PROPOSED NEW OVERHEAD POWERLINE FOR TERASUN ENERGY NEAR ARANDIS

ENVIRONMENTAL MANAGEMENT PLAN

Prepared for: TeraSun Energy (Pty) Ltd

May 2022

DOCUMENT CONTROL

Report Title	ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED NEW POWERLINE FOR TERASUN ENERGY NEAR ARANDIS
Report Author	Pierré Smit
Review	Werner Petrick
Client	TeraSun Energy Pty) Ltd
Project Number	NSPTS20223
Report Number	1
Status	Final report for submission
Issue Date	May 2022

ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED NEW POWERLINE OF TERASUN ENERGY NEAR ARANDIS IN THE ERONGO REGION

CONTENTS

1 INTRODUCTION 1
1.1 Background and project overview 1
1.2 Aim of this document 2
1.3 Keeping the EMP up to date 2
1.4 Details of the persons who prepared this EMP 2
2 SCOPE OF THE EMP 4
3 LEGAL REQUIREMENTS 5
3.1 Environmental Clearance Certificate 5
3.2 Vegetation 5
3.3 Heritage 5
3.4 Labour 6
4 ENVIRONMENTAL MANAGEMENT SYSTEM (ASPECTS AND IMPACTS) 7
4.1 Environmental aspects and impacts 7
5 OVERALL ENVIRONMENTAL OBJECTIVES 10
6 GENERAL MANAGEMENT REQUIREMENTS 11
6.1 Parties responsible for the implementation of the EMP 11
6.1.1 Operations Manager 11
6.1.2 Constructions Supervisor 11
6.1.3 Environmental Officer 12
6.1.4 Contractors 13
6.2 Auditing compliance with the EMP 13
6.2.1 Internal audits and inspections 13
6.2.2 External environmental performance assessment 13
6.3 Monitoring 13
6.4 Reporting and submission of information 15
6.5 Dealing with environmental emergencies and incidents 15
7 MANAGEMENT AND MITIGATION PLANS 16
7.1 Biodiversity MMP 16
7.2 Soil MMP 20
7.3 Surface and Groundwater MMP 23
7.4 Archaeology MMP 26
7.5 Waste MMP 28
7.6 Noise MMP 30
7.7 Dust MMP 32
7.8 Visual MMP 34
7.9 Socio-economic MMP 36
8 REFERENCES 38

List of Figures

FIGURE 1: LOCATION OF THE PROPOSED NEW POWERLINE 3

List of Tables

TABLE 1: CONTENT OF THE EMP 4
TABLE 2: DESCRIPTION OF ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS 8
TABLE 3: BIODIVERSITY MMP 18
TABLE 4: SOIL MMP 22
TABLE 5: SURFACE AND GROUNDWATER MMP 25
TABLE 6: ARCHAEOLOGY MMP 27
TABLE 7: WASTE MMP 29
TABLE 8: NOISE MMP 31
TABLE 9: DUST MMP 33
TABLE 10: VISUAL MMP 35
TABLE 11: SOCIO-ECONOMIC MMP 37

ACRONYMS AND ABBREVIATIONS

Below a list of acronyms and abbreviations used in this report.

Acronyms / Abbreviations	Definition
ACS	African Conservation Services
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals Association of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
MEFT	Ministry of Environment, Forestry and Tourism
MMP	Management and Mitigation Plan

ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED NEW POWERLINE FOR TERASUN ENERGY NEAR ARANDIS

1 INTRODUCTION

1.1 BACKGROUND AND PROJECT OVERVIEW

TeraSun Energy (Pty) Ltd (TeraSun Energy) proposes to develop a PV Power Plant east of Arandis. To connect the proposed PV Power Plant with the national grid, a 132 kV interconnection overhead powerline between the PV Power Plant and the Lithops Substation southwest of Arandis is planned. Arandis is located in the Erongo Region, about 60 km east of Swakopmund, off the main B2 road that connects Windhoek with the central coastal towns of Namibia (see Figure 1 for the location of the proposed powerline route in relation to the proposed PV Power Plant and other reference points).

The proposed powerline is planned over a distance of ~20 km, adjacent / parallel to an approved corridor of NamPower within which a 220 kV NamPower powerline already exists. NamPower has approval to construct two more double circuit powerlines on this route, all running parallel. TeraSun Energy will make use of the existing service road within the powerline corridor and the existing corridor will also be used as the laydown area for construction material and where construction activities will take place.

The project entails the installation of steel monopole powerline support structures which will carry 132 kV electricity conductors and one optical fibre ground wire, 2.3 m above the conductors. The height of the poles varies between 18 and 21.6 m above ground. Spacing between the poles will between 350 and 450 m, depending on the terrain. An H-structure pole will be used for exiting / entering a substation. Aircraft warning spheres will be fitted on the powerline above major road crossings.

Namisun Environmental Projects and Development (Namisun) has been appointed by TeraSun Energy as the independent Environmental Assessment Practitioner to undertake and manage the Environmental Impact Assessment (EIA) process for the proposed powerline.

This Environmental Management Plan (EMP) documents a series of individual management plans which are designed to meet legal requirements and avoid or minimise the impacts associated with the construction and operation of TeraSun Energy's proposed new powerline.

The management plans have been compiled based on a review of the findings and recommendations of the EIA report for the proposed powerline.

1.2 AIM OF THIS DOCUMENT

The aim of the EMP is to detail the actions required to effectively implement management and mitigation measures. These actions are required to minimise negative impacts and enhance positive impacts associated with the proposed powerline for TeraSun Energy.

The EMP also gives the environmental commitments, which will be implemented by TeraSun Energy.

1.3 KEEPING THE EMP UP TO DATE

It is the intention that this EMP should be seen as a "living document" which will be amended during the operation (where relevant) as new information (e.g.: environmental data), policies, authority guidelines, technologies and as the activities might change, or new ones be introduced.

TeraSun Energy will conduct periodic reviews of the EMP, should circumstances change.

Should a listed activity(s) as defined in the EIA-regulations associated with the Environmental Management Act, No. 7 of 2007 be triggered because of future modifications / changes, this EMP will be required to be updated through another EIA process as stipulated in the Act and its regulations.

1.4 DETAILS OF THE PERSONS WHO PREPARED THIS EMP

Namisun (a Namibia-based, independent environmental consultancy firm was appointed by TeraSun Energy to undertake and manage the EIA process and environmental clearance applications. Namisun also compiled this EMP.

Werner Petrick, the EIA project manager has twenty-three years of relevant experience in environmental management, conducting / managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems (EMS). Werner has a B. Eng (Civil) degree and a master's degree in environmental management and is certified as lead environmental assessment practitioner (EAP) and reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

Dr Pierré Smit, the project coordinator, holds a PhD in Landscape Ecology and has twenty-seven years of experience in environmental management, managing environmental assessment and the implementation of EMPs and EMSs in Namibia.

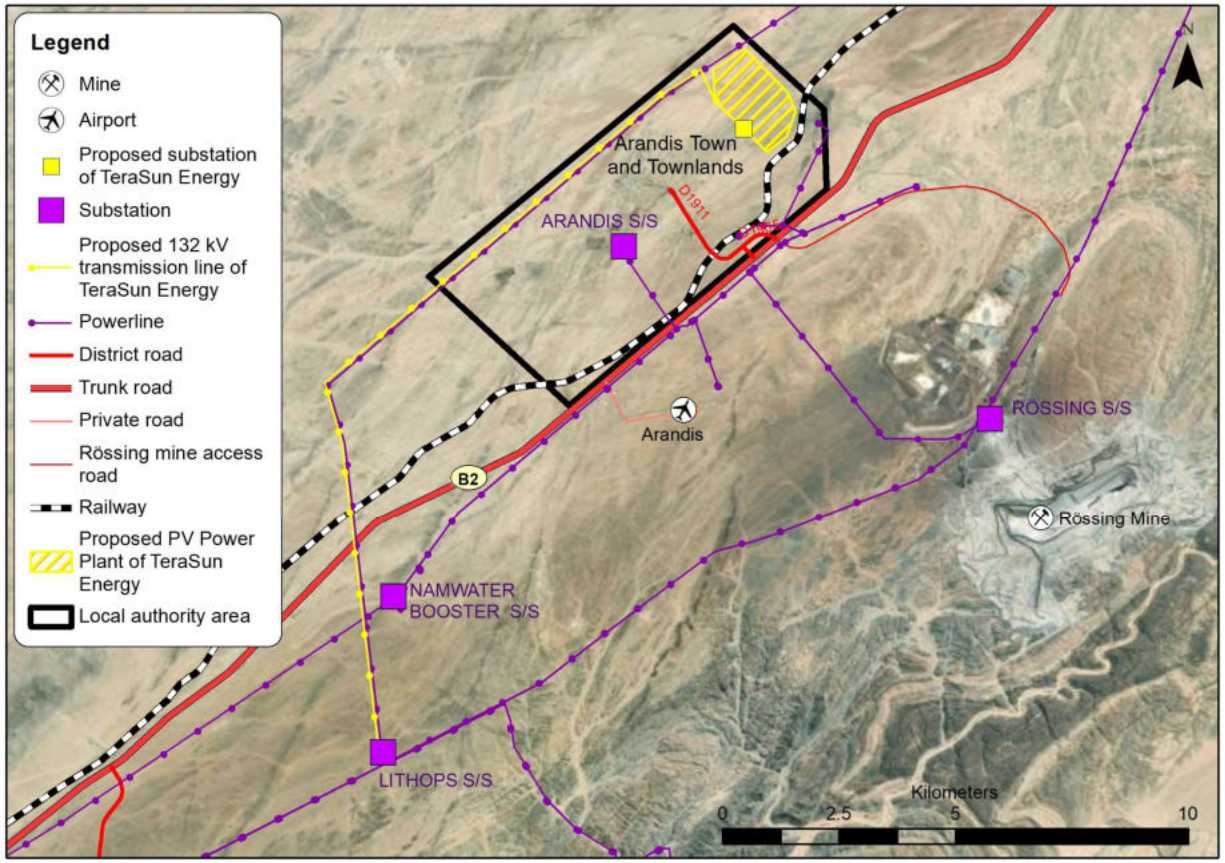

FIGURE 1: LOCATION OF THE PROPOSED NEW POWERLINE

2 SCOPE OF THE EMP

The components of the EMP, in accordance with the requirements stipulated in the EIA-regulations, are presented in Table 1.

TABLE 1: CONTENT OF THE EMP

EIA REGULATION REQUIREMENT	REFERENCE IN THE EMP
Details of the persons who prepared the EMP and the expertise of those persons to prepare an environmental management plan.	Section 1.4
Project overview	Section 1.1
Overall environmental objectives	Chapter 5
Information on any proposed management or mitigation measures to address the environmental impacts that have been identified in a report contemplated by these regulations, including environmental impacts or objectives in respect of – i. Planning and design. ii. Construction activities. iii. Operation or undertaking of the activity. iv. Rehabilitation of the environment. v. Closure, where relevant.	Chapter 7
A description of the aspects of the activity that are covered by the EMP.	Section 4.1
An identification of the persons to be responsible for the implementation of the mitigation measures.	Section 6.1
Where appropriate, time frames within which the measures contemplated in the EMP must be implemented.	Chapter 6
Proposed mechanisms for monitoring compliance with the EMP and reporting on it.	Section 6.2 – 6.4

3 LEGAL REQUIREMENTS

A summary of the applicable legislation can be found in Section 3 in the main EIA Scoping (including impact assessment) Report.

A summary of the relevant certificates and permits required by TeraSun Energy is provided in this chapter.

3.1 ENVIRONMENTAL CLEARANCE CERTIFICATE

As stipulated in the EIA-regulations associated with the Environmental Management Act, No.7 of 2007, an Environmental Clearance Certificate (ECC) needs to be obtained from the Department of Environmental Affairs (DEA) within the Ministry of Environment. Forestry and Tourism (MEFT) prior to the commencement of the project. An EIA Scoping Report and EMP are required as part of the application for clearance, and to support the decision-making process.

If approved, an ECC will be issued for the proposed project and the proponent will be held responsible for the implementation and management of the EMP. An ECC is valid for three years and may be renewed. Application for renewal must be lodged prior to the expiry date of the ECC.

3.2 VEGETATION

It is unlikely that an area greater than 15 ha will be cleared from vegetation because of the project, therefore a permit under the Forest Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005 and its regulations of 2015 is not required.

Protected and endemic species such as *Aloe asperifolia*, *Lithops ruschiorum*, *Hoodia spp*. and *Commiphora saxicola* that cannot be avoided should be considered for rescue prior to construction. Section 22 of the Act requires a permit for the cutting, destruction or removal of vegetation that are classified under rare and or protected species. The Act also stipulates that trees, shrubs and bushes within 100 m from a watercourse may not be cut, destroyed or removed without a permit. The necessary permit(s) should be obtained from the Directorate of Forestry within the MEFT.

3.3 HERITAGE

No archaeological / heritage site or cultural remains may be removed, damaged, altered or excavated. Section 55 of the National Heritage Act, No. 27 of 2004 compels any individual to report any heritage findings to the National Heritage Council after which a heritage permit needs to be issued, and before heritage resources may be relocated.

There are no heritage / archaeological site or cultural remains that need to be destroyed, for which a permit is required. One site was identified but can be avoided. Further management and mitigation measures are presented in Section 7.4.

Since there is a potential that heritage objects might be found, the stipulations of the Act must be taken into account, in addition to a Chance Finds Procedure which is provided for in this EMP (see also Appendix G of the EIA Scoping Report, which contains the Archaeological Specialist Study).

3.4 LABOUR

Regulations relating to the health and safety of employees at work are contained in GN 156/1997 (GG 1617) the regulations associated with the Labour Act, No 11 of 2007.

4 ENVIRONMENTAL MANAGEMENT SYSTEM (ASPECTS AND IMPACTS)

For the proposed new powerline near Arandis (in conjunction with the proposed PV Power Plant), TeraSun Energy will introduce the development and implementation of an EMS. The use of the EMS will ensure that the environmental management requirements on the activities of the project are not only properly planned for, but a robust mechanism for implementation is also ensured and, most importantly, that the environmental management function is always reviewed in a spirit of continual improvement.

This EMP will form the basis of the EMS and all the associated procedures, work instructions, etc. will be developed taking cognizance of the relevant commitments in this EMP.

As part of the EMS development, TeraSun Energy and the relevant contractors will roll out the Management and Mitigation Plans (MMPs) in this EMP and develop detailed work instruction to ensure the objectives provided in this EMP are achieved and commitments are implemented. Responsibilities and target dates for implementing relevant commitments will therefore be included in the work instructions and other relevant documents.

4.1 ENVIRONMENTAL ASPECTS AND IMPACTS

Understanding the biophysical and human environment in which the proposed project is located, is the first step to understanding the relevant impacts. The next and possibly more important step is to identify the environmental aspects that give rise to the impacts. For example, a single construction activity has more than one environmental aspect associated with it: namely, noise, dust generation and waste generation. All these aspects have the potential to cause impacts on the environment (or third parties) in a different way. Successful management will be gauged by how well TeraSun Energy avoids, minimises, or mitigates all the impacts associated with each environmental aspect.

As part of the EIA processes for the proposed new powerline, environmental aspects and potential environmental impacts associated with the activities and facilities were identified (see Table 6 in Chapter 7 of the EIA Scoping Report).

Table 2 in this document, the EMP, provides a summary of the environmental aspects that are associated with the proposed new powerline and how they impact the biophysical and human environments, respectively.

TABLE 2: DESCRIPTION OF ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS

Aspect	Potential Impact	Relevant MMP
Site preparation and construction phase		
Biodiversity: Loss or disturbance of biodiversity composition - loss of species, loss of abundance, loss of key engineering species and rare, threatened and endangered species	• Removal and damage to vegetation, including plants of conservation concern • Illegal harvesting of wood and protected species for ornamental purposes • Illegal killing (poaching) and collecting of animals • Accidental harming or killing of animals (e.g.: road kills, falling into foundation pits, drowning in open water bodies)	Biodiversity MMP (see Section 7.1)
Biodiversity: Loss, damage, or fragmentation of habitat	• Loss or damage of sensitive habitats on rocky outcrops and drainage lines • Loss or damage to habitats related to the biological soil crust	Biodiversity MMP (see Section 7.1)
Biodiversity: Loss or disturbance of biodiversity structure (spatial distribution of organisms, interruption of flow and nutrient links, disturbance to movement patterns)	• Interference, disturbance, and displacement of species (individuals, populations and concentrations or groups) • Interruption or restriction of movement patterns • Introduction of invasive alien plants • Disturbance of surface water flow patterns and impacts downstream	Biodiversity MMP (see Section 7.1)
Biodiversity: Loss, damage or disturbance of avifauna	• Interference, disturbance, and displacement of birds • Interference or loss of bird habitats, flightpaths, corridors, or flyways • Harming and killing of birds because of collisions and or electrocution	Biodiversity MMP (see Section 7.1)
Soil	• Loss of topsoil because of wind and water erosion • Potential contamination because of pollution from waste and accidental spills and leaks of hydrocarbons • Potential damage to biological soil crusts	Soil MMP (see Section 7.2)
Surface water and groundwater	• Potential contamination pollution of groundwater and surface water resulting from waste and accidental spills and leaks of hydrocarbons during construction • Disturbances and interference with flow patterns can enhance damming, diverting or water erosion	Surface and Groundwater MMP (see Section 7.3)

Aspect	Potential Impact	Relevant MMP
Archaeology	• Potential destruction or damage to archaeological / heritage sites	Archaeology MMP (see Section 7.4)
Waste	• Discharge of effluent or sewerage into soil and water • Pollution of soil and water • Impacts on biodiversity • General degradation and nuisance impacts	Waste MMP (see Section 7.5)
Noise	• Disturbance to third parties (sensitive receptors).	Noise MMP (see Section 7.6)
Dust	• Dust from construction activities causing impacts to air quality and causing disturbance to sensitive receptors (third parties).	Dust MMP (see Section 7.7)
Visual	• Intrusive impacts on views and sense of place	Visual MMP (see Section 7.8)
Socio-economic conditions: Employment, investment and income	• Job creation and skills development • Investment benefits to the local, regional and national economy	Socio-economic MMP (see Section 7.9)
Operational phase		
Biodiversity: Loss or fragmentation of habitat	• Loss of landscape connectedness through habitat loss or fragmentation	Biodiversity MMP (see Section 7.1)
Biodiversity: Loss or disturbance of avifauna	• Interference, disturbance, and displacement of birds • Harming and killing of birds because of collisions and or electrocution	Biodiversity MMP (see Section 7.1)
Visual	• Intrusive impacts on views and sense of place	Visual MMP (see Section 7.8)

5 OVERALL ENVIRONMENTAL OBJECTIVES

The following overall environmental objectives have been set for the proposed activities associated with the proposed new powerline, to be implemented by TeraSun Energy:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimisation of the footprint of activities associated with the construction of the powerline and the conservation of residual habitat as far as possible.
- To keep key stakeholders informed about the project's activities, where relevant.
- To limit contaminated effluent discharge into the environment through the containment, recycling or removal of contaminated water.
- To protect soils and groundwater resources through the implementation of measures for spill prevention and clean-up.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling (where possible), management, temporary storage and removal of waste.
- To protect heritage resources by thorough documentation and obtaining of the necessary approvals, where relevant.
- To undertake rehabilitation after the completion of the various activities relating to the construction of the powerline.
- To support and encourage environmental awareness (and where relevant training) and responsibility amongst all employees and service providers.
- To prevent pollution and clean up if incidents occur.
- To incorporate the relevant requirements stipulated in this EMP into the programme of activities, design and contracts.
- To develop, implement and manage monitoring systems (for example, for biodiversity) to ensure good environmental performance and reporting.
- To ensure that all the employees and contractors adhere to the relevant management commitments.
- Ensure compliance to the EMP and other relevant conditions or approvals (ECC and other relevant permits).

6 GENERAL MANAGEMENT REQUIREMENTS

The following sections list the general management requirements that are relevant to the activities of the proposed new powerline. If approved by MEFT, the ECC for the powerline might in future be transferred to NamPower, or another owner. The operations phase management requirements will then also be transferred to NamPower, or the new owner, which would require an update of the EMP relating to the responsible parties, as part of the transferal application process.

6.1 PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP

This section describes the roles and responsibilities for implementing the various management plans.

6.1.1 OPERATIONS MANAGER

The Operations Manager of TeraSun Energy shall ensure compliance to this EMP. The EMP will be part of the contract with all contractors working on the project.

6.1.2 CONSTRUCTIONS SUPERVISOR

The Construction Supervisor has overall responsibility for environmental management on the construction site for ensuring this EMP is implemented. To assist the Construction Supervisor, it is recommended to appoint an Environmental Officer (or dedicated person responsible for environmental management activities onsite) who will be dedicated to managing and monitoring the environmental issues associated with the construction activities of the proposed pipeline.

The Construction Supervisor must ensure the EMP is included in all contracts and ensure that contractors adhere to the conditions of the EMP, the ECC and other relevant permits.

Contract documents should consider the inclusion of penalties for non-conformance to the EMP, or to link the sign-off of the contract to a retainer clause. The client retains part of the contract fees until the Construction Supervisor has signed off the rehabilitated sites, indicating satisfaction with the rehabilitation of the contractor's work and laydown area.

The Construction Supervisor shall be responsible for responding to any actual environmental emergencies / incidences that occur within their sections, or as specified in this procedure.

The Construction Supervisor shall also ensure that sufficient financial and human resources are available at short notice to implement emergency procedures, and to take corrective action pro-actively when environmental risks are evident in advance.

The Construction Supervisor will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g., permits and authorisations.
- Ensure that environmental awareness training is conducted during induction training and on an ad hoc basis thereafter.
- Ensure compliance to this EMP and permits and authorisations issued to TeraSun Energy by relevant authorities.
- Submit required information to relevant authorities such as reporting on compliance with the EMP, permit and relevant authorisations.
- Liaise with the Operations Manager on environmental management (where required).

6.1.3 ENVIRONMENTAL OFFICER

The Environmental Officer will be responsible for assisting the Construction Supervisor in all environmental issues, and specifically to ensure that the commitments as set out in this EMP are implemented during the construction phase.

In addition to the above, the Environmental Officer is responsible for ensuring that all persons involved during the construction comply with this EMP.

The Environmental Officer will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g.: permits and authorisations.
- Conduct environmental awareness training during induction training and on an ad hoc basis thereafter.
- Conduct scheduled monitoring as outlined in various sections in the EMP (see also Section 6.3) as well as any additional monitoring required by permit and authorisations issued by the relevant authorities relating to the construction of the proposed powerline.
- Ensure compliance to this EMP and permits and authorisations issued to TeraSun Energy by relevant authorities. Ensure responsibilities and target dates are developed for each one of the commitments in this EMP.
- Ensure compliance with legislation by all employees and contractors through awareness training, and engagement with authorities, where relevant.
- Submit required information to relevant authorities such as reporting related to monitoring and about compliance with the EMP, permit and relevant authorisations.
- Liaise with the Construction Supervisor and Operations Manager on environmental management (where required).

6.1.4 CONTRACTORS

All contractors, sub-contractors and their employees will be contractually required to comply with the relevant commitments in this EMP.

6.2 AUDITING COMPLIANCE WITH THE EMP

The commitments contained in this EMP will, once an ECC has been obtained, be TeraSun Energy's contractual agreement with the Namibian authorities for sound environmental management. All employees, contractors and sub-contractors and any visitors to site will be expected to comply with the commitments contained herein.

The EMP is a legally binding document and non-compliance with it could result in disciplinary action, such as fines and penalties; legal action; monetary penalties; withdrawal of licences and permits; and or the suspension of work.

6.2.1 INTERNAL AUDITS AND INSPECTIONS

The Environmental Officer will conduct internal management audits against the commitments in the EMP. These audits will be conducted every month. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

The Environmental Officer will furthermore conduct daily inspections during construction.

6.2.2 EXTERNAL ENVIRONMENTAL PERFORMANCE ASSESSMENT

It is suggested that external performance assessments be conducted bi-annually and at the end of the construction phase by an independent qualified Environmental Practitioner.

6.3 MONITORING

An inspection program shall be established to check that standards and procedures as described in the EMP are implemented and complied with.

Incidents and non-conformances shall be recorded and addressed with appropriate corrective action.

A reporting system shall be maintained to ensure that all applicable statutory requirements are met.

Reporting of incidents and non-conformances shall include details such as the reason for incidents and non-conformance, responsible persons, consequences, the corrective action taken and the necessary follow-up activities. Incidents and non-conformances shall be reported to the Construction Supervisor. The cause of incidents and non-conformances shall be investigated, and recommendations formulated to prevent recurrence.

Monitoring requirements include, but are not limited to:

General monitoring:

- Conduct audits and inspections as per Section 6.2. All non-compliances should be recorded and discussed at weekly site meetings and timeous remedial actions taken.
- Check for non-compliances (off-road driving, signs of illegal fires, traps and weapons, lack of good housekeeping, spills and leaks, incorrect storage of substances, etc.) during a general drive-through weekly.
- Monitor construction sites and all access points frequently. Record all negligent plant destruction sightings and initiate corrective measures.
- Constant monitoring and record keeping of clean-ups and rehabilitation progress until the tasks are completed, approved and signed off by the Operations Manager.

Biodiversity:

- Monitor protected plant species recorded and animals found.
- Record animal kills and injuries and report where necessary to the authorities.
- Monitoring of birds and specifically their interactions resulting from the construction and operation of the line. This includes:
    - Monitoring of the line weekly or every fortnight for any signs of bird interactions.
    - Monthly monitoring surveys for the first year after completion, thereafter every quarter.
    - Increase the frequency of monitoring if there is an increase in incidents,
    - Specifically monitor sensitive areas (e.g.: drainage line crossings) and other existing powerlines for cumulative impacts.
    - Monitor bird nesting and perching activities on powerline structures.
    - Set up a reporting procedure to explain the need for the monitoring of bird incidents to all partners.
    - Monitor the effectiveness of mitigation measures.

Waste Management:

- Monitor whether the provisions set out in this EMP concerning waste management is being applied as per instructions.
- Monitor the occurrence of Cape Crows and Pied Crows as indicators of the presence of food rests and inappropriate waste management.
- Keep safe disposal certificates.

Dust and noise:

- When complaints are received from affected communities regarding noise and dust nuisance, abatement (e.g.: dust suppression, restricted working hours, etc.) should be implemented. Communication with those that complained should be continued to determine whether the problem has been resolved.

Training and awareness

- Construction Supervisor to request attendance registers be completed by all personnel attending induction training sessions.

6.4 REPORTING AND SUBMISSION OF INFORMATION

As a minimum, the following documents will be submitted to the relevant authorities on an ongoing basis:

- The bi-annual environmental report required by the DEA at the MEFT will be submitted every six months (specifically during the construction phase).
- Report any incidences relating to animals to the MEFT.

6.5 DEALING WITH ENVIRONMENTAL EMERGENCIES AND INCIDENTS

Potential environmental emergencies, during the construction of the powerline are identified by the Construction Supervisor based on legal and other requirements, aspects identified and risk rating and knowledge of the proposed project and associated activities.

Should an environmental emergency occur, the following procedure will be followed: -

- The Operations Manager must immediately be notified of the incident.
- Steps must immediately be taken to minimize the spread of pollution or other risks.
- The Operations Manager must report the incident to the following state departments (depending on the nature of the incident):
    - Department of Water Affairs within the MAWLR.
    - The Namibian Police Services or relevant Fire Department.
    - The relevant landowner(s).
    - Any other state departments that must be notified in response to specific legal or policy requirements.
- Clean-up and remedial actions must be taken. These may be directed by the Department of Water Affairs, or developed in consultation with water specialist; and
- Informing the Department of Water Affairs when the incident has been fully remediated.

7 MANAGEMENT AND MITIGATION PLANS

The MMPs described in this chapter are applicable to all the relevant activities and facilities of the proposed powerline of TeraSun Energy.

Activities during the site preparation and the construction phase include, but are not restricted to the following:

- Use of the existing service road by vehicles and equipment.
- Laydown of equipment and construction materials in the powerline corridor.
- Creating new access points to new poles.
- Digging of foundations for the monopoles and the substation.
- Concrete mixing and pouring for foundations of the monopoles and substation, the platform of the substation and the plinths.
- Erecting of the poles.

Activities during the operational phase include, but are not restricted to the following:

- Use of the existing service road for routine inspection, monitoring and maintenance.
- Use of vehicles and equipment to conduct maintenance activities.

7.1 BIODIVERSITY MMP

It is possible that some plants and animals may be disturbed, injured or damaged, or killed – accidentally or intentionally – during construction and or operational activities. The loss and damage or fragmentation of habitats is also possible.

The overall objective of the Biodiversity MMP is:

- To prevent or limit the unacceptable loss of biodiversity and related functionality through physical disturbance.

Overarching management measures include:

- Promote ongoing awareness about the value of biodiversity, the need to conserve the species and systems that occur within the project area and the negative impacts of disturbance, especially to breeding birds, and of poaching.
    - Protected species will be identified and marked to be left intact.
    - No protected species will be harmed, removed or killed.
    - If removal or cutting of protected plant species is unavoidable, tree removal permits will be obtained for the removal of all protected tree species (as is required by the Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005).

  - In case unknown species are discovered, a biodiversity specialist will be contacted and informed about the location of the species.

- The precautionary principle must be applied throughout – team members should be given training on biodiversity management.
- No unauthorized access to the construction sites is allowed.
  - Any person entering the construction sites will only be allowed after formal induction.
  - Warning signs will be erected to warn third parties of dangers.
  - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Unwanted tracks must be restored by fine raking and sweeping; heaps of soil and rocks need to be flattened and all scars (including waste items) be removed after construction activities have been completed.
- Without infringing on the rights of workers, manage their movements and set rules for behaviour accordingly to protect undisturbed areas outside the construction zone, with special emphasis placed on preventing transgression and punishment of transgressors.
- Implement a zero-tolerance policy with regards to biodiversity-related transgressions.
  - No open fires are allowed on any of the construction sites.
  - Strictly enforce speed limits onsite. Workers shall adhere to the site speed limits – 20 km / h on construction sites, always.
  - Strictly enforce anti-poaching measures and inspect the construction sites regularly for signs of firewood or fire, plant rests, collected animals or hunting activities.
  - No offroad driving shall be allowed. Offroad tracks and unnecessary new roads need to be rehabilitated, to the cost of the offender.
- Firefighting equipment must be kept in proximity to the where work is taking place, always during construction.
- In the case of incidents (e.g.: injuries to animals) the Operations Manager should be informed, and the necessary action taken.

TABLE 3: BIODIVERSITY MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Loss or disturbance of biodiversity composition - loss of species, loss of abundance, loss of key engineering species and rare, threatened and endangered species	• Removal and damage to vegetation, including plants of conservation concern • Illegal harvesting of wood and protected species for ornamental purposes • Illegal killing (poaching) and collecting of animals • Accidental harming or killing of animals (e.g.: road kills, falling into foundation pits, drowning in open water bodies)	• Protected and endemic species such as *Aloe asperifolia, Lithops ruschiorum, Hoodia spp.* and *Commiphora saxicola* that cannot be avoided should be considered for rescue prior to construction. This would have to be done under a permit from MEFT. • Relocated plants and all rehabilitated sites must be monitored. • Picking, uprooting or collecting of plants, or parts of plants (including seed and/or fuelwood) and collecting, injuring or killing of small animals is forbidden. Strict rules and penalties need to be imposed on construction workers regarding illegal collecting of plants and firewood and killing, injuring or disturbance of animals. • Avoid leaving open holes, excavations and open water bodies overnight to prevent the killing or injuring of animals.
2	Loss, damage, or fragmentation of habitat	• Loss or damage of sensitive habitats on rocky outcrops and drainage lines • Loss or damage to habitats related to the biological soil crust	• Limit the distances of access roads to points where the poles need to be erected. • Avoid all sensitive habitats. Wherever possible marble and other ridges and drainage lines should be avoided by not placing poles on the ridges or within the drainage lines. • Initiate rehabilitation as soon as impacts are ceased.
3	Loss or disturbance of biodiversity structure (spatial distribution of organisms, interruption of flow and nutrient links, disturbance to movement patterns)	• Interference, disturbance, and displacement of species (individuals, populations and concentrations or groups) • Interruption or restriction of movement patterns • Introduction of invasive alien plants • Disturbance of surface water flow patterns and impacts downstream	• Implement all measures mentioned under Issue 1 and 2 • Before construction, inspect the proposed power line route for any signs of nesting activity, and try to avoid the disturbance of breeding birds and chicks (especially ground-nesting birds such as Gray's Lark and Rüppell's Korhaan in sensitive ephemeral drainage lines / washes). • Avoid the unnecessary destruction of habitat, especially in wash areas. • Prevent and control the spread of alien plants. • Provide appropriate toilet and ablution facilities for the exploration workers on the site (where required).

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
4	Loss, damage or disturbance of avifauna	• Interference, disturbance, and displacement of birds • Interference or loss of bird habitats, flightpaths, corridors, or flyways • Harming and killing of birds because of collisions and or electrocution	• The powerline will likely cause a visual barrier, and this barrier will likely act as mitigation to reduce bird mortalities in itself. • Bird flight diverters will be attached to the conductors in the identified zones – where the powerline crosses identified habitats and flightpaths such as drainage lines (8 km from the Lithops Substation northwards). In addition, the stay wires will be marked to increase visibility. Aircraft warning spheres will be fitted on the powerline above major road crossings as well. • Monitoring is recommended to track bird mortalities and the effectiveness of the mitigation measures. See also the specific aspects to be monitored as suggested in Section 6.3 (under biodiversity) and the Specialist Report (Appendix F of the EIA Scoping Report).
OPERATIONAL PHASE			
5	Loss or fragmentation of habitat	• Loss of landscape connectedness through habitat loss or fragmentation	• Implement all measures mentioned under Issue 2 • Prevent and control the establishment and spread of invasive alien plants.
6	Loss or disturbance of avifauna	• Interference, disturbance, and displacement of birds • Harming and killing of birds because of collisions and or electrocution	• Implement all measures mentioned under Issue 4. • Should any of the other powerline structures present a risk of electrocution, standard mitigation measures should apply where relevant (e.g.: insulation of live sections, including "jumpers"; "gapping" of the earth wire on wooden poles). • If technically possible, the insulator design for the 132 kV structure should preferably be such that it discourages perching by larger birds, such as raptors.

7.2 SOIL MMP

It is possible that soil may be disturbed / damaged, lost, or polluted – accidentally or intentionally – during construction and or operational activities.

The overall objective of the Soil MMP is:

- To prevent or limit the unacceptable disturbance / damage, loss or pollution of soil.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- The precautionary principle must be applied throughout – team members should be given training on proper soil management.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Unwanted tracks must be restored by fine raking and sweeping; heaps of soil and rocks need to be flattened and all scars (including waste items) be removed after construction activities have been completed.
- In all areas where there is storage of hazardous substances or waste from these substances (i.e., hydrocarbons or chemicals), there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances.
- The use of chemicals should be controlled. Used oils, fuel, paints, grease and solvents should be stored in drums or other suitable containers, which must be labelled, sealed and removed from the site to an appropriate disposal site or recycling facility.
- Implement containment and clean-up measures for hazardous substance spills and leaks.
- A register shall be kept on all hazardous substances and be always available for inspection.

- All refuelling and any maintenance of vehicles will take place on impermeable surfaces, preferably not onsite.
- Spill trays must be provided if refuelling or maintenance of construction vehicles are done on site. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately.
- Spill kits will be readily available onsite. Employees and or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents.
- Pollution will be prevented through basic infrastructure design and through maintenance of equipment.
- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.
- Implement containment and clean-up measures for hazardous substance spills and leaks.
- In the case of incidents (e.g.: spills and leaks) the Operations Manager should be informed, and the necessary action taken.

TABLE 4: SOIL MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Soil	• Loss of topsoil because of wind and water erosion • Potential contamination because of pollution from waste and accidental spills and leaks of hydrocarbons • Potential damage to biological soil crusts	• Limit the disturbance of soils during construction activities (no levelling with heavy equipment, or blading shall be allowed). • To minimise soil erosion, vegetation should be trimmed as opposed to the complete removal of vegetation. • Erosion and drainage problems must be minimised by avoiding tracks crossing contours at right angles. • Measures must be put in place to avoid erosion at drainage line crossings to avoid any further erosion at these points. • Educate workers on the use of containment and clean-up measures to contain and remediate pollution incidents because of leaks and spills of hydrocarbons, effluent or other forms of hazardous waste • Leaks and spills must be contained and clean up promptly. • Demarcate biological (soil) crusts and avoid construction activities in these areas.

7.3 SURFACE AND GROUNDWATER MMP

Although unlikely, the contamination of surface or groundwater can occur as the result of pollution.

The overall objective of the Surface and Groundwater MMP is:

- To prevent or limit the unacceptable contamination of surface and groundwater through activities that may cause pollution.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- The precautionary principle must be applied throughout – team members should be given training on proper water management.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Unwanted tracks must be restored by fine raking and sweeping; heaps of soil and rocks need to be flattened and all scars (including waste items) be removed after construction activities have been completed.
- In all areas where there is storage of hazardous substances or waste from these substances (i.e., hydrocarbons or chemicals), there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances stored.
- The use of chemicals should be controlled. Used oils, fuel, paints, grease and solvents should be stored in drums or other suitable containers, which must be labelled, sealed and removed from the site to an appropriate disposal site or recycling facility.
- A register shall be kept on all hazardous substances and be always available for inspection.
- All refuelling and any maintenance of vehicles will take place on impermeable surfaces, preferably not onsite.

- Spill trays must be provided if refuelling or maintenance of construction vehicles are done on site. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately.
- Spill kits will be readily available onsite. Employees and or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents.
- Pollution will be prevented through basic infrastructure design and through maintenance of equipment.
- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.
- Implement containment and clean-up measures for hazardous substance spills and leaks.
- In the case of incidents (e.g.: spills and leaks) the Operations Manager should be informed, and the necessary action taken.

TABLE 5: SURFACE AND GROUNDWATER MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Surface and groundwater	• Potential contamination pollution of groundwater and surface water resulting from waste and accidental spills and leaks of hydrocarbons during construction • Disturbances and interference with flow patterns can enhance damming, diverting or water erosion	• Educate workers on the use of containment and clean-up measures to contain and remediate pollution incidents because of leaks and spills of hydrocarbons, effluent or other forms of hazardous waste • Leaks and spills must be contained and clean up promptly. • Provide appropriate toilet and ablution facilities on the construction sites, preferably chemical sanitary facilities. These facilities must be placed outside drainage lines and must be frequently maintained to prevent spillages of effluent.

7.4 ARCHAEOLOGY MMP

Based on existing data one small, single site of very low archaeological significance, surrounded by a heavily disturbed area, is likely to be affected by the construction of the powerline, but can be avoided with timeous-arranged measures. Although damage or destruction to unknown heritage sites may happen, it is unlikely.

The overall objective(s) of the Archaeology MMP is:

- To prevent any possible damage to known and unknown heritage sites because of activities related to the proposed powerline.
- To ensure that the correct actions are taken to preserve or document chance archaeological finds.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- Workers must be made aware of any items protected under the National Heritage Act, No. 27 of 2004.
- The precautionary principle must be applied throughout – team members should be given training to know what heritage resources they may encounter and what to do in case a discovery is made.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- In the case of incidents (e.g., discovery of an unrecorded site), the Operations Manager should be informed, and the necessary action taken.

TABLE 6: ARCHAEOLOGY MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Archaeology	• Potential destruction or damage to archaeological / heritage sites	• Identified site(s), albeit located in a heavily disturbed area, must be mark and avoided. The Arandis Town Council must be engaged to terminate ongoing disturbance in the surroundings. • In the event of discovering an unknown site, the Chance Find Procedure must be followed to report it to the National Heritage Council. o All work at the find will be stopped to prevent damage. o Identify the site with flag tape. o Determine the georeferenced point. o Report the finding to the National Heritage Council. o An appropriate heritage specialist will be appointed to assess the find and related impacts. o The heritage specialist will inspect the site, advise the National Heritage Council, and request a permit to remove the findings from the work area, if required. o Recover, package, and label the findings for transfer to the National Museum. • In the event of discovering any structures or cairns or graves, these will be avoided and preserved as a first priority. In the event of discovering human remains, the actions will be as outlined above, including: o Field inspection by a heritage specialist to confirm that the remains are human. o Advise and liaise with the National Heritage Council and Police. o Recover the remains and remove it to the National Museum or National Forensic Laboratory as directed. • If damage is unavoidable, prior to damaging or destroying any identified graves, permission for the exhumation and relocation of graves must be obtained from the relevant descendants (if known) and the relevant authorities.

7.5 WASTE MMP

Potential impacts resulting from improper waste management, the handling, storage and disposal of effluent or sewerage is possible and have the potential to cause an impact on soil, water, and air.

The overall objective(s) of the Waste MMP is:

- To ensure proper storage, recycling, reuse, removal, transport and disposal of waste.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- The precautionary principle must be applied throughout – team members should be given training on proper waste management.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Unwanted tracks must be restored by fine raking and sweeping; heaps of soil and rocks need to be flattened and all scars (including waste items) be removed after construction activities have been completed.
- Implement a zero-tolerance policy with regards to waste-related transgressions.
    - No person will be allowed to discard waste except in a designated receptable for this purpose.

Important note:

Over the longest part of the powerline corridor within and adjacent to the Arandis Townlands the land is highly disturbed. The corridor is already littered with garbage and the construction team will have the unfortunate task to clean-up the entire corridor after the construction activities is completed to avoid potential accusations about inappropriate waste management.

TABLE 7: WASTE MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Waste	• Discharge of effluent or sewerage into soil and water • Pollution of soil and water • Impacts on biodiversity • General degradation and nuisance impacts	• Employees and contractors will be shown the importance of correct waste separation and collection, disposal, as well as waste minimisation and recycling (where practical). • Designated, suitable receptacles (with lids to prevent borne litter and scavenging) for waste disposal will be provided at appropriate locations onsite. These receptacles will be clearly marked for different waste types. • Provide appropriate toilet and ablution facilities on the construction sites, preferably chemical sanitary facilities. These facilities must be placed outside drainage lines and must be frequently maintained to prevent spillages of effluent. • Decommission toilet and ablution facilities after construction is finished. • All waste items will be separated at source, collected in the correct receptable, and contained for removal. • Ensure that all waste items, including old waste, debris, scrap and soil stains, are removed from site to a permitted municipal waste disposal site. • Hazardous waste (including hydrocarbon contaminated material or soil) will be contained and disposed of at a licenced hazardous waste disposal facility (Walvis Bay). • Keep record of safe disposal of waste.

7.6 NOISE MMP

Although temporary, of a short duration and localized, construction activities may generate noise and lead to the disturbance of sensitive receptors (third parties), albeit of short duration and of low significance.

The overall objective(s) of the Noise MMP is:

- To limit excessive noise pollution.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- The precautionary principle must be applied throughout – team members should be given training on noise management.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Strictly enforce speed limits. Workers shall adhere to the site speed limits – 20 km / h on construction sites, always.

TABLE 8: NOISE MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			

1	Noise	• Disturbance to third parties (sensitive receptors).	• Document and investigate all registered complaints and address the concerns about noise promptly.
			• Create communication channels to ensure prior notice to the sensitive receptor(s) if work is to take place close to them. Information shared must include the following:
			  ○ Proposed working times.
			  ○ How long the planned activity will take place.
			  ○ What is being done.
			  ○ Contact details of the Constructions Supervisor and Environmental Officer
			• Ensure that vehicles and equipment are well-maintained and fitted with the correct noise abatement measures.

7.7 DUST MMP

Although temporary and localized, construction activities may generate dust and have potential impacts on the existing air quality, causing disturbance to sensitive receptors (third parties), albeit of short duration and of low significance.

The overall objective(s) of the Dust MMP is:

- To prevent unacceptable dust-related impacts.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- The precautionary principle must be applied throughout – team members should be given training on correct dust management.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Strictly enforce speed limits. Workers shall adhere to the site speed limits – 20 km / h on construction sites, always.

TABLE 9: DUST MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			

1	Dust	• Dust from construction activities causing impacts to air quality and causing disturbance to sensitive receptors (third parties).	• Document and investigate all registered complaints and address the concerns about dust promptly.
			• Create communication channels to ensure prior notice to the sensitive receptor(s) if work is to take place close to them. Information shared must include the following:
			  ○ Proposed working times.
			  ○ How long the planned activity will take place.
			  ○ What is being done.
			  ○ Contact details of the Constructions Supervisor and Environmental Officer
			• Ensure that dust suppression interventions can be initiated when required, especially where construction activities take place near sensitive receptors (third parties).

7.8 VISUAL MMP

Since the route chosen is parallel to the existing 220 kV powerline, visual impacts during construction are of short duration and of low significance. The permanent placement of the powerline within an approved infrastructure corridor, which was duly assessed for its visual impacts and selected because of its low visual impacts, and adjacent to the existing 220 kV powerline, mitigates the possible visual impacts as well as the overall cumulative visual impacts significantly. Although the potential visual impacts of the proposed new powerline cannot be avoided, they are already optimally minimized because of the placement of the new powerline adjacent to an existing powerline corridor.

The overall objective(s) of the Visual MMP is:

- To limit visual impacts as much as possible.

Overarching management measures include:

- Promote ongoing environmental awareness and the negative impacts of disturbances because of human activities.
- No unauthorized access to the construction sites is allowed.
    - Any person entering the construction sites will only be allowed after formal induction.
    - Warning signs will be erected to warn third parties of dangers.
    - 'No Entry' signs will be placed to prevent offroad driving.
- Restrict all vehicle and equipment movements to the existing service road in the powerline corridor – no new roads shall be created. This route should be clearly demarcated, together with designated turning points and construction laydown areas. Even in areas where tracks seem obvious, and are many, specific tracks should be selected and used.
- Restrict the laydown of construction materials and construction activities to the existing powerline corridor. The area used should be constrained as far as possible.
- Unwanted tracks must be restored by fine raking and sweeping; heaps of soil and rocks need to be flattened and all scars (including waste items) be removed after construction activities have been completed.

TABLE 10: VISUAL MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Visual	• Intrusive impacts on views and sense of place.	• To minimize the visibility of construction activities optimally, only the existing service road within the powerline corridor will be used for the movement and equipment and only the existing corridor will be used as laydown area and where construction activities will take place. • Remove unwanted tracks and waste items, and flatten heaps of soil and remains of earthworks.

7.9 SOCIO-ECONOMIC MMP

The proposed new powerline will introduce activities and infrastructure with socio-economic benefits. Among these count employment and income. Through investment in power supply infrastructure, a conducive environment for further development is created.

Up to 20 people will be employed for the construction of the proposed powerline.

The overall objective(s) of the Socio-economic MMP is:

- To enhance and optimize positive socio-economic impacts (benefits) with employment, investment, and income.

Overarching management measures include:

- Optimize the socio-economic benefits through employment and skills development.
- Enhance investment benefits to the local, regional, and national economy through procurement, paying of taxes and salaries, etc.

TABLE 11: SOCIO-ECONOMIC MMP

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
SITE PREPARATION AND CONSTRUCTION PHASE			
1	Socio-economic conditions: Employment and income	• Job creation and skills development • Investment benefits to the local, regional and national economy	• Establish human resources policies for the recruitment of qualified, competent Namibians. • Set a skill development program and strategy for staff to maximize the use of the local labour force. • Promote continuous learning programs. • Ensure skills upgrading and the upkeep of staff records for future employment of the staff. • Establish procurement policies to support local, regional and Namibian supply of services and goods. • Support the local economy with staff residing in Arandis or Swakopmund and getting daily supplies from businesses in the Erongo Region. • Support community initiatives of which staff are members of.

8 REFERENCES

African Conservation Services (ACS) 2021. Environmental Impact Assessment Study for the proposed 132 kV interconnection overhead line from the TeraSun Power Plant to the Lithops Substation. Unpublished avifauna assessment report for Namisun.

Enviro Dynamics 2012. Environmental Impact Assessment for the proposed construction of the west coast transmission lines – Erongo Coal Power Station (ECPS) to the existing Walmund – Rössing Transmission Line. Unpublished report for NamPower

Government of the Republic of Namibia 2008. Draft procedures and guidelines for environmental impact assessment and environmental management plan. Ministry of Environment and Tourism, Windhoek, Namibia.

Kinahan, J. 2021. Archaeological specialist study for the proposed 132 kV interconnection overhead line from the TeraSun Power Plant to the Lithops Substation. Unpublished archaeological assessment report for Namisun.

Mannheimer, C. 2021. Biodiversity specialist study for the proposed TeraSun powerline around Arandis. Unpublished biodiversity assessment report for Namisun.

SAIEA 2011. Strategic Environmental Assessment for the central Namib Uranium Rush. Ministry of Mines and Energy, Windhoek, Republic of Namibia. Retrieved from: http://www.saiea.com/uranium/index.html