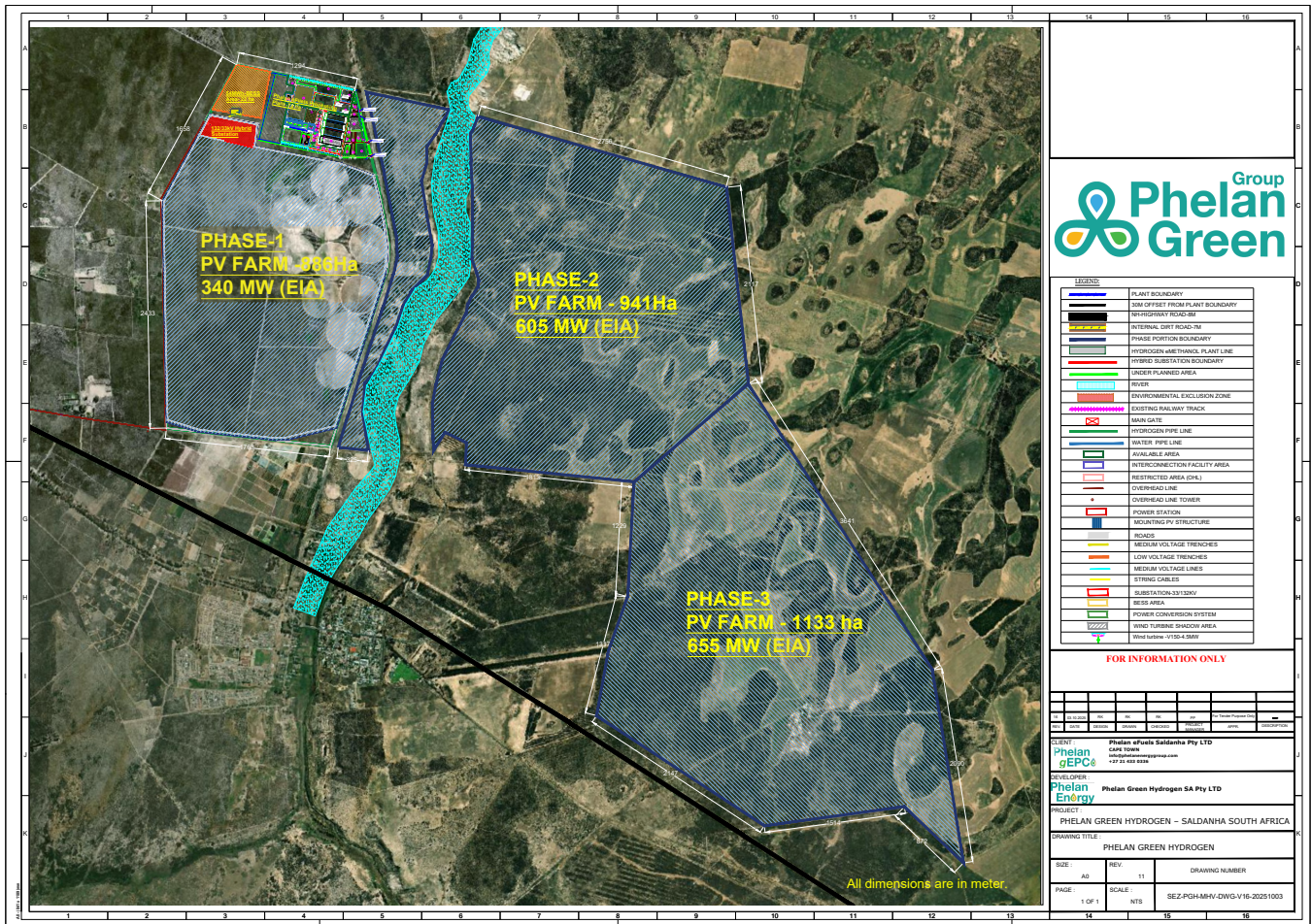


Figure 2: Location Map

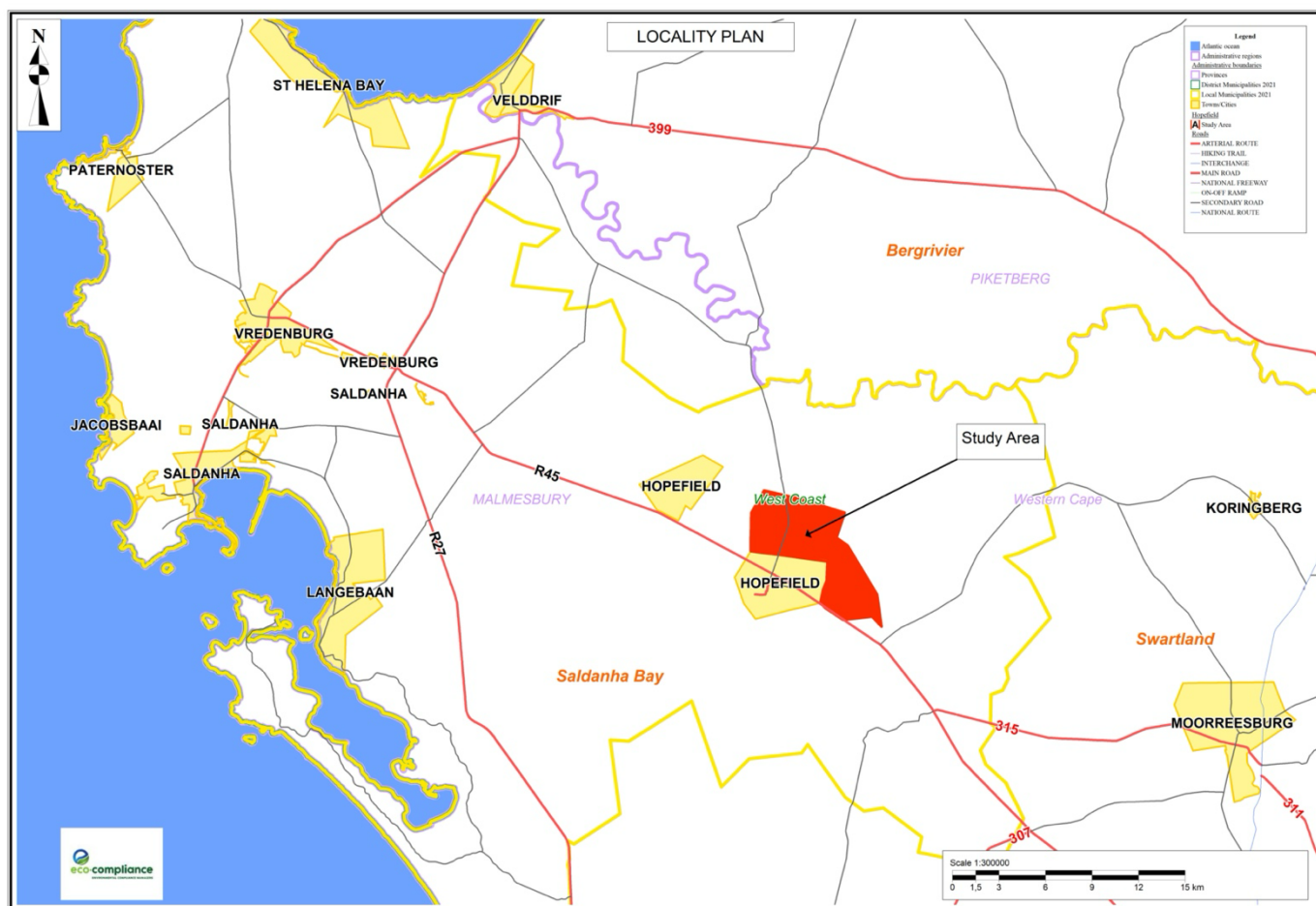


Figure 3: Locality map (Map in Appendix O)

2.4 Description of Proposed Activity Components

2.4.1 Technical Components

The following technical components are proposed (Table 6):

Table 5: Summary of Technical Components

Technical component	Capacity
Total study area footprint	3252ha
Installed capacity	0MW
Technology	Solar PV
Plant Peak Power Rating	1.6GW
BESS	5.4GWh
Planned voltage connection level	Up to 132kV
Onsite Substations	132kV/33kV
Ground clearance	Up to 1m

2.4.2 Solar Panels Layout

The site layout of the solar panels will be arranged as indicated in Figure 5:

The solar power generation unit consists of cells, modules, and arrays. The PV cell is the device that generates electricity when exposed to solar radiation. The absorbed solar energy excites the electrons (photovoltaic) inside the PV cell and produces electrical energy in direct current.

The PV module is the set of interconnected photovoltaic cells (appearing blue or black) encapsulated between a transparent front and mounted in an aluminium frame or laminated between durable glass sheets. The transparent material is usually glass. Modules are designed to absorb the solar radiation. Several modules together form a solar panel.

The PV array is the complete power generating plant consisting of multiple PV modules (panels). These may be arranged in series and in parallel. The PV modules will be connected by cables to combiner boxes mounted underneath the PV module mounting steel structures. The cables transmit direct current. The overall power generated from solar radiation by the module strings is combined in the combiner box and transmitted through direct current cables to an inverter and transformer enclosure. Where necessary, multiple PV modules are bolted onto a mounting structure which tracks the sun's progress across the sky usually in an east to west direction, such that they move to face the maximum radiation as the day goes. This maximises the amount of photovoltaic energy transmitted.



Figure 4: Site illustration of solar PV layout

A typical solar PV component is as indicated below (Figure 5-7):

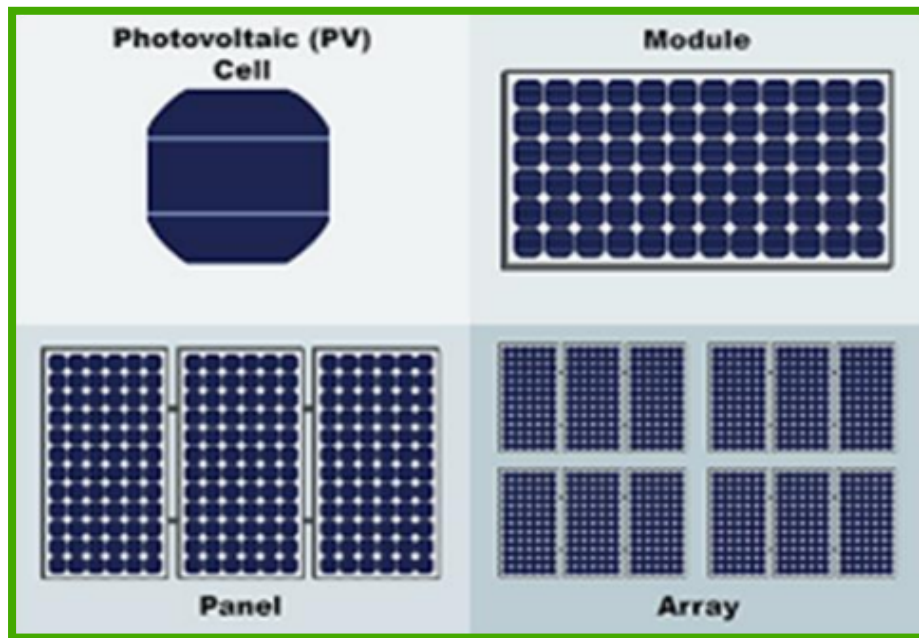


Figure 5: Cell, Module and Array Source: Cells, Modules, and Arrays (ucf.edu)

The site plant will be in fields of varying voltage blocks:

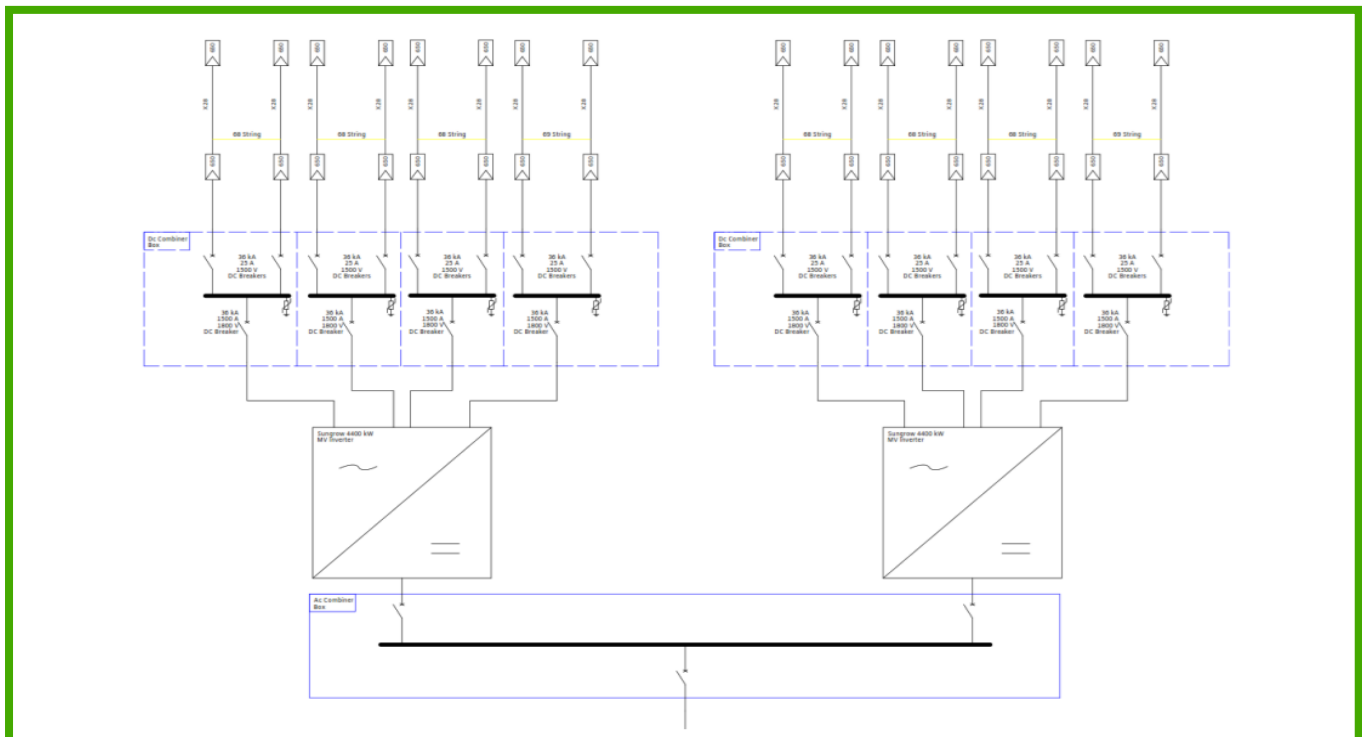


Figure 6: Building Blocks

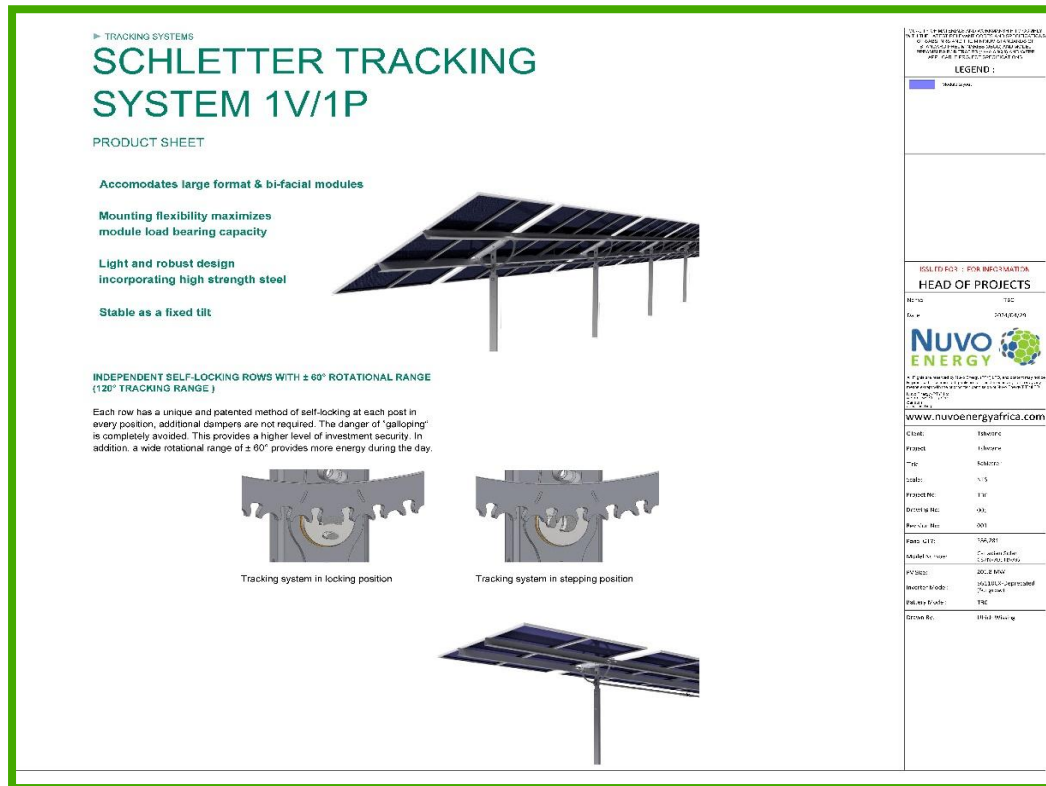


Figure 7: Solar panel design detail

2.4.3 Substation and power lines

- Each solar project will utilise a 33 kV underground cable network for internal power collection across the various sections and fields of the plant. The power will be stepped up to 132 kV at the on-site substation and evacuated via an overhead transmission line through a hybrid pooling and switching station to the Aurora Main Transformer Station.
- The on-site substation, hybrid pooling and switching station and Main Transformer Station co-ordinates are given below:

Alpha Substation	33° 1'18.31"S	18°19'50.43"E
Bravo Substation	33° 2'8.61"S	18°21'54.30"E
Delta Substation	33° 3'2.23"S	18°23'3.37"E
Hybrid Pooling and Switching Station	33° 0'59.89"S	18°20'7.20"E
Aurora Main Transformer Station	33° 0'25.65"S	18°14'4.45"E

Disclaimer/Note: The final layout plan for the design of the powerline cable network will be submitted to the competent authority prior to commencement of the construction phase.

2.4.4 Corridor Perimeter (Cable Network)

The solar panels from different fields will be connected via an underground network of cables laid along the internal access road network. The internal access roads are approximately 5-8m wide. The external perimeter which will be constructed to 6m which also be used for security patrols..

2.4.5 Battery Energy Storage System (BESS)

A Battery Energy Storage System (BESS) is proposed as part of the solar energy facility to store excess electrical energy generated by the photovoltaic plant and dispatch this energy in a controlled manner to support the downstream eFuel production facility. The final BESS technology, configuration and installed capacity will be confirmed during the detailed design phase and presented to the competent authorities for consideration and approval

The BESS will consist of a modular containerised lithium-ion battery storage system integrated with power conversion equipment, medium-voltage (MV) electrical infrastructure, and an advanced energy management and control system. The system will enable controlled charging and discharging of stored energy, thereby smoothing the intermittency of solar generation and providing a stable and predictable power profile to the eFuel production process.

The battery technology proposed for consideration utilises lithium-iron-phosphate (LFP) electrochemical cells arranged into modules, packs, and rack assemblies within purpose-built battery containers. Each containerised unit incorporates battery racks, battery management electronics, thermal management systems, and auxiliary electrical equipment within a sealed enclosure designed for outdoor industrial environments. The battery systems operate within a DC voltage architecture typically in the range of approximately 1000–1500 VDC and are interfaced with grid-connected power conversion units that convert DC energy to alternating current (AC) for integration with the facility electrical network.

Each battery container is equipped with an integrated **Battery Management System (BMS)** with multi-layer architecture including pack-level battery monitoring units, rack-level management controllers, and system-level supervisory controllers. The BMS continuously monitors key parameters such as voltage, temperature, current, and state-of-charge (SOC), while also performing functions including cell balancing, fault detection, protection management, and performance optimisation. These systems communicate with the overall Energy Management System (EMS) and plant supervisory control systems to coordinate charging and discharging schedules and ensure safe system operation.

The BESS will also incorporate bidirectional **power conversion systems (PCS)** that enable controlled charge and discharge operation. These converters regulate voltage and frequency and support grid-connected operation, including active and reactive power control, voltage regulation, and frequency response capabilities. The PCS units typically achieve high electrical conversion efficiency and are designed to support dynamic grid conditions while maintaining stable system operation.

Thermal management of the battery system is achieved through a closed-loop liquid cooling system integrated within each container. Cooling plates are positioned in direct contact with battery modules, allowing heat to be transferred through circulating coolant loops that regulate the operating temperature of the battery cells and power electronics. This thermal management system maintains the batteries within their optimal operating temperature range and ensures uniform temperature distribution across the battery racks.

To ensure operational safety, the containerised battery systems include multiple integrated protection and fire mitigation systems. These include smoke and heat detection, flammable gas monitoring, emergency ventilation systems, explosion relief panels, and fire suppression equipment integrated with a container-level fire alarm control panel. These safety systems are designed in accordance with international battery safety standards and provide automated monitoring and emergency response capability.

Electrical integration of the BESS with the solar facility will be achieved through dedicated medium-voltage substations associated with the battery system. These substations incorporate step-up transformers, switchgear, ring-main units, and control cabinets that interface the battery system with the facility's medium-voltage distribution network. This arrangement allows the BESS to operate as a fully integrated component of the solar plant electrical infrastructure.

Operationally, the BESS will be controlled through a plant-level Energy Management System (EMS) that coordinates energy flows between the solar generation facility, the battery storage system, and the eFuel production plant. The EMS will optimise charging during periods of excess solar generation and dispatch stored energy during periods of reduced solar output or when stable power supply is required by the eFuel production process.

The BESS will therefore provide several operational functions within the facility, including:

- Storage of surplus solar generation during periods of high production
- Controlled energy dispatch to maintain a stable supply to the eFuel production facility
- Reduction of short-term variability in solar output
- Operational flexibility for plant energy management and optimisation

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The system will be designed for long-term industrial operation under site-specific environmental conditions and will comply with relevant international electrical, safety, and battery performance standards.

2.4.6 Site facilities

Site offices will include O&M buildings, admin, workshop, gatehouse, security, control centre, offices, warehouses, etc. No residential housing will be developed for full time lodging onsite. This infrastructure will cover an area of approximately 1ha. The exact location of the site offices will be confirmed as the location, design and final layout of the facility progresses and will be submitted to DFFE for approval. During the construction and operational phases, employees will be transported from nearby towns to site and back after each shift. Ablution facilities will be developed on temporary basis, for the times there are people onsite, with timely disposal and servicing of waste. Temporary storage area, in form of movable containers will be availed onsite for construction materials. A laydown area of approximately 2ha for temporary storage of machinery and supplies will also be established during full time work onsite and demolished on completion of the project implementation.

2.4.7 Roads and Transport

The proposed solar PV will be accessed through the R45 and R27 from Malmesbury to Hopefield and Velddrift respectively. The existing main access road, parallel to the perimeter fencing is currently 4m wide and will be widened to a maximum of 8m to allow for turning points. The internal roads that will be established will have a maximum width of 6m and will be gravel and/or dirt roads. Where road networks cross near streams or rivers, relevant permits must be obtained. Corridors will be constructed between the solar panels to provide access for operation and maintenance of the infrastructure.

Road signage, stormwater channels and drainage controls will be required. The internal site road network will be finalised during the detailed engineering phase of the project (i.e. post EA). During the operation phase, the internal roads will provide access to the solar field and associated infrastructure for maintenance, inspections, and panel cleaning.

2.4.8 Support infrastructure

Solar offices are proposed for administration needs of the solar facility operations. Movable containers will be considered as an alternative to building a permanent structure. Solar farm entrance security point will also be established for restricted access to Solar facility components.

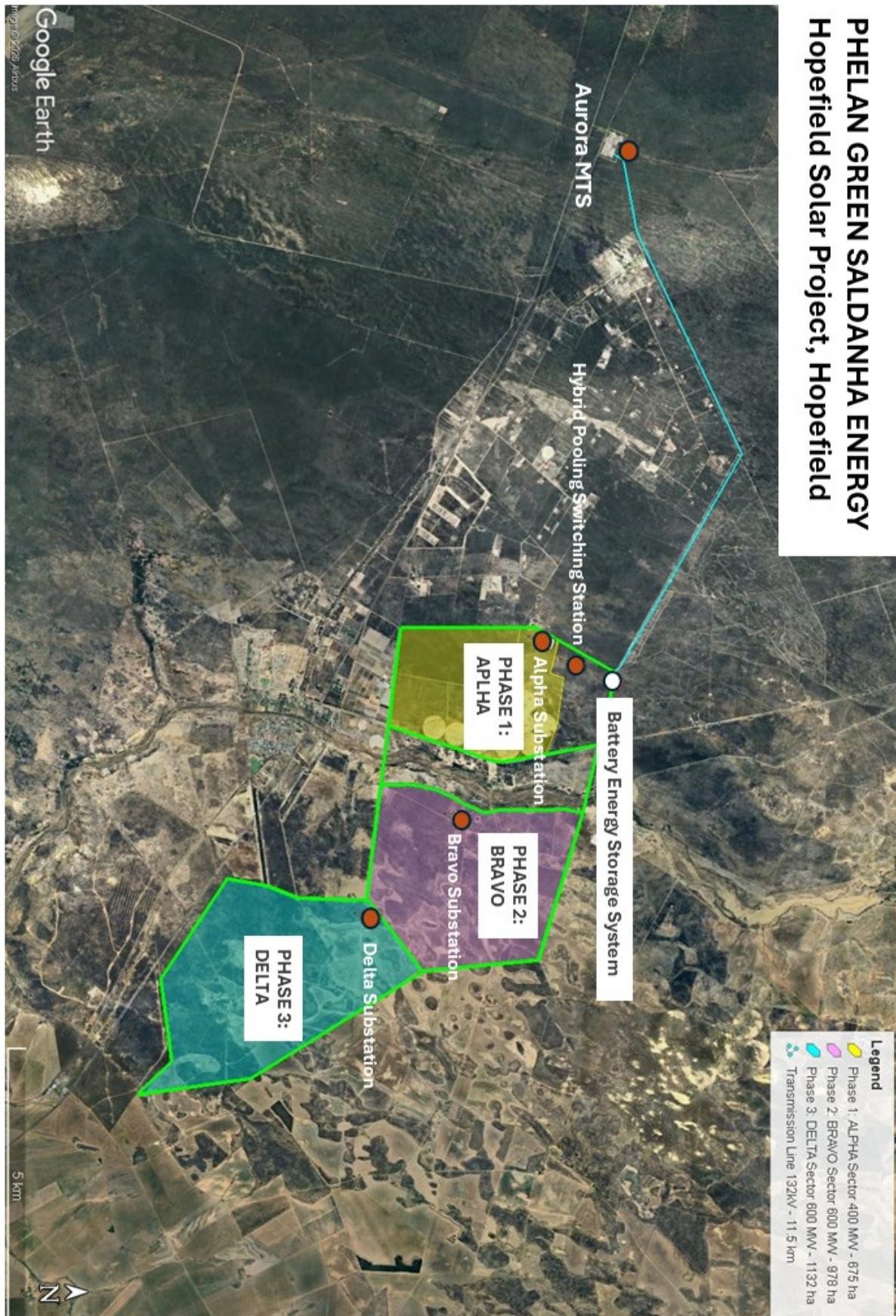


Figure 8: Conceptual Infrastructure Design

2.4.9 Water Infrastructure

Onsite personnel and contractor(s) will require water for onsite potable uses, including drinking and sanitary requirements. Water will also be used in the preparation of the foundations for the office space and security gate. A water storage tank will store water for onsite uses including drinking and hygiene. Details of the capacity of the water storage tanks will be confirmed in the EIA phase and in the Water Use Licence application. An external service provider will be engaged to supply water of adequate quality for human consumption. Sanitation services will be required for site workers in the form of chemical toilets, which will be serviced at regular intervals by a service provider. It is common for solar energy facilities to use water to clean their solar panels, however, Hopefield is a water scarce area, alternative methods for cleaning must be considered.

The runoff from stormwater during rainy days will be collected naturally under natural drainage lines into a stormwater drain within the road servitudes and allowed to freely flow into the natural environment. The runoff will not be contaminated by any activities onsite. A stormwater management plan will be developed to manage runoff onsite.

2.4.10 Energy Infrastructure

Portable diesel generator units will be considered for use and as temporary power sources for certain tasks such as welding, however, the site's electricity requirements will be met using power from the renewable energy resource. Power will be required for the offices and security gate. These requirements will be met with solar panels. The primary aim is to reduce carbon footprint and keep the facility completely green.

2.4.11 Security

A non-electrified anti-climb boundary fence with perimeter low-intensity lighting is proposed around the perimeter of the solar PV plant, with a manned controlled access into the facility. Remotely controlled surveillance cameras around the site will be installed for security purposes and to also monitor movements of fauna

2.4.12 Waste management

The waste produced onsite will be managed through the existing municipal disposal sites. Where local municipal disposal sites cannot handle specific site waste such as hazardous waste, that will be trucked to the nearest licensed hazardous waste site. A waste manifest will be kept up to date to ensure none of the site generated waste ends up polluting the environment.

Types of waste that are expected during the life cycle of the solar

PV project include:

- Domestic wastes including paper, office waste, food waste and detergents.
- Sewage wastes from sanitation and toilet facilities onsite
- Industrial wastes including building rubble, electrical and plastic material.
- Hazardous waste including used oils and grease, paints, and solvents.
- Metal waste including usable and unusable scrap metal.
- Polystyrene from solar panel boxes

Waste receptacles will be provided in colour codes and labels for separation of waste on collection, and external service provider engaged for disposal off-site at designated and registered waste disposal site within Saldanha Bay Local Municipality.

2.5 *Planned Life of Solar Facility*

The estimated life of the project is approximately 25-30 years if its properly maintained.

3. NEEDS AND DESIRABILITY OF PROPOSED PROJECT

An overview of the need and desirability of the proposed solar PV project indicates positive contributions to the need for green power supply to the planned eFuel Production facility. Being a renewable resource, solar power is a much-preferred alternative compared to the currently dominating coal powered power stations around South Africa. The intention is not to have any fossil fuel in the value chain of the production of eFuel and the overall project will be completely green.

The national power demand has been growing, countered by the frequent breakdown of some operating units at the active power stations. This has resulted in the limited supply of electricity for South Africa. The generation of power through other reliable, renewable and long-term cleaner options has been considered a viable alternative by the national government as opposed to coal. As such, there is an increase in the support given to solar PV developments, evidenced by reduced timelines in assessment of such projects in environmental authorisation process.

Hopefield has favourable weather for the proposed project that can be utilised to maximise the area's potential for solar power production. South Africa experiences some of the highest levels of solar radiation in the world (between 4.5 and 6.5 kWh/m²) and has considerable solar resource potential for solar water heating applications, solar photovoltaic and Concentrated Solar Power (CSP) generation.

The urgency of the national agenda on improving electricity supply and reducing loadshedding, addressing climate change, decarbonisation and increasing the proportion of low-carbon energy sources is supported by the development. The project will commercially prove that the renewable energy source to electricity offers attractive economic returns based on the expected future price of electricity in South Africa.

As the global economy places more importance on climate change, the cost of carbon has become an increasingly important factor. This continued desire for energy supply security, electricity price stability and reduced environmental impact from power generation makes effective and sustainable energy generation and management an important aspect of the country's economy.

The proposed solar PV project will contribute to towards low carbon sources of energy to reduce the company's carbon footprint. It will also address the internal electricity demand in the country with contribution to the national grid.

4. CONSIDERATION OF ALTERNATIVES

Solar PV energy systems produce electrical energy by converting photons "solar radiation" into electrons that can be used for electricity supply through solar panels that can capture such photons and store through a photoelectric effect. Different types of potential solar panels to be adopted are proposed and will be assessed in detail in the Impact Assessment Phase for the Proposed Project.

This section compares different alternatives for the proposed solar PV project. The proposed alternative, no action alternative and alternative energy sources are discussed.

4.1 *Proposed Activity Alternative*

Should the proposed solar PV project proceed, the energy produced will be used to power the green hydrogen and green methanol production facility in Hopefield ad also evacuated to Aurora via a 132kV powerline. This will avoid putting pressure on the national grid to supply the facility. Solar energy offers a cleaner and less intrusive renewable energy alternative compared to wind energy. Impacts associated with wind farms, particularly visual impacts and bird mortality are significantly higher than the solar energy facilities.

The Hopefield solar PV project is expected to create jobs from construction through its establishment and throughout the project's lifespan. This will mostly benefit the local communities and businesses.

A Community Trust will be established and funded by the applicant to fund local projects and small businesses. This formula has worked in other areas where the applicant operates and the communities have benefited immensely through

these funds. Examples include the installation of free wi-fi at schools and certain hotspots around De Aar town which has helped kids from poor background to access internet, the funding of Foetal Alcohol Syndrome (FAS) programmes in De Aar through the established Community Trust which has resulted in significant reduction of FAS in the area.

New contractors and unemployed skilled and disadvantaged groups have an opportunity to get employment and business opportunities at the solar energy facility, towards improved income and livelihood support.

Any potentially significant environmental issues associated with the project will be managed in such a manner that benefits are maximised and negative impacts minimised. The proposed renewable energy plant has more positive impacts outweighing the negative ones in the preliminary scoping study done. Impacts are mainly during construction phase; no new or cumulative impacts are anticipated during operation and maintenance. The status quo of the local receiving environment would be affected by the project-related activities in a manner that is manageable, and establishment of solar panels can be done with environmental consideration to the benefit of both the development company and the environment that currently exist on site and surrounding areas. This report is part of an environmental assessment process that considers environmental aspects potentially affected by the proposed project, to the success of the anticipated energy generation project.

4.2 The No-action /Current Scenario Alternative

As standard practice and to satisfy regulatory requirements, the option of not proceeding with the project is included in the evaluation of the alternatives. This means that if the proposed project is not pursued, and the status quo is maintained, the no-go option should be considered. In this case of proposing solar PV energy production in Hopefield will significantly improve the socio-economic profile of the Municipality as a whole.

It is reported that the SBIDZ had created 2,911 jobs; attracted over R21 billion in investments; leased approximately 18% of its gross area; offered skills training to over 2,300 beneficiaries; and spent over R200 million (~35%) on local subcontractors (The Green Connection, 2023: 11). In 2022, it was reported that SBM had a broad unemployment rate (all residents of working age that are unemployed) of 26,5% and narrow unemployment rate (residents of working age that are unemployed and actively seeking employment) of 17,6% (The Green Connection, 2022). High unemployment is often correlated with increased levels of poverty and social instability, which can contribute to a rise in criminal activities. The renewable energy project proposed by PGSE is recognized as a major economic driver for Saldanha Bay. During its five-year installation phase, the project is expected to generate over 2 500 jobs, and once completed, it is anticipated to support more than 500 permanent specialized positions (Green Building Africa, 2023).

The implications of the no-go option are as follows:

- The projected investment opportunity of over R1bill into Hopefield will not be realised. This will be a missed opportunity for both local communities and businesses.
- The project number of jobs anticipated will not be realised in order to improve people's lives.
- The approximately 500 permanent jobs for more than 30-year life of development project will not be realised.

4.3 Technology alternatives

An alternative renewable energy source is wind and hydropower energy sources. The site does not have required water sources for hydro electricity generation. The option for wind turbines has not been considered due to the impacts associated with wind farms.

Various technologies are available for solar PV plants. Since the onset of the electricity crisis, there has been options for solar panels, inverters and different technological options provided in the market for both domestic small scale and large-scale solar power generation. The various options will be explored further in the EIA and EMP stage.

4.4 The Location Alternatives

The targeted location or the solar PV power generation project will be Hopefield, Western Cape Province. Due to the favourable weather that offers vast amounts of solar radiation and a need to reduce the unemployment rate in the SBM, Hopefield is ideal location for the project. More than 10 other solar PV plants have been confirmed within a 30km radius of the site. These do not offer any competition to this proposed development, but all rather complement each other as they attempt to assist in energy production boost through exploitation of renewable sources

The development site is traversed by the Sout River and the ecosystem about that area will remain undisturbed. An appropriate buffer zone will be put in place to protect this area. The applicant currently owns the farms where the development is proposed and no confirmed land claims on the properties. An access road can be developed from either from R45 or R27 roads. Details and options will be discussed further in the EIA phase. A location alternative would mean reconsidering land tenure options and negotiations with landowners. A location alternative is therefore not considered.

5. LEGISLATIVE FRAMEWORK

5.1 Introduction

This section presents the relevant legislative requirements for the proposed solar PV development project. Due to the nature of the activity proposed, its background environmental setting, and surrounding land uses, various pieces of legislation requirements are triggered. There are several regulatory requirements at local, provincial, and national level with which the proposed project must conform. Some of the key environmental legal requirements include the following:

- The Constitution of South Africa, (Act 108 of 1996)
- National Environmental Management Act (Act 107 of 1998), as amended (NEMA);
- EIA Regulations 2017, as amended and promulgated in terms of NEMA.
- National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM: AQA).
- National Environmental Management: Waste Act (Act 59 of 2008) (NEM: WA);
- National Water Act (Act 36 of 1998) (NWA).
- National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA).
- National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEM:PA);
- National Forests Act (Act 30 of 1998) (NFA); etc

A summary of the EAP understanding of the listed and considered relevant Acts and Regulations that are most applicable to this study is provided below. Details of the other regulatory requirements will be detailed in the EIA reporting.

5.2 International Legislation

The United Nations Framework Convention on Climate Change and Kyoto Protocol are international environmental agreements that speaks to addressing the global challenge of climate change. Nations signed the protocol at the United Nations Conference on Environment and Development (UNCED), known as the Earth Summit in Rio de Janeiro in 1992. The treaty sought to stabilize greenhouse gas emissions in the atmosphere to a level that prevents human-induced interference with the earth's climate system. Six greenhouse gases namely carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆).

The Paris Agreement in terms of the United Nations Framework for Climate Change (UNFCCC) was signed in 2016 at COP21 held in Le Bourget near Paris, France on climate change, mitigation, adaptation, and finance signed. The agreement followed the previous Kyoto Protocol, and addressed issues of global temperature rise and associated risks and impacts of climate change.

The nations, including South Africa target to limit and reduce their greenhouse emissions by adopting policies, mitigation and to reporting of greenhouse gas emissions. The National Climate Change Response Policy, Climate Change Bill, and the Carbon Tax Act, 2019 (Act No. 15 of 2019) were enacted towards such commitments. The National government in South Africa has since prioritised the procurement of electricity from renewable energy technologies through the Integrated Resources Plan (IRP) and the Renewable Independent Power Producer Programme (REIPPPP) in response to requirements of commitments to the Paris Agreement. Although the proposed development will mainly supply the eFuel production facility, options to connect to the grid are also being considered. Furthermore, the project will also be a clean source of power, supporting the reduction of greenhouse gas emissions in energy production in the country, as the nation works to reduce carbon emissions, aligning with the Paris Agreement requirements.

5.3 Constitution of South Africa, 1996

The Constitution of the Republic of South Africa (Act No. 108 of 1996) applies to all development projects that affect human environment. The Constitution enshrines the concept of sustainability, specifying rights regarding the environment, water, access to information and just administrative action. Section 24 states that everyone has a right –

- a) To an environment that is not harmful to their health or wellbeing.
- b) To have the environment protected for the benefit of the present and future generations through reasonable legislative and other measures that includes:
 - Prevent pollution, promote conservation and ecological degradation
 - Promoting sustainable development and use of natural resources.

Reasonable legislative and other measures are necessary, that:

- Prevent pollution and ecological degradation.
- Promote conservation.
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The proposed solar farm will disturb the natural environment that existed before the development. All activities during construction, establishment and operation of the proposed solar PV development should ensure an environment that supports human health and wellbeing. Sustainable development of the Hopefield PV project is crucial to ensure that PGSE, their employees, neighbouring industries, and surrounding communities within the SBM are not exposed to harmful conditions that may affect their health and wellbeing. Scoping plays an important role in the investigation of environmental

setting of the proposed project area, and provision of preliminary results on how the environment is likely to be affected. The impacts on the environment determine how the health and wellbeing of present and future generations will be affected.

5.4 National Environmental Management Act (NEMA), 1998

NEMA establishes a set of principles to consider in decision making, including:

- Consideration of sustainability in the proposed development
- Avoidance, minimisation, or remediation of potential pollution
- Avoidance, minimisation, and reuse/recycling of waste produced.
- Avoidance or minimisation of potential impacts
- Consideration of environmental consequences throughout the entire life cycle of the policy, project, product, or service.

Section 28(1) states that

“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”.

If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. NEMA also provides key principles in development, such that it is socially, economically, and environmentally sustainable. The Act also gives structure to environmental management in South Africa, where people and their needs should be considered to serve their physical, psychological, developmental, cultural, and social interests equitably. Public participation is guided, and decisions must consider the interests, needs and values of all interested and affected parties (I&APs). A framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals is provided in Section 5. Environmental authorisations are guided in Section 24, which is further supported by the EIA Regulations and Listing Notices.

The potential impacts of the proposed solar PV facility on the affected environment must be considered, investigated, assessed, and reported on to the competent authority. An independent Environmental Assessment Practitioner (EAP) should undertake an EIA before the project can commence. The EAP should assess the impact of proposed activity on the environment and seek environmental authorisation on behalf of the proponent. The environmental responsibility lies with the proponent to eliminate sources of pollution, reduce, avoid, or remediate consequences of pollution in all the environments including water, air, soil, and land.

5.5 The EIA Regulation 327 of 2017

The EIA Regulations as amended in 2014 published in Government Notice (GN) R 982 and as amended by GN No. 326 of 7 April 2017 control the management of listed activities in South Africa. The listed activities are detailed in the following notices:

GN R983: Listing Notice 1; as amended by GN R 327 of 7 April 2017,

GN R 984: Listing Notice 2; as amended by GN R 325 of 7 April 2017 and

GN R 985: Listing Notice 3; as amended by GN R 324 of 7 April 2017.

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an EA issued by the competent authority. The EIA Regulations govern the process, methodologies, and requirements for the undertaking of EIAs in support of EA applications under two options of environmental authorisation processes, depending on the type of activity that is proposed. A Basic Assessment process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a Scoping and EIA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2.

The proposed solar PV farm and plant is prohibited from commencement before an environmental authorisation has been obtained from the competent authority. The proposed development includes activities listed in Listing Notice 2, therefore it is necessary that a full Scoping and EIA process is undertaken for the Department of Forestry, Fisheries and Environment (DFFE) considers the application in terms of NEMA. The relevant listing notices and articles applicable to the solar farm are discussed in Table 9 below.

Table 6: Relevant applicable listing notices as per EIA Regulations

Activity No(s):	Listing Notice 1 of the EIA Regulations, 2014 as amended	Relevant Project Activity
Activity 10	The construction 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;	An internal underground network of cables will be required for the transmission of power into the onsite substation
Activity 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; or	The Solar Plant will have an underground cable network to evacuate power from the facility to the onsite substation.

Activity 13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;	The fuel will be stored on site for use by onsite generators during welding, etc
Activity 18	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse;	The need for a river crossing to access other parts of the house
Activity 28(ii)	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 current land-use will need to be rezoned from agriculture to special use/industrial, and is located on several farm portions outside an urban area. The total area to be assessed for the Facility is approximately 2880ha (i.e. greater than 1 hectare).
Activity No(s):	Listing Notice 2 of the EIA Regulations, 2014 as amended	Relevant Project Activity
Activity 1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20MW or more excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs within an urban area	The proposed solar (PV) facilities would have a generation capacity of 1.6GW renewable solar energy as such this activity is triggered
Activity 14	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous goods, where such storage occurs in containers with a combined capacity of 80 cubic metres of more but not exceeding 500 cubic metres.	Mobile Fuel tanks for construction vehicles
Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for. (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The construction of the proposed solar PV plant will require vegetation clearance of more than 20ha for the preferred footprint

Activity No(s):	Listing Notice 3 of the EIA Regulations, 2014 as amended	Relevant Project Activity
Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. e. Western Cape i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas. (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority. (dd) Sites or areas identified in terms of an international convention. (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. (ff) Core areas in biosphere reserves.	The main access road will be widened to accommodate construction vehicles.
Activity 10(e)(i)	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres in (e) the Limpopo Province (i) all areas.	The construction phase will have diesel tanks for construction vehicles

The most appropriate listing notice applicable to the proposed project is Activity Number 1 of Listing Notice 2. The project therefore requires a Scoping an EIA process for environmental authorisation.

5.6 The National Water Act (NWA)

The National Water Act (NWA) (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and must ensure ecological integrity, economic growth and social equity when managing and using water. Authorisation of any triggered water uses is defined in Chapter 4 of the NWA. Any proposed development to submit applications to the competent authority, Regional Office of the Department of Water and Sanitation (DWS).

Section 21 of the NWA lists the following 11 water uses which can only be legitimately undertaken through the Water Use Licence (WUL) or General Authorisations issued by the DWS.

- Section 21(a): Taking water from a water resource.
- Section 21(b): Storing water.
- Section 21(c): impeding or diverting the flow of water in a watercourse.

- Section 21 (d): Engaging in a stream flow reduction activity.
- Section 21(g): Disposing of waste in a manner which may detrimentally impact on a water resource.
- Section 21 (h): Disposing of waste in a manner which contains waste from, or which has been heated in any industrial or power generation process.
- Section 21 (i): altering the bed, banks, course, or characteristics of a watercourse.

The NWA is the primary legislation regulating both the use of water and the pollution of water resources. A person can only be entitled to use water if the use is permissible under the Act. Water Use is defined broadly and must be licensed unless it is listed in Schedule 1 as an existing water use or is permissible under general authorization. Possible water uses that could triggered by the Proposed Project include section 21(a), section 21(b) of the National Water Act. An application for a WUL or General Authorisation (GA) must be undertaken in accordance with the regulations of GN R267 of 2017 and be submitted to the competent authority following the granting of an EA. The IWUL application for any identified triggered water uses will be undertaken as a separate process and does not form part of this S&EIR process.

5.7 The National Environmental Management: Waste Management Act (Act 59 of 2008)

The National Environmental Management Waste Act (NEM: WA) (Act no 59 of 2008) provides for the control of waste management activities likely to have a detrimental effect on the environment. The Act aims at waste management that targets the following, among other objectives:

- to protect health and the environment by providing reasonable measures to prevent pollution
- to provide for institutional arrangements and planning matters,
- to provide for the licensing and control of waste management activities,
- to provide for the remediation of contaminated land.

The NEMWA governs and guides the identification and licensing waste management activities. Listed waste management activities above certain thresholds are subject to a process of impact assessment and licensing. Activities listed in Category A require a BA process, while activities listed in Category B require an EIA process. NEM: WA also provides for the setting of norms and standards for the storage and disposal of waste. These norms and standards are listed in GN R 926 of 2013 (storage) and GN R 636 of 2013 (disposal).

The proposed development of the proposed project does not trigger a Listed Activity in terms of NEM: WA, thus a Waste Management License for the Project is not required. Any solid waste product produced during construction, establishment and operation of the solar farm and plant should be disposed of through regulated municipal sites.

5.8 **National Environmental Management: Air Quality Act, 2004 (No. 34 of 2004)**

The National Environmental Management: Air Quality Act (NEM: AQA) regulates all aspects of air quality, including the prevention of pollution and environmental degradation. The Act and its regulations provide for air quality monitoring, management, and control; and licencing of activities that result in atmospheric emissions and have or may have a significant detrimental effect on the environment.

Dust may be generated during construction phase of the proposed solar development project, especially on clearing of land for plant construction and road establishment. The National Dust Control Regulations, 2013 (GN R 827 of 2013) gazetted on 1 November 2013 prescribes general measures for the control of dust in all areas including residential and light commercial areas. The regulations provide a guideline for monitoring and measuring dust fall. Dust fall is assessed for nuisance impact and not an inhalation health impact.

5.9 **National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)**

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA), as amended, aims to provide for the management and conservation of South Africa's biodiversity. The Act provides a framework for the protection of species and ecosystems that warrant national protection, the sustainable use, fair and equitable sharing of benefits from indigenous biological resources. The Act covers:

- The management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998
- The protection of species and ecosystems requiring national protection
- The sustainable use of indigenous resources
- Fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources.
- The protection of threatened or protected ecosystems
- Guarding against the introduction of alien and invasive species.

The Act also identifies restricted activities involving listed threatened, protected or alien species, including picking parts of, cutting, chopping, uprooting, damaging, or destroying, any specimen of a listed threatened or protected species. As stipulated in Section 57 of the Act, a permit should be applied for where a restricted activity involving a specimen of a listed threatened or protected species is involved.

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5.10 National Forests Act, 1998 (No. 84 of 1998)

The National Forests Act (NFA) provides for the sustainable management and development of forests for the benefit of all, including providing special measures for the protection of certain forests and trees. Section 15(1) of the Act, guides that no person may cut, disturb, damage, or destroy any protected tree, except under a licence. In a case where a protected tree is identified within the study area of land for solar farm and plant, and needs to be cleared, the requirements of the Act should be followed. Land clearance for establishment of solar farm requires that the land be left bare for maximal harvesting of solar energy. Where trees should be cut, it should be established whether they are protected.

5.11 Occupational Health and Safety Act, 1993 (No. 85 of 1993)

The Occupational Health and Safety Act (OHS) provides for the health and safety of persons at work against hazards to health and safety arising from the work they are engaged in. Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.

The construction and operation of the proposed solar power will include activities that are deemed as hazards and/risk to the health and safety of the employees employed on the project. Such hazards/risks should be managed in accordance with the relevant requirements of the Act. Hazard identification and risk assessments should be done for each project component such that the health and safety of employees on construction, establishment, operation and maintenance of the facilities.

5.12 The Spatial Planning and Land Use Management Act, 2013 (No. 6 of 2013) (SPLUMA)

The Spatial Planning and Land Use Management Act, 2013 (Act No. 6 of 2013) aims to confirm and regulate the role of municipalities in land use planning and management. The municipalities have development programmes for the management of the residential, industrial and commercial environments within their jurisdiction.

The proposed solar project should consider the Integrated Development Plans (IDP) for West Coast District municipalities to ensure that the spatial planning and land use management is promoted. The social and economic priorities for the municipalities should be recognised to provide for the sustainable and efficient use of land and in line with SPLUMA. Land zoning, development requirements and associated responsibilities to local government should be considered.

6. DESCRIPTION OF RECEIVING ENVIRONMENT

6.1 *The Physical Environment*

The physical aspects of the environment surrounding the project site near Hopefield will be discussed in the following section. Only those aspects relevant to the development of a solar PV plant were selected. The baseline receiving environment provides a status against which to assess the proposed project activities and potential impacts.

6.1.1 *Climate*

The study area is discussed under the general weather and climate patterns surrounding Hopefield. The climatic information was retrieved from Meteoblue (retrieved 17 February 2024) indicates the following data as depicted in Figure 16, 17 and 18.

The area has hot summers and cold and wet winters, with the average highest and lowest temperatures at 39°C and 5°C respectively.

Figure 16 indicates the average precipitation in the Hopefield area. Hopefield receives most rainfall during the winter season, between June and Aug. The province has more sunny days all year through, which makes it ideal for solar energy production (Figure 17).

Hopefield

33.06°S, 18.35°E (36 m asl).

Model: ERA5T.

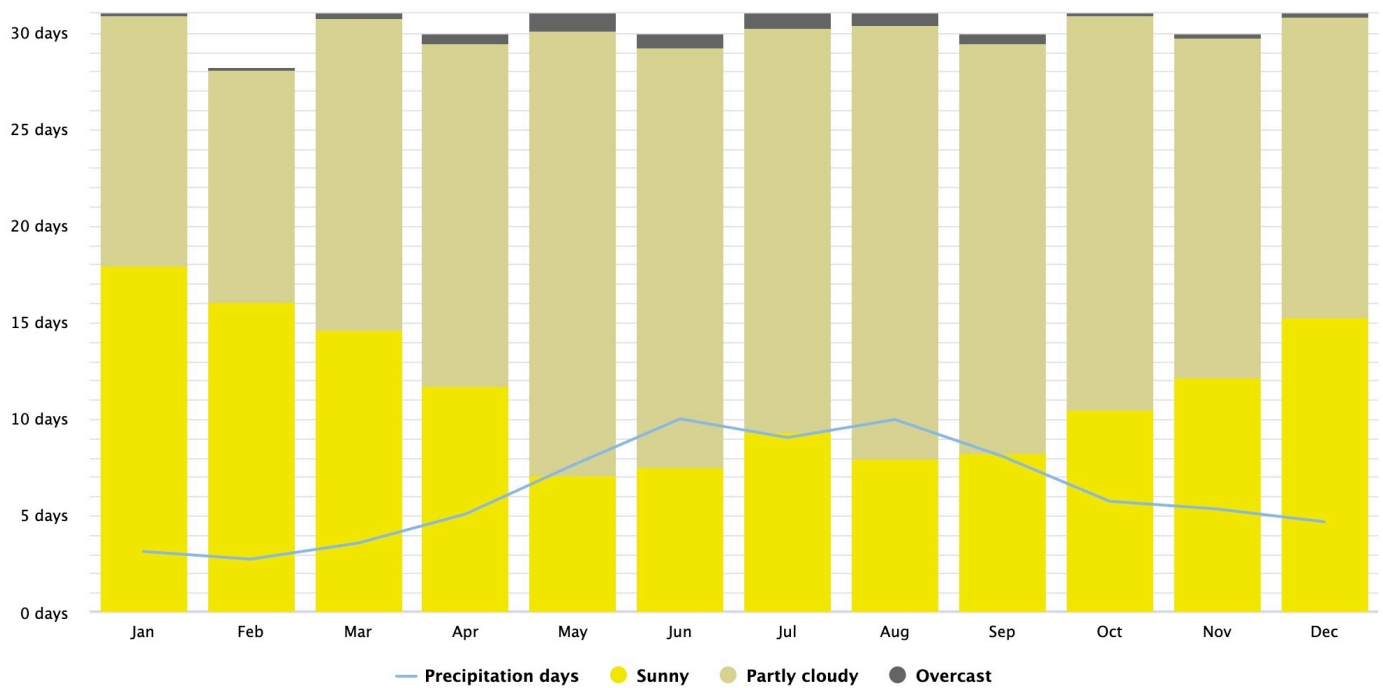


Figure 9: Sunny, cloudy and Precipitation Days

Hopefield

33.06°S, 18.35°E (36 m asl).

Model: ERA5T.

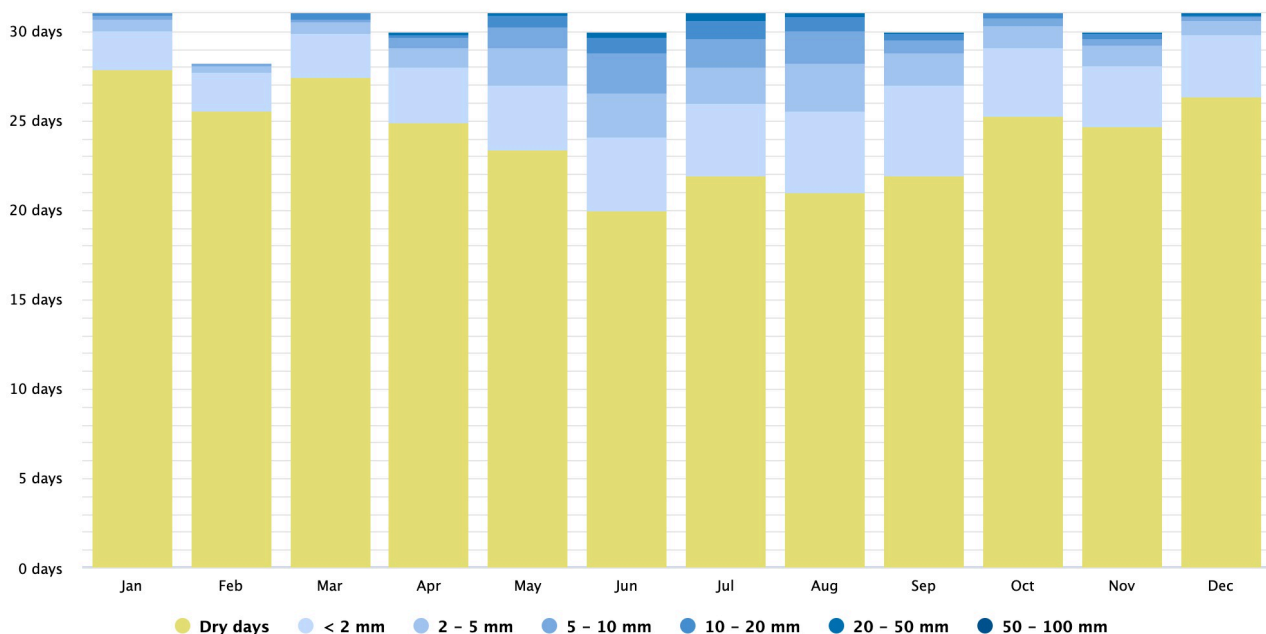


Figure 10: Precipitation amounts

Hopefield

33.06°S, 18.35°E (36 m asl).
Model: ERAST.

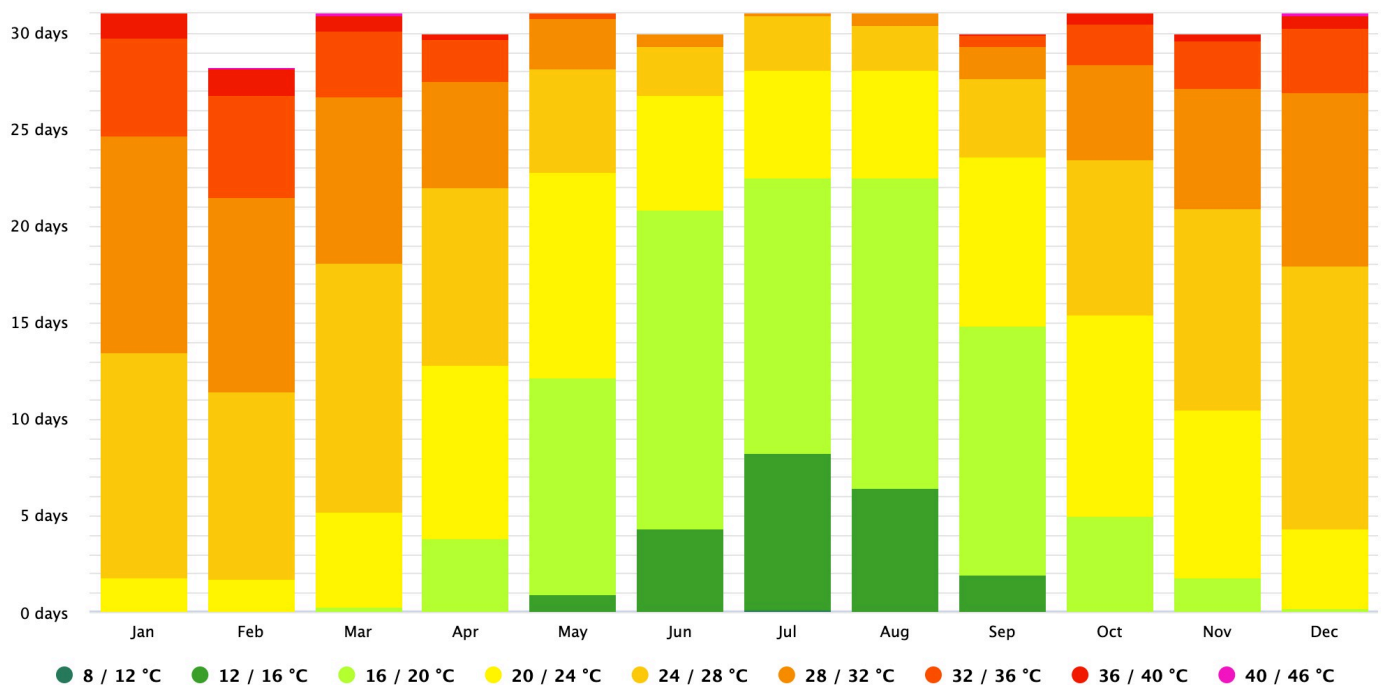


Figure 11: Maximum Temperatures

6.1.2 Geology

The geology of the study area in Hopefield is underlain by sediments that are highly calcretised with an extensive limestone hard pan exposed at or near the surface throughout the area. This is locally mantled by thin, unconsolidated quartzose sands and soils. Famous sites include the Elandsfontein (Hopefield) dune as well as Swartklip along the False Bay coast

The area is located in proximity to the Bushveld Igneous Complex, one of the world's largest layered igneous intrusions. The complex is known for its mineral-rich layers, including platinum, chromium, and vanadium deposits, which are crucial to the mining industry in the region.

The geological formations in SDM influence the groundwater systems in the area, including aquifers and water-bearing rocks. Understanding the hydrogeology of the region is essential for sustainable water resource management and land use planning.

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6.1.3 Topography

The topography around the study area is flat and makes it ideal for solar panel establishment. The topography of the area is characterized by a variety of terrain features typical of the SBM region. The study area includes relatively flat areas with undulating terrain, mostly on Remainder of Farm Portugees Fontyn 167, whereas Farm Theewatervlei 315 is mostly flat and would require minimal civil works. The area is traversed by various Sout River from the North to the South and these water features influence the topography of the area and provide habitats for diverse plant and animal species. Overall, the topography of study area in the Hopefield area possess minimal challenges to the proposed project and available technology to deliver this project.

6.1.4 Biodiversity

Vegetation

The proposed development site terrain is characterised by coastal sand plains, flat to undulating and also including localised inland dune fields. The vegetation is moderately tall shrubland and dense herbs. Fynbos is extensive and also occurs in seeps and along the watercourses. According to the studies undertaken, the following vegetation types are modelled as overlaying the study area

- Hopefield Sandy Fynbos
- Swartland Shale Renosterveld

The Hopefield Sandy Fynbos has been assigned a provincial threat status of **Vulnerable** and is considered **Hardly Protected** in terms of its protection status. More than 40% has been transformed through cultivation of cash crops (wheat) and livestock grazing (mainly sheep farming). Probably the greatest threat to the remaining natural areas of this unit is the proliferation of alien vegetation. Increased occurrence of aliens such as *Acacia saligna* , *A. cyclops* as well as various species of Pinus and Eucalyptus is of concern. A very small percentage of the vegetation type is statutory conserved, including an additional 2% in Hopefield and Jakkalsfontein Nature Reserves.

In terms of the conservation status of Swartland Shale Renosterveld, it is characterised by tall, open shrubland growing over undulating valleys and plains. It usually grows in clay soils that are derived from Malmesbury Group Shales. Termite mounds create large, round hummocks that are a prominent feature of this vegetation type. Indigenous trees and older thickets often occur around these features. In terms of conservation status, it is considered Critically Endangered. According to the Biodiversity specialist report, the vast majority of this vegetation has been lost through farming activities. According to the site visit undertaken as part of the EIA process, no Swartland Shale Renosterveld occurs on the proposed development site.

Mammals

The study site has undergone significant habitat alteration and transformation as a result of widespread agricultural land use and poor vegetation management. Disturbances related to historic crop cultivation and livestock keeping in particular have resulted in loss of optimal habitat and subsequently in diminished mammal populations. Spoor and dung encountered at the eastern boundary fence of the site indicated the presence of a small sized mammal. There is a likelihood of *Ictonyx striatus* (polecats) residing in the vicinity of the disturbed grasslands, most likely using the area for foraging and habitat.

No Red Data listed mammals were recorded within the study area associated with the project and the likelihood of any threatened mammal species being encountered within the area is considerably low. The watercourses (stream and wetlands) recorded with the study site, particularly the Sout River, are noteworthy as movement corridors for terrestrial faunal species, especially those with a preference for temperate conditions such as small rodent species and may be connected to other more suitable areas for foraging and roosting. The watercourses could also provide suitable habitat for sensitive and non-sensitive fauna species including amphibians. Furthermore the wetlands could provide breeding, foraging and roosting areas for a variety of fauna species.

Avifauna

According to the Biodiversity study, a total of 37 bird species were recorded within the study site (Table 5-9 of the Biodiversity Study). Thirteen (13) of the recorded bird species are common residents around settlements and have a generalist diet. This coupled with their generalist habitat requirements facilitates their presence within this disturbed environment. Approximately twelve (12) bird species (c.33%) are associated with disturbed grasslands. Approximately 25% of the bird species showed an affinity for freshwater habitat

It must be emphasised that avifauna will, by virtue of their mobility, utilise almost any area in a landscape from time to time. However, certain habitats (such as the riparian area of a watercourse) may present foraging opportunities and therefore are likely to harbour a high avian species diversity.

The watercourses (such as the Sout River) proximal to the study site were observed to have the highest species richness and abundance of bird species within the study area; surrounding ecosystems and habitats closest to the study site such as the Hopefield residential areas and disturbed agricultural lands were noted to be least productive. Avian species recorded closest to the riparian zone included: Southern Red Bishop, Spur-winged Goose, Yellow Weaver, Laughing Dove, Helmeted Guineafowl, Cape Turtle-Dove, Grey-headed Bush-shrike, Long-tailed Paradise Whydah, Grey Heron and Dark-capped Bulbul.

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No threatened species (Red Data species) were recorded within the study site during the survey. The increased levels of anthropogenic disturbance and associated habitat transformation and degradation, has likely resulted in the displacement of specialist avian species as well as threatened species. In most cases these are species sensitive to habitat disturbances and display secretive behaviour characteristics. However, the occurrence of Lanner Falcon (*Falco biarmicus*) were projected as moderate in the study area.

Reptiles

All reptilian species are sensitive to habitat modification and fragmentation. Due to the site having undergone modification and adjacent to a highway with high traffic flow, it is anticipated that mortalities of reptilian populations within the study area may have occurred to a certain degree. No species of conservation significance were modelled as present within the study area. The probability of occurrence of Red Data Species along the proposed project site is projected as very low due to anthropogenic disturbances that have occurred, however the fynbos vegetation community and watercourses associated with the study site may provide suitable habitat for some reptiles due to an abundance of frogs and rodents.

Potential Nocturnal Wildlife

According to the study undertaken, it is accepted that the study area does have nocturnal wildlife. The project area is home to diverse nocturnal fauna, including bats, owls and some invertebrates (Sinclair et al, 2020). Solar energy facilities offer sustainable energy solutions but can have negative ecological impacts if not planned and managed properly (Hernandez et al, 2014).

Potential impacts on nocturnal wildlife include; habitat loss and fragmentation, light pollution, disturbance from human activities mainly during construction phase. Proper mitigation measures must be applied to significantly reduce these impacts. This include the use of low-intensity, motion-activated, avoid upward-directed and broad spectrum lights (Rich & Longcore, 2006). Site selection and final layout must give preference to low-biodiversity areas informed by ground-truthing prior to development of the final layout plans.



Figure 12: Map indicating sensitivity of the area as CBA

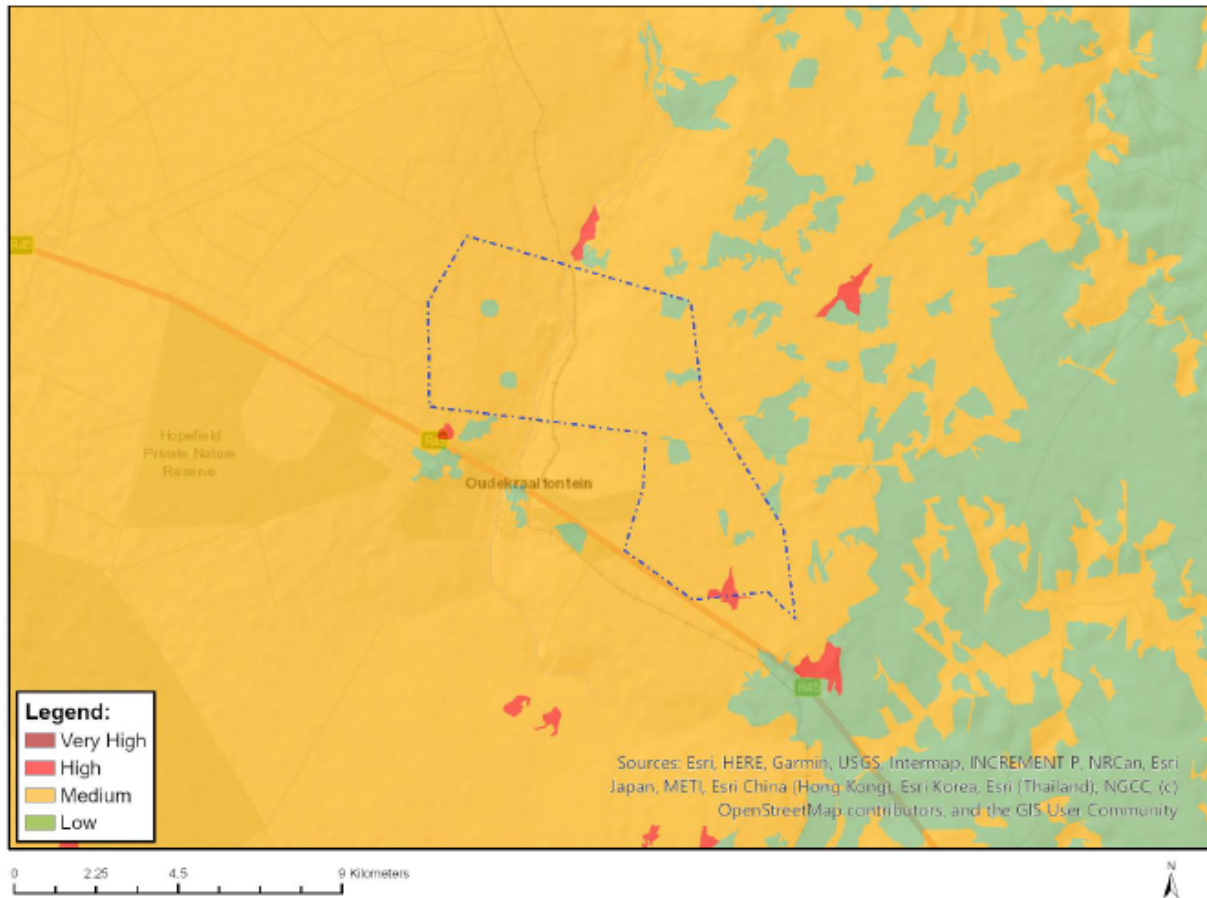


Figure 13: Plant Species Theme Sensitivity Map

6.1.5 Surface Hydrology

Based on the proposed location of the proposed activity, the project may have negative impacts, albeit to a lesser extent, on the wetland associated with the Sout River. These impacts include, but not limited to alteration of surface and subsurface flows, increase in pollutants and potentially sedimentation. For example, waste from blasting or excavations activities and use of hazardous chemicals could result in these substances entering and polluting wetland habitat, either directly through surface runoff during rainfall events, or via subsurface water movement. An increase in pollutants will lead to changes in the water quality of the wetland and affecting its ability to harbour aquatic biota. As such, mitigation measures are therefore key to limiting these impacts. The use of drip trays around parked machinery, when refuelling and appropriate storage of fuel will go a long way in mitigating these impacts. Any hazardous material must be stored in bunded areas to prevent any possible leakage into the surrounding environment. No servicing of vehicles on site which could lead to possible oil spillage and soil contamination.

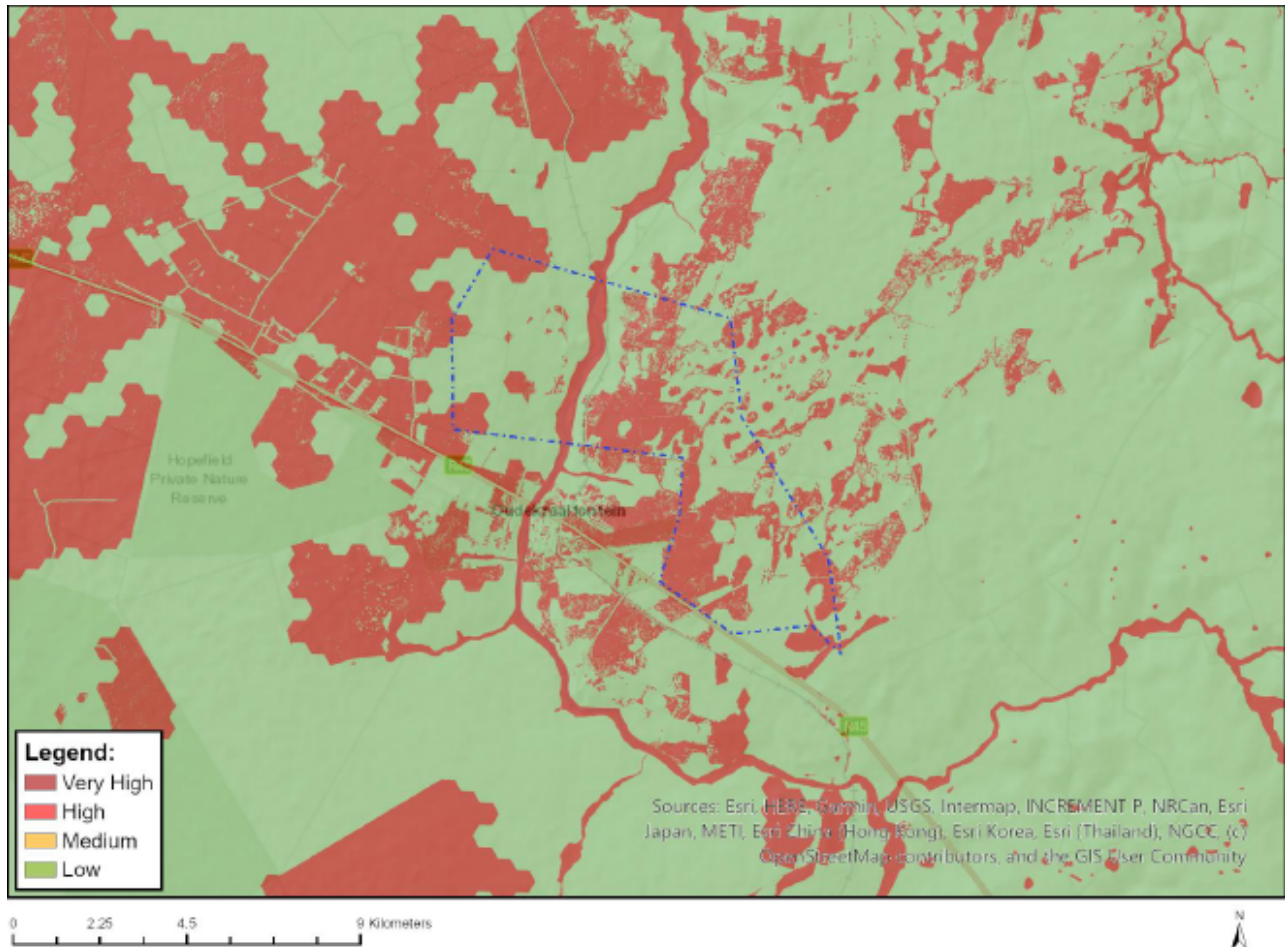


Figure 14: Aquatic biodiversity theme sensitivity

6.1.6 Land Use

The current land use within the project area is mainly covered by natural land on all three land portions. The overall SBM is diverse and is influenced by strategic coastal location and industrial infrastructure. The area hosts a major deep water port and Saldanha Bay Industrial Development Zone (SBIDZ), a designated Special Economic Zone (SEZ) that supports activities such as steel production, logistics, and maritime services. Residential and urban development is concentrated around key towns including Saldanha, Vredenburg, and Langebaan, where population growth has increased demand for housing, services, and infrastructure (SBM, 2023).

The area has a community of bee keepers for the production of honey for commercial purposes. Majority of the individual properties have no farming activities taking place to date.

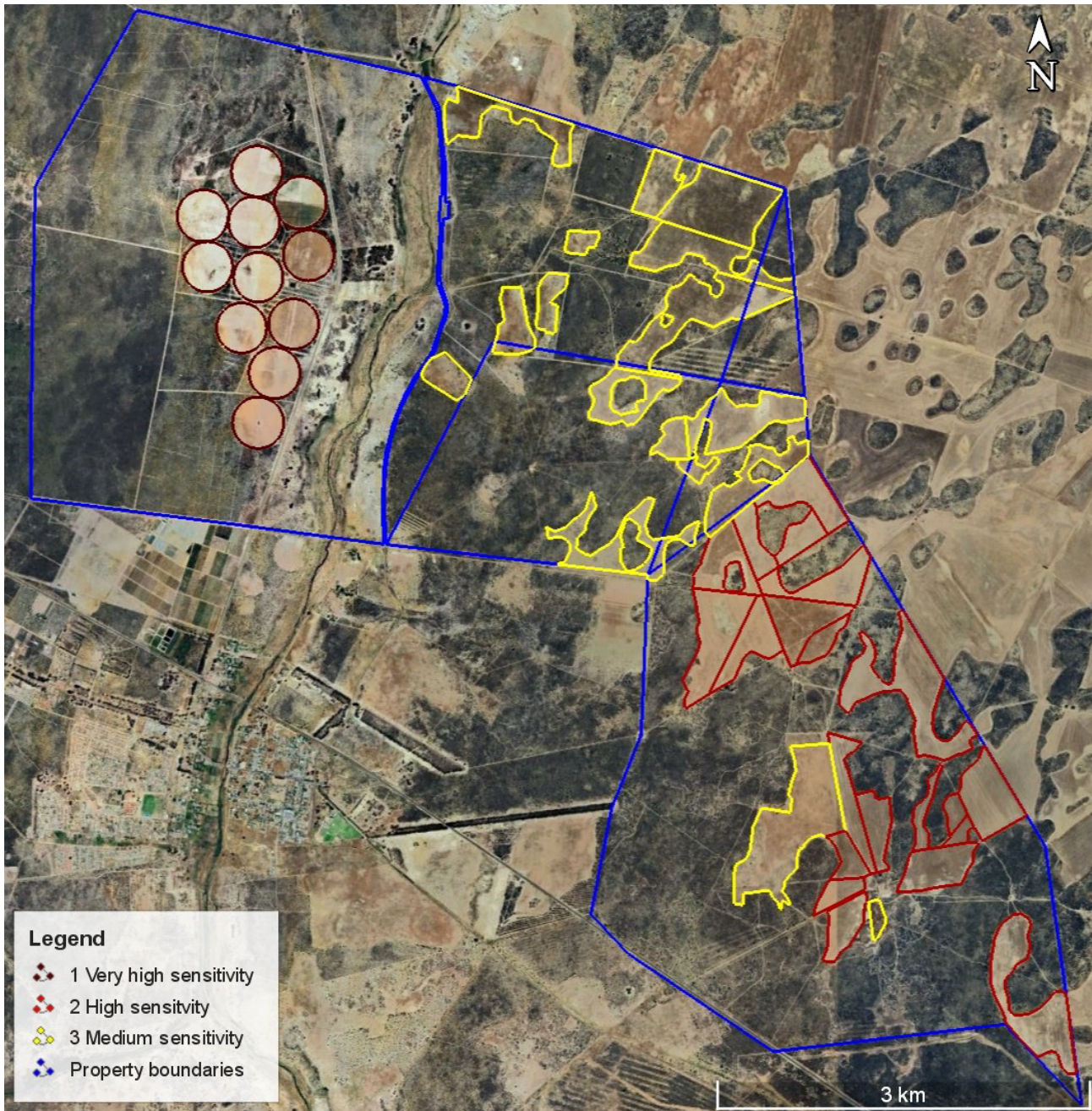


Figure 15: Land use and site sensitivity

6.2 Socio Economic Environment

A socio-economic baseline study is an essential tool for assessing the current socio-economic status of the study area. By examining key factors such as income, employment, education, healthcare access, and housing, the study offers a snapshot of living conditions and highlights potential vulnerabilities. More information will be provided in the EIA report.

6.2.1 Institutions and social set up

The Western Cape Province's economic activity is concentrated in the City of Cape Town metropolitan municipality (Cape Metro). The Western Cape has a well-developed and diversified economy, driven by key sectors such as agriculture, tourism, manufacturing, and services. The province is a major contributor to South Africa's Gross Domestic Product (GDP), with a strong focus on exports, particularly in agriculture (e.g., wine, fruit, and vegetables), fishing, and processed foods (MERO: Cape Metro, 2024/25).

Table 7: Hopefield Census summary (Census 2022)

Population	7 433 020
Young children (0-14 years)	22,4%
No schooling (20+ years)	2,3%
Higher education (20+ years)	17,6%
Number of households	2 264 032
Formal dwellings	88,0%
Flush toilets connected to sewerage	93,9%
Access to piped water in the dwelling	85,5%
Electricity for lighting	96,5%

The Western Cape Treasury: MERO, 2023 reveals that there is a significant 2.8% increase in the 65+ age group from 2022 to 2027. This growth could reflect improvements in life expectancy or a greater appeal of the Saldanha Bay area as a retirement destination. At the same time, a steady rise in the working-age population is expected, which will likely lead to a reduction in the overall dependency ratio by 2027.

The observed growth in the elderly population emphasizes the need for specialized services and infrastructure to support this group, especially in areas such as healthcare and retirement facilities. Furthermore, this also means that the increase need for job opportunities will increase as the working-age increases. Project like this proposed solar facility will contribute immensely to job opportunities in the area throughout the lifespan of the project

6.2.2 Palaeontological Importance

A screening study of the proposed area indicated the importance of palaeontology as Low sensitive. On the Elandsfontein Farm, some 10 kilometres west of the town of Hopefield, the renowned Hopefield skull of an early subspecies of human known as *Homo ergaster*—was discovered (Singer 1954). Extensive fossil bone fragments in deflations among the dunes were also found nearby. Numerous investigations of different parts of the bone assemblage have been drawn to the findings from this site, and the research is still ongoing today.

The project footprint is on the Moorsresberg Formation of the Malmesbury Group which is Neoproterozoic aged low grade metamorphosed volcanic sediments (Gresse et al., 2006), and on the sands and sandy loam of the Springfontein Formation of the Sandveld Group. The latter is composed of aeolian sands of Middle Pleistocene to Holocene age

(Roberts et al., 2006). The Moorsresberg Formation is volcanic in origin and so has no chance of preserving fossils while the Springfontein Formation is composed of sands. Sands do not preserve fossils, especially aeolian sands. The low significance of the palaeo-sensitivity is confirmed by the blue colouration in the SAHRIS map (Figure 26). Along the stream the fluvial sands might have transported fossils but the watercourses are exempt from any development.

A Palaeontologist was consulted as recommended by SAHRA in their comments during the submission of the Notice of Intent to Develop (NID); no resource of any significance were identified in the area.

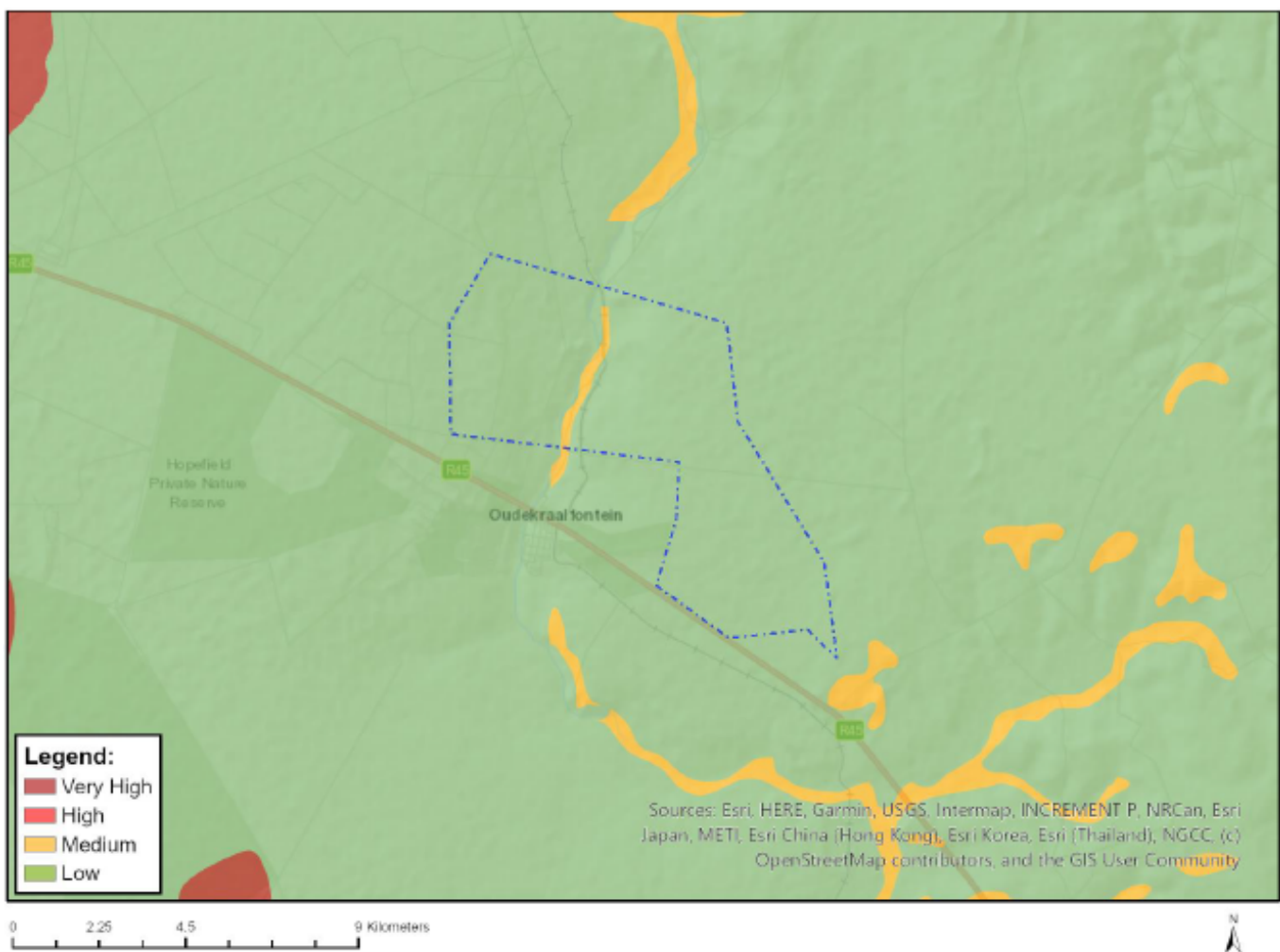


Figure 16: Palaeontology site sensitivity (DFFE Screening Tool)

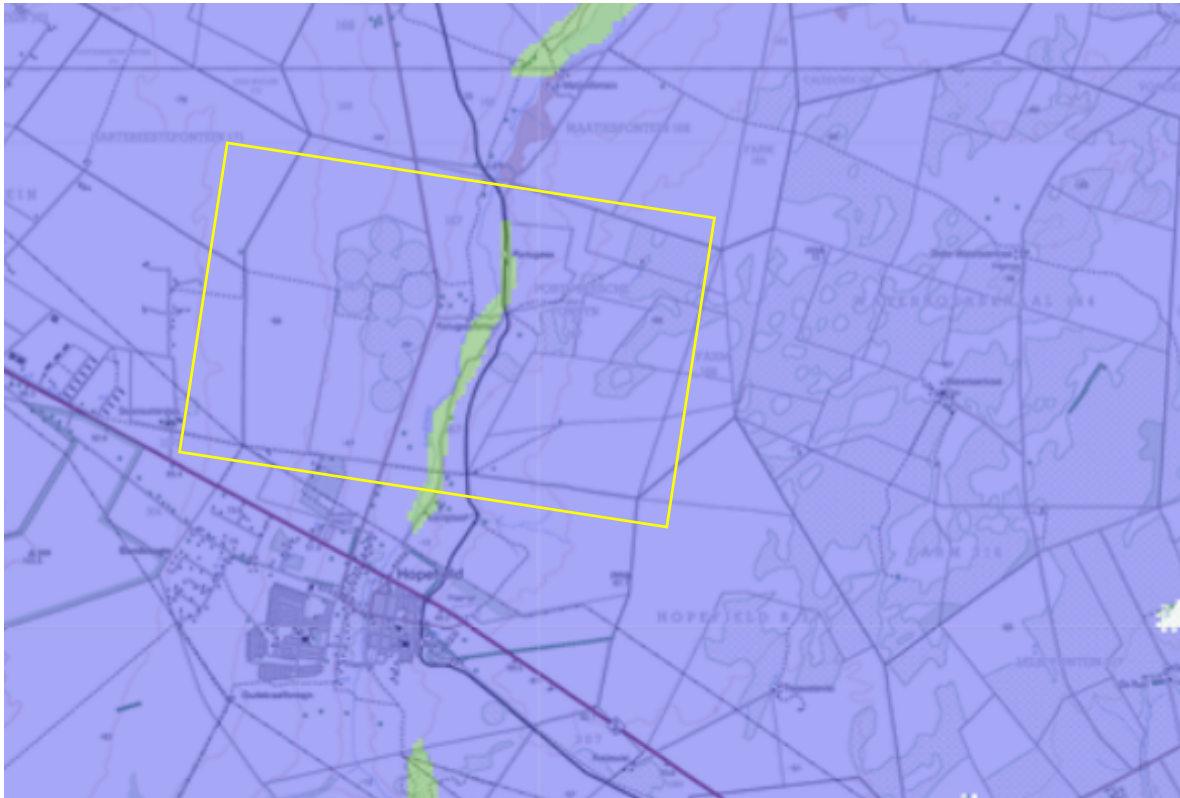


Figure 17: Palaeontology site sensitivity (SAHRIS)

6.2.3 Heritage Importance

Heritage sensitivity was identified as low for both archaeological and cultural heritage theme. Although there were significant fossil finds in the area, the proposed development area is excluded. No sites of historic or archaeological significance were identified within the proposed solar facility and the green hydrogen and green ammonia processing facility site. The potential for stratified archaeological deposits was assessed as negligible given the local geology and predictive site patterning. A total number of four buildings were assessed to be over the age of 60. The properties are located at Portuguese Fontyn farm, the single storey buildings embodies a blend of architectural styles. From a distance, the most eye-catching features of these properties are hip and gable type roofs and chimneys that are a facet of the Edwardian type architecture.

The Edwardian type architecture emerged and gained prominence in the era of King Edward VII who took over from Queen Victoria of England. The prominence of the Edwardian style was rather short-lived, stretching only from 1901 to 1910. The presence of the hip and gable type roofs provides a good indication regarding when the properties were constructed. Western Architects in South Africa had a tendency of importing ideas from their home countries. Given that the buildings have Edwardian elements, and that they are currently in a compromised shape, our position is that these properties must therefore be provisionally protected under the South African Heritage Resources Law.

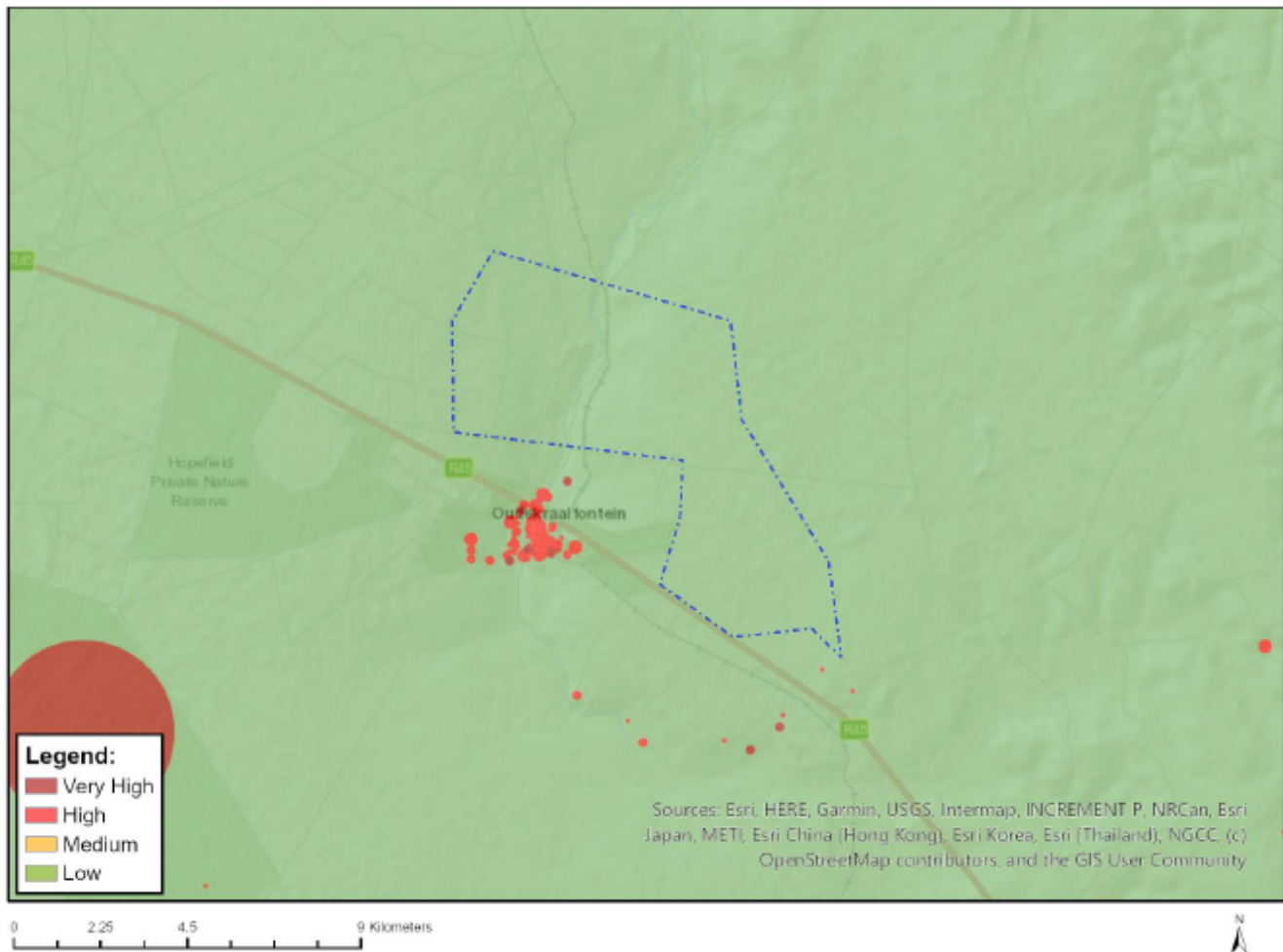


Figure 18: Heritage site sensitivity (Source: SAHRIS)

6.2.4 Summary of Environmental Studies

The screening tool indicated sensitivities to various environmental themes. However, only the aquatic biodiversity and terrestrial biodiversity themes were highly sensitive (Table 12). The specialist studies were undertaken to establish the accuracy of the Screening Tool results. With appropriate mitigation measures, all High Sensitivity outcomes can be managed.

Table 8: Screening Tool Sensitivity results

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Avian Theme				X

Civil Aviation (Solar PV) Theme			X	
Defense Theme			X	
Landscape (Solar) Theme	X			
Paleontology Theme			X	
Plant Species Theme			X	
RFI Theme				X
Terrestrial Biodiversity Theme	X			

Based on the site investigation and the screening sensitivity results, the specialist investigations identified below are in the process of being undertaken for the proposed development (in terms of the NEMA). These have been listed below:

- Socio Economic Impact
- Terrestrial Biodiversity Impact Assessment
- Freshwater Impact Assessment and Wetland Impact Assessment
- Visual and Landscape Impact Assessment
- Avifauna Impact Assessment
- Heritage/Paleontological Impact Assessment
- The DEA Screening Tool has identified that the following specialist investigations be included in the environmental impact assessment process:

6.2.5 Specialist Investigations

The DEA Screening Tool has identified that the following specialist investigations are potentially to be included in the environmental impact assessment process:

Recommended Assessment	Status	Motivation for Inclusion/Exclusion of Assessments
Agricultural Impact Assessment	Included	Undertaken
Landscape/Visual Impact Assessment	Included	For the proposed solar project, impacts will result from the construction and operation of the project and supporting infrastructure in terms of the viewshed, viewing distance and visual absorption capacity on the receiving environment. The construction and operation of the solar project related activities and its associated infrastructure will have a visual impact on the natural scenic resources and the topography. However, with the correct mitigation measures the impact can be decreased to a point where the visual impact can be minimized.

Archaeological and Cultural Heritage Impact Assessment	Included	The study has been undertaken, although the screening indicate the low sensitivity. There is no indication of graves or burial sites within the proposed areas. There are no primary or secondary effect at all that are important to archaeologists, scientists or the general public that will be impacted in terms of generally protected heritage resources according to the National Heritage Resources Act 25 of 1999.
Paleontological Impact Assessment	Included	As above. A motivation for exclusion has been prepared by the Palaeontologist
Terrestrial Biodiversity Impact Assessment	Included	The study has been undertaken, disturbances recorded on the ecological habitats within the study site were largely human related.
Aquatic Biodiversity Impact Assessment	Included	The study was undertaken, recommendation to avoid the watercourses have been adopted and will be implemented.
Civil Aviation Assessment	Excluded	Technical desktop investigation does not indicate the need for this assessment. However, the SANDF flight path is in close proximity and were added as I&AP's
Defence Assessment	Excluded	Technical desktop investigation does not indicate the need for this assessment
RFI Assessment	Excluded	Technical desktop investigation does not indicate the need for this assessment
Geotechnical Assessment	Excluded	Technical desktop investigation does not indicate the need for this assessment. No reason for a geotechnical assessment could be identified as the permanent infrastructure is light in nature.
Socio-Economic Assessment (SEA)	included	Undertaken
Plant Species Assessment	Included	The study has been undertaken,
Animal Species Assessment	Included	Avifauna study was undertaken as part of the Biodiversity Impact Assessment. Recommended mitigations should counterbalance conservation efforts of the endemic species and breeding colonies in the buffer zones.

7. THE PUBLIC PARTICIPATION PROCESS

7.1 Approach to Public Participation

The Public Participation Process (PPP) forms part of the Scoping and EIA process and required by the EIA Regulations to be conducted. According to Section (2)(4)(f) and (o) of the Act,

- the participation of all interested and affected parties (I&APs) in environmental governance must be promoted and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured, and

- the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

In light of the proposed Solar PV project by PGSE in Hopefield, the following activities were conducted to ensure involvement of the public, as well as interested and affected parties (I&AP) registration during the Scoping and EIA Process for environmental authorisation:

- Consultation with relevant regulatory authorities
- Consultation with local and district municipal authorities
- Consultation with affected landowners and neighbours
- The identification and engagement with the general public
- Placement of notifications and advertisements in local newspapers
- Placement of posters and notifications on sites around Rietfontein
- Public meetings
- Newspaper advertisement & local social media platforms

The following regulatory authorities may include the targeted authorities to be informed about the project, and expected to share comments on the proposed solar PV project:

- Department of Water and Sanitation
- Department of Fisheries, Forestry and Environment
- Department of Environment & Development Planning
- Saldanha Bay Local Municipality
- West Coast District Municipality
- Ward Councillor
- South African National Defence Force (Langebaan)
- Cape Nature

Public spaces including libraries within SBM have been identified in the area for dissemination of information and sharing of documents and site notices. The PPP will be an ongoing activity and will only be concluded once the required authorisations have been issued and there are no appeals. All I&APs will be informed of the final decision taken by the competent authority for approval of the EA and EMPr. The Public Participation Report from the previous consultation has been included as Annexure D. Any other relevant authorisations necessary for Solar PV project will be sought with relevant authorities. The methods adopted to reach out to the public include the following:

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7.2 Media Advertising

The media platform announcement of the proposed project was done through the local newspaper adverts (Weslander-March 2025, Cape Times and Die Burger (April 2026)) to invite all Interested and Affected parties (I&APs) to register on the project database of their interests and concerns. The targeted newspapers cover the WCDM and Waterberg. The proof of the placement of the adverts have been included in the in the Public Participation Report – Annexure D2. Social media platform (local Facebook Page), project notices was also used to communicate with the community members. This will be used again to reach the community members.

7.3 Site Notices

Site notices were placed at relevant areas around the boundary of proposed development area in order to inform the surrounding communities and adjacent landowners of the proposed project. Public spaces were also be used to disseminate information such as clinics, libraries, local retail shops (Spar) and pamphlets handed out to local schools. Placement of site notices will be done again depending on where they are likely to find audience.

7.4 Electronic communications

Electronic communications were sent to the regulatory authorities and any interested and affected parties (I&APs) who prefer emails for communication during the consultation. Information about the proposed project, draft EIA/EMP_r reports will be shared with relevant specialist studies for comments. Communication via the local Social Media platforms was also used to communicate the proposed project. An I&AP register was developed to ensure contact details for them are preserved.

7.5 Physical Meetings

During placement of site notices, neighbouring residents and landowners were contacted to introduce the project and the basic information document (BID) for more information and contact details should they wish to respond to the project call for inputs were shared. Registration of I&APs is ongoing during the release of this Draft Scoping Report.

7.6 Proposed Further Participation Methodology

Comments received on the DSR will be incorporated in the Final Scoping Report for submission to the Competent Authority. Comments will be recorded on the Comments and Responses Report (attached as Annexure of the Public Participation Report) and will be updated and included in the upcoming reports throughout the EIA process. Further public consultation will be scheduled for the EIA/EMP_r phase of the process. The Draft EIA Report will also be distributed for comments before the submission of the Final EIA Report.

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The various stages where the public, regulatory authorities and I&APs are involved in the assessment process are highlighted in the following stages:

- Application phase
- Final scoping phase
- Draft EIA phase

8. PRELIMINARY ENVIRONMENTAL IMPACTS IDENTIFIED

Preliminary findings are recorded on various environmental aspects and how they will be impacted by the proposed solar PV development project. Direct, indirect, and cumulative impacts are predicted for the proposed project. Details of the impacts and their extent of risk will be annotated in the EIA stage. Key findings done on scoping are summarised below:

8.1 Planning stage

Table 9: Impacts Identified – Planning Stage

Potential Impact	Mitigation
Soils	
Selected areas are disturbed during soil sampling and study of subsoil strata	Closure of any dug holes during field studies. Use of existing walking paths during surveys.
Terrestrial ecology	
Trampling during field surveys	Existing walkways should be used, and tracks used by farmers as much as possible.
Socio-economic aspects	
Raised social expectations about the proposed project	Transparency on the project facts, possible opportunities and expected impacts must be clearly communicated to avoid confusion.
Increased movement by specialists during site surveys, and during baseline surveys.	Consult any neighbours and landowner and inform them of the presence of specialists when visits are scheduled.
Raised concerns on effects of proposed activity on the environment	Stages of development to be clarified, as well as social implications in the draft reports sent out for public comments and during public participation process. Engage I&APs throughout the EIA process, with capturing of all concerns raised.

8.2 Construction Stage

Table 10: Impacts Identified – Construction Stage

Project No.:	HSP02/2025	Phelan Green Saldanha Energy	Page 62 of 92
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Potential Impact	Mitigation
Topography and Landscape	
Site clearance will affect the landscape and sense of place.	The proposed project together with the other approved renewable energy projects in the area will change the rural nature of the town, however, the positive impacts in job and business opportunities over time outweigh this impacts. Poor unemployed community members will have better lives and be able to provide for their families.
Surface Water	
Contamination of surface water resources from construction debris	• Avoidance of potential surface water contamination by buffering water resources from construction work. A 50m buffer zone is recommended along the watercourse where no development will be undertaken. • Establish and implement a stormwater management plan for construction phase. • Use drip trays for parked machinery and during refuelling. • Storage of hazardous material must be in bunded areas to prevent possible contamination of water resourced
Subsurface water	
Disturbance of sub surface flow due to compaction on movement, preparation of mounting structures for solar panels.	• Limit areas of disturbance to approved areas only. • Restrict movement on natural grounds not targeted for development. • Follow approved engineering construction procedures for the mounting structures. Method Statements must be reviewed by the site Environmental Compliance Officer prior to being implemented • Relevant permits must be obtained for use of any underground water resources, such as boreholes
Soil	
Compaction of soil top layer	• Avoidance of soil compaction where necessary. • Allow natural revegetation on disturbed areas.
Contamination of soils from accidental spillages by construction machinery oils and fuels	• Use of spill kits to immediately clean any spillages both minor and major. Records of such incidences and preventative measures applied must be kept on site. • Use of drip trays for drips and spills. • Designate refuelling spot where spills are managed as and when they occur.
Land Capability	
Loss of natural veld land due to establishment of solar energy infrastructure.	• Only topsoil must be stripped and stockpiled for re-use as much as possible. Vegetation clearance must be limited to areas approved in the final layout plans. • Plan for rehabilitation of land to usable condition on closure. • A Site Rehabilitation Plan be established
Terrestrial ecology	
Loss of vegetation due to land clearance for road access and substation.	• Preservation of topsoil rich in natural vegetation seeds for future use in rehabilitation. • Complete closure on rehabilitation to re-establish the land use option.

Potential Impact	Mitigation
	• Preservation and relocation of protected vegetation.
Loss of habitats	• Preservation of topsoil rich in natural vegetation seeds for future use in rehabilitation. • Reservation of similar habitats around the proposed development area as potential migration sites. • Relocation of potentially threatened species.
Socio economic aspects	
Loss of natural veld	• a Large percentage of the site is already disturbed by previous agricultural activities. The natural veld will regrow when the construction phase is completed and the traffic on site is reduced. • Improve land value through sustainable development of the solar project.
Increased traffic around construction site	• Adequate public consultation to sensitise communities and neighbours, local municipality and traffic department. • Establishment of feasible access road that caters for public and construction machinery. • Scheduling of delivery of site equipment must be limited to off peak hours, especially abnormal load vehicles, if any.
Influx of contractor and other employees	• Consideration of local community members first in jobs and business opportunities. • Workers from out of town will be transported in and out of Hopefield • The applicant will work closely with the SAPS to prevent possible crime increase due to influx of outsiders looking for jobs
Air quality impacts from increased dust generation from construction and movement of vehicles and machinery	• Dust suppression measures will be applied, especially during windy days. • Use of dust masks by construction workers.
Increased acoustic effects from construction work and movement of construction machinery.	• Noise obstruction and noise control measures on moving machinery. • Work schedules will be limited to daytime hours. • Noise suppression devices on machinery. • Use of noise reduction PPE by construction workers throughout the construction phase.
Job creation	• Positive impacts to be enhanced. • Prioritise locals for available job & business opportunities.
Aesthetic effects	
Reduced aesthetic value due to clearance of vegetation on construction site.	• Land clearance only where necessary for mounting of structures and substation. • Maintenance of topsoil stockpiles at considerable heights.
Heritage	
Damage to areas of heritage value.	• Avoidance of any identified heritage sites where possible. • A Heritage Management Plan must be in place in case an significant heritage resource is discovered during excavation.

Potential Impact	Mitigation
Air quality	
Construction activities and vehicle/machinery movement has potential of contributing dust generation.	- Dust suppression measures will be applied throughout the lifespan of the proposed project. - Stick to low site speed limits to minimise unnecessary dust generation.
Ambient Noise	
Increased noise levels from vehicle and machinery movements on the access road.	- Use of noise reduction PPE by construction workers throughout the construction phase. - Limit construction to daylight hours, no work to be undertaken at night.

8.3 Operation and Maintenance Stage

Table 11: Impacts Identified – Operation and Maintenance Stage

Potential Impact	Mitigation
Surface Water	
Altered stormwater flow from altered drainage lines.	- Design and implement Stormwater Management Plan for the site. - Maintain adequate buffer areas along the watercourse in order to minimise negative impacts on the natural flow of the river.
Reduction of natural flow drainage to the environment as the runoff within solar farm is reduced due to interception.	Allow free flow of natural runoff into the environment.
Subsurface water	
Obstructed flow of rainfall into subsurface water due to interception by solar panels.	The angle of the solar modules will allow for water to reach the ground.
Soil	
The recharge through infiltration is reduced.	- Limit affected area to targeted development footprint. - Manage stormwater around disturbed area.
Surface plant ecology	
Elimination of surface vegetation on affected substation and solar PV plant footprint.	- Allow monitored regrowth under the mounting structures. - Relocation of any identified threatened plant species.
Dust generation affects plant species through deposition on plant leaves.	- Reduce potential dust generation by dust suppression. - Reduce onsite driving speed limits.
Terrestrial fauna	
Displacement and destruction of wildlife and faunal habitats.	- Revegetation on closure. - Limit work to approved layout plan areas
Socio-economic aspects	
Creation of jobs for operation and maintenance	Positive impacts. Consider locals in suitable employment & business opportunities.
Reduced air quality	Use of dust suppression techniques to reduce dust emissions.

Potential Impact	Mitigation
	Dust masks provision for employees at dusty areas of work.
Tourism	
Heritage	
Disturbance of areas of heritage value.	No heritage sites were identified, however, a Heritage Management Plan must be in place.
Ambient Noise	
Noise from movement of machinery and vehicles between Solar farm components.	Minimal number of vehicles will be moving on site during operation phase. Noise will be minimal and limited to day time hours.
Tourism	
Reduced number of tourist visiting due to the rural town	The establishment of a completely new tourist attraction is highly likely, as seen with other towns where tours to view the facilities are common.

8.4 Decommissioning and Closure Stage

Table 12: Impacts Identified – Decommissioning and Closure Stage

Potential Impact	Mitigation
Surface Water	
Improved surface flow and increased runoff on removal of solar panels.	Adequate decommissioning of mounting structures.
Subsurface water	
Better recharge from infiltration of water.	Revegetation on closure, using indigenous plant species.
Soil	
Improved infiltration	Revegetation on closure and enhance infiltration.
Land Capability	
Restored land capability to natural veld.	Rehabilitation mimicking natural environment.
Terrestrial ecology	
Revegetation and restoration of natural veld with indigenous plants.	Enhancement of natural revegetation through seeding and topsoil covering where natural revegetation is slow.
Re-colonisation of rehabilitated areas with indigenous fauna.	Enhancement of fauna re-colonisation through enhanced revegetation providing appropriate habitats for fauna.
Socio-economic aspects	
Loss of employment on closure.	- Potential expansion of lifespan of development activity since energy source is renewable. - Employees will use their acquired skills to successfully get employment in similar project

8.5 Post Development Stage

Table 13: Impacts Identified – Post Development Stage

Potential Impact	Mitigation
Aesthetic	
Restored landscape on closure and rehabilitation and recolonisation by indigenous plant and animals.	Enhance positive impacts.
Socio-economic aspects	
Reduced jobs & business opportunities on closure of solar plant.	The impact will be avoided if the project is allowed to operate and not close, with adequate maintenance and service of infrastructure.

9. EIA STUDY PLAN (Plan of Study)

The DSR has been drafted to formulate a scope of potential impacts associated with the proposed development. It allows for addition of areas of concern by interested and affected parties. The Final Scoping Report incorporates received comments from the public, regulatory authorities as well as I&APs. The Final Scoping Report marks the end of scoping phase on receipt of comments from the competent authority and confirmation of continuation of the process. The second leg of the Scoping and EIA process for this project will involve the following planned activities:

- Specialist studies and site visits have been concluded. Recommendations from PPP were considered during this process.
- Second phase of the public involvement process
- Draft environmental impact assessment reporting (EIA Report) and environmental management programme (EMPr)
- Commenting of the draft reports
- Final EIA and EMPr reports
- Submission of EIA and EMPr reports

9.1 Specialist Studies

Specialist studies identified to have sensitivities from preliminary research on the National Screening tool have been undertaken for further assessment. The selection of studies of importance was guided by the outcome from the National Screening Tool on the proposed development footprint as well as site verification process to validate the sensitivities. The following Specialist Studies are proposed for the EIA Phase of the assessment:

- Socio Economic Impact
- Biodiversity Impact Assessment
- Visual and Landscape Impact Assessment
- Heritage/Paleontological Impact Assessment
- Traffic Impact Assessment
- Soil & Agricultural Potential Impact Assessment

The resulting information from the listed specialist studies will be incorporated into the EIA and EMPr Report with findings of impact assessment and recommended actions. The Specialists studies are conducted in line with the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation, promulgated in Government Notice No. 320 of 20 March 2020 (i.e., “the Protocols”), and in Government Notice No. 1150

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of 30 October 2020. The full specialist reports will be attached to the report as appendices on submission to the Competent Authority.

9.2 Public Participation Programme

A second leg of the public involvement programme will be conducted after scoping phase. The involvement of the public, stakeholders and I&APs will continue until the end of the EIA process. Comments will be sought for draft EIA report and EMPr reports before they can be finalised. Newspaper adverts will be placed in local paper to invite I&APs to public meetings. All raised issues from this process will be incorporated into the issues and response register and public participation report. Respondents will be informed, and their comments received through this continuous public involvement programme.

9.3 Environmental Impact Assessment Report (EIAR)

The EIA report will be compiled to gather and analyse all environmental details associated with the proposed solar PV project. The report identifies mitigation measures and management recommendations to minimise negative impacts and enhance benefits and incorporates specialist reports to inform the impact assessment process. The draft report will be made available for public and authority review and comment before it can be finalised for submission. The availability of the report will be advertised in the media and communicated to registered I&APs. The report will also be made available for public scrutiny in easily accessible locations such as local and district libraries.

9.4 Environmental Management Programme (EMPr)

The EMPr will be drafted from findings of the EIA study, including incorporation of recommendations from specialist studies for sustainable development of the proposed project. The EMPr will be developed to provide guidelines to the project proponent and the technical team on how best to implement the mitigation measures and management recommendations outlined in the EIA report throughout the life of the development phases. Practical mitigation measures will be recommended for each identified impact associated with the proposed solar PV project activities. The EMPr is a dynamic document which can be amended as the project stages proceed in order to ensure that no environmental degradation takes place

10. CONCLUSION AND WAY FORWARD

10.1 Conclusion

Local knowledge, professional experience and specialist knowledge of the area have all been used to identify the potential environmental issues associated with this development and the resultant potential environmental impacts. There is no guarantee that all the potential impacts arising from the proposed development have been identified within the Scoping Phase, however the report provides an outline of the established measures that were taken to best identify all the potential

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impacts. The purpose of the Scoping Phase is NOT to assess and mitigate the potential environmental impacts and issues identified but rather to scope them and determine which need further investigation before an assessment can be undertaken. However, extensive work have already been undertaken before this DSR was compiled. Therefore, some of the potential impacts and mitigation measures are included as early as now. This will assist the I&AP to add any potential mitigation measures that will help in the sustainable delivery of the proposed project.

The circulation of the Draft Scoping Report for public comment aimed to give the public a chance to review and give input in the Scoping process and identify additional possible issues that have not been identified. This will further enhance the reach of the scoping process.

The Plan of Study for EIA outlines the strategy to identify and assess all these potential impacts and concerns in the EIR Phase.

10.2 Way Forward

The Draft Scoping Report is submitted to all I&APs for a minimum of 30-day comment period. All comments received from I&AP's in previous PPP are included in the DSR and included in the Public Participation Report - Annexure D1 of the DSR.

Thereafter the FSR, including the Plan of Study for EIA, will be submitted to the DFFE for review. Upon receipt of comment from the DFFE regarding the Final Scoping Report, the Terms of Reference for any further studies will be amended should it be required.

Following completion of the specialist studies and assessment of the impacts, a Draft EIR will be compiled and will follow a similar public participation procedure to that undertaken for the Scoping Phase, whereby opportunities for engagement will be provided through stakeholder meetings and dissemination of project information. I&APs will be afforded the opportunity to review the Draft EIR prior to submission to DFFE for decision-making.

11. DECLARATION BY EAP

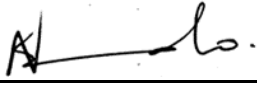
11.1 *Undertaking Regarding Vested Interest*

I, Nonkululeko Mbasane, declare that:

- I act as the independent EAP in this application.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have expertise in conducting Environmental Impact Assessments ("EIAs"), including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity.
- I will comply with the Act, Regulations and all other applicable legislation.
- I will take into account, as far as possible, the matters listed in Regulation 8 of the Regulations when preparing the application and any report relating thereto.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority.
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to I&APs and the public and that participation by I&APs is facilitated in such a manner that all I&APs will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application.
- I will ensure that the comments of all I&APs are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments made by I&APs in respect of a final report may be attached to the report without further amendment to the report.
- I will keep a register of all I&APs that participated in a PPP.
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.
- All the particulars furnished by me in this form are true and correct.
- I will perform all other obligations as expected from an EAP in terms of the Regulations.
- I realise that a false declaration is an offence in terms of Regulation 71 of the Regulations and is punishable in terms of section 24F of the Act.

11.2 Undertaking Regarding Level of Agreement

I, **Nonkululeko Mbasane**, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders since announcement of the project, has been correctly recorded and reported herein.



Signature of the EAP

08 April 2026

APPENDICES

Appendix A: EAP COMPETENCY

1. EAP DETAILS

Name of the Practitioner: Nonkululeko Mbasane
Tel No.: 0721728374
Fax No.: 0865154865
Email: nonkululeko@beyondges.co.za

2. CAREER HISTORY

Role:	Environmental Assessment Practitioner
Company:	Ecocompliance
Date:	July 2015 to-date
Responsibilities:	
• Identifying environmental impacts and developmental interventions • Identifying & working with all potentially affected parties • Considering environmental impacts of mining activities on the surrounding socio-economic environment, affected individuals and communities • Liaison with the Ward Councillors and a Makhosi • Conducting stakeholders and public engagement meetings • Development of S&EIR /Basic Assessment report in accordance with requirements of NEMA • Development of IWWM and water use related documents	
Role:	Environmental Coordinator
Company:	Petroleum Agency SA (PASA)
Date:	July 2014 to June 2016
Description:	
Responsible for environmental risk through the identification and evaluation of the potential or actual impact of the business unit on the environment. Responsible for the design and implementation of necessary systems to ensure compliance to applicable legislation and company policy.	
Key Responsibilities	
• Administer the environmental aspects of State and Commonwealth mineral and petroleum legislation; • Provide environmental assessment, audit and monitoring services for the upstream resources industry; • Provide incident investigation services and initiate the Agency's enforcement policy as required; • Closure inspections to promote environmental management in the upstream industry; • Respond to pollution and waste-incidents which do not constitute incidents in terms of section 30 of NEMA; • Evaluate financial provisions, handle and address complaints, enquiries and request related to Environmental Management;	

- Consult with interested and affected parties and promote co-operative governance.

Role:	Assistant Director
Company:	Dept of Mineral Resources
Date:	June 2009 to June 2014

Description:

As an Assistant Director I was responsible for Evaluating Environmental Impact Assessment reports, Basic Assessment reports, Scoping reports, Environmental Management Plans, Closure plans and other technical and Environmental documents. I issued Environmental Authorisations and Waste Management Licenses. I conducted comprehensive environmental Inspection and environmental audits in line with NEMA and related regulations. I regulated the closure of mine within the stipulated time frames. Identify environmental liabilities for mining operations and ensure evaluation of adequacy of financial provision. Investigate and resolve mine environmental related issues, attend to investigations and resolve mine environmental related issues, attend to environmental related queries and complaints in mines. Assist public, clients through promotion of administrative justice, environmental, enforcement and investigate illegal mining. I took part in environmental related forums and meetings.

Key Responsibilities:

- Evaluate environmental authorizations as in accordance with NEMA and Mineral and Petroleum Resources Development Act;
- Evaluate Environmental Impact Assessment, Scoping and Risk Report;
- Evaluate Closure plans and compile Environmental reports;
- Conduct mine environmental compliance monitoring and auditing;
- Closure inspections to promote environmental management in the mining industry;
- Respond to NEMA Section 30 emergency incidents in mining industry;
- Respond to pollution and waste-incidents which do not constitute incidents in terms of section 30 of NEMA;
- Evaluate financial provisions, handle and address complaints, enquiries and request related to Mine Environmental Management;
- Consult with interested and affected parties and promote co-operative governance.

3. Key projects:

Year	Project
2017	Environmental Impact Assessment (Basic Assessment) for Amabovini Group Pty Ltd; Hillcrest, Kwa-Zulu Natal
2016/2017	Environmental Impact Assessment (Basic Assessment) for Gebrolter Construction Pty Ltd
2016/2017	Environmental Impact Assessment (Basic Assessment) for Phumalanga Mining, Stanger area
2016/2017	Water Use Licence Application for FM Crushers with DWS

2016/2017	Environmental Impact Assessment (Basic Assessment) for Bombo Group Pty Ltd, Ngwavuma area, Kwa-Zulu Natal Province
2015/2016	Environmental Impact Assessment (Basic Assessment) for Premax Trading 18 cc, Stanger area Kwa-Zulu Natal Province
2015/2016	Environmental Impact Assessment (Full EIA) for FM Crushers, Ngwavuma Kwa-Zulu Natal Province
2013	Environmental audit at Richards Bay Mineral, Richards Bay
2012	Environmental audit at Zululand Anthracite Colliery
2012	Environmental audit at Exxaro
2011	Zulti South Proposed Mining extension



University of Zululand

This is to certify that the degree of
Bachelor of Science
(Biological Sciences)

has been awarded to

Khumalo, Nonkululeko Sanele
022323

who satisfied all the requirements in the year
2005



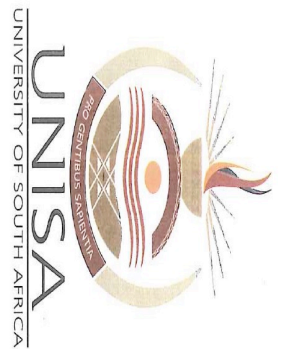
[Signature]
Vice-Chancellor

[Signature]
Registrar

[Signature]
Dean

20-May-06

LIV PROTECTED - TAMPER EVIDENT UV



We certify that

Nonkululeko Sanele Khumalo

having complied with the requirements of the Higher Education Act and the Institutional Statute, was admitted to the degree of

HONOURS BACHELOR OF SCIENCE
in Environmental Monitoring and Modelling

at a congregation of the University

on 19 June 2009

[Signature]
Vice-Chancellor

[Signature]
University Registrar



M. 1.7.4
Executive Dean



**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2020/2888

Herewith certifies that

**Nonkululeko Sanele
Mbasane**

is registered as an
Environmental Assessment Practitioner

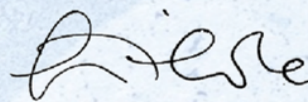
***Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as
amended).***

Effective: 01 March 2024

Expires: 28 February 2025



Chairperson



Registrar

