

ENVIRONMENTAL MANAGEMENT PLAN

FOR THE

**CONSTRUCTION AND OPERATION OF A 10MW SOLAR PHOTOVOLTAIC (PV)
POWER GENERATION PLANT ON A 20HA PORTION OF ONIPA TOWNLANDS,
ONIPA CONSTITUENCY, OSHIKOTO REGION.**



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Client

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LIST OF ABBREVIATIONS

TERM	DEFINITION
ECO	Environmental Control Officer
RoD.	Record of Decision
EO	Environmental Officer
RE	Resident Engineer
ELO	Environmental Liaison Officer
PPE	Personal Protective Equipment
EMP	Environmental Management Plan
EIA	Environmental Impact Assessment
USTs	Underground Storage Tanks

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1. INTRODUCTION AND BACKGROUND

Magnus Global Investment cc has proposed to construct and operate a 10MW solar power generation facility on a 20ha portion located adjacent the Onamulunga substation in Oniipa Town, Oniipa Constituency, Oshikoto Region. The solar power plant will generate and feed power into the existing Nampower electricity grid with the support of Southern Africa Power Pool. The solar power plant project is expected to increase the power generation capacity of Namibia and move the country closer to energy self-sufficiency.

Nghivelwa Planning Consultants has been appointed to conduct an Environmental Impact Assessment and Environmental Management Plan (EMP) for the proposed solar power generation plant. The Environmental Impact Assessment was conducted to meet the requirements of Namibia's Environmental Management Act (No. 7 of 2007), the Electricity Act (Act No.4 of 2007).

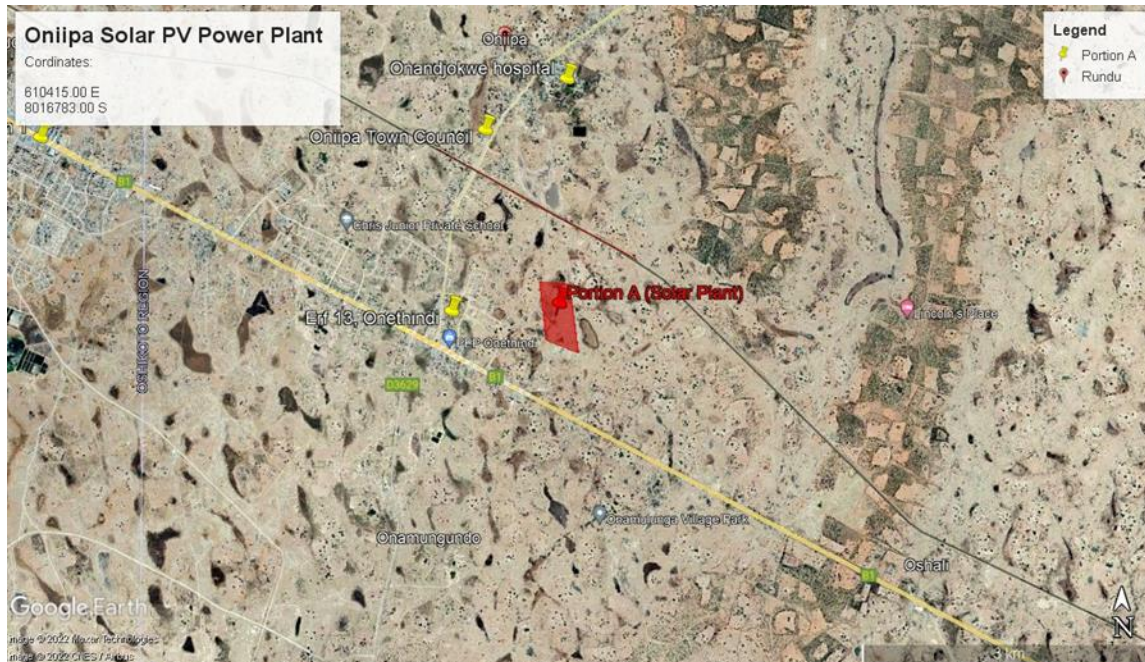
The purpose of the EMP report is to proactively address potential problems before they occur. This will ensure that damage to the environment during the construction phase is avoided and, mitigation measures to be implemented to minimize environmental degradation.

2. PROJECT DESCRIPTION

The proposed activity involves the construction and operation of a 10MW solar power generation plant on a 20-hectare portion of Oniipa Townlands, Oniipa Constituency in Oshikoto Region. The proposed solar power plant will generate power that will then feed into the existing Nampower national electricity grid with the support of the Southern Africa Power Pool program. The GPS coordinates of the location of the proposed project site are: 610415.00 E, 8016783.00S.

The site is currently owned by Oniipa Town Council but has been allocated to Magnus Global Investment CC who are the proponents of this project. The Proponent intends to undertake the following activities:

- Construction and Operation of a 10MW Solar Power Generation Plant on a 20-hectare portion of Oniipa Townlands, Oniipa Constituency, Oshikoto Region.



Site Plan: Source Google Earth

3. SCOPE

The framework within which this Environmental Management Plan Report (EMP) is developed includes identifying various activities, their occurrence in the construction process and the likely impacts that are associated with those activities. It is therefore necessary to subcategorize the EMP report into Pre-Construction, Construction and Post-Construction activities.

The first category of the EMP report deals with the pre-construction activities identifies the impacts and mitigation measures that will need to be employed before the construction of the solar power plant.

The second category deals with the construction activities and the mitigation measures that will need to be applied to reduce the severity of the impacts the proposed solar power plant may have on the surrounding environment.

The third category discusses the rehabilitation measures that will need to be implemented once the construction is completed, to ensure that the impact of the proposed rehabilitation on the environment is minimized. Furthermore, it will discuss activities that need to be undertaken to ensure that no environmental degradation occurs as a result of the project.

The construction and operational of the proposed solar power generation facility project will involve;

- Excavations
- Site clearance and security fencing

- Construction of fences
- The construction of buildings (offices, control and security rooms)
- Installation solar modules, transformers and backfilling
- Construction of superstructures
- Construction of plumbing and other drainage systems
- Operation of the solar power plant.

The Environmental Impact Assessment study report includes an impact assessment and their mitigation measures of all the three phases of the proposed project, it was compiled following:

- The field investigations (site assessment),
- Identifying and involving all stakeholders in the Environmental Impact Assessment process by expressing their views and concerns on the proposed project;
- Identify all potential significant adverse environmental and social impacts of the project and recommend mitigation measures to be well described in the Environmental Monitoring Plan (EMP);
- Coordination with the proponent, regarding the requirements of law of Namibia's Environmental Management Act (No. 7 of 2007) and other relevant policies and administrative framework.
- To define the Terms of Reference for the Environmental Impact Assessment study.
- A review of the policy, and relevant legislations
- To provide overall assessment information of the social and biophysical environments of the affected areas by the proposed development.
- This environmental management plan (EMP) aims to take a pro-active route by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigating measures might be included if necessary.

4. POLICY AND OTHER RELEVANT LEGISLATIONS

The following are the legal instruments that govern the construction and operation of a Solar Power Generation Plan:

The Namibian Constitution

The Constitution of Namibia encourages wise and sustainable use of its resources. According to Article 95 of Namibia's Constitution provides that "the State shall actively promote and maintain the welfare of the people by adopting policies aimed at the following:

(l) “maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste in Namibian”.

This article recommends that a relatively high level of environmental protection is called for in respect of pollution control and waste management.

Environmental Assessment Policy (1994)

The environmental assessment policy details the principles of achieving and maintaining sustainable development that underpin all policies, programs and projects undertaken in Namibia. This is related in particular, to the wise utilization of the country’s natural resources, together with the responsible management of the biophysical environment, which is intended to benefit both present and future generation. The policy also provides guidance on undertaking the assessment procedures.

It further provides a guideline list of all activities requiring an impact assessment. The proposed development is listed as a project requiring an impact assessment as per the following points in the policy:

- Power generation facility with an output of 10MW.

The policy provides a definition to the term “environment” - broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programs and plans. Cumulative impacts associated with proposed developments must be included as well as public consultation. The policy further requires all major industries and mines to prepare waste management plans and present these to the local authorities for approval.

Apart from the requirements of the Draft Environmental Assessment Policy, the following sustainability principles need to be taken into consideration, particularly to achieve proper waste management and pollution control:

Cradle to Grave Responsibility

This principle provides that those who manufacture potentially harmful products should be liable for their safe production, use and disposal and that those who initiate potentially polluting activities should be liable for their commissioning, operation and decommissioning.

Precautionary Principle

There are numerous versions of the precautionary principle. At its simplest it provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

The Polluter Pays Principle

A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

Public Participation and Access to Information

In the context of environmental management, the public should have access to information and the right to participate in decisions making.

Environmental Management Act of Namibia (2007)

The Environmental Management Act, No.7 of 2007 specifies the environmental assessment procedures to be followed and the activities that require an EIA. The Act provides a procedure for environmental assessments as indicated under Part VII and Part VIII, which is set out to:

- better inform decision makers and promote accountability in decisions taken;
- strive for public participation and involvement of all sectors of the Namibian community in the environmental assessment process;
- take into account the environmental costs and benefits of proposed policies, programmes and projects;
- take into account the secondary and cumulative environmental impacts of policies, programs and projects; and
- Promote sustainable development in Namibia, and especially ensure that a reasonable attempt is made to minimize the anticipated negative impacts and maximize the benefits associated with the development.

Environmental Management Act Regulations (2012)

The Environmental Management Act Regulations have been finalised (February 2012) and have been used as guidance in the compilation of this scoping report. Namibia's Environmental Assessment Policy was the first formal effort in the country to regulate the application of environmental impact assessment. The regulation set out the process to be followed during the compilation of EIA reports as well as the minimum requirements for such reports.

National Heritage Act No. 27 of 2004

The Heritage Act of 2004 makes provision for the developer to identify and assess any archaeological and historical sites of significance. The existence of any such sites should be reported to the Monuments Council as soon as possible. The Council may serve notice that prohibits any activities as prescribed within a specified distance of an identified heritage/archaeology site.

Water Resource Management Act on Namibia (2013)

The Water Resources Management Act, No.11 of 2013 provide for the management, protection, development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.

Section 35 imposes that “Without prejudice to the powers conferred on the Minister responsible for health under the laws relating to public health, the Minister, with the concurrence of the Minister responsible for health must, for the purpose of ensuring the supply of healthy and safe water under this Act”.

Electricity Act 4 of 2007 (Act No. 4 of 20007)

“To establish the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licenses for the provision of electricity; to provide for the powers and obligations of licensees; and to provide for incidental matters.”.

Regulated by the Electricity Control Board

Hazardous Substances Ordinance (No. 14 of 1974)

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Regulated by the Ministry of Health and Social Service

Public Health Act (Act 36 of 1919)

The act was enacted; “To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters”.

Section 3 (2) governs the following in terms of the Act were “every local authority must take the necessary and reasonably practicable measures to”;

- (a) Maintain its local authority area at all times in a hygienic and clean condition;
- (b) Prevent the occurrence within its local authority area of:
 - (i) a health nuisance;
 - (ii) an unhygienic condition;
 - (iii) an offensive condition; or
 - (iv) other condition which could be harmful or dangerous to the health of a person within its local authority area or the local authority area of another local authority;
- (c) if a health nuisance or condition referred to in paragraph (b)(i) to (iv) has so occurred, to abate or cause to abate the health nuisance or condition or to remedy or cause to be remedied, the health nuisance or condition;
- (d) to prevent the pollution of water intended for human consumption, irrespective whether the water is obtained from sources within or outside its local authority area, or to purify the water which has become so polluted;

5. MANAGEMENT PRINCIPLES

These guideline principles will form the basis for environmental management on site. Should these principles require modification or additions during the project this should be done at the discretion of the responsible person, who will ensure that any modifications are communicated, explained to and discussed with all affected parties (i.e. the Proponent, Nampower, Nghivelwa Planning Consultants, the contractors, service providers, and any affected party who requests this information).

The environmental operational procedures and environmental issues are identified and managed, under different phases of the project. The different phases are:

- Pre-construction (including design);
- Construction Phase;
- Operational Phase; and
- Decommissioning Phase

a) Environmental Issues to be managed

ii) Pre-Construction Phase

The Ministry of Environment and Tourism (MET) must be notified:

- Within 30 days, of change of ownership / developer.
- Of any change of address of the owner / developer.
- One month prior to commencement of construction activities.
- One month prior to commencement of operation.

- The owner / developer must ensure to comply with the conditions described in the Record of Decision.
- If required by the Record of Decision, advertise the authorisation for one day for two consecutive weeks in two local newspapers.
- Records of all environmental incidents must be maintained, and a copy of these records be made available to the Ministry of Environment and Tourism (MET) on request throughout project execution.

ii) Construction and Operational Phases

Unless otherwise indicated, the responsibilities of the construction contractor(s) and service providers will be to adhere to specified EMP actions for the construction phase. During the operational phase, the Proponent will ensure that these actions are implemented by establishing accountability and responsibility between the different role players.

b) Consultation with Interested and Affected parties (IAPs)

During these two phases the Construction and Operational Phases, it is of great value to establish an open communication channel between the developers (the Proponent), the contractors and IAPs such that any queries, complaints or suggestions can be dealt with quickly and by the appropriate person(s).

6. ROLES AND RESPONSIBILITIES

This section describes the roles and responsibilities of the key stakeholders involved in the development, implementation and review of the EMP.

Competent Authority

The Department of Environmental Affairs: Ministry of Environment and Tourism is responsible for the review of the EMP documents it is the competent authority.

Magnus Global Investment CC (Applicant)

The role of the applicant is as follows:

- Magnus Global Investment CC, the applicant, should hire suitably qualified person(s) and assign them with the responsibility to ensure implementation of the EMP, and should:
- Know the contents and implications of the EIA and monitor the implementation of EIA findings using the EMP.
- Revise the EMP as required and inform the relevant parties of the changes.
- The applicant should review report regarding the implementation of the EMP and make payments to the Contractor if the EMP is being implemented in a satisfactory manner.
- Give warning and impose fines and penalties on the Contractor if the Contractor neglects to implement the EMP satisfactorily.
- Protect the environment and rehabilitate the environment as prescribed in the EIA.

Magnus Global Investment CC (Project Manager)

The Applicant will appoint the Project Manager. The role of the project manager will be:

- Liaising directly with the relevant authorities with respect to the preparation and implementation of the EMP and meeting the conditions documented in the environmental clearance certificate.
- Bear the overall responsibility for managing the project contractors and ensuring that the environmental management requirements are met.
- Inform the contractors of the EMP and Environmental clearance certificate obligations.
- Approve all decisions regarding environmental procedures and protocols that must be followed.
- Have the authority to stop any construction in contravention with the EMP and RoD.
- In consultation with the Environmental Control Officer (ECO) has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP.

- Maintain open and direct lines of communication between the proponent, Contractor and Interested and Affected Parties (I&APs) with regards to environmental matters.
- Attend regular site meetings and inspections where required.

Magnus Global Investment CC (Environmental Control Officer)

An Environmental Control Officer (ECO) should be employed by the Contractor. The ECO should be available for the duration of the construction period and should have appropriate training and experience in the implementation of the EMP and overseeing construction process. The ECO will implement EMP at all levels and sections (sub-contractors) during the construction of the solar power facility. The responsibilities of the ECO include the following:

- Assist the Project Manager and Contractor in finding environmentally responsible solutions to challenges that may arise.
- Conduct environmental monitoring as per EMP requirements.
- Monitor performance of the contractors and ensure compliance with the EMP and associated method statements.
- Maintenance, update and review of the EMP.
- Liaison between the contractors, authorities and other key stakeholders on all environmental concerns.
- Validating regular site inspection reports which are prepared by the Contractor's Environmental Officer (EO).
- Checking the EO's record of environmental incidents as well as corrective and preventative actions taken.
- Checking the EO's public complaints register in which all complaints are registered and actions taken thereof.
- Issuing site instructions to the contractors ECO for corrective actions required.
- Assisting with the resolution of conflict.
- Communicate all amendments of the EMP to the relevant stakeholders.
- Conduct monthly audits to ensure that the system for implementing the EMP is effective.

Contractor's Safety Officer

Implement the recommendations in the EIA and satisfy the conditions in the RoD.

- Ensure that safety is practiced for all activities on site.
- Prepare and implement safety procedures
- Communicate all safety related issues.

Contractors

The contractor should appoint the Contractor's representative who is suitably qualified to implement the EMP. The responsibilities of the Contractor include:

- Compliance with the relevant legislation and the EMP.
- Preparation and submission to the proponent through Project Manager the following Management Plans prior to commencing work:
 - Environmental Awareness Training and Inductions;
 - Emergency Preparedness and Response;
 - Waste Management; and
 - Health and Safety.
- Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement; the ECO is to provide the course content and the following topics, at least but not limited to, should be covered:
 - The importance of complying with the relevant Namibian, International and Best Practice Legislation.
 - Roles and Responsibilities, including emergency preparedness.
 - Basic Rules of Conduct (Do's and Don'ts).
 - EMP: aspects, impacts and mitigation;
 - Fines for Failure to Adhere to the EMP;
 - Health and Safety Requirements.
 - Record keeping of all environmental awareness training and induction presentations; and
 - Attend regular site meetings and environmental inspections.

Resident Engineer (RE)

The Resident Engineer (RE) will be appointed by the 'Consultant' and will be required to oversee the construction program and construction activities performed by the Contractor. The RE is expected to liaise with the Contractor and ECO on environmental matters, as well as any relevant engineering matters where these may have environmental consequences.

7. PHASES OF THE PROJECT

The Construction Phase

The bulk of the impacts during this phase will have immediate effects (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during the construction phase, it is possible

to identify these impacts as they occur. These impacts can then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from the developer.

Impacts	Description	Mitigation	Monitoring	Responsible Body
<p>Dust <i>Main causes of air pollution are dust from vehicle movements and stockpiles, vehicle emissions and fires.</i></p>	<p>Dust may be generated during the construction/decommissioning phase and might be aggravated when strong winds occur.</p> <p>These are expected to be site specific, short-termed and will most probably pose a negligible nuisance and health threat to those residing nearby. The construction of the proposed facility will have impact on the surrounding air quality as construction vehicles will be frequenting the site and surrounding area. The clearing of vegetation in preparation for construction exposes the soil to dust which increases the Particulate Matter concentration in the atmosphere. PM might contribute to respiratory tract infections.</p>	<p>Vehicles travelling to and from the construction site must adhere to the speed limits so as to avoid producing excessive dust. A speed limit of 40 km/h should be set for all vehicles travelling over exposed areas.</p> <p>It is recommended that regular dust suppression be included in the construction phase, when dust becomes an issue.</p> <p>Truck loads should be covered to avoid loss of material during transportation, especially if the materials are being transported off site.</p>	<p>Regular visual inspection by ECO</p>	<p>Proponent / Appointed Contractor/ECO</p>

<p>Employee Creation <i>(Positive Impact) Job creation and economic benefit to local community since the construction activities associates with the installation of solar power generation infrastructure will require labour from the surrounding areas.</i></p>	<p>Temporary employment opportunities are anticipated to be created during construction, both directly (construction workers) and indirectly (suppliers, service providers, informal traders).</p>	<p>The contractor must appoint an Environmental Liaison Officer to monitor the situation with a direct hands-on approach.</p> <p>The contractor must make use of local labour where possible in order to stimulate the local economic growth.</p> <p>labour or services (e.g. security guards) should be sourced from the local area (within 10km from the site).</p> <p>When recruiting, the responsible contractor should ensure gender equality is taken into consideration that both men and women are employed equally.</p> <p>Equity and transparency should be taken into account when hiring and recruiting and that Public Participation i.e. Community Leaders or Community committees should also take part in the recruiting process.</p>	<p>Monitored once off by the ELO</p>	<p>Appointed Contractor/ ELO or Proponent</p>
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		No employment applications may take place at the entrance of the site, formal employment channels must be used.		
Noise	Noise levels are expected to rise during the construction phase of the project. Construction activities that generates noise includes, construction vehicles, electric generators, pressure hammers, construction workers, and earthmoving equipment which will be utilized during the construction phase. However, there are no residential properties nearby, <150m from the site that were identified. The project site is currently not adjacent to any residential and industrial area except few households that are a few 150 meters from the proposed site therefore the construction of the solar plant will not disturb residents. Thus, the noise that is likely to occur during this phase is not	<p>Construction should be limited to normal working days and office hours from 08h00 to 17h00 Monday to Friday and 07:30 – 13:00 on Saturdays.</p> <p>No construction activities may be undertaken on Sunday.</p> <p>Provide ear plugs and ear muffs to staff undertaking the noisy activity or working within close proximity thereof.</p> <p>Fit silencers to construction equipment and vehicles exhaust pipes.</p>	Strict operational times. Regular inspection. By E and ECO	Proponent / Appointed Contractor/ ECO

	assessed to be a nuisance to the residents and the surrounding community.			
Soil Loss and Erosion	Loss of topsoil during the construction period caused by the clearing and removal of vegetation, the digging of structure foundations, and earthworks may expose soils to wind and rain and could result in localized erosion.	<p>Removal of vegetation to take place only within demarcated construction site.</p> <p>No work is to be conducted within 30 meters of all drainage lines</p> <p>Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off.</p> <p>Planting more indigenous trees on park erven and on some areas of open space should be done.</p> <p>Reuse topsoil to rehabilitate disturbed areas.</p>	Regular visual inspection by ECO, Engineer, or the Appointed Contractor,	Appointed Contractor, Engineer, Proponent and ECO
Removal and use of local flora for firewood	The collection of local flora for firewood may lead to the removal of the protected flora due to the lack of knowledge of the types of protected flora.	<p>Cutting down of trees for firewood is prohibited.</p> <p>Utilize commercially available wood or other sources of energy.</p>	Regular visual inspection by ECO, the Appointed Contractor, PM	Appointed Contractor, Proponent and ECO

		Training of contractors on environmental awareness and the importance of flora.		
Health and Safety	Health and Safety Regulations pertaining to personal protective clothing, first aid kits being available on site, warning signs, etc. is very important and should be adhered to. During construction phase, there is a possibility of injuries to occur if no measures are taken into consideration.	<p>All contractors, consultants and labourers must ensure that the necessary personal protective equipment (PPE) is worn on site.</p> <p>Official training in the correct fit, use, care, storage and limitations of all Personal Protective Clothing, Respiratory and Hearing Equipment must be given to the employees.</p> <p>Ensure all open excavations are clearly marked and all the appropriate health and safety signage are displayed on site.</p> <p>The Contractor shall provide a standard first aid kit at the site office and at the camp.</p> <p>- Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction.</p>	Regular visual inspection by Safety Officer	Proponent / Appointed Contractor/ ECO/ EO

		<p>The contractor should further ensure that adequate emergency facilities are available on site.</p> <p>The construction staff handling chemicals or hazardous material must be trained in the use of the substances and the environmental, health and safety consequences of incidents.</p> <p>All construction staff must have the appropriate PPE.</p>		
Generation of waste	<p>This can be in a form of contaminated soil and building rubble.</p> <p>Excavated soil from the installation of the bulk infrastructure.</p> <p>Littering</p>	<p>Ensure that no excavated soil, refuse or building rubble generated on site are placed or dumped on surrounding properties or land.</p> <p>Bins/skips shall not be used for any purpose other than waste collection and shall be emptied on a regular basis.</p> <p>The Contractor shall ensure that all litter is collected from the work and camp areas daily.</p>	<p>Bins and / or skips should be emptied regularly and waste should be disposed of at a registered disposal site. Engineer / ECO.</p>	<p>Proponent / Appointed Contractor</p>

		<p>Soil from excavation activities must be reused as fill elsewhere on the site</p> <p>Ensure all hazardous materials are transported to a hazardous waste site for disposal by a licensed removal contractor.</p>		
Traffic	Congestion in traffic	<p>Flag men and traffic controllers should be appointed to regulate traffic flow of construction vehicles.</p> <p>The construction vehicle should have a speed limit of 40km/h and must give the right of way to pedestrians and consider local road users.</p> <p>The responsible contractor must ensure that all drivers employed have valid driver's licenses for the vehicle types they are operating, and that they have adequate driving experience in those conditions.</p>	<p>Strict operational times. Regular inspection. By and ECO</p>	<p>Proponent / Appointed Contractor</p>
Groundwater	Minimal groundwater contamination can be caused by leakages of fuel from	<p>Proper ablution facilities should be installed at the construction site and</p>	<p>Strict operational times. Regular</p>	<p>Proponent / Appointed Contractor/ ECO</p>

<p>contamination</p>	<p>machinery and heavy-duty vehicles during construction/decommissioning phase. Care must be taken to avoid contamination of soil.</p> <p>Leakage might occur during removal of tanks, dispensing points and associated reticulation pipelines in the decommissioning phase.</p>	<p>at the camping site or alternative arrangements.</p> <p>Drain tanks and pipelines prior to removal. Prevent spillages of any chemical.</p> <p>Drainage must be controlled to ensure that runoff from the site will not culminate in off-site pollution or result in damage to properties downstream of any storm water discharge, with particular emphasis on the informal settlement located down gradient of the proposed development.</p> <p>The storm water drainage network system must be kept separate from the waste water (water containing waste) system.</p> <p>Fuel (diesel and petrol) and oil containers shall be in good condition and placed in a bunded area or on plastic sheeting covered with sand (temporary bunding).</p>	<p>inspection. By E and ECO</p>	
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<p>Safety and Security</p>	<p>During the construction and decommissioning phase, earthmoving equipment will be used on site. This increases the possibility of injuries. Presence of equipment may encourage criminal activities (theft).</p>	<p>The responsible contractor must ensure that all staff members are briefed about the potential risks of injuries on site.</p> <p>The contractor is should further ensure that adequate emergency facilities, including first aid kits, are available on site.</p> <p>Ensure that the contact details of the police or security company and ambulance services are available on site.</p> <p>The site must be fenced off with a high security fence to prevent unauthorized access during construction.</p> <p>All visitors must report to the site office.</p>	<p>Security System Monitoring. Safety Procedures. First Aid Training by ECO.</p>	<p>Proponent / Appointed Contractor/Safety Officer/ ECO/</p>
<p>Increased Spread of HIV/ AIDS and Covid - 19</p>	<p>migrant workers with HIV/AIDS and Covid – 19 may affect local people leading to a high rate of HIV/AID and Covid – 19 in Ondando Village.</p>	<p>The spending power of locals and expatriates working for the developer and/or its contractors is likely to increase, and this might be a perfect opportunity for sex workers to explore. Migrant workers</p>	<p>Strict operational times. Regular inspection. By E and Project manager/ Safety Officer.</p>	<p>Proponent / Appointed Project Manager/ Safety Officer</p>

		<p>from other regions and expatriates are normally vulnerable and may use the services rendered by the sex workers. A key initiative should be to educate workers.</p> <p>External construction workers should be housed in secure camp and are to abide by rules of the EMP to prevent public disruption (ie. Spread of HIV/AIDS, crime, public disturbance).</p> <p>Contractors should be encouraged to source labour from surrounding areas to prevent the spread of HIV/AIDs from external workers who will be sourced from other areas out of Oniipa because sourcing labour from the surrounding area will prevents the spread of the HIV/AID as the residents will not vulnerable to new workers in the area.</p> <p>Condoms as a contraceptive should be distributed to construction employees.</p>	<p>All government protocols relating to Covid – 19 should be implemented on site at all times.</p>	
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		<p>Face masks should be distributed to workers to avoid the spread of Covid – 19.</p> <p>Workers should practice social distancing, and should at least stand 1,5 meters away from each other to contain the spread of Covid – 19.</p> <p>Workers that are exhibiting flu like symptoms and have high fever should not be allowed to enter the construction site for at least 3 days.</p> <p>Covid – 19 test kits should be kept on site to allow for rapid testing and isolation of infected workers.</p>		
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The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

Impacts	Description	Mitigation	Monitoring	Responsible Body
Storm water	Storm water usually runs off the areas and flow into the water bodies without any kind of treatment. This can pollute the water bodies like creeks, lakes and rivers and have adverse effects on their chemical as well as biological nature. It is in this nature that plans for storm water collection has been proposed in such way so as to accommodate the entire amount of outflow that may occur after development.	<p>Storm water channels will collect storm water through networks of storm drains from gardens, parking areas, paved and unpaved areas, and roadways.</p> <p>Storm water drainage channels will be provided along the internal roads within the facility to safely channel water away from the facility.</p> <p>They would be wide enough to prevent over flooding of the site.</p>	Strict operational times. Regular inspection. By Engineer (Technical team) and ECO	Proponent
Commercialization of the area	The project will socially and financially improve the surrounding community as it will provide employment and	Residents to be provided with all the basic amenities and utilities required by the community for them to live in a quality life style.	Regular inspection by Engineer and ECO	Proponent

	other benefits through the private companies and Oniipa Town Council.	Jobs emanating from the construction and operation of the proposed development will be outsourced to small medium enterprises in the area.		
Improved aesthetic look of the area	The proposed development is essential to improve the aesthetics of the area while turning it into an environmentally friendly electricity development hub.	<p>No mitigation required because it's a positive impact. However, the developer should create awareness among the residents about energy conservation and other resources as well as to implement measures to prevent or minimize any adverse effects on the environment.</p> <p>This project should provide a quality of life that can be expected in an urban area in relation to the utilities, convenience, amenities and security.</p> <p>This project will provide quality residential accommodation to the previously disadvantaged residents with low income.</p> <p>It should provide convenient transport system, accessibility to utilities and social centres to enhance the social quality of life.</p>	Regular visual inspection by EO	Proponent

		Public open space and park erven should be revegetated to look greener and to minimize soil exposure to erosion.		
Increased employment opportunities		<p>This project will contribute to the improvement of the services and infrastructure for the surrounding communities, as it will provide more social services within the area.</p> <p>Will create job opportunities for the local community which will improve their skills and improve their livelihoods.</p> <p>Jobs emanating from the construction and operation of the proposed development will be outsourced to small medium enterprises in the area.</p> <p>Residents to be provided with all the basic amenities and utilities required by the community for them to live in a quality life style</p>	Monitored once off by the ELO	Appointed Contractor/ ELO or Proponent
Traffic	Potential impact due to increase in traffic because of the operation activities of the solar power generation plant	<p>Sidewalks for pedestrians should be provided.</p> <p>Appropriate road signs and markings should be provided throughout the development.</p>	Regular inspection By Engineer and EO	Proponent

Waste management	waste to be created due to the operation of the solar power generation plan is expected to be minimal.	<p>During the operations phase, the Proponent will develop a waste management service to serve the proposed solar plant.</p> <p>The Proponent together with Oniipa Town Council to develop a formal waste collection strategy and that the waste is to be collected regularly by disposed of at authorized dumping site or disposal site.</p> <p>Illegal dumping should be prohibited.</p>	Regular inspection By EO	Proponent / Oniipa Town Council
Land use	The proposed development will result in a change in land use, with some loss of grazing taking place. However, it will impact positively on the economic development of Oniipa Town.	<p>The land use will be changed from undetermined to light industrial use. However, the development will be compatible with the surrounding land use on completion of the construction phase.</p> <p>The solar power station will generate electricity for the northern regions of Namibia, generate revenues for the Oniipa Town Council in terms of rates and taxes and create jobs for the local people.</p>	Monitored by the Project Manager	Proponent

8. ENVIRONMENTAL MONITORING PLAN

Environmental monitoring plan is part of the EMP performance assessment and will need to be compiled and submitted as determined by the Environmental Commissioner. The process of monitoring performances against the objectives and documenting all environmental activities is part of internal and external auditing. This will be coordinated by the Environmental Control Officer (ECO) / External Consultant / Suitable qualified in-house resource person.

The table below outline the type of information that shall need to be recorded on a regular basis by the Environmental Control Officer (ECO) as part of the monitoring process of the activities and the effects.

Mitigation	Compliance	Follow-up action required	By whom	By When	Completed
Is there an Environmental awareness training programme?					
How many people have been given environmental awareness training?					
Is a copy of the EMP on site?					
How effective is the awareness training?					
Do people understand the contents of the EMP?					
If not, where are the weaknesses?					

Ask 3 people at random various questions about the EMP.					
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