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REPORT ON:

OSONA II – 36 MW SOLAR PV PLANT – ENVIRONMENTAL MANAGEMENT PLAN

PROJECT NUMBER: ECC-43-418-REP-07-D

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DEFINITIONS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
dB	Decibel
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMA	Environmental Management Act, No. 7 of 2007 and its regulations
EMP	Environmental Management Plan
IFC	International Finance Corporation
km	kilometre
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment Forestry and Tourism
MME	Ministry of Mines and Energy
MSB	Modified Single Buyer
MSDS	Material Safety Data Sheet
MW	Megawatts
OSH	Occupational Safety and Health
PPE	Personal Protective Equipment
PV	Photovoltaic
SANS	South African National Standards
SHE	Safety Health Environmental

1 INTRODUCTION

1.1 BACKGROUND TO THE PROPOSED PROJECT

Environmental Compliance Consultancy (ECC) has been contracted by InnoSun Energy Holding (Pty) Ltd, to conduct an environmental assessment and develop an environmental management plan (EMP), for the proposed construction and operation of Osona II – 36 megawatts (MW) solar photovoltaic (PV) power plant near Okahandja, Otjozondjupa Region, Namibia. Consistent with the Environmental Management Act, 2007 and its regulations, an environmental clearance certificate application is hereby submitted to the competent authority being the Ministry of Mines and Energy (MME) and Ministry of Environment, Forestry and Tourism (MEFT) to make a Record of Decision (RoD) with regards to the proposed project.

The purpose of the report is to provide the necessary environmental and social scoping and assessment for the proponent to apply for and obtain an environmental clearance certificate for the construction and operation of Osona II - a 36 MW solar PV power plant on farm Osona Commonage No. 65 portion 82, Otjozondjupa Region, Namibia. The 120-ha leased area on farm Osona Commonage No. 65 portion 82 is located to the southwest of Okahandja and is accessible via the D1972 district road (about 19 km) leading off the B1 highway. The location is shown in Figure 1.

1.2 ENVIRONMENTAL REGULATORY REQUIREMENTS

This EMP has been developed by following the requirements of the Environmental Management Act, No. 7 of 2007 and its regulations (EMA).

Legislation that should be adhered to include the following mentioned in table 1.

National regulatory regime	Relevance to the Project
Constitution of the Republic of Namibia of 1990	Social protection
Atmospheric Pollution Prevention Ordinance 11 of 1976	Social and Biophysical landscape protection
Environmental Management Act, No. 7 of 2007 and its regulations, including the Environmental Impact Assessment Regulations, No. 30 of 2012	Environmental Management
Electricity Act No. 4 of 2007 & its Regulations.	Project-related
National policy for Independent power Producers (PPs) of 2018	Project-related
Soil Conservation Act, No. 76 of 1969 and the Soil Conservation Amendment Act, No. 38 of 1971	Biophysical protection
Water Act, No. 54 of 1956	Water source protection
The Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005	Vegetation protection
Nature Conservation Ordinance Act No. 4 of 1975 and its regulations.	Biodiversity protection
Labour Act, No. 11 of 2007 and regulations relating to the Health and Safety of employees at Work (No. 156 of 1997)	Social protection
National Heritage Act, No. 27 of 2004.	Heritage protection
The Regional Councils Act (No. 22 of 1992)	Project-related
Draft Pollution Control; and Waste Management Bill (1999)	Biophysical landscape protection

National regulatory regime	Relevance to the Project
Hazardous Substances Ordinance No. 14 of 1974	Biophysical landscape protection
Ifc Standards	**Possible Relevance**
Performance Standard 1	Assessment and Management of Environmental and Social Risks and Impacts
Performance Standard 4	Community Health, Safety, and Security

1.3 PURPOSE OF THE EMP

This EMP provides a logical framework, proposed mitigation measures and management strategies for the activities associated with the proposed Project, in this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure that management arrangements are effectively and appropriately implemented.

This EMP forms an appendix to the environmental scoping report and impact assessment and has been based on the findings of the assessment; therefore, the environmental scoping report should be referred to for further information on the proposed Project, assessment methodology, applicable legislation, and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, or updated when the scope of work alters, or when further data or information can be added. All personnel working on the Project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes all activities carried out during the construction and operational stages of the Project.

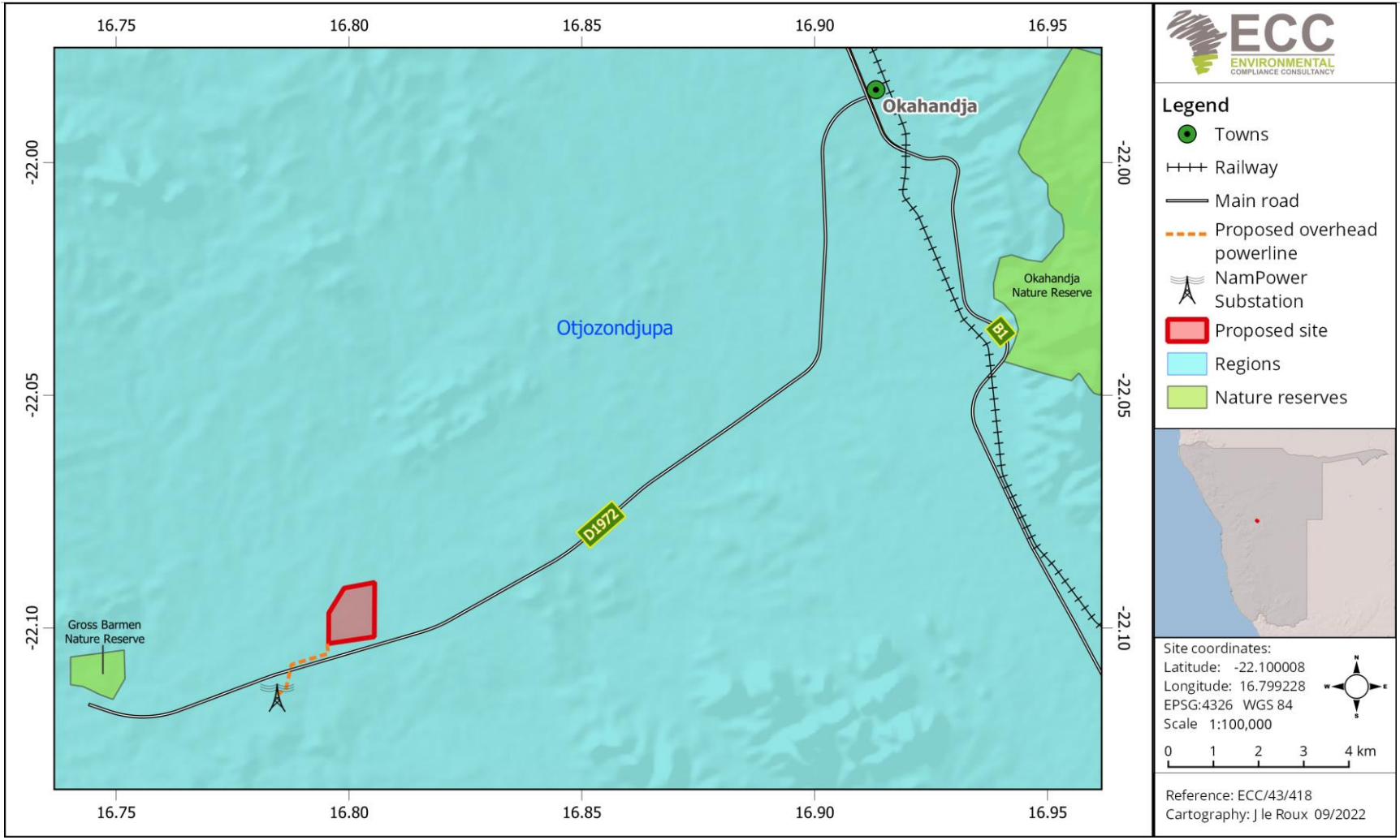

Figure 1 - Locality map showing the location of the proposed Osona II solar PV power plant.

1.4 MANAGEMENT OF THIS EMP

The Proponent will hold the environmental clearance certificate for the proposed Project and shall be responsible for the implementation and management of this EMP. Before the commencement of the Project, this EMP shall be reviewed, amended as required and approved for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities as well as monthly inspections.

This report presents the EMP and has been undertaken in terms of the requirements of the EMA of 2007 and its regulations.

1.5 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS OF THIS EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the Proponent. The Proponent should also ensure that all Nampowers safety requirements and recommendations with regards to the overhead powerline are followed and adhered to, as well as any requirements or recommendations as set out by the Electricity Control Board (ECB).

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, Project approval conditions, permits, standards, guidelines, and relevant laws), the contract and statutory requirements are to take precedence provided they are not in conflict with any environmental law or will in any way damage the environment beyond the limits set in the final approved EMP.

The information contained in this EMP has been based on the Project description as provided in the environmental scoping report.

1.6 ENVIRONMENTAL AND SOCIAL ASSESSMENT PRACTITIONER

Environmental Compliance Consultancy (ECC) (Reg. No. CC 2013/11401) has prepared this EMP on behalf of the Proponent.

This report has been authored by Employees of ECC, who have no material interest in the outcome of this report, nor do any of the ECC team have any interest that could be reasonably regarded as being capable of affecting their independence in the preparation of this report. ECC is independent of the Proponent and has no vested or financial interest in the Project, except for fair remuneration for professional fees rendered which are based upon agreed commercial rates. Payment of these fees is in no way contingent on the results of this report or the assessment, or a record of decision issued by the Government. No member or employee of ECC is or is intending to be, a director, officer, or any other direct Employee of

Proponent. No member or employee of ECC has or has had, any shareholding in the Project/Proponent.

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2 PROJECT MANAGEMENT PERSONNEL

The Proponent shall provide a Project team to oversee the completion of current construction and proposed operational activities, which shall be composed of the Proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP throughout the Project is carried out, which shall be supported by the Proponent.

2.1 ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The Proponent shall be responsible for:

- Ensuring all members of the Project team, including contractors, comply with the procedures set out in this EMP
- Ensuring that all persons are provided with sufficient training, supervision, and instruction to fulfil this requirement
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above

The key personnel and environmental responsibilities of each role throughout the Project life are presented in Table 1.

Table 1 - Roles and responsibilities

Role	Responsibilities and duties
General Manager (Proponent)	– Responsible for ensuring compliance with this EMP; – Ensuring employees understand and comply with the requirements of this EMP; – Ensuring that all personnel are provided with enough training, supervision, and instruction to fulfil this requirement; – Ensuring compliance with this EMP including overseeing the day-to-day activities during operations, and routine and non-routine maintenance works during operations; – Ensure the environmental policy is communicated to all personnel; – Responsible for providing the required resources (including financial and technical) to complete any required tasks; – Responsible for the management, maintenance and revisions of this EMP; – Maintain community issues and concerns register and keep records of complaints and responses provided;

Role	Responsibilities and duties
	– Maintain an up-to-date register(s) of employees who have completed the site induction; – Ensuring that best environmental practice is undertaken throughout the operations of the solar PV plant; – Notifying relevant regulatory authorities as soon as possible if serious environmental incidents occur. – Being responsible for all management plans and environmental monitoring; and – Receiving and responding to environment-related complaints received from the public or other stakeholders.
Foreman (Appointed HSE responsible person)	– The site manager/foreman will be responsible for the implementation of the EMP for the proposed solar PV plant. The foreman will be available, as required, throughout the operation of the solar plant and is responsible for the following roles: – Bearing authority and independence to demand reasonable steps as required to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant construction activities be ceased immediately should an adverse impact on the environment be likely to occur; – Weekly checklists must be completed by the foreman and findings submitted to the general manager; – Monthly EMP checklists must be completed by the foreman. Findings are to be submitted to the general manager; – Provisioning of environmental awareness/management training and inductions; – Ensuring that best environmental practice is undertaken throughout the operations of the solar plant; – Timely distribution of any relevant environmental documentation, including revisions to this EMP to all staff; – Responsible for being compliant with and adhering to this EMP at all times; – Ensuring they have undertaken a site induction and are conversant with the requirements of this EMP; and – Reporting of any operations and conditions that deviate from the EMP or any non-compliant issues or accidents to the Proponent.
Employees/ Contractors as well as visitors where applicable	– Any contractors hired for operation or maintenance activities at the solar plant shall be compliant with this EMP, and shall be responsible for the following: – Undertaking activities by following this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements;

Role	Responsibilities and duties
	– Implementing appropriate environmental and safety management measures; – Reporting environmental issues, including actual or potential environmental incidents and hazards, to the Proponent; and – Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

2.2 EMPLOYMENT

The Proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government and community authorities, the Proponent shall ensure that local people have access to information about job opportunities and are considered first for construction/maintenance contract employment positions;
- The number of job opportunities shall be made known together with the associated skills and qualifications;
- The maximum length of time the job is likely to last shall be indicated;
- Foreign workers with no proof of permanent legal residence shall not be hired;
- Every effort shall be made to recruit from the group of unemployed workers living in the surrounding area; and
- Every employee hired must be provided with a valid employment contract stating, the position hired for, the hourly remuneration offered.

3 COMMUNICATION AND TRAINING

It is important that regular communication is maintained with all the stakeholders and that stakeholders are made aware of potential impacts and how to minimise or avoid them. This section sets out the framework for communication and training in relation to the EMP.

3.1 COMMUNICATIONS

The foreman/site manager shall communicate any environmental issues to the Project team through the following means (as and when required):

- Site induction;
- Internal and external audits and site inspections;
- Toolbox talks, including instruction on incident response procedures; and
- Briefings on key Project-specific environmental issues.

This EMP shall be distributed to the Project team including any contractors and personnel working on the site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors.

During the construction and operational activities, communication amongst the management team shall include discussing any complaints received and actions to resolve them, any inspections, audits or non-conformance with this EMP, and any objectives or target achievements.

3.2 ENVIRONMENTAL EMERGENCY AND RESPONSE

The general manager and the foreman are the primary contact persons in the event of an environmental emergency. The general manager has the authority and independence to request reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse environmental impact be anticipated.
In the event of an incident that requires emergency services, the following services should be contacted.

Table 2 - Emergency contact details

Town	Ambulance	Police	Fire brigade
Okahandja	+264 (62) 50-3030	+264 (62) 1-0111	+264 (62) 50-1051

All employees need to be made aware of emergency procedures and what to do in the event of an emergency. This must be included in the training of employees. Regular documented drills also need to be carried out to ensure the competence of all employees in different emergencies.

3.3 COMPLAINTS HANDLING AND RECORDING

The Proponent shall maintain a complaint register that will detail the name and contact details of the complainant, the date and time of the complaint, the nature of the complaint, the appropriate action is taken to resolve issues, and the date of complaint handover. The Proponent shall be responsible for nominating the correct personnel to coordinate and resolve the issue.

Any complaints received verbally shall be recorded as per above and the information shall be given to the Proponent who is responsible for the management of complaints and will provide a written response to the complainant.

The workforce shall be informed about the complaints register, its location and the person responsible, to refer residents or the public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the facility and will be available for government or public review upon request.

3.4 SITE INDUCTION

All personnel involved in the Project shall be inducted to the site with a specific environment and social awareness training component. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures. The Proponent shall ensure a register of completed training is maintained.

The site induction should include, but not be limited to the following:

- A general site-specific induction that outlines:
    - What is meant by “environment” and “social”;
    - What are the environmental risks and impacts of the solar plant;
    - What can be done to mitigate against such impacts; and
    - Why the environment needs to be protected and conserved
- The inductee's role and responsibilities concerning implementing the EMP;

- The site environmental rules;
- Details of how to deal with, and who to contact if environmental problems do occur;
- Basic vegetation clearing principles and species ID sheets;
- Focal themes such as compliance, reporting of accidents and incidents, good housekeeping and standard procedures for waste management;
- The potential consequences of non-compliance with this EMP and relevant statutory requirements; and
- The roles of responsible people for the Project.

4 REPORTING, COMPLIANCE AND ENFORCEMENT

4.1 ENVIRONMENTAL INSPECTIONS AND COMPLIANCE MONITORING

4.1.1 DAILY COMPLIANCE MONITORING

A copy of this EMP shall be accessible, up-to-date, and on-site throughout the Project and shall be available upon request. It is the responsibility of the foreman/site manager to enforce the provisions of this EMP and ensure this EMP is complied with by all personnel daily throughout the facility. Daily, weekly and monthly inspections will be undertaken. Any environmental problems or risks identified shall be notified to the foreman and actioned as soon as is reasonably practicable.

4.1.2 MONTHLY COMPLIANCE MONITORING

Monthly inspections shall be undertaken by the general manager to check that the standards and procedures set out in this EMP are being complied with. Any non-conformance shall be recorded, including the following details: a brief description of non-conformance, the reason for the non-conformance, the responsible party, the result (consequence), the corrective action taken and any necessary follow up measures required.

4.1.3 REPORTING

There shall be a requirement to ensure that any incident or non-compliance, including any environmental issue, failure of equipment or accident, is reported to the general manager.

4.2 RELEVANT PERMITS & BEST PRACTICE

Table 3 outlines some of the important permit applications concerning the proposed Project and the following best practice documents apply to this development:

- **IUCN:** Mitigating biodiversity impacts associated with solar and wind energy development guidelines for Project developers;
- **BirdLife South Africa:** Best practice guidelines - Birds and Solar Energy Guidelines for assessing and monitoring the impact of solar power generating facilities on birds in southern Africa; and
- **IFC:** Utility-Scale Solar Photovoltaic Power Plants. A Project Developer's Guide.

Table 3 - Project-related permit/registration requirements

Permit, licences or registration	Relevant authority	Project bearing
Sewage permits	Ministry of Agriculture, Water and Land Reform	Permits related to the sewage system should be obtained.
Permits for the removal of vegetation	Ministry of Environment, Forestry and Tourism	Permits will need to be obtained for the clearing of vegetation in the 120 ha area and for the removal of protected species.
Electricity generation licence	Electricity Control Board (ECB)	The Proponent has already received approval for the generation license from the ECB, as seen in Appendix G. The approval granted to InnoSun allows an installed capacity of 44.876MWp. The License is granted to a project SPV called **Sorexa Sun Energy (Pty) Ltd** (Reg: 2021/0895), owned 100% by InnoSun.

The best practice management measures that will be complied with across the site are listed in Table 4.

Table 4 – A list of environmental best practice measures to be implemented during the construction and maintenance phases of the project.

ENVIRONMENTAL ASPECT	BEST PRACTICE REQUIREMENT
Pollution Prevention Control	– Equipment to be maintained and serviced regularly; – Refuelling at designated locations; – Spill kits are available where the risk of loss of containment is identified; – Bunds to be at least 110% of the volume of the container (if applicable); and – Good housekeeping.
Solid Waste Management	– Good housekeeping (no littering); – Designated waste collection areas around the site and one central location; – Bins labelled; – Waste to be separated and kept clean and tidy; and – Waste bins are emptied on regular basis.
Ground Contamination	– Refuelling will be undertaken in designated areas with spill kits available; – Chemical management enforced on site (if applicable); and

ENVIRONMENTAL ASPECT	BEST PRACTICE REQUIREMENT
	– Good housekeeping.
Energy Efficiency	– Equipment to be maintained and serviced regularly; and – Turn off equipment when not in use.
Air Quality	– Maintenance of roads; – Turn off equipment when not in use; and – Equipment to be maintained and serviced regularly.

4.3 NON-COMPLIANCE

Where it has been identified that works are not compliant with this EMP, the Proponent shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a non-conformance and corrective action notice shall be produced. The notice shall be generated during the inspections and the general manager shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event or situation, for example, is considered if:

- There is evidence of a contravention of this EMP and associated indicators or objectives;
- The foreman or the contractor has failed to comply with corrective or other instructions issued by the manager or qualified authority; or
- The foreman or contractor fails to respond to complaints from the public.

Activities shall be stopped in the event of a non-compliant event identified until corrective action(s) has been completed.

4.4 INCIDENT REPORTING

The general manager must ensure that an accident and incident (including minor or near-miss) reporting system is maintained by the foreman so that all applicable statutory requirements are covered. For any serious incident involving a fatality, or permanent disability, the incident scene must be left untouched until witnessed by a representative of the police. This requirement does not preclude immediate first aid being administered and the location being made safe.

The foreman must investigate the cause of all work accidents and significant incidents and must provide the results of the investigation and recommendations on how to prevent a recurrence of such incidents. A formal root-cause investigation process should be followed.

4.4.1 DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator(s). Such action may take the form of (but is not limited to):

- Fines/penalties;
- Legal action;
- Monetary penalties imposed by the Proponent on the contractor;
- Withdrawal of licence(s); and
- Suspension of work.

The disciplinary action shall be determined according to the nature and extent of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1 ENVIRONMENTAL PERFORMANCE MEASUREMENT

Section 5 provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the manager and updated when necessary.

5.2 OBJECTIVES AND TARGETS

Environmental protection is the responsibility of management and if management is environmentally aware, it motivates all employees and their associated business partners, customers and suppliers to think and act in a more environmentally responsible manner. Environmental objectives and targets have been developed so that activities on the proposed site can minimise potential impacts on the environment, as far as reasonably practicable.

Environmental objectives for the Project are as follows:

- Zero pollution incidents;
- Sustainable resource use (water);
- Application of the waste management hierarchy;
- A safe working environment for employees; and
- Use natural resources effectively and efficiently.

5.3 REGISTER OF ENVIRONMENTAL RISKS AND ISSUES

An environmental review of the proposed Project has been completed to identify all the commitments and agreements made within the environmental scoping report. From this, a schedule of environmental commitments and risks has been produced (Table 5), which details deliverables including measures identified for the prevention of damage to the environment during the Project's lifetime.

Table 5 provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as the responsible person. This register will be subject to regular review by the manager and updated when necessary. The general manager will use this register to undertake monthly inspections to ensure the Project is compliant with this EMP.

Table 5 - Environmental risks and issues, and mitigation and monitoring measures

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
Job creation, skills development and business opportunities	Beneficial socio-economic impacts on a local and regional scale	– Maximise local employment and local business opportunities; – Enhance the use of local labour and local skills as far as reasonably possible; and – Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.	Monthly, annually	Site foreman/ general manager
General construction completion and operational activities	Dust generation during the construction phase, future maintenance/construction and operational activities.	To minimise the potential for dust generation the following management measures should be implemented, as required: – Vehicles must adhere to speed limits to avoid producing excessive dust; – Vehicles and machinery should be maintained to limit exhaust fume emissions; – Use surfaces that minimise dust accumulation and facilitate effective cleaning; – Where an effect is profound, ensure dust suppression measures are in place; and – Employees to use and wear the appropriate PPE.	Daily	Site foreman/ general manager
	Noise generation	The Labour Act, No. 11 of 2007 and Regulations relating to the Health and Safety of Employees at Work (GN 156/1997) should be closely followed for occupational noise exposure, specifically focusing on chapter 6. Section 197 ((1) Subject to sub-regulations	Daily	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		(2) and (3), no employer shall require or permit an employee to work in an environment in which he or she is exposed to an equivalent noise level equal to or exceeding 85 dB(A)**)** and Schedule 3(2) Noise Regulations (regulation 197). The SANS standard for environmental daytime noise is 45 dBA (outdoors) and 35 dBA (indoors) in a rural district. The EMP should be closely followed to ensure that the noise generated stays below these limits, as far as reasonably practicable. – Avoid noise-generating activities that could impact other users of the area by ensuring noisy activities are limited; avoid hammering on metal that generates intermittent noise, especially at night, and ensure appropriate measures are put in place to rectify noise complaints should they occur; – The Proponent should develop a health and safety management plan that takes into account noise generation; and – Ensure that procedures for receiving complaints from nearby land users or residents are in place and responded to timeously.		
	Employee health and safety.	– Health and Safety management plan should be developed and implemented on-site by the Proponent;	Daily	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– The Labour Act, No. 11 of 2007 and Regulations relating to the Health and Safety of Employees at Work (GN 156/1997) should be adhered to; – Appropriate PPE should be used for relevant tasks on-site; – Safety induction training sessions should be given to all technicians and field staff before the commencement of their shifts (i.e., staff conducting electrical works or maintenance); – Risk identification and suitable prevention measures should be employed within the power plant area to eliminate potential impacts; – Frequent maintenance of all equipment and daily inspections done; – Occupational Incidents and accidents on-site should be reported to the division: Occupational Safety & Health (OSH) at the Ministry of Labour, Industrial Relation and Employment Creation, by using form F.5; – Emergency contact details should be readily accessible to contact relevant services during an emergency; – No unauthorized use of equipment should be allowed; – In the unlikely event of a death occurring within site boundaries from occupational negligence or otherwise from a "freak accident event", the area should be secured and all personnel removed from the scene;		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– A root cause analysis into the event shall be undertaken as soon as practicably possible; – Counselling should be provided to the witnesses and other personnel members who may have been impacted by the event. – Appropriate safety signs should be added near dangerous areas or equipment; and – Employees should be made aware of all possible health and safety risks.		
	Fire management	– Development of a fire management system through the process of risk identification and assessment; – Developing site-specific work procedures as part of the fire management system; – Induction on fire prevention and toolbox talks; – Control and reduce the potential risk of fire by segregating and safe storage of flammable materials; – Avoid potential sources of ignition for example, by prohibiting smoking in and around areas where chemicals/fuel is stored; – Ensure suitable fire-extinguishing equipment is accessed immediately and conveniently whenever necessary. This can include pails of water, buckets of sand, or portable extinguishers;	Daily	All Staff members

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– For field fires, appropriate fire fighting equipment should be available on-site; – Emergency contact details should be readily available on-site; – Fires made for a "braai"/BBQ within the site area during construction should be monitored and put out to prevent the risks of causing a field fire (applicacable to contractor camps on-site, if any); and – Ensure key personnel are trained to manage an emergency fire situation.		
	Potential visual disturbances	– Light disturbances should be minimised; – Lighting on-site is to be sufficient for safety and security purposes; – Maintain complaints register on-site to record any complaints; – Lighting should not be a nuisance for any residents/camps or lodges surrounding the site; – Neighbouring farmhouses and buildings should be considered during construction, to prevent reflective light disturbances; – Neighbours should be informed of construction activities and potential duration of activities; – The solar PV plant should blend in with the surrounding environment as far as reasonably practicable; and	Monthly/ annually	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– Ensure that international best practice methods are considered for the construction of the solar PV plant.		
	Site safety and security	– The site should be well secured to prevent theft or vandalism and unauthorized entrance to the premises; – Security fence should be well maintained; – Contractors and staff should be informed in writing of the consequences when breaking laws or rules; – Ensure that all Nampower safety requirements and recommendations with regards to the overhead powerline are followed and adhered to; – Contractors or staff should not trespass on private land; – Security systems should be well maintained; – All employees should be regularly updated about the safety procedures; and – Emergency contact details should be readily available on-site.	Daily, Monthly and annually	Site foreman/ general manager
Biodiversity	Potential habitat destruction and disturbance of wildlife.	– Keep or plant native vegetation between solar components (if larger rows are planned between components); – Try to limit the amount of vegetation that is cleared (especially larger trees), to limit habitat loss (where possible); – Use grazing from livestock or manual labour, but not chemicals, to control vegetation on-site;	Daily, Monthly, yearly	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	Potential Habitat Fragmentation (Fence).	– Try to keep some natural habitat intact; – Ensure efficient planning, in order to reduce disturbances in areas that do not form part of the planned construction area; – Reseeding native grasses between solar components (if possible); – Planting native vegetation on-site where possible; – Holes excavated for pylons should be covered/fenced off during the night or periods when no construction is taking place; – All wildlife (Birds, mammals and reptiles) harmed or killed in the fences should be recorded, with a description, species name, date and photos ; – Choose an appropriate fence that will be wildlife-friendly (as far as reasonably possible), i.e., fences without sharp wire spikes (especially concerning avifauna, that might get "hooked" during flight); – Wildlife deterrent gadgets/methods could be used on fences to ensure that wildlife sees the fences or is deterred away from it; and – Wires used for fencing should have poles/droppers at regular intervals or bird deterrents to ensure that wildlife can see infrastructure.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	The possible encountering of biodiversity on-site	The Nature Conservation Ordinance Act No. 4 of 1975 and its regulations, Controlled Wildlife Products and Trade Act 9 of 2008 and the Animals Protection Act 71 of 1962 should be closely followed with regard to any encounters with wildlife within site boundaries. – No living organism should be removed from the site by anyone other than by a professional/registered animal handler, pest control company, SPCA, MEFT/MAWLR or relevant rehabilitation or wildlife organisations; – No living organism shall be poached/consumed/harmed or killed for illegal purposes (i.e., illicit trade of pangolins for scales); – Prevent the killing of perceived dangerous species (e.g. snakes); the collection of veld foods (e.g. giant bullfrog, tortoise, monitor lizard); any form of poaching (e.g. setting of snares for birds and ungulates, etc.). – Police and MEFT should be notified of any poaching incident involving sensitive or protected species or if such an animal is found on someone within or surrounding the Project site; – If snares or poaching equipment is found in the field, it should be removed and destroyed; – Fences should be monitored for potential snares and traps;	Daily, weekly	All staff members

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– Wildlife encountered on-site should be ethically treated; – Nests discovered on infrastructure within the Project site area should not be removed or destroyed if it is not clear that there are no eggs or chicks in the nests; – Nests/eggs/birds should be identified by a professional and action could be taken depending on advice or instruction given by the professional; – Pesticides and herbicides should not be used as far as reasonably possible; – If there is no other possibility the relevant pesticides/herbicides/chemicals should be used by a professional/registered pest control company and the MSDS of the substance used should be closely followed; – Invasive plant species should be removed and their spread should be prevented; and – Waste on-site should be well managed and removed from the site to prevent animals (i.e. rodents, snakes, scorpions etc) from breeding/living on-site.		
	Potential displacement or harm of	– Preconstruction monitoring is recommended to determine the presence of any threatened or protected species; – Keep some of the natural habitat on-site intact, where possible;	Daily	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	threatened or protected species	– Professional ecologists should evaluate the site for any potential endangered or protected species (i.e., endangered vultures breeding in trees on-site); – Plant native vegetation between solar components, that will not necessarily influence/impact the solar panels (i.e., native grasses); – The breeding season of wildlife should be considered for construction activities (i.e., ground-nesting and cavity-nesting birds); – Check for any active bird nests during construction; – Regular toolbox talks with construction workers and operational staff on the importance of biodiversity mitigation measures; and – Strict rules should be implemented on-site to prevent any poaching, harming, collection or killing of wildlife;		
	Potential Avifauna Impacts	The following mitigations as discussed in the specialist study by African Conservation Services (2022) (Appendix E in the Scoping report) should be closely followed and adhered to: Physical/human disturbance of birds (African Conservation Services 2022): **Construction phase** *Avoidance:* o Scheduling: adapting the timing of construction activities to avoid disturbing birds during sensitive periods, e.g. during	Daily, Monthly	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		breeding seasons; for the near-endemic cavity breeders (Rüppell's Parrot, Damara Red-billed Hornbill, Monteiro's Hornbill) the main breeding season falls from January-March. o Before construction starts, the proposed solar PV site and the proposed power line route should be inspected for any signs of bird nesting activity. Disturbance of nesting/chick-rearing birds should be avoided. *Minimisation*: o Abatement controls to reduce noise disturbance created during construction. o Operational controls to manage and regulate contractor activity, such as: ▪ A speed limit should be strictly enforced. ▪ Exclusion fencing should be erected around identified sensitive areas, if required (e.g. pre-identified active nesting sites). ▪ Anti-poaching measures should be strictly enforced, with zero tolerance, and this should be emphasised during induction to contractors; offenders should be prosecuted. o Ongoing awareness should be promoted about the value of biodiversity and the negative impacts of disturbance, especially to breeding birds, and of poaching and road mortality.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		Direct and indirect modification/loss/destruction of bird habitat (African Conservation Services 2022): *Avoidance and minimisation*: o Micro-siting: where possible, the unnecessary destruction of habitat or degradation of the environment, including sensitive habitats such as cavity-nesting locations should be avoided. The final layout of project infrastructure should avoid designated sensitive areas, e.g. identified active nest sites. If practical, the tree with the recently active hornbill nest just north of the study site (22.09015S 16.80208E) should be protected. **Construction phase** *Restoration and rehabilitation:* o Repair of degradation or damage to biodiversity features and ecosystem services from project-related impacts that cannot be completely avoided and/or minimised, e.g. by restoration of temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete. **Operational phase**		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		Minimisation: o Abatement controls to reduce emissions and pollutants (erosion, dust, waste) created during construction; wastewater management and water conservation measures. o Operational controls to manage and regulate contractor activity, such as exclusion fencing around sensitive areas (e.g. pre-identified active nest sites), designated machinery and lay-down areas, minimisation of vegetation loss and disturbance to soil; managing the timing of vegetation control activities at suitable intervals. o Ongoing awareness should be promoted about the value of biodiversity and the negative impacts of habitat destruction. o As a possible offset, investigate the use of artificial nesting boxes as an alternative option for cavity-breeding birds (Figure 27); contact the Namibia Bird Club for advice on ideal type and placement localities for boxes, and possible further involvement with monitoring of nesting activity (https://www.namibiabirdclub.org/).		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		Creation of novel (artificial) habitats and resources that could attract birds; this impact could also lead to negative impacts on infrastructure, caused by bird nesting, perching and other activities (African Conservation Services 2022): **Construction phase** *Avoidance:* o Ensure strict and effective waste management (including of food) during construction activities, to discourage an unnatural increase in scavenging species such as Pied Crow. o Avoid creating new habitats with open water, e.g. accumulations of storm water/open water/run-off, that may attract birds. **Operational phase** *Minimisation:* o Monitoring is essential to identify (potential) problem areas (see Section 8 below); any movement of hitherto unrecorded species onto or beneath the solar panel structures should be monitored; and any resulting negative impacts (e.g. entrapment of korhaans or		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		spurfowl/francolins in fences; predation), should be addressed accordingly. o Bird perching or nesting activities on solar infrastructure may become a problem (e.g. by causing fouling of the solar panels), and adaptive management measures may be required (such as anti-perch measures, e.g. spanning a low wire across the perching area). Nesting activities should be discouraged early in the cycle, before any eggs are laid; the Ministry of Environment, Forestry and Tourism (MEFT) should be contacted for specific guidelines for dealing with such problems. o Numerous actions/devices have been developed to deter birds from an area (WEST 2014; Walston et al. 2015, UNEP/CMS 2015; Jenkins et al. 2017). In terms of solar PV arrays, these deterrents could include habitat management, control of prey populations, anti-perching devices, nest-proofing, netting or other enclosures, scaring or chasing (e.g. with trained dogs), bio-acoustic or visual deterrence. The desirability and effectiveness and such deterrents would need to be considered on a case-by-case basis, using an adaptive management approach.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		○ Should any nesting or other activity by crows on power supply structures cause disruptions of the power supply, consult with the MEFT for appropriate measures to discourage and manage such activities, e.g. by removing nests at a stage when this is acceptable. Bird electrocutions on power line infrastructure (African Conservation Services 2022): The mitigation measures below are already standard procedure for most pole structures, but are mentioned for the sake of completeness. **Construction phase** *Minimisation:* ○ A standard mitigation for electrocutions in Namibia is to "gap" the earth wire near the top of the pole, i.e. the earth wire on each power line pole should stop at least 300 mm below the lowest phase to provide an air space safety gap, in order to reduce the electrocution risk (see existing 22 kV power line for example of such "gapping"). ○ On strain structures where "jumper" wires are used, at least the centre jumper should be insulated, using PVC		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		piping or LPDE pipe. Jumpers should be offset where possible. o Transformer/switchgear structures should be designed in such a way that they are not attractive as bird perches/ nesting sites; selected live components should be insulated (e.g. using PVC piping or LDPE pipe; Figure 28). o Any stay wires should also be "gapped" by the use of an insulator. **Operational phase** *Minimisation:* o The need for reporting power line incidents should be stressed, and reporting procedures clarified (see Section 8, Monitoring below). Bird collisions with infrastructure such as solar PV panel arrays and fencing (African Conservation Services 2022): **Project design phase** *Avoidance:* o In order to reduce the chances of the panels being mistaken for sheets of water, minor modifications could be made to the panel design (e.g. by means of applying visual		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		cues: see Operational phase: minimisation, below), but at this stage this should rather be considered as an adaptive mitigation, to be retro-fitted once there is a recorded need. o As with the existing 5 MW solar PV plant, the panels should be arranged in rows with gaps as large as possible in between the rows, to help reduce the effect of a solid mass of water. o The solar PV area should be fenced with predator-proof fencing, to reduce indirect predation of any bird collision species (if injured and still alive), and also to prevent the removal of any carcass material by mammalian scavengers before it is recorded. o As far as possible the use of outdoor lighting at the solar facility should be minimised (Jenkins et al. 2017). Research indicates that lights can attract and confuse migrating birds (Gehring et al. 2009; Manville 2005, 2009, 2013). Some insectivorous birds may also be attracted to lights. Security lighting should be kept to the minimum, and directed downward and away from the PV panels if possible.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		○ The solar PV panels themselves should not be directly illuminated. Non-reflective surfaces (e.g. anti-reflective coating) should be used if possible. **Operational phase** *Minimisation*: ○ If monitoring results indicate that bird collisions are taking place on the solar panels, adaptive mitigations could include the retrofitting of visual cues to existing panels (Kagan et al. 2014). Such minor modifications to the panel design could reduce the chances of the panels being mistaken for sheets of water. These visual cues may include UV-reflective or solid (white) contrasting bands spaced no further than 28 cm from each other. This arrangement has been shown to significantly reduce the number of small passerine birds hitting expanses of windows on commercial buildings. Non-polarising white tape used around and/or across panels (grid partitioning) can also minimise reflection, which can attract aquatic insects (and thus avian predators), as it mimics reflective surfaces of waterbodies (Horvath et al. 2010; Bennun et al. 2021).		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		○ In extreme cases of repeated collisions by night-flying (aquatic) birds (e.g. ducks, grebes), the situation should be reassessed in terms of the possibility of tilting the solar panels to a non-horizontal position when in standby mode (at night) (Walston et al. 2015, UNEP/CMS 2015, Jenkins et al. 2017), taking into account technical constraints. This mitigation would be possible with the proposed panel design. ○ Monitoring of any potentially negative impacts is considered essential (see Section 8 below). Should the results show that such impacts, including injuries and/or mortalities of birds are taking place, adaptive mitigation measures would need to be investigated, if necessary on a species-specific basis. ○ If monitoring results indicate that bird collisions are taking place on the perimeter fencing of the solar project, systematic fence marking may be utilised to reduce avian collisions with fences (Jenkins et al. 2017). Markings should be at an appropriate height to be visible to birds flying at or above the height of the solar panels.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		Bird collisions with power line infrastructure (African Conservation Services 2022): **Project design phase** *Avoidance & minimisation:* o At this stage, no marking of power lines is recommended, but it should become mandatory should monitoring results indicate the necessity. The avifauna specialist can be consulted for advice on the design (see Figure 29 for example). o The need for fitting any mitigation for collisions on stay wires (e.g. marking with vibration dampers) should also be based adaptively on monitoring results. **Operational phase** *Minimisation:* o The need for reporting power line incidents should be stressed, and reporting procedures clarified (see Section 8.2 below). Should monitoring indicate that collisions are still taking place despite the above marking, further mitigation would need to be investigated."		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	Potential removal of protected plant species The potential introduction of alien vegetation	– Use existing roads for access to avoid new tracks as far as reasonably possible; – Minimise clearance areas through proper planning of the construction/operational activities; – Protected plant species should not be removed, without the relevant permission or permits; – Construction vehicles should not drive in the field or create new tracks, without evaluating the plant species within that area; – Route new tracks around established and protected trees, and clumps of vegetation; – Large trees or shrubs should be evaluated for breeding birds (especially for protected species, for example, whiteback vultures) before being removed to make way for the solar plant; – A professional botanist or ecologist should be on-site to identify any rare, endangered, threatened and protected species (the following protected, endemic or near-endemic species could potentially be found on-site, *Boscia albitrunca, Albizia anthelmintica, Vechellia erioloba and Aloe littoralis, Faidherbia albida, Aloe hereroensis, Sporobolus nebulosus, Petalidium lanatum, Plectranthus dinteri and Ondetia linearis)*; – During toolbox talks and induction sessions, highlight to workers that the removal of significant plants should be avoided;	Daily, Monthly	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– Where possible rescue and relocate plants of significance; – Plant native vegetation between solar components, " with acceptable characteristics within engineering constraints" (i.e., grass and small shrubs), where possible; – Use grazing from animals/livestock or manual labour, and not chemicals, to control vegetation on-site; – Promote revegetation of cleared areas upon completion of construction activities; – All Project equipment arriving on-site from an area outside of the Project or coming from an area of known weed infestations (not present on the Project site) should have an internal weed and seed inspection completed before such equipment is used; – Ensure contractors receive induction on preventing the spread of alien weed; – Ensure the potential introduction and spread of alien plants is prevented; – Ensure the correct removal of alien invasive vegetation and prevent the establishment and spread of alien invasive plants; – Eradicate weeds and alien species as soon as they appear; and – Ensure workers are aware of alien species and weeds.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
Heritage	Potential heritage discovery	– Implement a Chance Find Procedure – Raise awareness about possible heritage finds – Report all finds that could be of heritage importance – In case archaeological remains are to be uncovered, cease activities and the site manager has to assess and demarcate the area – Project manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform ECC with the GPS position – If needed, further investigation has to be requested for a professional assessment and the necessary protocols of the Chance Find Procedure have to be followed, – An archaeologist will evaluate the significance of the remains and identify appropriate action, (record and remove; relocate or leave premises, depending on the nature and value of the remains), – Inform the police if the remains are human, – Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as directed.	Daily	All staff/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
Emergency Incidents	Soil and water contamination due to inadequate control or accidental release of hazardous substances on site	During the construction and maintenance phases of the Project, the following should be taken into consideration. **Storage** – Separate hazardous and non-hazardous chemicals from each other; – Label chemicals appropriately; – Chemicals with different hazard symbols should not be stored together - clear guidance on the compatibility of different chemicals can be obtained from the Materials Safety Data Sheets (MSDS) which should be readily available; – Store chemicals in a dedicated, enclosed, and secure facility with a roof and a paved/concrete floor. – Consider the feasibility of substituting hazardous chemicals with less hazardous alternatives. **Spills** The spill kits with the following items as a minimum should be made available on site (If any large fuel or chemical tanks are on-site during the construction or operational phases of the Project): – All up-to-date MSDS, readily available	Daily	All staff members

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– Absorbent materials; – Shovels; – Heavy-duty plastic bags; – Protective clothing (e.g., gloves and overalls); – Major servicing of equipment shall be undertaken offsite or within appropriately equipped workshops; – For small repairs and required maintenance activities all reasonable precautions to avoid oil and fuel spills must be taken (e.g., spill trays, impervious sheets); – Provision of adequate and frequent training on spill management, spill response and refuelling must be provided to all onsite staff; – No refuelling is to take place within 50 meters of groundwater boreholes, surface water bodies or streams; – Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks; and – All major petroleum product spills (spill of more than 200 litres per spill) should be reported to the Ministry of Mines and Energy (MME) on Form PP/11 titled "Reporting of major petroleum product spill'.		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		The following points, therefore, apply to all areas on the site: – Assess the situation for potential hazards; – Do not come into contact with the spilt substance until it has been characterised and necessary personal protective equipment (PPE) is provided; and – Isolate the area as required. **The following measures are to be implemented in response to a spill:** – Spills are to be stopped at the source as soon as possible (e.g., close valve or upright drum); – Spilt material is to be contained to the smallest area possible using a combination of absorbent material, earthen bunds or other containment methods; – Spilt material is to be recovered as soon as possible using appropriate equipment. In most cases, it will be necessary to excavate the underlying soils until clean soils are encountered; – All contaminated materials recovered after a spill, including soils, absorbent pads and sawdust, are to be disposed of at an appropriately licenced facility; and		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– A written incident report must be submitted to the general manager.		
Groundwater and surface water pollution	Possible nutrient enrichment of groundwater due to leakage of sewage into the groundwater	– The sewage system needs to be well maintained at all times; – Need to carefully investigate the sewage system regularly to look for leakages; – The sewage system and chemical toilets need to be cleaned/pumped regularly by the relevant authority or company with the appropriate permits in place; and – Groundwater needs to be monitored and tested to ensure that there is no contamination if a leak occurred.	Daily/weekly/ monthly	Site foreman/ general manager
	Water usage on-site	– A water-wise mindset should be adopted on-site; – Water leakages or pipe bursts should be fixed or reported as soon as possible; – Eco-friendly and low water-use equipment should be used; and – Activities that require a lot of water (cleaning of solar components etc.) should be monitored to ensure that water is not wasted.	Daily/weekly/ monthly	Site foreman/ general manager
Soil	Potential soil erosion during heavy precipitation or	– Follow and adhere to the Soil Conservation Act, No. 76 of 1969 and the Soil Conservation Amendment Act, No. 38 of 1971; – Indigenous vegetation could be planted to prevent erosion;	Monthly, annually	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	strong winds on-site.	– Rock beds could also be used to prevent erosion on the gentle slopes around infrastructure (if there are any gentle slopes post-construction); and – An erosion control plan should be developed and implemented on-site due to the extent of land to be cleared.		
	Potential soil disturbances	– Follow and adhere to the Soil Conservation Act, No. 76 of 1969 and the Soil Conservation Amendment Act, No. 38 of 1971; – Try to keep soil disturbances to a minimum, for example only prepare the soil/ground as required for the construction of the solar plant (i.e., foundations); – Prevent driving with heavy vehicles in the field and use existing access roads as far as reasonably possible; – Prevent soil compaction; – Do not leave the ground bare (i.e., replant natural grasses or smaller plant species); – Store and retain topsoil and sub-soil removed from the construction areas for later use during reestablishment (i.e., when construction work is done); – Use native and non-invasive species for “landscaping and rehabilitation works”;	Daily, monthly	Site foreman/ general manager

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– For the rehabilitation of disturbed areas use "soil, mulch and vegetation debris (that contain natural seed stock)" to facilitate natural revegetation; – Use "manual methods (e.g. hoeing or hand-pulling)" for the clearing of vegetation, where possible to limit soil disturbance; and – Soil erosion and sedimentation control measures should be implemented.		
Waste management	Possible sewage discharge runs the risk of pathogen /disease transmissions and odours.	– Ensure toilets are always clean and dry; – Provide adequate sanitary facilities, including clean water, soap, and disposable paper towels; – Ensure suitable personal protective equipment that may include waterproof/abrasion-resistant gloves, footwear, eye, and respiratory protection; – Face visors are particularly effective against splashes when working with sewage; and – Install an impermeable hardstand in areas of high-risk contamination to prevent ground infiltration by pollutants.	Daily	All staff members
	Environmental pollution (littering	– Waste management should be handled in accordance with the International Finance Corporation (IFC) standards as follows:	Daily/Weekly	All staff members

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
	and poor storage of solid waste)	– Implement a waste management plan (from "cradle to grave" methodology) covering all aspects of waste generated on-site; – Training and toolbox talk about the importance of waste management; – Ensure a high standard of housekeeping within site and farm boundaries; – Solid waste shall be stored in an appointed area in covered, tip-proof metal drums/skips for collection and disposal to an approved waste management site; – The waste storage areas shall always be kept clean and tidy; – Storage of domestic waste on site may result in the attraction of unwanted scavengers and should be removed as soon as it is feasible; – Implement the waste management hierarchy across the site: avoid, reuse, recycle, then the disposal; – Return packaging of hazardous and non-hazardous materials (wherever possible), such as empty bags for reuse; – Solid wastes should be deposited/emptied regularly. – See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers; – Liaise with the governing body (municipality/council) regarding the waste and handling of hazardous waste (if any);		

Task activity/ equipment	Impact identified	Mitigation control measures	Monitoring requirements	Responsibility
		– Hydrocarbon and chemical contaminated solids have the potential to cause contamination to the soil, ground and or surface water, thus correct storage and disposal methods are required.		

6 DECOMMISSIONING

In the event that the solar plant is closed (and if ownership is not transferred), the Proponent and the new owner should mutually agree on the way ahead for the site and the infrastructure on-site. After decommissioning / refurbishment (if required) at the Plants Design Life, the PV panels will be recycled according to international standards. If the new owner has no use or plan for the site or buildings on-site the Proponent will be responsible to remove all equipment or any other materials from the site. If infrastructure is removed during decommissioning it is recommended that the Proponent implement a rehabilitation plan for the site, to ensure that the site is safe and that no further degradation to the site can occur.

7 IMPLEMENTATION OF THE EMP

The proposed solar PV plant's construction and operation work will be carried out in compliance with the relevant regulations. Minor to moderately significant impacts are anticipated and management and mitigation measures are in place to eliminate or reduce the severity of potential impacts.

This EMP:

A. Has been prepared according to a contract with the proponent;
B. Has been prepared based on information provided to ECC up to November 2022;
C. Is for the sole use of the proponent, for the sole purpose of an EMP;
D. Must not be used (1) by any person other than the Proponent or (2) for a purpose other than an EMP; and
E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP based on information provided by the Proponent, and the environmental scoping report conducted for (Pty) Ltd and the proposed solar PV plant on farm Osona Commonage No. 65 portion 82.