



ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) FOR THE
PROPOSED CONSTRUCTION OF THE SOYUZ 4 SOLAR PV PARK NEAR
BRITSTOWN, NORTHERN CAPE PROVINCE - DRAFT

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CLIENT: Soyuz 4 Solar PV Park
(Pty) Ltd

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LIST OF ACRONYMS

BBBEE:	Broad Based Black Economic Empowerment	PPE:	Personal Protective Equipment
BESS:	Battery Energy Storage System	PV:	Photovoltaic
CHSSP:	Community Health, Safety & Security Plan	SAHRA:	South African Heritage Resources Association
DFFE:	Department of Forestry, Fisheries & Environment	SACNASP:	South African Council for Natural and Scientific Professionals
DWS:	Department of Water & Sanitation	SCC:	Species of Conservation Concern
EA:	Environmental Authorisation	SEI:	Site Ecological Importance
EPASA:	Environmental Assessment Practitioners Association of South Africa	SEP:	Stakeholder Engagement Plan
ECO:	Environmental Control Officer	SUDS:	Stormwater Urban Design System
ESCO:	Environmental Site Compliance Officer	SWMP:	Stormwater Management Plan
ESMS:	Environmental and Social Management System	WML	Waste Management Licence
EDLs:	Episodic Drainage Lines	WUL:	Water Use Licence
EIA:	Environmental Impact Assessment	ZoR:	Zone of Regulation
ELM:	Emthanjeni Local Municipality	:	
EMPR:	Environmental Management Programme		
EMPR:	Environmental Management Programme Report		
EO:	Environmental Officer		
GA:	General Authorisation		
Ha:	hectares		
I&APs:	Interested & Affected Parties		
IAIAsa:	International Impact Assessment Association of Southern		
IFC:	International Finance Corporation		
km/h:	Kilometres per hour		
kV:	Kilovolts		
m²:	Square metres		
MC:	Monitoring Committee		
mwh:	Megawatt hours		
mw:	megawatts		
NEMA:	National Environmental Management Act		
NEM:WA:	National Environmental Management: Waste Act		
O&M:	Operations & Maintenance		
OHPL:	Overhead Power Line		

1. INTRODUCTION

Soyuz 4 Solar PV Park (Pty) Ltd proposes the development of the Soyuz 4 Solar PV Park and associated infrastructure, near Britstown, Northern Cape Province. The Project will be located on Portion 5 of The Farm 127, Twyfelhoek. The Soyuz 4 Solar PV Park will have a generating capacity of up to 300MW and will include a Battery Energy Storage System (BESS) of up to 1100MWh. An on-site substation with a capacity of 33 – 132 kV, will enable the connection of the Solar PV Park to a 132kV Overhead Powerline (OHPL). (**Note:** the 132 kV OHPL does not form part of this Environmental Authorisation process). The purpose of the Project is to generate clean electricity from a renewable energy source (i.e., solar radiation) to contribute to the Eskom national energy grid.

For the Soyuz 4 Solar PV Park to become operational, the Applicant is required to obtain Environmental Authorisation in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA)). The Competent Authority for this Environmental Authorisation Application is the National Department of Forestry, Fisheries and the Environment (DFFE).

This Environmental Management Programme (EMPR) has been developed as part of the EIA Report for submission to DFFE for consideration in the issuance of the Environmental Authorisation for the proposed Soyuz 4 Solar PV Park. This EMPR must be read in conjunction with the Environmental Impact Assessment Report.

The EMPR outlines the avoidance, mitigation and monitoring measures that will be implemented during the planning, construction, operation and decommission phases of the Soyuz 4 Solar PV Park. The EMPR specifically identifies measures that must be implemented to reduce potential impacts occurring during the lifetime of the Solar PV Park.

2. DETAILS OF EAP

This report was prepared by Natasha Williams of Terramanzi Group (Pty) Ltd. Ms Williams has a BSc Honours in Microbiology and Waste Technology from the University of Natal and she has 29 years of experience in integrated environmental management. Ms Williams is registered with SACNASP as a Professional Natural Scientist in the fields of Environmental and Botanical Sciences. She is also a registered Environmental Assessment Practitioner with Environmental Assessment Practitioners Association of Southern Africa (EAPASA) and a member of the International Association of Impact Assessment of South Africa (IAIASa).

3. SCOPE AND OBJECTIVES OF THE EMPr

3.1 SCOPE OF THE EMPR

The scope of this EMPr is for the construction and operation of the Soyuz 4 Solar PV Park located on Portion 5 of The Farm 127, Twyfelhoek near Britstown. It includes the construction of a ±300 m long access road. The EMPr covers the following project phases:

- Planning and design phase;
- Construction phase;
- Operational phase;
- Decommissioning phase;

3.2 OBJECTIVES OF THE EMPR

The objectives of this EMPR are to:

- Minimises the Ecological footprint of the project on the local environment;
- Minimises impacts on fauna, avifauna, flora and wetland Ecosystems;

The EMPR will therefore:

- Guide and control the implementation of the findings and recommendations of the EIA Report and subsequent Environmental Authorisation.
- Ensure that environmental legislation and environmental recommendations are complied with.
- Ensure that the design, construction and operational phases of the Soyuz 4 Solar PV Park proceed in compliance with the principles of Integrated Environmental Management.
- Detail specific actions deemed necessary to assist in mitigating the direct and cumulative environmental impacts of the Soyuz 4 Solar PV Park.
- Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance of the factory.
- Ensure continual defining, and management of impacts by ongoing monitoring.

4. DESCRIPTION OF THE ACTIVITY

The proposed Soyuz 4 Solar PV Park will be constructed in a single phase and will have a contracted generating capacity of up to 300 megawatts (million watts – MW). Bifacial solar photovoltaic (PV) modules installed on single axis tracker mounting structure at a height of up to 6 metres (m) above ground level will be utilised for the panels. The facility will include a Battery Energy Storage Systems (BESS) of up to 1100 megawatt hour (MWh) with a footprint of up to 6 ha. An on-site substation with a capacity of up to 240 megavolt-amperes (MVA), will enable the connection of a 132 kilovolt (kV) Overhead Powerline (OHPL). The substation will be configured as a an up to 6 ha back-to-back substation, for Eskom and Facility purposes.

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The proposed conceptual layout of the Soyuz 4 Solar PV Park is shown in **Figure 1** and the conceptual design details are summarised in **Table 1**.

Table 1: Soyuz 4 Solar PV Park Conceptual Design Details

INFRASTRUCTURE	DESIGN DETAILS
Contracted Generating Capacity	Up to 300MW
Total extent of Affected Property	2124 ha
Extent of Development Footprint	567 ha
PV Panel Type	Bifacial solar PV modules installed on single axis tracker mounting structure
Height of PV Panels	6 m
Capacity of on-site substation	32 to 132 kV
Substation footprint	Up to 6 ha
BESS	1200 MWh
BESS footprint	Up to 6 ha
Site Access Road	Up to 8m in width (existing gravel road)
Internal Access Roads	Up to 4m in width
Paved Areas	Footprint of up to 0.25 ha
Fencing	Around the development area
Operations and Maintenance Building	Footprint of up to .0.15
Temporary Construction Camp and laydown area	Footprint of up to 4 ha
Powerline	Not part of this application

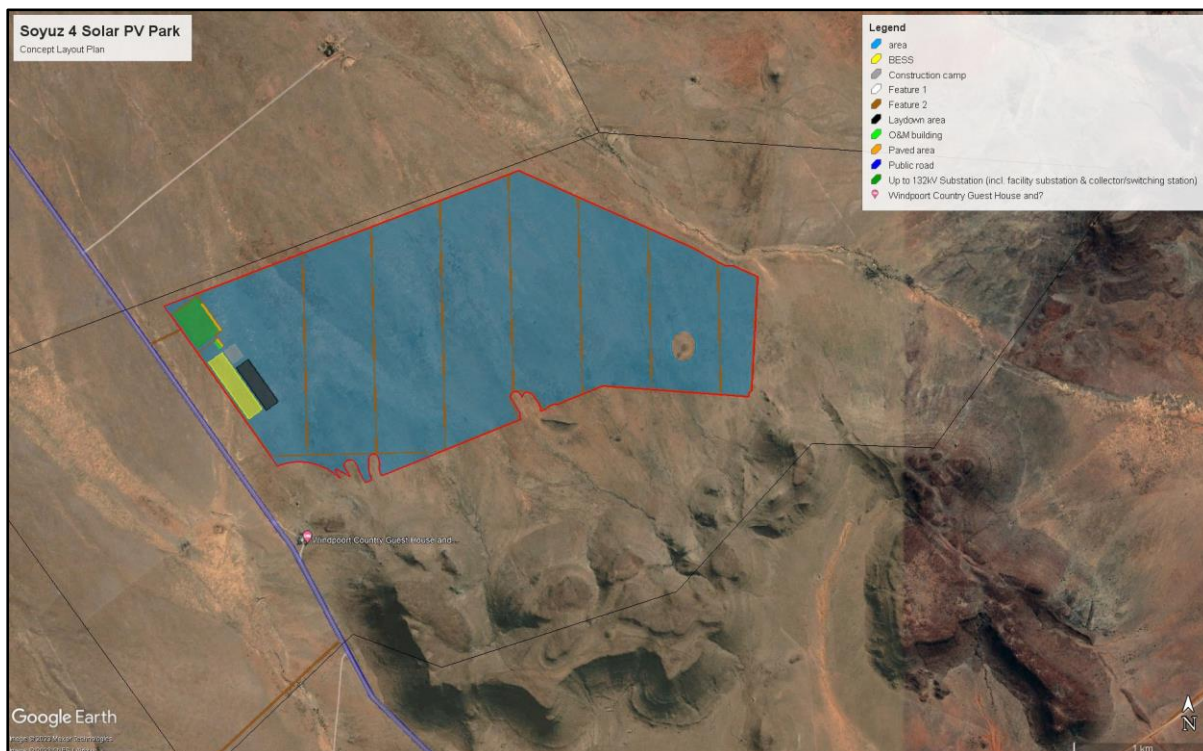


Figure 1: Preferred Conceptual Site Layout Plan

The construction phase will include the following activities:

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- Clearing of vegetation
- Excavations or drilling - earthworks
- Construction of internal roads – earthworks and grading
- Upgrading of site access road – grading and gravel or asphalt placement
- Concrete pouring
- Steel assembly
- Masonry
- Construction camp and/or laydown activities
- Underground cabling

The site sensitivity map is presented in **Figure 2**.

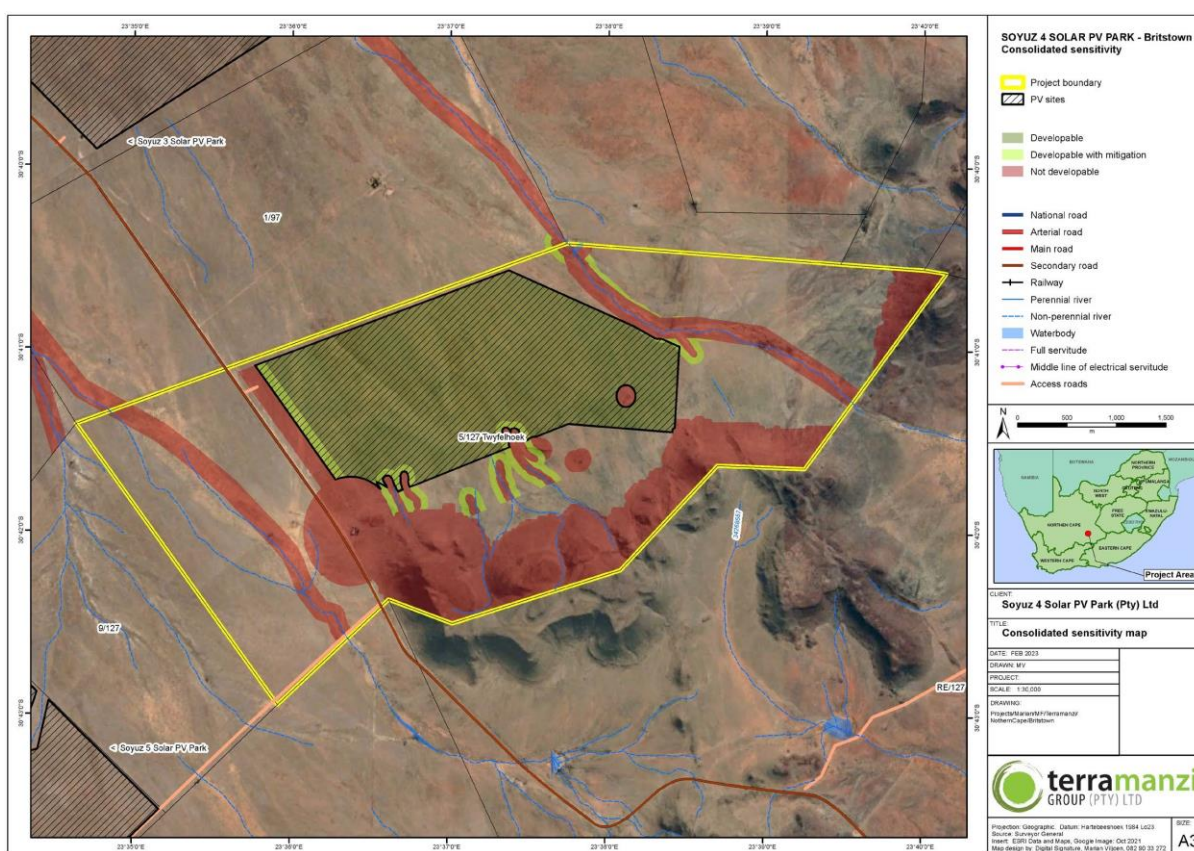


Figure 2: Consolidated Sensitivity Map

5. LEGAL FRAMEWORK

5.1 Compliance with Applicable Legislation

“The Constitution of the Republic of South Africa”, which states: *“Every person shall have the right to an environment which is not detrimental to his or her health or wellbeing”*. Laws applicable to protection of the environment in terms of Environmental Management and the development and operation of the Soyuz 4 Solar PV Park include but are not restricted to:

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- Conservation of Agricultural Resources Act, No 43 of 1983
- National Veld and Fire Act, Act 101 of 1998
- Hazardous Substances Act, No 15 of 1973
- Land Survey Act, No 9 of 1921
- National Environmental Management Act, 107 of 1998
- National Environmental Management: Biodiversity Act, No 10 of 2004
- National Environmental Management: Waste Act
- National Environmental Management: Air Quality Act [Act 39 of 2004]
- National Heritage Resources Act (Act 25 of 1999)
- Occupational Health and Safety Act, No 85 of 1993
- National Water Act, No 36 of 1998
- Provincial and Local Government Ordinances and Bylaws
- And all regulations framed thereunder and amendments there to.

The Soyuz 4 Solar PV Park will be constructed and operated in accordance with all applicable legislation.

5.2 Compliance with Environmental Authorisations, Permits and Licences

Soyuz 4 Solar PV Park (Pty) Ltd shall ensure that the development and operation of the Solar PV Park and access road comply with the requirement of the Environmental Authorisation. A copy of the Environmental Authorisation is included in Appendix I of this EMPR.

Commencement of the project is subject to obtaining all necessary permits, licences and/or authorisations required in terms of South African environmental legislation. Several activities were applied for as part of the EIA process. Should the project trigger any other activities not included in the applications submitted, a separate application process must be followed and these activities authorised before the project can commence.

Such activities may include:

- **Waste management** - The management of waste is regulated by the National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA) and associated Regulations. GN 921 lists Waste Management Activities in respect of which a Waste Management Licence (WML) is required; these include various activities associated with the storage of waste, reuse, recycling and recovery of waste, treatment of waste (which includes the remediation of contaminated land) and disposal of waste. The Schedule to the Notice distinguishes between two categories of waste management activities which require licensing and for which a basic assessment process (for Category A Waste Management Activities) or an Environmental Impact Assessment process (for Category B Waste Management Activities) must be conducted. A third category (Category C) refers to activities for which norms and standards have been set.
- **Storage of hazardous substances** - Hazardous substances must be stored and handled in accordance with the appropriate legislation and standards, which may include the Hazardous Substances Act, the Occupational Health and Safety Act, and relevant associated Regulations.

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No more than 500 m³ of hazardous substances may be stored on site without an environmental authorisation.

- **Health and safety of work teams** - Construction Regulations (2003) published under the Occupational Health and Safety Act (Act No 85 of 1993) apply to construction activities including “the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work”. A “health and safety plan” which addresses hazards, and includes safe working procedures to mitigate, reduce or control the hazards identified, is required under this Act. A risk assessment must also be undertaken by an appropriately qualified person(s) and the Contractor shall ensure that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment.
- **Heritage resources** – Before any heritage resources are demolished or damaged a permit must be obtained. Permit applications must be submitted to the relevant Heritage Resources Authority).
- **Removal of graves** - Permits are required for the removal of graves in terms of the National Heritage Resources Act (No 25 of 1999) section 36.
- **Removal and transportation of endangered fauna and flora** - A permit must be obtained from the provincial nature conservation agency for the removal or destruction of indigenous protected and endangered plant and animal species. Copies of permits required must be submitted to the DFFE for records keeping purposes.
- **Water abstractions** – Water abstracted from any sources for construction or operational purposes requires authorisation from DWS.

5.3 Compliance with EMPR

Soyuz 4 Solar PV Park (Pty) Ltd must ensure that all construction and operations always comply with the conditions of the EMPR. The EMPR must be made binding on all contractors and must be included within their contractual agreements (where applicable).

Non-compliance with, or any deviation from, the requirements set out in this document will constitute a failure in compliance with the EMPR. It must be noted that in terms of Section 28 of the National Environmental Management Act No 107 of 1998 Soyuz 4 Solar PV Park (Pty) Ltd has a ‘**duty of care**’ to prevent pollution to the environment. It further requires 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, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

Soyuz 4 Solar PV Park (Pty) Ltd will be deemed to be non-compliant with the requirements of the EMPR (including the EA, other licences conditions and permit requirements) if:

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- There is evidence of contravention of the requirements and conditions of the Environmental Authorisation and EMPR.
- There is an adverse environmental impact due to negligence Soyuz 4 Solar PV Park (Pty) Ltd or its agents.
- Soyuz 4 Solar PV Park (Pty) Ltd do not respond adequately to complaints from the public or the authorities.
- Soyuz 4 Solar PV Park (Pty) Ltd fail to report and respond timeously to environmental incidents.

5.4 IFC Performance Standards

The EMPR is an aspect of a broader project Environmental and Social Management System (ESMS), in terms of the International Finance Corporation (IFC) Performance Standards. The objectives and applicability of the eight IFC Performance Standards are detailed in **Table 2**.

Table 2: Objectives and Applicability of the IFC Performance Standards to the Soyuz 4 Solar PV Park Construction and Operation

Reference	Requirements	Project Specific Applicability
Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts		
Performance Standard 1 underscores the importance of managing environmental and social performance throughout the life of a project. An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the client, its workers, local communities directly affected by the project (the Affected Communities) and, where appropriate, other stakeholders.		
Objectives:		
<ul style="list-style-type: none"> – To identify and evaluate environmental and social risks and impacts of the project. – To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, 5 and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment. – To promote improved environmental and social performance of clients through the effective use of management systems. – To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. – To promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated. 		
1.1	Policy	A formal ESMS will be compiled for the project prior to its commencement.
1.2	Identification of Risks and Impacts	
1.3	Management Programmes	
1.4	Organisational Capacity and Competency	
1.5	Emergency Preparedness and Response	
1.6	Monitoring and Review	
1.7	Stakeholder Engagement	
1.8	External Communication and Grievance Mechanism	
1.9	Ongoing Reporting to Affected Communities	
Performance Standard 2: Labour and Working Conditions;		
Performance Standard 2 recognises that the pursuit of Economic growth through <u>employment</u> creation and income generation should be accompanied by protection of the fundamental rights of workers		
Objectives:		
<ul style="list-style-type: none"> – To promote the fair treatment, non-discrimination, and equal opportunity of workers. – To establish, maintain, and improve the worker-management relationship. – To promote compliance with national <u>employment</u> and labour laws. 		

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<ul style="list-style-type: none"> – To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client’s supply chain. – To promote safe and healthy working conditions, and the health of workers. – To avoid the use of forced labour. 		
2.1	<ul style="list-style-type: none"> – Working Conditions and Management of Worker Relationship – Human Resources Policy and Management – Working Conditions and terms of Engagement – Workers organisation – Non- Discrimination and Equal Opportunity – Retrenchment – Grievance Mechanism 	<p>A formal ESMS will be compiled for the project prior to its commencement. Human resource and labour policies will be included in the ESMS.</p>
2.2	<ul style="list-style-type: none"> – Protecting the Workforce – Child Labour – Forced Labour 	
2.3	Occupational health and Safety	
2.4	Workers Engaged by Third Parties	
2.5	Supply Chain	
<p>Performance Standard 3: Resource Efficiency and Pollution Prevention</p> <p>Performance Standard 3 recognises that increased Economic activity and urbanisation often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. There is also a growing global consensus that the current and projected atmospheric concentration of greenhouse gases (GHG) threatens the public health and welfare of current and future generations. At the same time, more efficient and effective resource use and pollution prevention and GHG emission avoidance and mitigation technologies and practices have become more accessible and achievable in virtually all parts of the world.</p> <p>Objectives:</p> <ul style="list-style-type: none"> – To avoid or minimise adverse impacts on human health and the environment by avoiding or minimising pollution from project activities. – To promote more sustainable use of resources, including energy and water. – To reduce project-related GHG emissions. 		
3.1	<ul style="list-style-type: none"> – Resource Efficiency – Greenhouse Gases – Water Consumption 	<p>The project is not greenhouse gas (GHG) emissions intensive and the detailed assessment and reporting of emissions is not required. This project, however, seeks to facilitate resource efficiency and pollution prevention by contributing to the South African green Economy.</p> <p>Dust air pollution in the construction phase has been adequately addressed in the EMPR.</p> <p>The project will not result in the release of industrial effluents. Potential pollution associated with sanitary wastewater is low and mitigation measures have been included in the EMPR.</p> <p>Land contamination of the site from historical land use (i.e. low intensity agricultural / grazing) is not considered to be a cause for concern.</p> <p>The waste generation profile of the project is not complex. Waste mitigation and management measures have been included in EMPR.</p> <p>Hazardous materials are not a key issue; small quantities of construction materials (oil, grease, diesel fuel, cement etc.) and stored sanitary sewage in the operational phase are the only</p>
3.2	<ul style="list-style-type: none"> – Pollution Prevention – Air Emissions – Stormwater – Waste Management – Hazardous Materials Management – Pesticide use and Management 	

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		wastes expected to be associated with the project. The EMPr and emergency preparedness and response plan identifies these anticipated hazardous materials and recommends relevant mitigation and management measures.
Performance Standard 4: Community Health, Safety, and Security		
Performance Standard 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts.		
Objectives:		
<ul style="list-style-type: none"> – To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. – To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities 		
4.1	<ul style="list-style-type: none"> – Community Health and Safety – Infrastructure and Equipment Design and Safety – Hazardous Materials Management and Safety – Ecosystem Services – Community Exposure to Disease – Emergency Preparedness and Response 	The requirements included in PS 4 have been addressed in the EIA process and the management thereof has been included in the requirements of the EMPR.
4.2	Security Personnel	
Performance Standard 5: Land Acquisition and Involuntary Resettlement		
Performance Standard 5 recognises that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to Economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use.		
Objectives:		
<ul style="list-style-type: none"> – To avoid, and when avoidance is not possible, minimise displacement by exploring alternative project designs. – To avoid forced eviction. – To anticipate and avoid, or where avoidance is not possible, minimise adverse social and Economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. – To improve, or restore, the livelihoods and standards of living of displaced persons. – To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites. 		
5.1	<ul style="list-style-type: none"> – Displacement – Physical Displacement – Economic Displacement – Private Sector Responsibilities under Government Managed Resettlement 	In terms of the land acquisition and involuntary settlement provisions in IFC PS 5, the development site is located on privately owned land that is utilised for the sole commercial agricultural use by the landowner. The project will restrict the future use of the land by the landowner through a lease agreement with the landowner. There is no involuntary physical or Economic displacement or resettlement involved with this project.
Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining Ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development.		
Objectives:		
<ul style="list-style-type: none"> – To protect and conserve biodiversity. – To maintain the benefits from Ecosystem services. – To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities. 		

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6.1	Protection and Conservation of Biodiversity	The preferred site layout plan has been developed to avoid negative impacts on sensitive environments. The EMPR includes good practice requirement to protect biodiversity and sensitive environments during the construction phase.
Performance Standard 7: Indigenous People		
<p>Performance Standard 7 recognizes that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. In many cases, their Economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, encroached upon, or significantly degraded.</p> <p>Objectives:</p> <ul style="list-style-type: none"> – To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. – To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts. – To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. – To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project’s life-cycle. – To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present. – To respect and preserve the culture, knowledge, and practices of Indigenous Peoples. 		
5.1	General <ul style="list-style-type: none"> – Avoidance of Adverse Impacts – Participation and Consent 	The development of the Soyuz 4 Solar PV Park will not impact on the rights of indigenous people.
5.2	Circumstances Requiring Free, Prior, and Informed Consent <ul style="list-style-type: none"> – Impacts on Lands and Natural Resources Subject to Traditional Ownership or Under Customary Use – Critical Cultural Heritage – Relocation of Indigenous Peoples from Lands and Natural Resources Subject to Traditional Ownership or Under Customary Use 	
5.3	Mitigation and Development Benefits	
5.4	Private Sector Responsibilities Where Government is Responsible for Managing Indigenous Peoples Issues	
Performance Standard 8: Cultural Heritage		
<p>Performance Standard 8 recognizes the importance of cultural heritage for current and future generations</p> <p>Objectives:</p> <ul style="list-style-type: none"> – To protect cultural heritage from the adverse impacts of project activities and support its preservation. – To promote the equitable sharing of benefits from the use of cultural heritage. 		
8.1	Protection of Cultural Heritage in Project Design and Execution	A cultural heritage study was performed as part of the S&EIR process. The impact of the proposed development on the cultural heritage resources of the area after the implementation of mitigation measures was assessed to be Low. The site layout has been designed to avoid potential heritage sites in the area. The EMPR includes a requirement for a Chance Find Procedure and protection of other potential

		heritage resources if unearthed during construction.
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5.5 Administration of the EMPR

Copies of the EMPR shall be always kept at the Soyuz 4 Solar PV Park. Senior management must be provided with the EMPR and will be required to familiarise themselves with the contents of the document and the EA.

The requirements of the EMPR and associated documents must be communicated to all employees as relevant to their job function. This may be done in the form of procedures and work instructions. Training records must be maintained.

5.6 Environmental and Social Management System

An ESMS shall be implemented by Soyuz 4 Solar PV Park (Pty) Ltd for the construction and operation of the Soyuz 4 Solar PV Park. The system is founded on the requirements of the Equator Principles, IFC Performance Standards, IFC EHS Guidelines, IFC Sector Guidelines and Good International Industry Practices which are applicable at the Project, as well as ensuring compliance with:

- The social safeguards of the European Investment Bank covering population movement, including involuntary resettlement.
- The International Labour Organization’s Core Labour Standards and Basic Terms and Conditions of Work.
- The International Bill of Human Rights in line with the United Nations’ Guiding Principles on Business and Human Rights safeguards.

Project policies include the following, but are not limited to these, in terms of environmental and social management:

- Environmental, Health, Safety and Social Policy
- Labour Policy
- Drug and Alcohol Policy
- Smoking Policy
- Code of Conduct

An environmental, health, safety, security and social specification outlines the expectations applicable to contractors, to ensure IFC PS benchmarks are met.

A project-specific stakeholder engagement plan shall be developed in terms of IFC PS 1. Internal and external grievance mechanisms shall be implemented, as per the project ESMS, throughout the lifecycle of the project.

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The Community Health and Safety Plan shall be implemented as a component of the ESMS, as per IFC PS 1 and IFC PS 4, and shall prescribe mitigation measures for potential community impacts that may be associated with project activities. These mitigation measures would include measures identified by certain parties that have previously raised concerns in terms of security issues during construction and further into operation.

Independent monitoring of the effective implementation of the ESMS shall be undertaken in terms of an independent monitoring schedule as per the requirements of the projects' s ESMS. Both internal and external audits on the ESMS will be undertaken during the lifecycle of the project and as prescribed by the projects ESMS.

The EA, EMPr and any other legislated permits are considered compliance obligations in the ESMS. Where there is overlap in requirements, the stricter requirement shall apply.

6. ORGANISATION, STRUCTURE AND RESPONSIBILITY

Formal responsibilities are necessary to ensure that key environmental management measures/procedures are executed. The Holder of the EA (Soyuz 4 Solar PV Park (Pty) Ltd), will be responsible for the overall control of the Solar PV Park during the pre-construction, construction, operation, decommissioning and rehabilitation phases of the project. Soyuz 4 Solar PV Park (Pty) Ltd's responsibilities will include the following:

- Appointing an independent environmental control officer (ECO) for the duration of the Construction phase and to notify the DFFE of the EcOs qualifications and contact details;
- Appointing and Environmental Site Compliance Officer for the duration of the construction phase of the project.
-
- Understanding the EIA Report, the requirement of the conditions of the Environmental Authorisation (EA) and the EMPr;
- Applying for an amendment of the EA from the DFFE in the event that the approved scope changes in line with the prevailing legislation;
- Overall implementation of the EMPr;
- Ensuring compliance, by all parties, and the imposition of penalties for non-compliance;
- Implementing corrective and preventive actions, where required;
- Preventing pollution and actions that will harm or may cause harm to the environment;
- Ensuring the activity does not commence prior to issuance of the EA;
- Notifying the DFFE within 14 days that construction activity will commence;
- Notifying the DFFE in writing within 24 hours if any condition in the EA cannot be or is not adhered to;
- Notifying the DFFE should minor changes to the layout be required (as confirmed by the ECO ESCO)
- Notifying the DFFE 14 days prior to commencement of the operational phase.

Specific roles and responsibilities for the Construction Phase of this project are as defined in Error! Reference source not found. and the Construction Phase Organogram is presented in **Figure 3**.

Table 3: Roles and Responsibilities- Construction Phase

RESPONSIBLE PERSON	RESPONSIBILITIES
Holder of the EA	<ul style="list-style-type: none"> The Holder of the EA shall take overall responsibility for the adherence of the projects (all phases) to the EMPr and EA conditions.
Project Manager	<ul style="list-style-type: none"> Ensure Soyuz 4 Solar PV Park (Pty) Ltd and the contractor(s) are aware of all environmental specifications and legal requirements pertaining to the project; Ensure that all stipulations within the EMPr and conditions of the environmental authorisation are communicated and adhered to by Soyuz 4 Solar PV Park (Pty) Ltd and its contractor(s); Monitor the implementation of the EMPr and conditions of the environmental authorisation throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes; and Be fully conversant with the EIAR for the project, the conditions of EA and all relevant environmental legislation.
Site Manager	<ul style="list-style-type: none"> Be fully conversant with the EIAR, the conditions of EA and the EMPr; Approve method statements (co-approval with ESCO); Provide support to the EO and ESCO; Be fully conversant with all relevant environmental legislation and ensure compliance thereof; Be responsible for the implementation of the EMPr and conditions of the EA; Ensure that audits are conducted to monitor compliance to the EMPr and conditions of the EA; Liaise with the Project Manager or his delegate, the ESCO and others on matters concerning the environment; Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution and unnecessary degradation onsite; and Confine construction activities to demarcated areas.
Environmental Officer (EO)	<ul style="list-style-type: none"> The EO must be appointed by the Contractor and is responsible for managing the day-to-day onsite implementation of the EMPr, and for the compilation of weekly environmental monitoring reports. In addition, the EO must act as liaison and advisor on all environmental and related issues, seek advice from the ESCO and ESCO when necessary, and ensure that any complaints received from I&APs are duly processed and addressed and that conflicts are resolved in an acceptable manner and timely manner. The EO shall be a full-time dedicated member of the Contractor’s team and must be approved by Soyuz 4 Solar PV Park (Pty) Ltd. The following qualifications, qualities and experience are recommended for the individual appointed as the EO: <ul style="list-style-type: none"> A relevant environmental diploma or degree in natural sciences, as well as experience in construction site monitoring, excluding health and safety; A level-headed and firm person with above-average communication and negotiating skills. The ability to handle

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RESPONSIBLE PERSON	RESPONSIBILITIES
	<p>and address conflict management situations will be an advantage; and</p> <ul style="list-style-type: none"> – Relevant experience in environmental site management and EMPr compliance monitoring. <ul style="list-style-type: none"> • The EO’s responsibilities include: <ul style="list-style-type: none"> – Monitoring, on a daily basis, environmental specifications on site and compliance with the conditions of the EA, environmental legislation and EMPr; – Keeping a register of compliance / non-compliance with the environmental specifications; – Identifying and assessing previously unforeseen, actual or potential impacts on the environment; – Ensuring that a brief weekly environmental monitoring report is submitted to the ESCO; – Conducting site inspections during the defect’s liability period, and bringing any environmental concerns to the attention of the ESCO and Contractor; – Advising the Contractor on the rectification of any pollution, contamination or damage to the construction site, rights of way and adjacent land; – Attending site meetings (scheduled and ad hoc); – Presenting the environmental awareness training course to all staff, Contractors and Sub contractors, and monitoring the environmental awareness training for all new personnel on-site, as undertaken by the Contractor; – Ensuring that a copy of the EA and the latest version of the EMPr are available on site at all times; – Ensuring that the Contractor is made aware of all applicable changes to the EMPr; – Assisting the Contractor in drafting environmental method statements and/or the Environmental Policy where such knowledge/expertise is lacking; – Undertaking daily environmental monitoring to ensure the Contractor’s activities do not impact upon the receiving environment. Such monitoring shall include dust, noise and water monitoring; and – Maintaining the following on site: <ul style="list-style-type: none"> ▪ A weekly site diary. ▪ A non-conformance register (NCR). ▪ An I&AP communications register, and ▪ A register of audits. • The EO will remain Employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to the Holder of the EA.
Environmental Site Compliance Officer (ESCO)	<ul style="list-style-type: none"> • A suitably qualified ESCO must be appointed by the Holder of the EA to monitor the construction phase project compliance onsite on a full-time basis. • Responsibilities of the ESCO include:

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RESPONSIBLE PERSON	RESPONSIBILITIES
	<ul style="list-style-type: none"> – Be fully conversant with the EIAR, the conditions of EA and the EMPr; – Be fully conversant with all relevant environmental legislation and ensure compliance thereof; – Approve method statements (co-approval with Site Manager); – Remain Employed until the completion of the construction activities; and – Report to the Project Manager, including all findings identified onsite. • In addition, the ESCO will: <ul style="list-style-type: none"> – Undertake weekly inspections of the site and surrounding areas to audit compliance with the EMPr and conditions of the environmental authorisation; – Take appropriate action if the specifications contained in the EMPr and conditions of the environmental authorisation are not followed; – Monitor and verify that environmental impacts are kept to a minimum, as far as possible; and – Ensure that activities onsite comply with all relevant environmental legislation. – Support the EO where required.
Environmental Control Officer (ECO)	<ul style="list-style-type: none"> • A suitably qualified external ECO must be appointed by the Holder of the EA to audit the construction phase project compliance in terms of the EMPr and conditions of the EA monthly, during the construction phase, in line with Condition 21 of the EA. • The ECO will report compliance of the project to DFFE. • The costs of the ECO shall be borne by the Holder of the EA (proof of appointment must be maintained onsite).
Contractors, Staff and Service Providers	<ul style="list-style-type: none"> • Complying with the Holder of the EA’s environmental management specifications; • Be conversant with all EMPr and conditions of the EA, and ensure compliance thereto; and • Adhering to any environmental instructions issued by the Site Manager/Project Manager on the advice of the ESCO.

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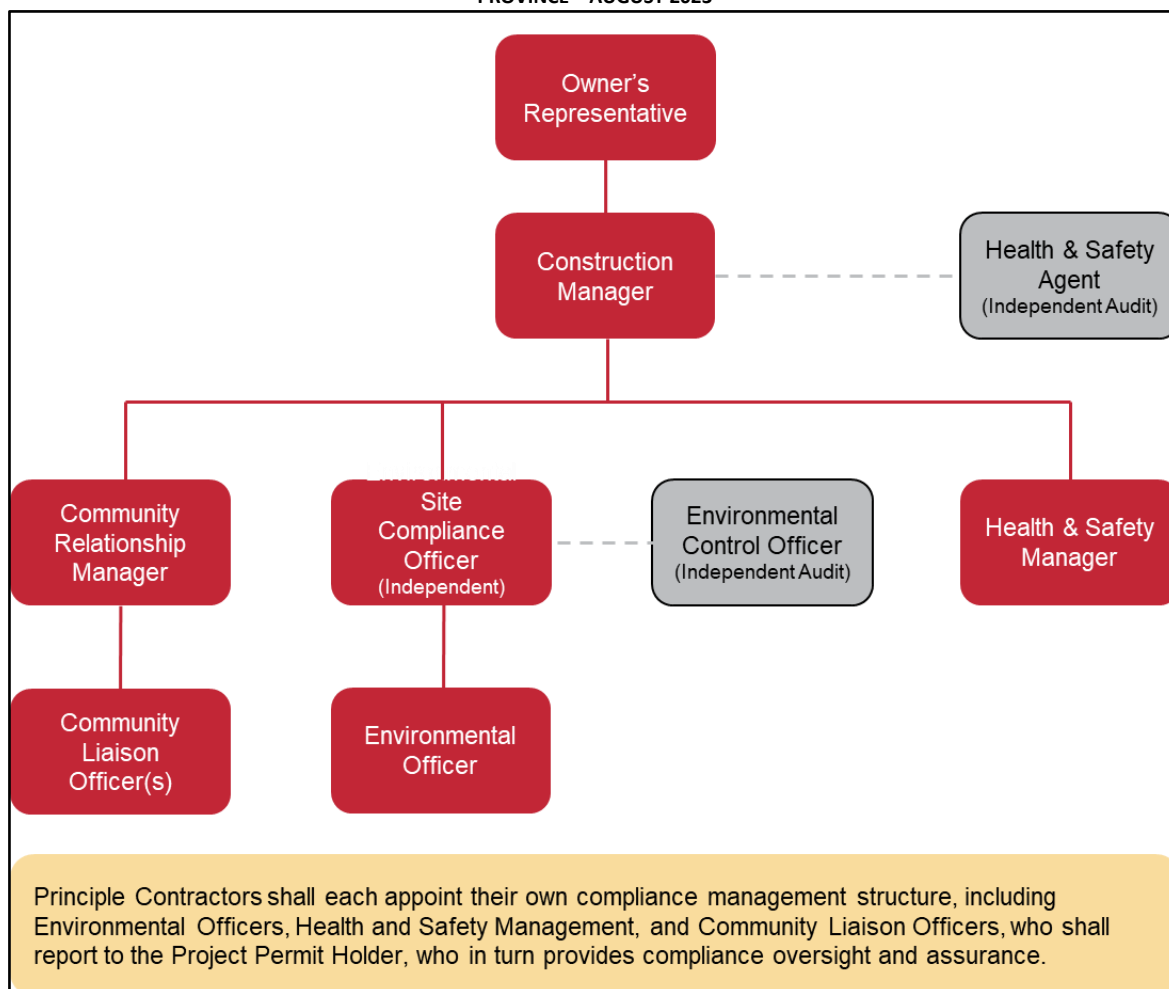


Figure 3: Holder of the EA Construction Phase management structure

6.1 Competent Authorities

The Department of Fisheries, Forestry & Environment (DFFE) is the designated authority responsible for issuance of the Environmental Authorisation and the approval of the EMPr. The DFFE has an overall responsibility for ensuring that Soyuz 4 Solar PV Park (Pty) Ltd complies with the conditions of the EA and this EMPr. The DFFE will monitor compliance through the Environmental Management Enforcement and Compliance Unit in consultation with the appointed Independent ESCO.

6.2 Operational Phase Environmental Officer

The operational phase duties of the Environmental Officer will be appointed to a member of staff of the operating team. The Environmental Officer will be responsible to ensure the day-to-day legal operation of the facility. The Environmental Officer will conduct internal compliance audits from time-to-time and report the findings to management and assist with implementation of corrective actions where required.

7. CONTRACTOR MANAGEMENT

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Contractor management will be affected through specific activities as listed below:

- At the tender briefing meeting environmental management expectations during the project shall be highlighted.
- The EMPR shall be included with the contract documents.
- Once the Contractor is appointed they should be instructed to develop a document that should indicate how they plan to ensure compliance with the EMPR;

8. ENVIRONMENTAL AWARENESS TRAINING

Soyuz 4 Solar PV Park (Pty) Ltd will ensure that environmental awareness is included in the induction and training systems during the construction, operational and decommissioning phases.

The environmental awareness training, as a minimum, should include:

- Explanation of the importance of complying with the EA and EMPR;
- Discussion of the potential environmental impacts of construction, operation and decommissioning;
- Employee roles and responsibilities, including those specified in the emergency preparedness and response plan;
- Explanation of the mitigation measures that must be implemented when carrying out their duties;
- Explanation of the requirements of this EMPR; and
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPR.

Soyuz 4 Solar PV Park (Pty) Ltd and its contractors will keep a record of all environmental training sessions, including names dates and the information presented. These records will be presented for inspection on request by auditors, authorities and other interested parties.

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9. PLANNING AND DESIGN PHASE

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project. The following environmental requirements must be implemented during the planning and design phase.

9.1 Administrative Requirements

Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation, and Environmental Management Plan						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitored by	Compliance Monitoring Frequency
9.1.1 Environmental Appointments	a)	Appoint an Environmental Site Compliance Officer (ESCO) prior to the start of construction and for the duration of construction.	Holder of EA / Project Manager	Prior to construction and for the duration of construction	Senior Management and Auditors	Once off
	b)	Appoint an independent Environmental Control Officer on appointment of Contractor.	Holder of EA / Project Manager	Prior to construction and for the duration of construction	Senior Management and ESCO	Once off
9.1.2 Legal Licences, Permits, Approvals, Registrations	a)	Ensure that an EA has been received before construction or other) for the proposed expansion proceeds.	Project Manager	Prior to project start up	ESCO	Once off
	b)	Ensure that WUL or GA has been received before construction can proceed	Holder of EA/ Project Manager	Prior to project start up	ESCO	Once off
	b)	Identify if other permits or licences are required (plant relocation) and obtain before construction can proceed in the affected areas if	Project Manager and ESCO	Prior to project start up	ESCO	Once off
9.1.3 Authority Notification	a)	Issue written notice as required by the Environmental Authorisation to DFFE (i.e. notification of commencement of the construction phase of the proposed expansion).	Holder of EA / Project Manager	At specified in the EA	ESCO	Once off

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Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation, and Environmental Management Plan						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitored by	Compliance Monitoring Frequency
9.1.4 Notification of I&APs	a)	Notify I&APs and adjacent landowners in writing of the issuance of the EA.	EAP	As specified by the EA	ESCO	Once off on receipt of EA
	b)	Notify I&APs and adjacent landowners in writing of the commencement of the construction phase of the project. Ensure that the notification letter includes contact details of the ESCO and EO and informs them of the appropriate route to follow if they wish to register complaints or comments.	EAP/ESCO	As specified by the EA	ESCO	Once off prior to commencement of the project
9.1.5 Environmental Management Budgeting	a)	Ensure that sufficient funds are allocated for environmental management and compliance purposes for all phases of the planning, and of the proposed Soyuz 4 Solar PV Park.	Senior Management	Design and planning phase	ESCO	Monthly ESCO Audits – Construction Phases
9.1.6 Complaints Management	a)	Develop and maintain a complaints management system	ESCO / EO	Immediate and ongoing – construction phase	ESCO	Monthly ECO Audits – Construction Phase
	b)	Ensure that the method of lodging a complaint is communicated to interested and affected stakeholders.	Project Manager / ESCO /EO	Immediate and ongoing – construction phase	ESCO	Monthly ESCO Audits
9.1.7 Tendering and Contract Management	a)	Ensure that the following documents form part of the tendering pack and/or part of the issue of documents to the contractor: <ul style="list-style-type: none"> • Environmental Authorisation (Appendix I of EMPR) • Water Use Licence or General Authorisation (Appendix J) • Alien Invasive Management Programme (Appendix B of EMPR) • Stormwater Management Plan (Appendix C of EMPR) 	Holder of EA / Project Manager / ESCO	Immediate and ongoing – construction phase	ESCO	Monthly ESCO Audits

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Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation, and Environmental Management Plan						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitored by	Compliance Monitoring Frequency
		<ul style="list-style-type: none"> Noise Management Plan (Appendix D of EMPR) Dust Management Plan (Appendix E of EMPR) Revegetation and Rehabilitation Plan (Appendix F of EMPR) Fire Management Plan (Appendix G of EMPR) Traffic Management Plan (Appendix H of this EMPR) 				

9.2 Design and Planning Requirements

Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
9.2.1 Avifaunal Protection	Reduce direct loss of avifaunal habitat	Use the SEI spatial layers to appropriately position all surface infrastructure to avoid areas considered important for avifauna to minimise loss of Medium-High sensitivity avifaunal habitat.	Senior / Project Management	Design Phase	Final detailed site plan
		Ensure that the BESS and non-solar panel infrastructure occur in Low SEI portions of the project area.	Senior / Project Management	Design Phase	Final detailed site plan
		Prioritise existing access track for main access route.	Senior / Project Management	Design Phase	Final detailed site plan
		Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final detailed site plan
	Prevent collisions and executions	All power cables within the project area must be fully insulated and preferably buried in demarcated corridors.	Senior / Project Management	Design Phase	Final design plans

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		Install white strips or expose (lustrous) aluminium frames along the edges of the solar panels to increase visibility and deter birds.	Senior / Project Management	Design Phase	Final design plans
		Installation of bird deterrent devices on and around solar panels and on transmission line poles, pylons and / or monopoles as well as security/boundary fences to reduce collision risk.	Senior / Project Management	Design Phase	Final design plans
		The BESS must be covered in non-reflective surfaces and protected against thermal discharge.	Senior / Project Management	Design Phase	Final design plans
		In areas where service roads intersect with semi natural or natural habitat, fences must be set back 75 metres from the edge of the road to allow for vulnerable species such as bustards, storks, cranes and korhaans to obtain adequate height after being flushed by vehicle traffic. Alternatively, the fences must be placed completely adjacent to the roads with a maximum of 3 metres buffer and marked with fence flappers to reduce flush related collisions.	Senior / Project Management	Design Phase	Final design plans
9.2.2 Terrestrial Fauna	Prevent loss of habitat and species diversity	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
		The access road route to the Soyuz 4 Solar PV development site must follow the preferred alignment assessed by the EIA to reduce fragmentation of existing natural habitat.	Senior / Project Management	Design Phase	Final design plans
		Perimeter fences must be designed to allow for small faunal species movement in and out of the Soyuz 4 Solar PV Park. The use of electric perimeter fencing is discouraged. Small culverts should be placed every 200m in the fence to allow for the movement of small species through the fence.	Senior / Project Management	Design Phase	Final design plans
	Prevent loss of faunal Species of Conservation Concern	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		Perimeter fences must be designed to allow for small faunal species movement in and out of the Soyuz 4 Solar PV Park. The use of electric perimeter fencing is discouraged. Small culverts should be placed every 200m in the fence to allow for the movement of small species through the fence.	Senior / Project Management	Design Phase	Final design plans
		Prior to vegetation clearing activities, the site should be inspected for the presence of SCC, including burrowing scorpion burrows, and reptiles. If located, these species should be carefully rescued and relocated as per an approved rescue and relocation plan that must be developed.	Senior / Project Management / Fauna Specialist	Design Phase	Faunal Rescue and Relocation Report
9.2.3 Terrestrial Flora	Prevention of loss of floral habitat and potential species diversity	Ensure the development is confined to the preferred site layout as assessed by the terrestrial fauna specialist ad presented in this EIA Report.	Senior / Project Management	Design Phase	Final design plans
		The access road route to the Soyuz 4 Solar PV site must follow the preferred alignment assessed by the EIA to reduce fragmentation of existing natural habitat.	Senior / Project Management	Design Phase	Final design plans
		Ensure the Alien Invasive Management Programme (Appendix B) of this EMPR forms part of Tender Documents and is issued to Contractor for implementation.	Senior / Project Management	Planning / Tender Phase	Proof of distribution
	Prevention of loss of Species of Conservation Concern	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
		A walkdown of the development footprint area must take place before construction activities commence, where all anticipated floral SCC are searched for and marked to determine the number of individuals that will be impacted. Based on the outcome of the walkdown, the appropriateness of rescue and relocation initiatives must be determined, and a rescue and relocation plan may be required. Permit applications will be necessary. Geophytes and succulents are good candidates for rescue and	Senior / Project Management / Fauna Specialist	Design / Planning Phase	Floral Rescue and Relocation Plan

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		relocation, and these should be targeted for such initiatives.			
9.2.4 Soil and Land Capability	Prevention of unnecessary loss of land capability – agriculture.	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
		Access road must be aligned to the route assessed by the EIA to avoid further agricultural impact and unnecessary soil disturbance.	Senior / Project Management	Design Phase	Final design plans
9.2.5 Surface water	Prevent direct transformation of freshwater habitat	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
		The access road route to the Soyuz 4 Solar PV development site must follow the preferred alignment assessed by the EIA to avoid transformation of the freshwater habitats.	Senior / Project Management	Design Phase	Final design plans
	Prevent altering surface water velocities	Vegetation must be retained in the parts of the development site where clearing for PV and associated infrastructure is not required in order to improve infiltration of runoff and to trap surface runoff during precipitation events;	Senior / Project Management	Design Phase	Final design plans
		Stormwater infrastructure on the development site must be designed in line with the principles of SUDS to polish stormwater by trapping sediments and by removing pollutants that could pollute downgradient freshwater Ecosystems, and to allow the gradual discharge of stormwater into the drainage lines following rainfall events (see Stormwater Management Plan attached as Appendix C to this EMPR.	Senior / Project Management	Design Phase	Final design plans
		Use of 'soft' engineering features such as bioswales that are vegetated with suitable vegetation that is tolerant of both wet and dry conditions is strongly recommended.	Senior / Project Management	Design Phase	Final design plans

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		The use of stone pitching to reduce velocity of stormwater is strongly recommended	Senior / Project Management	Design Phase	Final design plans
		The proposed stormwater infrastructure must also be incorporated into a suitable and site-specific Stormwater Management Plan (SWMP).	Senior / Project Management	Design Phase	Stormwater Management Plan (Appendix C)
		Stormwater generated from the road surfaces in the catchments of the EDLs must be directed at intervals into the catchment areas rather than being channelled towards the crossing points.	Senior / Project Management	Design Phase	Road design plans
		Design measures such as flow breakers to slow the velocity of stormwater must be included in the design of the access road.	Senior / Project Management	Design Phase	Road design plans
9.2.6 Environmental Noise	Prevent noise impacts to off-site receptors	Ensure that there is a buffer zone between the Solar PV Park components and the off-site sensitive receptors.	Senior / Project Management	Design Phase	Final site layout design drawings
		Implement Noise Management Plan (presented in Appendix D of this EMPR).	Senior / Project Management	Design Phase	ESCO monthly audit
9.2.7 Visual	Prevent negative visual impacts	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
		Access road must be aligned to the route assessed by the EIA.	Senior / Project Management	Design Phase	Final design plans
		If site is to be fenced, transparent fence, such as a clear VU fence or equally approved, should be muted in colour and located as close as possible to the development boundary of the Solar Park to avoid impeding visibility and ensure that it is visually pleasing to observers.	Senior / Project Management	Design Phase	Final design specification
		Implement accepted technologies to reduce glint and glare from the PV panels.	Senior / Project Management	Design Phase	Final design specification
		Night lighting of construction sites and camps, the BESS, substation and O&M Building should be minimised as far as possible, taking into consideration that due to safety requirements a	Senior / Project Management	Design Phase	Final design specification

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		certain level of lighting may be necessary.			
9.2.8 Heritage	Prevent disturbance and/or destruction of archaeological sites and/or materials	Ensure the development is confined to the preferred site layout as assessed by the EIA Report.	Senior / Project Management	Design Phase	Final design plans
9.2.9 Water Management	Prevent excessive use of natural water for the cleaning of PV panels.	Investigate panel cleaning options prior to finalising the design of the Soyuz 4 Solar PV Park and where possible implement 'waterless' alternatives.	Senior / Project Management	Design Phase	Water Supply Plan
		If borehole water is to be used for the supply of the water for washing the panels, then a WUL must be applied for and the necessary geohydrological assessments undertaken to ensure the aquifer can provide the required quantities without affecting other users water rights.	Senior / Project Management/ ESCO	Design Phase	Water Supply Plan
9.2.10 Waste Management	Ensure legal and sustainable management of waste.	Develop a detailed waste management plan for the construction and operational phases paying special attention to PV panel packaging waste (construction phase) and PV panel and BESS battery waste. Ensure that the waste management complies with the legal requirements of NEM:WA and its regulations	Senior / Project Management/ Waste Specialist	Design Phase	Waste Management Plan.
		Ensure that the requirement for a construction phase waste management plan forms part of tender and contract documentation.	Senior / Project Management/ ESCO	Design Phase	Tender docs/ contracts
9.2.11 Creation of Local Employment Opportunities Social Impact Management	Ensure the social impacts identified by the EIA are addressed through policy and planning agreements.	Develop a Stakeholder Engagement Plan (SEP) prior to be implemented during the construction phase.	Senior / Project Management	Design Phase	SEP
		Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, most skilled posts are likely to be filled by people from outside the area.	Senior / Project Management	Planning Phase	Policy and employment records
		Where feasible, effort should be made to employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.	Senior / Project Management	Planning Phase	Policy and employment records

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		Before the construction phase commences the proponent should meet with representatives from the local municipality to establish the existence of a skills database for the area. If such as database exists, it must be made available to the contractors appointed for the construction phase.	Senior / Project Management	Planning Phase	Skills Development Plan and tender docs
		The local authorities, community representatives, and organisations on the interested and affected party database must be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.	Senior / Project Management	Planning Phase	Communication records
		Where training and skills development is deemed applicable and appropriate for locals, develop programmes for implementation during the construction phase as far as reasonably practicable.'	Senior / Project Management	Planning Phase	Skills Development Plan
		The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	Senior / Project Management	Planning Phase	Skills Development Plan
9.2.12 Business Opportunities	Provide local business opportunities.	The proponent must liaise with the local municipality with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work.	Senior / Project Management	Design Phase	SEP
		Where possible, the proponent should assist local BBBEE companies to complete and submit the required tender forms and associated information.	Senior / Project Management	Design Phase	SEP
		The local municipality in conjunction with the local business sector and representatives from the local	Senior / Project Management	Design Phase	SEP

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		hospitality industry, should identify strategies aimed at maximising the potential benefits associated with the project.			
9.2.13 Construction Worker impact on Local Communities	Ensure positive interaction with local communities.	Preparation of a Stakeholder Engagement Plan (SEP) to be implemented during the construction phase.	Senior / Project Management	Design Phase	SEP
		Preparation a Community Health, Safety and Security Plan (CHSSP) to be implemented during the construction phase.	Senior / Project Management	Design Phase	Community Health, Safety and Security Plan
		The SEP and CHSSP must include a Grievance Mechanism that enables stakeholders to report resolve incidents.	Senior / Project Management	Design Phase	SEP and CHSSP
		Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.	Senior / Project Management	Design Phase	Employment Policy
		If stakeholder engagement requires the establishment of Monitoring Committee (MC) for the construction phase, one should be formed and where possible, should include representatives from local landowners, farming associations, and the local municipality.	Senior / Project Management	Design Phase	Monitoring Committee Constitution
		The proponent and contractor must develop an agreement for construction workers. The agreement should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the agreement should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation. The agreement should be signed by the proponent and the contractors before the contractors move onto site. The agreement should form part of the CHSSP.	Senior / Project Management	Design Phase	Employment Contract
		The proponent and the contractor must, where applicable, raise awareness for all construction	Senior / Project Management	Design Phase	SEP and CHSSP

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Aspect	Management Outcome	Management Action	Responsibility	Timing	Records
		workers at the outset of the construction phase for communicable diseases identified as significant in the health risk assessment. The programmes should form part of the CHSSP.			
9.2.14 Farm and Livestock Safety.	Ensure safety and security of farms and livestock	The proponent must hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This will be handled through the SEP and grievance mechanism.	Senior / Project Management	Design Phase	Landowner agreements
9.2.15 Emergency Preparedness & Response	Prevention of emergency situations and detailed response should they occur	<p>Ensure that an Emergency Preparedness and Response Plan is developed for both the Construction and Operational phases before either phase begins. The plans must as a minimum include the following:</p> <ul style="list-style-type: none"> • Identification of all potential emergency risks situations. • Prevention actions to be implemented to reduce the potential for the risk to occur. • Action to be implemented if the emergency situation occurs. <p>The following emergency risks must be addressed as a minimum:</p> <ul style="list-style-type: none"> • Fire • Spills & leaks (hazardous substances and waste) • Interaction with dangerous or protected wildlife either causing damage to human or to wildlife • Flooding • Drought • Excessive heat • Strike action • Civil unrest 	Senior / Project Management	Design Phase	Emergency prepared and response plans and records

10. CONSTRUCTION PHASE

The following environmental requirements must be implemented during the construction phase.

10.1 Administrative Requirements

Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation, and Environmental Management Plan						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitored by	Compliance Monitoring Frequency
10.1.1 ESCO Appointment / ECO Appointment	a)	Ensure that an Environmental Site Compliance Officer (ESCO) has been appointed for the construction phase and has been notified of the commencement of construction.	Project Manager	Prior to construction and for the duration of construction	Senior Management and ECO	Once off
	b)	Ensure that an independent ECO is appointed prior to construction for the duration of the construction Phase.	Project Manager	Prior to construction and for the duration of construction	ESCO	Once off
	c)	Ensure that the Contractor/s appoint an EO prior to construction and for the duration of construction.	Project Manager	Prior to construction and for the duration of construction	ESCO	Once off
10.1.2 Notification of Authorities	a)	Ensure that the responsible authorities have been notified of the commencement of construction as specified in the EA.	Project Manager / ESCO	Prior to project start up	ESCO	Once off
10.1.3 Notification of I&APs	a)	Notify I&APs and adjacent landowners of the commencement of construction (if specified as a condition of the EA).	Project Manager / ESCO	As specified by the EA	ESCO / ECO	Once off prior to commencement of construction
10.1.4 Documentation	a)	Ensure that the contractor has copies of the EA and EMPR and the associated management plans (Appendices to this EMPR) and the SEP and CHSSP as well as landowner agreements.	Project Manager / ESCO	Prior to project start up	ESCO / ECO	Once off

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Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation, and Environmental Management Plan						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitored by	Compliance Monitoring Frequency
10.1.5 Fencing	a)	The EDLs must be fenced or clearly demarcated to prevent access by construction equipment (except at designated points) and to ensure that no activities occur within the 32m ZoR of the EDLs or into the EDLs themselves;	Project Manager / Contractor / EO	Prior to construction	ESCO / ECO	Once-off

10.2 Contractor Management

Impact Management Outcome: The environmental performance of contractors is managed to prevent negative environmental impacts or incidents during the construction phase						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.2.1 Appointment of Environmental Officer	a)	Appoint an Environmental Officer for the duration of construction. Appointee must be approved by the Project Manager and must be on site permanently.	Contractor	Prior to construction and for the duration of construction.	ESCO/ ECO	Ongoing
10.2.2 Environmental Awareness	a)	Ensure all contract staff are inducted before starting work on site.	ESCO /EO	Construction Phase	ESCO / ECO	Ongoing
10.2.3 Contractor Environmental Method Statements	a)	Ensure that the contract provides method statements for review and acceptance by the ESCO for the activities that will be conducted.	Contractor & EO	Prior to site establishment	ESCO / ECO	At contract start-up

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10.3 Biodiversity Protection

Impact Management Outcome: Protection of Indigenous Biodiversity						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
10.3.1 Protection of Species of Conservation Concern	a)	Ensure that the ‘walk through’ for Species of Conservation Concern has occurred prior to construction proceeding and the required action taken (if Species of Conservation Concern) were identified during the ‘walk through’.	Project Manager / ESCO Fauna and Flora Specialists (inclusive of Avifauna)	Prior to project start up	ESCO / ECO	Once off
10.3.2 Protection of Indigenous Flora and Fauna	a)	Demarcate the authorised construction footprint.	Contractor / EO	Prior to commencement of construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	No construction activities may occur outside the demarcated construction footprint.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Movement of staff outside the demarcated area must be prevented. Signs must be erected to support this.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	No trapping, killing, or poisoning of wildlife is allowed.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Clearing of construction footprint should be minimised where possible.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Use only designated access road and internal site roads.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.3.3 Aquatic Ecosystems/wetlands/ aquatic biodiversity	a)	Construction activities, including laydown areas for materials and parking of equipment must be confined to the approved development area.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Construction stormwater management must be planned prior to	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Protection of Indigenous Biodiversity						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
		site establishment to prevent silt-loaded stormwater run-off from being discharged from the construction footprint. These temporary stormwater management systems must be inspected and maintained throughout the construction phase.				
10.3.4 Avifauna Protection	a)	Limit the areas cleared for construction purposes (e.g. laydown areas).	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Do not implement a bare earth policy for construction of solar panels, rather mow the vegetation, where possible.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Demarcate such areas on the ground during construction and sign post them as “Environmentally sensitive areas - keep out!”.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	Rehabilitate all areas disturbed immediately after construction.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Adopt temporal avoidance strategies. Attempt, as far as possible to conduct most of the high intensity earthmoving and building activities during winter (June to September) to minimize disturbance of avifauna during sensitive life stages such as lekking, courting, nesting and fledging.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Minimise light pollution and fit external lighting with downward facing hoods.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Protection of Indigenous Biodiversity						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
	g)	Demarcate natural areas beyond the surface infrastructure footprint and restrict access of personnel into these areas through education and signposting.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	h)	Train staff and contractors on the importance of birds and other biodiversity and the sensitive areas for these species which should be avoided.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	i)	Introduce and enforce a speed limit (40 km/h)	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.3.5 Alien/ Exotic Species Management	a)	Keep the construction footprint to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Access roads must be kept to prescribed widths.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	The spread of exotic/alien plant species must be physically managed throughout the contract period.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Implement the requirements of the Alien Invasive Management Plan (Appendix B of EMPR).	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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10.4 Noise Management

Impact Management Outcome: Prevention of complaints or hearing loss because of noise generated during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.4.1 Hours of Operation	a)	Ensure that construction activities occur during acceptable working hours.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.4.2 Equipment Maintenance	a)	Ensure that a construction vehicles and equipment are in good working order and within allowable noise ranges.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure that vehicles and equipment exceeding allowable noise ranges are equipped with silencers or removed from site.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.4.3 Operator Requirements	a)	Operators and drivers not to leave engines idling when not in use.	Drivers/Operators	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.4.4 Noise Complaints	a)	Record, investigate and action all complaints immediately and keep a record of the complaint and the action taken.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.4.5 Noise Protection	a)	Ensure all staff operating noise generating equipment wear hearing protection.	Contractor / EO / SHE Officer	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.4.6 Noise Monitoring	a)	Annual occupational health and safety hearing assessments to be conducted for all staff.	Contractor / SHE Officer	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Environmental noise monitoring must be undertaken only if noise complaints are received from persons located beyond the site boundary. The need for monitoring and the nature of the monitoring to be undertaken should be determined at	Project Manager/ Contractor / EO / ESCO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of complaints or hearing loss because of noise generated during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		the time based on the nature and location of the noise nuisance experienced.				
10.4.7 Noise Management Plan	a)	Implement the requirements of the Noise Management Plan presented in Appendix D of this EMPR.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.5 Dust and Air Emissions Management

Impact Management Outcome: Prevention of negative air quality impacts.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.5.1 Dust Management Plan	a)	Implement the requirements of the Dust Management Plan presented in Appendix E of this EMPR.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Dust complaints are to be investigated and the appropriate action taken to mitigate in consultation with ESCO and ECO.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.5.2 Clearing of vegetation for construction	a)	Only clear the areas that are required to be cleared for imminent construction to prevent exposing too much soil at any one time.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.5.3 Dust management	a)	Use water or coagulants (environmentally friendly versions) for dust suppression if dust nuisance is confirmed by complaints by 3 rd parties.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of negative air quality impacts.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	b)	Place traffic calming structures along gravel access road to facility to slow vehicles down and reduce dust entrainment.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Protect soil and sand stockpiles from wind by covering them during the windy months.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	If required (due to dust nuisance) erect shade cloth or similar material around the work areas to attempt to reduce dust dispersion out of working area.	Project Manager/ Contractor / EO in consultation with ESCO and ECO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Ensure materials that have the potential to generated dust during transport are covered with tarpaulins or similar.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Enforce a speed limit of 20 – 30 km/h on the gravel roads that will be used to access the construction site and movement of vehicles within the construction site.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.5.4 Vehicle and Equipment Management	a)	Ensure that all vehicles and mechanical/electrical equipment are serviced and in good working order to reduce emissions.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Avoid unnecessary idling of vehicles/equipment	Contractor / Vehicle /equipment operators.	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.5.5 Materials Management	a)	Protect outside stockpiles from wind by covering or wetting during dry windy conditions.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.5.6 Fire Management	a)	Identify potential fire risks and implement the necessary fire	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of negative air quality impacts.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		prevention and response – comply with the Fire Management Plan attached to this EMPR as Appendix G.				

10.6 Traffic Management

Impact Management Outcome: Prevention of traffic obstruction, traffic accidents/incidents and damage to public roads						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.6.1 Driver Requirements	a)	Drivers must comply with road rules.	Project Manager /Contractor / Drivers	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Drivers must behave safely and courteously.	Project Manager /Contractor / Drivers	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Vehicles must not be overloaded	Project Manager /Contractor / Drivers	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	All drivers must be in possession of the legal licence required for the vehicle they operate.	Project Manager /Contractor / Drivers	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.6.2 Traffic Safety	a)	Implement suitable traffic control/calming measures (if required) on or near the point where the access road to the facility leaves the public road to ensure construction vehicles can turn safely off the road onto site.	Project Manager /Contractor /	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Erect the required ‘Construction Vehicle Turning’ warning signs and speed control on the public road where the facility access road take-off will occur.	Project Manager /Contractor /SHE Officer	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of traffic obstruction, traffic accidents/incidents and damage to public roads						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	c)	Construction traffic should not be allowed on the public road network during the typical weekday a.m. and p.m. peak hours in built up areas, especially abnormal loads and other heavy vehicles, where possible.	Project Manager /Contractor /	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.6.3 Abnormal loads	a)	Ensure abnormal loads routes are registered and approved by the local/district municipality and responsible traffic authority and comply with abnormal load transport requirements.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Where possible, ensure abnormal load deliveries are reasonably spaced out in terms of time to ensure that these loads travelling on roads do not cause traffic hold ups or require staging when accessing of the public roads.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.6.4 Road Condition	a)	Resurfacing of sections along Windpoort Road, where required and regular road maintenance i.e. grading of the road once every two weeks during the construction phase.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.6.5 Traffic Management Plan	a)	Implement the Traffic Management requirements presented in Appendix H inclusive of updates determined prior to construction by the construction phase team.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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10.7 Stormwater, Surface Water and Groundwater Protection

Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.7.1 Stormwater Management	a)	Stormwater management must be implemented by the contractor prior to site establishment to ensure attenuation of stormwater run-off from the construction site to prevent erosion. These temporary stormwater management systems must be able to accommodate a 1:100 year flood event. The area cleared for construction must be confined to the development footprint.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Stormwater infrastructure on the development site must be designed in line with the principles of SUDS to polish stormwater by trapping sediments and by removing pollutants that could pollute downgradient freshwater Ecosystems, and to allow the gradual discharge of stormwater into the drainage lines following rainfall events.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Implement the requirements of the stormwater management plan presented in Appendix C of this EMPR.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.2 Construction Activity Timing	a)	Where practicably/ reasonably possible, road construction and site clearing must not take place during extended periods of rainfall to limit potential impacts to downgradient drainage lines.	Project Manager/ Contractor / EO in consultation with ESCO and ECO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.7.3 Vegetation Management	a)	Areas which are to be cleared of vegetation including contractor laydown areas must remain as small as possible and it must be ensured as far as possible that vegetation clearing is focused to the proposed development footprint;	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Areas to be cleared of vegetation must be cleared in a controlled, phased manner.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Vegetation must be retained in the parts of the site where clearing for bi facial panels is not required in order to improve infiltration of runoff and to trap surface runoff during precipitation events.	Project Manager / Contractor / EO in consultation with ESCO and ECO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.4 Excavations / Earthworks	a)	Stockpiles may not be higher than 2 m in height and all exposed soil must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geojute or hessian sheeting) to prevent erosion and sedimentation of the downgradient EDLs. Furthermore, measures must be undertaken to limit the time in which soil is exposed.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.5 Access Road Upgrading and construction	a)	Where reasonably possible, road construction and site clearing must not take place during extended periods of rainfall to limit potential	Project Manager/ Contractor / EO in consultation with ESCO and ECO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		impacts to downgradient drainage lines				
	b)	The construction footprint of the road where it will cross the EDL must be limited to the approved construction Right of Way. This Construction Right of Way must be narrowed to only the width of the proposed road and 2m on either side of the road width.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	This construction right of way must be clearly demarcated prior to the commencement of any vegetation clearing to prevent any such damage to vegetation outside of the construction Right of Way.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	The riparian zone (outer boundary of the riparian zone) not located within the Construction Right of Way must be cordoned off using a suitable barrier or material which is also able to control sedimentation.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Construction phase stormwater controls must be implemented to protect the EDLs.	Project Manager/ Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Fresh concrete and cement mortar must not be mixed near the site boundaries (i.e. within the 100m Zone of Regulation) of the drainage lines;	Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.6 Stockpile Management	a)	During excavation activities, it must be ensured that stockpiles are not higher than 2 m in height and all exposed soil	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geojute or hessian sheeting) to prevent erosion and sedimentation of the downgradient EDLs. Furthermore, measures must be undertaken to limit the time in which soil is exposed;				
10.7.7 Hazardous Substances	a)	Ensure all hazardous substances are stored in secure bunded facilities so that spillages can be contained.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure disciplined use of hazardous substances and the use of drip trays where necessary	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure that mixing/decanting of all chemicals and hazardous substances takes place either on a tray or on an impermeable surface.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.8 Concrete Management	a)	Fresh concrete and cement mortar must not be mixed near the site boundaries (i.e. within the 100m Zone of Regulation) of the drainage lines;	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Mixing of cement should only be undertaken within the construction camp and may not be mixed on bare soils;	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Mixing of concrete must be undertaken within a lined, bound or bunded portable mixer. Consideration must be given to use ready mix concrete;	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	d)	A batter board or other suitable platform/mixing tray is to be provided onto which any mixed concrete can be deposited whilst it awaits placing;	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	A concrete washout area must be designated outside of the confines of the 100m Zone of Regulation around the EDLs.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	Cement bags must be disposed of in the demarcated hazardous waste receptacles.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Concrete spillage outside of the demarcated area must be promptly removed and taken to a suitably licenced waste management facility.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.9 Dust Management	a)	Dust suppression measures must be implemented (such as spray watering on gravel roads) throughout the proposed development activities to prevent excessive dust which may adversely affect riparian vegetation within the EDLs.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.10 Waste Management	a)	Ensure that all waste (except inert waste) is stored in designated waste containers.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.11 Leaking Vehicles/ Machinery/ Equipment	a)	Implement ensure spills are contained and immediately cleaned-up.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure a spill kit is available on site.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure all hydrocarbon leaks are repaired immediately.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	d)	Ensure that leaking vehicles or equipment are not permitted to work until repaired.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Enforce the use of drip trays to capture any leaks or weeps.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Servicing of vehicles and equipment may not occur on site unless it is impossible to move the damaged item from the site.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	g)	Soil contaminated by the construction activities will be uplifted and placed in containers for disposal at a hazardous landfill	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	h)	Appropriately contain any generator diesel storage tanks and/or machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.12 Ablution Facilities	a)	Ensure that legally compliant ablution facilities such as chemical toilets are provided during the construction phase.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	These must be serviced regularly to prevent spillages to the natural environment.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure that toilets are serviced frequently and in a legally compliant manner to prevent spillage. Sewage removed during servicing must be	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Prevention of contamination of stormwater, surface water and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		disposed of at a licenced waste water treatment works.				
	d)	Chemical toilets must be secured to prevent them being blown or knocked over.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.7.13 Spill Prevention and Response	a)	Ensure that emergency contact numbers are available on-site to deal with large spillages.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	A construction phase Spill Prevention and Spill Response Plan must be developed and implemented.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.8 Fire Management

Impact Management Outcome: No illegal or uncontrolled fires.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.8.1 Fire prevention	a)	Open fires on the site for cooking or heating are not allowed except in designated areas.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Smoking on site must be confined to designated areas.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: No illegal or uncontrolled fires.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		fires is greater. In this regard special care should be taken during the high-risk dry, windy winter months.				
	d)	Provide adequate fire-fighting equipment on-site, including a fire fighting vehicle.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Provide fire-fighting training to selected construction staff.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Security staff to be provided with alternative methods for keeping warm – no outside fires permitted.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	g)	In the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.8.2 Fire prevention	a)	Implement the requirements of the Fire Management Plan presented in Appendix G of this EMPR.	Project Manager / Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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10.9 Social Impact Management

Impact Management Outcome: Increased local employment. No complaints of social decline and / or civil unrest, protesting or strike action.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.9.1 Employment opportunities	a)	Implement of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase.	Project Manager / Contractor / EO-	Prior to construction starting	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Where reasonable and practical, the contractor should appoint local contractors and implement a ‘locals first’ policy, especially for semi and low-skilled job categories.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	Before the construction phase commences the contractor should meet with representatives from the ELM to establish the existence of a skills database for the area. If such as database exists, it should be made available to the contractors appointed for the construction phase.	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	The training and skills development programmes for locals must be implemented.	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.9.2 Business Opportunities	a)	Liaise with the ELM with regards the establishment of a database of local	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Increased local employment. No complaints of social decline and / or civil unrest, protesting or strike action.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		companies, specifically BBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work.				
	b)	Where possible, the contractor should assist local BBEE companies to complete and submit the required tender forms and associated information.	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.9.3 Construction Worker Management	a)	Implement the requirements determined by the Stakeholder Engagement Plan and Community Health, Safety and Security Plan.	Project Manager / Contractor	Prior to construction	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Where possible, the contractor should implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Issue construction workers with behavioural requirements agreement. Construction workers in breach of the agreement should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Increased local employment. No complaints of social decline and / or civil unrest, protesting or strike action.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		with the South African labour legislation.				
	d)	Implement a Communicable Disease awareness programme for all construction workers at the outset of the construction phase.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Provide transport for workers to and from the site daily. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	g)	No construction workers, except for security personnel, should be permitted to stay over-night on the site.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	h)	Implement a policy that no employment will be available at the gate.	Project Manager / Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.9.4 Farm Safety and Livestock Protection.	a)	All farm gates must be closed after passing through.	Contractor / EO / All construction staff.	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Provide daily transport for low and semi-skilled workers to and from the site.	Contractor	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure that a grievance mechanism is in place so that farmers, landowners	Project Manager / Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Increased local employment. No complaints of social decline and / or civil unrest, protesting or strike action.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		and other parties can lodge any issues they have with the project and expect a formal investigation and response.				
	d)	Employees to be informed of consequences of crime and stock theft. Consequences to be enforced by Contractor. Contractors must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the agreement. All dismissals must be in accordance with South African labour legislation.	Project Manager / Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.9.5 Nuisance Impacts	a)	The movement of construction vehicles on the site must be confined to agreed access road/s.	Project Manager / Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads.	Project Manager / Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	The movement of heavy vehicles associated with the construction phase must be timed to avoid times days of the week (where reasonably possible), such as weekends, when the volume of traffic travelling along the access roads may be higher.	Project Manager / Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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10.10 Waste Management

Impact Management Outcome: Legal and responsible management of all waste generated during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.10.1 Waste Management	a)	Develop and Integrated Construction Phase Waste Management Plan	Project Manager / Contractor / EO in consultation with ESCO and ECO	Prior to construction starting	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure compliance by the contractor with the waste management plan throughout the construction phase.	Project Manager	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.10.2 Waste Storage	a)	Ensure that waste is placed in the designated skips/bins which must be regularly emptied. Waste containers must remain within demarcated areas and must be designed to prevent waste from being blown about by wind	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.10.3 General	a)	Ensure that no burning of refuse takes place on the site unless authorised by responsible authority for the burning of extracted exotic/alien plant species or firebreaks.	Project Manager/ Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure that littering on site is forbidden and the site is cleared of all litter at the end of each working day	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Litter, spills, fuels, chemicals, and human waste in and around the project area to be removed and disposed of timeously and responsibly.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Legal and responsible management of all waste generated during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	d)	Ensure Contractor supplies sealable and properly marked domestic waste collection bins and all solid waste collected is disposed of at a licensed disposal facility.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Ensure refuse bins are emptied and secured. Ensure temporary storage of domestic waste is in covered waste skips. Maximum domestic waste storage period to be 10 days.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.10.4 Recycling	a)	Ensure that recycling is encouraged (where possible).	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.10.5 Disposal/ Treatment	a)	Ensure that all waste removed from the site is removed to an appropriately licenced facility by an accredited service provider.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure that waste from chemical toilets is disposed of regularly and in a responsible manner at an appropriately licenced facility by an accredited service provider. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Ensure that hazardous waste is removed to an appropriately licenced facility or treatment facility by an accredited service provider.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
8.10.6 Waste Records	a)	Ensure that paperwork verifying the facility where the waste was removed	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Legal and responsible management of all waste generated during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		to is provided – preferably a weighbridge record.				
	b)	Ensure that the waste records are kept on site.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.11 Visual Impact Management

Impact Management Outcome: Avoidance of negative visual impacts during the construction phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.11.1 Housekeeping	a)	Ensure that the site is kept clean and neatly ordered to minimise the visual impact.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	If complaints are received, investigate and implement use of visual screens if investigation confirms they are required.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.11.2 Waste Management	a)	Ensure the timeous removal of waste from the site throughout the project.	Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.12 Archaeological, Palaeontological and Heritage Impacts

Impact Management Outcome: No loss or damage to archaeological and palaeontological heritage resources						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.12.1 General	a)	EO to monitor earthworks activities for artefacts.	EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: No loss or damage to archaeological and palaeontological heritage resources						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
	b)	Implement the Fossil Find Protocol if any heritage objects are identified during earth-moving activities and all development should cease until further notice.	Contractor / EO in consultation with ESCO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Report any chance finds of palaeontological material to a palaeontologist who must collect a representative sample.	Project Manager Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	c)	Under no circumstances may any heritage material be destroyed, inundated, collected or removed from site unless under direction of the SAHRA.	Project Manager Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	d)	Should any remains, that could potentially be human, be found on site, cease work. The South African Police Services (SAPS) and SAHRA must be contacted. No SAPS official may disturb or exhume such remains without the necessary permissions from the SAHRA.	Project Manager Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	e)	Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt etc) must be obtained in a sustainable manner and in compliance with the heritage and environmental (NEMA) legislation.	Project Manager Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	f)	Ensure a Fossil Finds Procedure is available on site and is implemented if	Project Manager Contractor / EO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: No loss or damage to archaeological and palaeontological heritage resources						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		fossils are exposed during site clearing and excavations.				

10.13 Construction Staff Conduct

Impact Management Outcome: Avoidance of negative impacts due to construction staff behaviour.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.13.1 Environmental Management Awareness	a)	Ensure that all site management understands the contents of the EA and the EMPR and are competent in implementing the applicable requirements.	Project Manager/ Contractor / EO-	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
	b)	Ensure that construction workers are aware of their specific responsibilities in terms of the environmental impacts i.e. controlling noise levels, reducing dust, not poaching.	Construction Phase	ESCO	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.14 Compliance Monitoring

Impact Management Outcome: Ongoing monitoring of compliance with the construction phase requirements of the EMPR.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.14.1 Auditing	a)	Ensure that EA and EMPR compliance audits are undertaken during the construction phase by the EO and the	Project Manager / EO/ ESCO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

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Impact Management Outcome: Ongoing monitoring of compliance with the construction phase requirements of the EMPR.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		independent ESCO as specified by the EA.				
10.14.2 Corrective Action	a)	Ensure that action is taken against non-compliant contractors	Project Manager in consultation with ESCO and ECO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

10.15 Revegetation and Rehabilitation

Impact Management Outcome: All disturbed areas revegetated and damaged areas rehabilitated.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
10.15.1 Revegetation and Rehabilitation Plan	a)	Revegetation of denuded areas to occur as soon as practically possible i.e. ongoing revegetation and rehabilitation.	Project Manager / Contractor/ EO/ ESCO	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly
10.15.2 Corrective Action	b)	Implement the requirements of the Revegetation and Rehabilitation Plan attached to this EMPR as Appendix F.	Project Manager	Construction Phase	ESCO / ECO	ESCO – Weekly ECO - Monthly

11 OPERATIONAL PHASE

The following environmental requirements must be implemented during the construction phase.

11.1 Administrative Requirements

Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
11.1.1 Appointment of Environmental Officer/	a)	Appoint a permanent member of the operational staff to conduct the duties of the Environmental Officer.	Senior Management	Operational Phase	EO	Annual internal audit
11.1.2 Licences and Permits	a)	Ensure that the EA remains applicable to the operations of Soyuz 4 Solar PV Park.	EO	Operational Phase	EO	Annual internal audit
	b)	Monitor the validity of permits, licences and registrations and ensure timeous renewal.	EO	Operational Phase	EO	Annual internal audit
11.1.3 Authority Liaison	a)	Ensure ongoing liaison with DFFE as may be required by the EA.	EO	Operational Phase	EO	Annual internal audit
11.1.4 Complaints Management	a)	Maintain the complaints management system.	EO	Operational Phase	EO	Annual internal audit
11.1.5 Environmental Management Budgeting	a)	Ensure that funds are allocated for environmental management and compliance in each new financial budget.	Senior Management	Operational Phase	EO	Annual internal audit
11.1.6 Environmental Awareness	a)	Ensure that the environmental awareness is included in the site inductions for new Employees and visitors.	Senior Management	Operational Phase	EO	Annual internal audit
11.1.7 Legislation review	a)	Ensure ongoing legislation review to ensure Soyuz 4 Solar PV Park operations continue to be compliant with newly promulgated legislation	Senior Management	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Compliance with the administrative requirements of the Environmental Authorisation						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
11.1.8 Environmental Records	a)	Maintain environmental records and make them readily available to prove environmental compliance.	Senior Management /EO	Operational Phase	EO	Annual internal audit

11.2 Operational Footprint

Impact Management Outcome: Containing the Soyuz 4 Solar PV Park operations within the approved footprint area – no encroachment into adjacent areas of buffer area of episodic drainage lines.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
11.2.1 Operational area	a)	Ensure that the Soyuz 4 Solar PV Park operations are confined to the area authorised by the EA.	Senior Management /EO	Operational Phase	EO	Annual internal audit

11.3 Environmental Awareness and Training

Impact Management Outcome: Environmental awareness training is ongoing and training records are maintained.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
11.3.1 Environmental Awareness	a)	Ensure that the environmental awareness is included in the induction and training programmes for all Employees.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.3.2 Training Records	a)	Training records must be maintained.	Senior Management /EO	Operational Phase	EO	Internal and independent external audits

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11.4 Avifauna Protection

Impact Management Outcome: Protection of Avifauna to prevent habitat damage and loss of avifaunal biodiversity and Species of Conservation of Concern.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
11.4.1 Development Footprint	a)	Ensure that the Soyuz 4 Solar PV Park operations are confined to the area authorised by the EA.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.4.2 Night-time lighting	a)	Minimise light pollution and fit external lighting with downward facing hoods.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.4.4 Chemical Use	a)	Avoid or minimise the use of chemical surfactants, dust suppressants and herbicides on site;	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Ensure that none of the cleaning water enters nearby watercourses through runoff.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Do not clean panels before an imminent rainstorm.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	d)	Maintain a record of bird observations within the solar park development footprint. If nesting occurs highlight the area as sensitive for the duration of nesting and isolate from site activities for that duration.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	e)	Record bird fatalities and reasons – take corrective action if records require such can be taken.	Senior Management /EO	Operational Phase	EO	Annual internal audit

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11.5 Biodiversity Protection

Impact Management Outcome: Protection of terrestrial and aquatic biodiversity by preventing further habitat damage and loss of biodiversity and Species of Conservation of Concern.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
11.5.1 Development Footprint	a)	Ensure that the Soyuz 4 Solar PV Park operations are confined to the area authorised by the EA.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.5.2 Habitat and Species Diversity Management	a)	All vehicles should be restricted to travelling only on designated roadways to limit the Ecological footprint of the development activities. If off-road driving is required, to can only occur with the approval of the Environmental Officer.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	No hunting/trapping or collecting of faunal species is allowed;	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Lights should face downwards to reduce the abundance of insects and any other fauna attracted to light. Invertebrates may attract bats to the project areas and may increase bat collisions or electrocutions. Furthermore, increased lighting will impose upon the nights darkness altering invertebrate movement. Lights should not be LED or white light.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Ongoing alien and invasive plant monitoring and clearing/control should occur as per the AIP provided in Appendix B of this EMPR.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	d)	No illicit fires are allowed. Firebreaks may only be burned with permission	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Protection of terrestrial and aquatic biodiversity by preventing further habitat damage and loss of biodiversity and Species of Conservation of Concern.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
		from the relevant local authority and as per the Fire Management Plan presented in Appendix G of this EMPR.				
	e)	Rehabilitation of disturbed areas must occur as per the Rehabilitation and Revegetation Plan presented in Appendix F of this EMPR.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	f)	Preserve, enhance, restore or replace faunal movement corridors and habitat, important the freshwater Ecosystem habitat.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	h)	Edge effect control needs to be implemented to ensure no further degradation and potential loss of faunal SCC outside of the proposed project footprint area. The EO should monitor and mitigate any edge effects throughout the life of the operation;	Senior Management /EO	Operational Phase	EO	Annual internal audit
	i)	No additional habitat is to be disturbed outside of the approved footprints areas. Bi-annual (minimum requirement) monitoring and recording of the footprint areas must be done during the operational and maintenance phase by the EO and photographic records kept – special attention should also be paid to potential increase and spread of AIPs;	Senior Management /EO	Operational Phase	EO	Bi-annual survey
	j)	Vegetation regrowth during the	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Protection of terrestrial and aquatic biodiversity by preventing further habitat damage and loss of biodiversity and Species of Conservation of Concern.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Compliance Monitoring Frequency
		Operational and Maintenance Phases must be promoted while appropriately maintained so as not to create a safety or production risk, as this will create habitat for faunal species and will aid in preventing soil erosion.				
	k)	Monitoring of plant relocation success and rehabilitation should continue for at least three years after the completion of the construction phase, or until it is evident that the species have established self-sustaining populations and the rehabilitation areas have stabilised.	Senior Management /EO	Operational Phase	EO	Annual internal audit

11.6 Stormwater, Surface Water (aquatic Ecosystems) and Groundwater Impact Management

Impact Management Outcome: Prevention of contamination of stormwater and impact to off-site surface and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
11.6.1 Stormwater Management	a)	Implement the stormwater management plan presented in Appendix C of this EMPR design to prevent erosion damage (stormwater attenuation) contamination of stormwater runoff.	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Prevention of contamination of stormwater and impact to off-site surface and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
11.6.2 Development footprint	a)	Ensure that the Soyuz 4 Solar PV Park operations are confined to the area authorised by the EA.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	The intervening areas between the southern, western and eastern site boundaries and the EDLs must be kept free of any development and effectively retained as buffer zones to assist in preventing indirect impacts from occurring;	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.3 Maintenance	a)	Maintenance activities must be confined to the developed footprint of the solar energy facility.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Components of infrastructure that contain pollutants – i.e. substation transformers and batteries in the BESS component must be properly maintained and checked for leaks. All such components that could leak pollutants, or which could result in soil or water pollution must be designed to be placed on an impervious surface that would be able to hold the full volume of any pollutants.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.4 Storage of waste	a)	Ensure that all waste (incoming and generated) is stored on impermeable surfaces and under cover or securely covered.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.5 Leaking Vehicles/	a)	Ensure all leaks are repaired immediately.	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Prevention of contamination of stormwater and impact to off-site surface and groundwater resources.						
Aspect		Description of Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
Machinery/ Equipment	b)	Leaking vehicles or machinery are not permitted to work on site until repaired.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Use drip trays to capture any leaks or weeps.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.6 Hazardous Substances (excl Waste)	a)	Ensure that hazardous substances are stored in secure, impermeable and bunded facilities so that all spillages can be contained.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Ensure disciplined use of hazardous substances and use of drip trays when using on site outside of storage area.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Mix/decant all chemicals and hazardous substances either over a drip tray or on an impermeable surface. Waste from these drip trays must be disposed of in accordance with the applicable legal requirements.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.7 Emergency Response	a)	Emergency contact numbers must be supplied on-site to deal with large spills.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.6.8 Road Maintenance	a)	Road maintenance activities must be confined to the developed footprint of the access roads.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	If unsurfaced, the surface of the roads must be regularly checked for erosion and any such erosion / rilling remediated.	Senior Management /EO	Operational Phase	EO	Annual internal audit

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11.7 Noise Management

Impact Management Outcome: Prevention of noise complaints and hearing loss as a result of noise generated during operations.						
Aspect		Description of Action	Person Responsible for Implementing Action	Period of Implementation	Monitor	Frequency
11.7.1 Operations	a)	Implement Noise Management Plan presented in Appendix D of this EMPR	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.7.2 Noise Protection for Staff	a)	Ensure that the occupational health and safety noise monitoring is undertaken, and noise zones demarcated where required.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Ensure staff are equipped with the appropriate noise protection PPE where required.	Senior Management /EO	Operational Phase	EO	Annual internal audit
12.5.3 Equipment Maintenance	a)	Ensure all vehicles, plant and equipment (including cooling systems) are in good working order and compliant with equipment noise specifications.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.7.4 Noise Complaints	a)	All noise complaints shall be recorded, investigated and action taken (where required) immediately.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.7.5 Environmental noise monitoring	a)	Environmental noise investigations must be undertaken if repetitive noise complaints are received or if new equipment with potential to generate significant noise is commissioned	Senior Management /EO	Operational Phase	EO	Annual internal audit

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11.8 Social Impact Management

Impact Management Outcome: Increased local employment and skills.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
11.8.1 Employment opportunities	a)	Where reasonable and practical, the employ local persons before considering importing personnel.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Support local business where possible.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Implement a skills development and training programme aimed at maximizing the number of employment opportunities for local community members.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	d)	Maximise opportunities for local content, procurement, and community shareholding.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	e)	Honour agreements with landowners.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	f)	The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.8.2 Scio-Economic development support	a)	Liaise with the ELM to identify projects that can be supported by SED contributions.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Clear criteria for identifying and funding community projects and initiatives in the area should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	c)	Strict financial management controls, including annual audits, should be	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Increased local employment and skills.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
		instituted to manage the SED contributions.				

11.9 Waste Management

Impact Management Outcome: Legal management of all waste streams.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Compliance Monitoring Frequency
11.9.1 Waste Management Plan	a)	Develop and implement the operational phase waste management plan – inclusive of the management of damaged PV panels and BESS batteries and other hazardous waste.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.9.2 Waste Classification and control	a)	If required, classify waste generated in accordance with the Waste Classification and Management Regulations, 2013.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Ensure Safety Data Sheets (SDS) are developed for all hazardous wastes generated by the operation.	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.9.3 General	a)	Place waste in designated skips/bins. Waste storage areas must be designed to prevent contamination of stormwater run-off. Label storage areas / waste containers as required.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	b)	Prohibit the burning of waste.	Senior Management /EO	Operational Phase	EO	Annual internal audit

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Impact Management Outcome: Legal management of all waste streams.						
Aspect		Description of Impact Management Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Compliance Monitoring Frequency
	c)	Investigate opportunities within the operation to avoid, reduce, reuse or recycle the waste the factory will generate.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	d)	Ensure all waste generated by the Soyuz 4 Solar PV Park is disposed of/ treated / recycled by authorised waste management facilities i.e. facilities that operate with a Waste Management Licence or norms and standards registration as applicable.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	e)	Documents verifying waste removed for disposal / recycling / treatment to be maintained.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	f)	Register on SAWIC as a hazardous waste generator if hazardous waste volumes exceed 20kg per day.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	g)	Register waste storage areas if storage capacity at any one time cumulatively exceeds 100m ³ for general waste or 80 m ³ for hazardous waste.	Senior Management /EO	Operational Phase	EO	Annual internal audit
	h)	Comply with the applicable requirements of the Norms and Standards for the storage of waste	Senior Management /EO	Operational Phase	EO	Annual internal audit
11.9.4 Waste Records	a)	Maintain waste records on site	Senior Management /EO	Operational Phase	EO	Annual internal audit

11.10 Visual Impact Management

Impact Management Outcome: Avoidance of negative visual impacts during the operational phase.						
Aspect		Description of Action	Person Responsible for Implementing Action	Phase of Implementation	Monitor	Frequency
11.10.1 Housekeeping	a)	Always ensure a high level of housekeeping.	Senior Management/EO	Ongoing	EO	Visual Inspections, scheduled services and internal and independent external audits

12 DESCOMMISSIONING PHASE

A specific EMPR will be generated at the time of decision to decommission the Soyuz 4 Solar PV Park (estimated in 20 – 25) years. At that time an environmental specialist must be appointed to assess the environmental condition of the site and develop the EMPR (as part of an application for Environmental Authorisation to decommission a licenced waste management facility). However, it is noted now that a specific integrated waste management plan will be required to be developed at that time to manage the BESS battery and solar PV Panel waste applying the best practices available at the time. Most other impacts anticipated during the decommissioning phase will be as per those identified for the construction phase as represented in this EMPR.

13 ENVIRONMENTAL MONITORING

13.1 Construction Phase Internal Inspections and Compliance Audits

The EO will undertake daily inspections for the duration of the construction phase and maintain a daily environmental site diary and produce a weekly environmental report which will be maintained on site for review by the ESCO and ECO.

The ESCO will undertake weekly inspections during the construction phase for determining compliance with the requirements of the EA and EMPR. These visual inspections will be recorded as a weekly report and copies maintained on site for review by the ECO need not be recorded in written format.

13.2 Construction Phase Independent Compliance Audits

Independent environmental compliance audits shall be conducted as specified by the environmental authorisation, or monthly, for the duration of the construction phase by an external Environmental Control Officer who will submit the reports to DFFE.

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APPENDIX A

CV OF EAP

APPENDIX B

ALIEN INVASIVE MANAGEMENT PROGRAMME

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STORMWATER AND EROSION MANAGEMENT PLAN

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NOISE MANAGEMENT PLAN

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DUST MANAGEMENT PLAN

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REVEGETATION AND REHABILITATION PLAN

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FIRE MANAGEMENT PLAN

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APPENDIX H

TRAFFIC MANAGEMENT PLAN

1. Traffic Management and Transportation Plan

During the construction phase there will be an increase in truck traffic along the roads in the site vicinity, compared to the current truck traffic along these roads. However, the expected total traffic volumes along these roads will still be well within the function of the roads and no operational or safety issues are expected. Due to the rural nature of the area around the development site the daily traffic distribution profile along the roads in the site vicinity is random with no specific peak during the day. The impact of the construction and operational traffic will be insignificant, and no specific measures are required in terms of traffic management.

Most of the equipment will be delivered to site with heavy vehicles in containers. It is expected that the delivery of the equipment will occur over a 6-month period. The impact of the delivery vehicles on the existing traffic along the road network in the site vicinity will be of a low negative significance. Some of the construction machinery/equipment might be delivered with lowbed trucks, but no abnormal loads will be required.

This Traffic Management Plan should be updated prior to the commencement of the construction phase, when more detailed information regarding the delivery of components, traffic data and construction activities are available. The Contractor should designate a person as the custodian of the plan and the custodian will ensure that all personnel and subcontractors are trained to ensure compliance. The requirements of the Traffic Management Plan shall apply to all personnel and subcontractors appointed to provide vehicles and machinery or drivers. The Plan needs to be reviewed after an incident and corrective measures should then be incorporated into the Plan.

The Traffic Management Plan should be updated once construction is completed to include the operational traffic requirements. A copy of the Traffic Management Plan should be kept on site and the Plan must be available to all personnel. The Traffic Management Plan will be reviewed annually or after an incident, when corrective measures will be incorporated into the Plan.

2. Licensing

All construction vehicles shall have the necessary licences, a valid roadworthy certificate and shall comply with the relevant traffic and transport licencing requirements.

All drivers of vehicles shall have the required licences to operate the vehicle (or machinery) on site or on any public roads. A professional driving permit (PDP) is required if any of the following vehicles are operated:

- Goods vehicles, (more than 3 500 kg).
- Breakdown vehicles.
- Buses (any bus).

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- Minibus taxis (more than 3 500 kg), transporting 12 or more people, including the driver.
- Goods vehicle carrying dangerous goods (more than 3 500 kg).
- Road tank vehicles for petroleum-based flammable liquids.
- Motor vehicles transporting 12 or more people, including the driver

3. Staff Transport

All staff shall be transported in appropriate vehicles and staff shall not be allowed to be transported on the back of open trucks. Passenger vehicles shall not exceed the carrying capacity of the vehicle.

Collections/Drop-off points for staff shall be located at a safe distance from construction activities. Designated pedestrian pathways shall be demarcated where appropriate. All staff shall receive the appropriate site safety induction training. Staff training shall include appropriate precautionary measures required to be undertaken to facilitate safe and efficient traffic management.

4. Road Maintenance

Based on the expected number of construction trips generated by the proposed development the existing road network has sufficient capacity to accommodate the additional trips from an operational perspective. However, many of these trips will be heavy truck traffic and this will result in frequent maintenance required on the surrounding roads, specifically Windpoort Road.

During construction it is expected that road surfaces will require maintenance at regular intervals to prevent damage to the road structure. Once construction is completed the National and Provincial roads should be inspected and repaired where necessary.

4. Maintenance of Vehicles and Equipment

All vehicles and equipment shall be regularly maintained, repaired when necessary and inspected on a regular basis to ensure that the vehicles are in good working order. All freight and passenger vehicles shall be monitored to ensure that vehicles are not overloaded.

5. Signage

Signage, in accordance with the South African Road Traffic Signs Manual, will be required at appropriate locations along all access roads, the internal roads to the site and public roads used by construction vehicles (in consultation with the relevant traffic authorities) to indicate the following:

- all road and pedestrian hazards

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- site access
- site offices
- wayfinding signs on internal roads e.g. parking, toilets, emergency assembly point
- crossing points
- speed limits
- turning traffic, heavy vehicles
- dedicated routes for construction vehicles and staff
- no-go areas
- any traffic control information relevant to the construction activity at the time

It is recommended that flagmen be implemented when high volumes of construction traffic are expected to help direct traffic to ensure safe movement of the vehicles and reducing the potential conflicts.

6. Speed Limits

All drivers operating vehicles shall comply with the posted speed limits (or the maximum allowable speed as per the permit for abnormal load vehicles) on public roads as well as a proposed 30km/h speed limit within the construction site and access roads.

7. Stakeholder Engagement

Interested and affected parties should be informed of all transport activities taking place that may affect them or require approval e.g. local community, the local authorities, law enforcement and affected landowners.

Stakeholder engagement should address and provide information to stakeholders regarding general construction activities, construction vehicles routes, projected timelines, procedures for complaints and emergency procedures.

8. General Construction Traffic

Most of the equipment and construction material will be delivered to the site with heavy vehicles. It is expected that the delivery of the equipment will occur over a 6-month period and the impact of the delivery vehicles on the existing traffic along the road network in the site vicinity will be acceptable.

9. Mitigation Measures Include

- The delivery of components and construction materials to the site can be staggered where possible and trips can be scheduled to occur outside of peak traffic periods.
- Using a mobile batch plant as well as temporary construction material stockpile yards near the proposed site, where possible.
- Transporting site personnel to and from the site by means of busses or minibus taxis.

This will reduce the number of trips bound for the site.

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APPENDIX I

ENVIRONMENTAL AUTHORISATION

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WULA/GA

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APPENDIX K

OTHER PERMITS OR LICENCES

APPENDIX L

GENERIC SUBSTATION EMPR