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ENVIRONMENTAL MANAGEMENT PLAN (EMP)
FOR THE PROPOSED DEVELOPMENT OF A COMMUNITY SCHOOL AND
ASSOCIATED INFRASTRUCTURE AT MARULA CONSERVATION PARK,
KHOMAS REGION, NAMIBIA

CLIENT: Marula Conservation Park



PREPARED BY:



PROJECT INFORMATION

PROPONENT:	Marula Conservation Park
PROJECT TITLE:	Development of a community school and associated infrastructure
PROJECT TYPE:	Environmental Management Plan
PROJECT LOCATION:	Marula Conservation Park, Khomas Region, Namibia
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1. INTRODUCTION AND BACKGROUND

Turnix Environmental Consulting has been engaged by Marula Conservation Park (Proponent) to undertake an Environmental Impact Assessment for the proposed development of a community school and associated infrastructure at Marula Conservation Park. The community school will serve the children of the workers of Marula Conservation Park.

The proposed school will be a state of the art school that will cater for about 200 learners. The school will host learners from grade one (1) to grade twelve (12) and will have boarding facilities for the learners.

The proposed development of this school will include activities such as site clearance, provision of service infrastructure for water and waste water management (septic tanks) and the development of a solar plant to provide electricity amongst other activities. These activities are listed in accordance with Government Notice No. 29 of 6 February 2012, which requires that an Environmental Clearance Certificate (ECC) be obtained from the Office of the Environmental Commissioner, hence requiring an Environmental Impact Assessment (EIA) to be conducted.

Namibia Vision 2030 sees Namibia developing from a literate society to a knowledge-based society where knowledge is constantly being acquired and renewed, and used for innovation to improve quality of life. This vision will however only be realized if the private sector meets government half and the proposed community will be developed in this spirit.

In Namibia, it is common for children of farm workers and those that work in remote areas not to attend school. This is mainly because of the distance to schools and the cost of boarding facilities. Marula Conservation Park therefore started this initiative to ensure that the workers' children's education is not compromised. This will also contribute to the upliftment and development of the Namibian child.

The Basic Education Act, 2020 and other national legislations and policies advocates for the development of educational facilities by both government and the private sector. The operations of the proposed community school will conform to the provisions of this Act and other relevant legislations.

The project will be undertaken at Marula Conservation Park located about 60 km southeast of Windhoek. The park can be accessed via the B6 road and then turn into the C23 road to Dordabis as show on figure 1 below. The park is located about 15 km before Dordabis. The park is located in the Khomas Region of Namibia. The proposed community school will be developed at the following coordinates: - 22.884964, 17.576747.

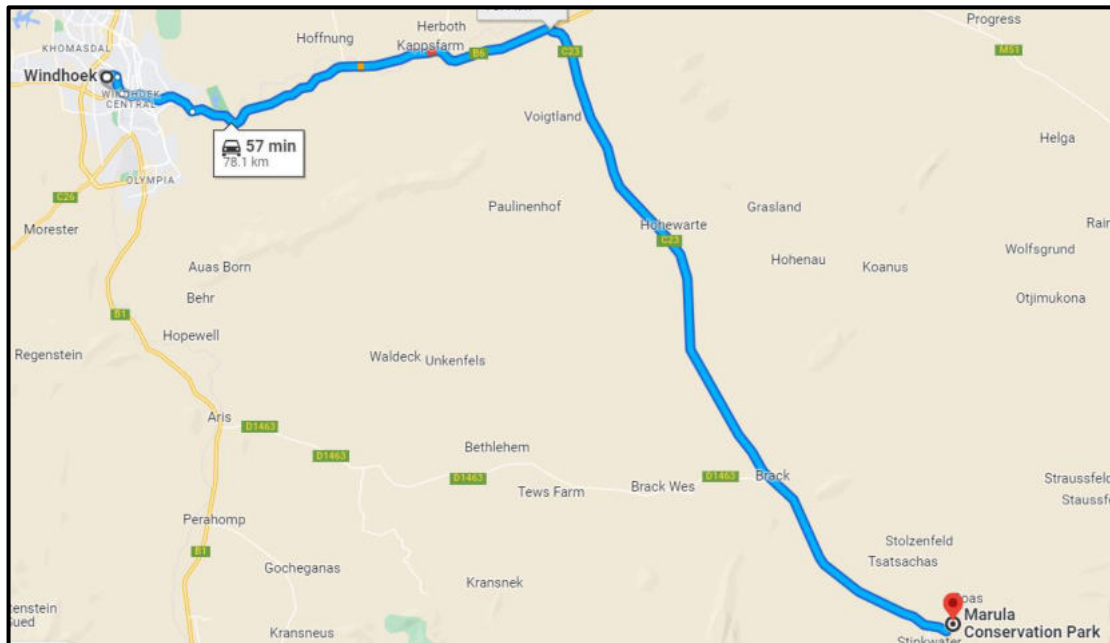


Figure 1: Location of Marula Conservation Park.

The layout plan of the proposed community school is displayed on figure two below.

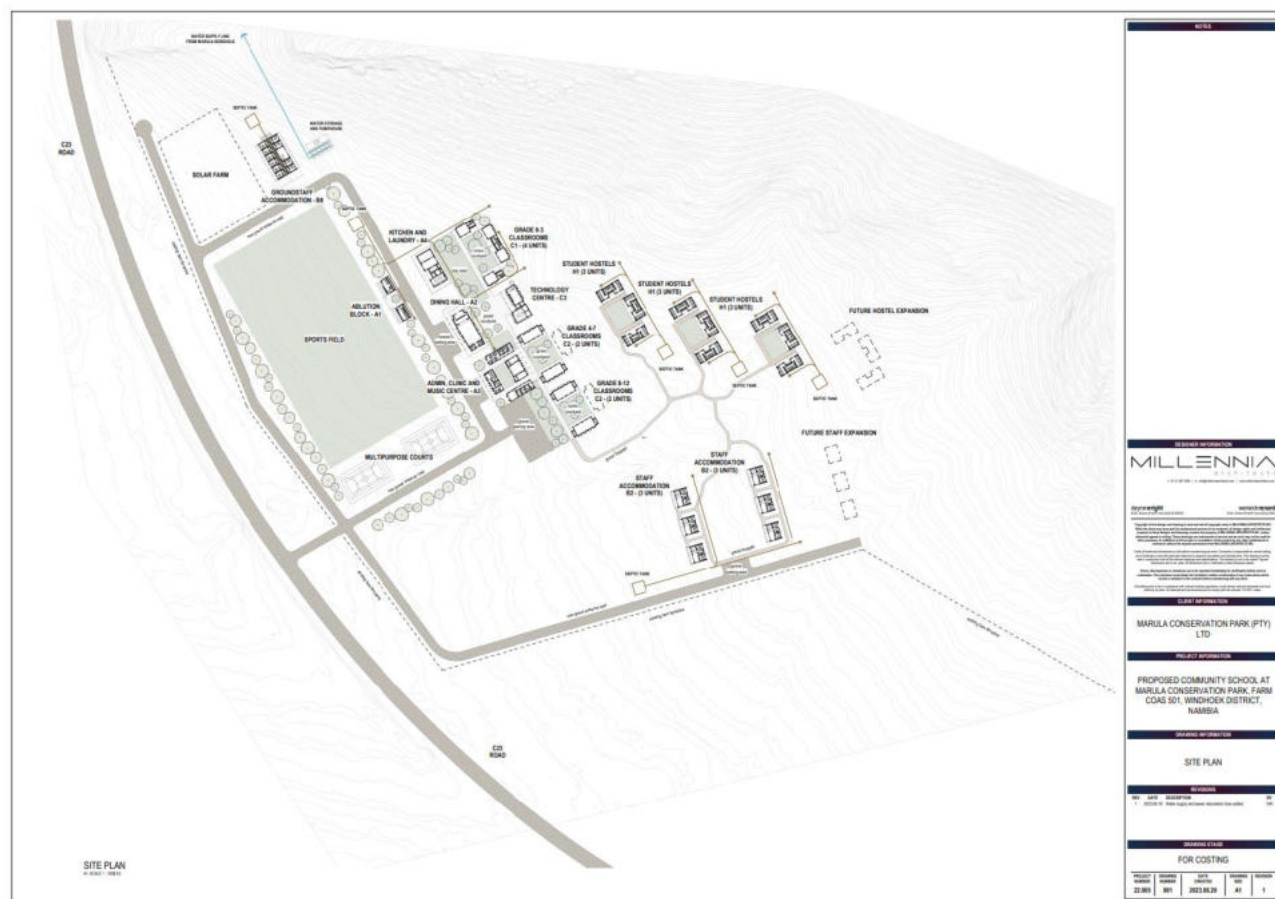


Figure 2: Layout of the proposed Community School

The proposed community school as shown on figure 2 above will comprise of the following facilities:

- **Sports Fields**

The sports field will comprise of a soccer/rugby field and multipurpose courts that will be used for various sports codes such as netball, basketball, volleyball and others. The sports field will have a dedicated ablution block. This facility will play an important role in promoting sports at the school.

- **Administration, Clinic and Music Centre**

This is where the administration of the school will be run from. This block will also house the clinic that will provide primary health care for the learners and staff members of the school. In addition, a music centre will also be housed here where learners will be taught how to use various musical instruments.

- **Classrooms**

Various classrooms will be constructed at the school. The classrooms will be divided into blocks and each block will have a courtyard. The blocks will be divided as follows:

- *Grade 0-3 Classrooms* – this will comprise of four (4) units with a central courtyard and a play area.
- *Grade 4-7 Classrooms* – this block will comprise of two (2) units with grass courtyard.
- *Grade 8-12 Classrooms* – this block will comprise of two (2) units with grass courtyard.

- **Dining Hall**

This hall will provide fully-fledged dining facilities where meals of the learners will be served.

- **Kitchen and Laundry**

This is the area where meals will be prepared to cater for learners and other catering needs. It will have state-of-the-art equipment for cooking and refrigeration. In addition, a laundry will also be housed here.

- **Student hostels**

This is where the learners will be accommodated. The hostel will comprise of three (3) blocks and each block will have three (3) units. There will also be a central courtyard for each block.

- **Technology Centre**

This centre will be equipped with various gadgets to facilitate the integration of technology in the learning environment. The overarching goal of this centre will be to:

- Promote access to information and resources.
- Connect the classroom experience to the real world.
- Prepares the learners for the modern world.
- Promote global awareness and cultural exchange.
- Support different types of learning styles.
- Add a fun factor to learning.

- **Staff accommodation**

To facilitate a conducive learning environment, the staff members who will work at the school will be accommodated on site. This will reduce the commuting time from the nearest urban centre which is about 60 km away. The staff accommodation will comprise of two block with three units in each block.

A block of accommodation will also be constructed to cater for the ground staff who will mainly be involved in the day to maintenance work at the school.

Services to the proposed school will be provided as follows:

- **Water** - Water for the school will be sourced from an existing borehole at Marula Conservation Park. Pumping station will be installed at the school to pump water from the borehole and a pipelined will be laid to transport the water to the school. The water will be stored in elevated tanks from where it will be reticulated to the various facilities at the school.
- **Electricity** - The school will be powered by solar. A solar plant will be constructed at the school. The use of solar power will contribute to environmental sustainability and the reduction of greenhouse gas emissions associated with electricity production.
- **Sewage Management** - Sewage at the school will be managed through septic tanks. Six (6) septic tanks will be constructed at the school. All sewer lines will be sub soil uPVC pipes reticulated to fall at a minimum of 1:60 gradient with a cover of no less than 300mm below ground level into a constructed masonry septic tank system. All necessary Inspection Eyes and Rodding Eyes will be placed at regulated intervals along the drainage lines. No drainage lines shall intersect with the foundation of a building. The septic tanks will discharge into French Drains located no less than 3 meters away from any boundary line or building and sufficiently distanced from any natural or artificial water source. Exact positions of the sewer treatment facilities and indicative drainage pipe runs are indicated on the layout drawings attached an appendix to this report.

2. EMP OBJECTIVES

An Environmental Management Plan (EMP) describes the processes that the proponent (Marula Conservation Park) and contractors will follow to maximize compliance and minimize harm to the environment. This plan will also help the proponent map out progress toward achieving continual improvements. The EMP comprises of a list of actions needed to mitigate the potential negative environmental impacts identified in the EIA process.

The development of an EMP is a requirement for any EIA project as per Namibia's Environmental Management Act No.7 of 2007. Therefore, this EMP is a legal

document that must accompany the EIA Report before an Environmental Clearance is issued.

3. LEGAL REQUIREMENTS

As part of implementation of this EMP, the proponent must comply with the requirements of various national legislations as outlined in the EIA Report and as presented on the table below.

Table 1: Legal framework of the project.

LEGISLATION	PROVISION	REGULATORY AUTHORITY	APPLICATION TO THE PROJECT
The Constitution of the Republic of Namibia	Article 91 (c) and 95 (i) which commit the state to actively promote and maintain environmental welfare of all Namibians by promoting sustainable development	Government of the Republic of Namibia	The project should not pose a threat to the natural and human environment.
Environmental Management Act No.7 of 2007 and EIA Regulations (2012)	Provides principles of environmental management in Namibia.	Ministry of Environment, Forestry and Tourism (Office of the Environmental Commissioner)	Environmental sustainability principles should be observed when undertaking this project.
Water Act 54 of 1956	Control of disposal of sewage, the purification of effluent, the prevention of surface and groundwater pollution, and the sustainable use of water resources.	Ministry of Agriculture, Water and Forestry (Department of Water Affairs)	Water in the farm should be utilized sustainably to ensure that the school have access to adequate water throughout.
Forestry Act No 27 of 2004	The Act affords protection to certain indigenous plant species.	Ministry of Environment, Forestry and Tourism (Directorate of Forestry)	No protected tree species should be removed without a permit during the construction of the school.
Nature Conservation Ordinance No. 4 of 1975	Forms the legislative basis for the establishment of private game reserves and provides for legislation regarding the protection and management of game species such as rhinos	Ministry of Environment, Forestry and Tourism	The provisions of this ordinance should be observed to ensure that the development of the school does not affect biodiversity in Marula Conservation Park.
Convention of Biological Diversity (CBD)	Namibia is a signatory to this convention that provides a framework for and principles for conservation of biodiversity, sustainable	Ministry of Environment, Forestry and Tourism	Provision of this convention should be fully observed.

	uses and fair and equitable sharing of benefits from biodiversity.		
Basic Education Act, No. 3 of 2020	Promote and regulate free and compulsory basic education.	Ministry of Education, Arts and Culture.	A person may not provide basic education at a private school unless the school is registered in terms of section 76.
The Labour Act of 1992	Employees are subject to the terms of the Labour Act. The act also contains the Health and Safety Regulations.	Ministry of Labour	<ul style="list-style-type: none"> • Health and safety conditions provided by the act should be adhered to during the construction and operation of the school. • The Act should be adhered to in all employment contracts that will be entered into.

4. ENVIRONMENTAL MANAGEMENT PLAN

4.1 EMP Administration

In order to successfully implement the provisions of this EMP, there is a strong need to clearly outline the roles and responsibilities of all stakeholders. There is also a need for the proponent and project managers/contractors to appoint an overall responsible person (Environmental Compliance Officer) to ensure the successful implementation of the EMP. The Environmental Compliance Officer (ECO) needs to be someone who has a basic understanding of EMP administration. Under the management actions, each action is allocated to a responsible entity to ensure that the specific action is managed and documented properly.

Furthermore, all key role players such as contractors who will be involved during the construction of the school must be informed about the contents of this EMP and activities to be undertaken to mitigate the potential impacts identified.

4.2 Training

All key Stakeholders who will be involved during the construction and operations of the school must be informed about the contents of this EMP through structured training programs, this can form part of the regular site meetings. It is recommended that the EMP form part of the Terms of Reference to all contractors to be involved in the project.

4.3 Enforcements: Non-compliance and Penalties

This document is considered a legally binding document upon the issuance of an Environmental Clearance Certificate to the project. In cases of transgressions and

non-compliance to the EMP, the transgressor should be liable to a penalty fine. Transgressions should be recorded in a dedicated register and should be submitted with the biannual reports to the Ministry of Environment, Forestry and Tourism. The Proponent shall issue the penalties in terms of the severity of the environmental damages.

4.4 Environmental Records and Reports

Marula Conservation Park should initiate and maintain an updated filing system for the project whereby environmental incident reports, training records and audit reports should be kept. It is recommended that photographs of the site should be taken as a visual reference.

4.5 Management Actions of Environmental Aspects

- **Noise**

DESCRIPTION	Construction vehicles and equipment such as drillers, compactors and other machineries used to install services during the construction phase can be a nuisance and disturbance. However since the school will be constructed far from any residential areas, the only people that will be affected by the noise would be the construction workers.
MITIGATION MEASURES	<ul style="list-style-type: none"> • All workers on site must be equipped with earplugs to be used when the noise becomes unbearable. • Switch off machines that are not used. • Noisy equipment should not be used at night.
MONITORING	<ul style="list-style-type: none"> • Inspect all workers on a daily basis for PPE compliance. • Ensure that a safety training session is held once a month.
RESPONSIBLE PARTY	Project Manager and Contractors

- **Disturbance of natural slope and habitat**

DESCRIPTION	The construction process of the school will involve the clearing of some areas to make way for the proposed facilities and service infrastructure. The removal of vegetation and disturbance to the natural slope can facilitate soil erosion if not done properly. The school will have a small ecological footprint therefore; the impacts on the habitat will be minimal.
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MITIGATION MEASURES	<ul style="list-style-type: none"> • All roads and other infrastructure should be constructed in such a way that it does not promote erosion especially on steeper slopes. • Big trees on site should be incorporated in the landscaping as much as possible. • Indigenous vegetation should be used in the landscaping around the school to promote biodiversity.
MONITORING	<ul style="list-style-type: none"> • All indigenous vegetation to be used for landscaping should be marked before construction activities commences. • Project Manager should carry out regular site inspections to identify areas prone to erosion and institute corrective measures.
RESPONSIBLE PARTY	Project Manager

- **Pollution**

DESCRIPTION	<p>There are various types of pollution associated with construction phase of the school. The most important one is probably chemical pollution from oil spills resulting from the handling of various machineries used during the construction phase. Other sources of pollution include building rubble and empty bags and containers. Construction workers can also pollute the surrounding environs if they are not provided with adequate toilet facilities. If the waste is not handled properly, it can have a detrimental effect on the surrounding environs.</p> <p>The operation of a school produces various types of waste. Common types of waste include solid waste (e.g. papers, plastics and cans) from teaching activities, waste from the kitchen and hostels and sewage from toilet facilities. The sewage can lead to pollution of the environment especially underground water resources if not managed properly.</p>
MITIGATION MEASURES	<ul style="list-style-type: none"> • Institute and maintain a waste management system. • All waste that cannot be safely disposed of on-site must be transported to appropriate disposal sites. • All sewage disposal systems must be constructed according to approved standards.
MONITORING	

RESPONSIBLE PARTY	Project Manager
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- **Dust**

DESCRIPTION	Construction activities are generally associated with dust as the substrate is loosened during construction. Activities such as the clearing of vegetation and levelling of land where the school will be constructed will slightly affect the air quality. This will especially be an issue during windy days. Dust can affect the health of the construction workers and wildlife. The school will also be constructed next to the C23 Road to Dordabis. If not controlled properly, dust can affect visibility of the users of the road.
MITIGATION MEASURES	<ul style="list-style-type: none"> • Equip all the workers exposed to dust with dust masks. • Spray the areas that are most affected with water to minimize dust. • Minimize activities that can generate dust during windy days. • Limit the speed within the whole ranch to a maximum of 40 km/h
MONITORING	<ul style="list-style-type: none"> • Monitor dust accumulation and visibility on a daily basis and institute corrective measures when dust levels are too high.
RESPONSIBLE PARTY	Project Manager and Contractors

- **Increased poaching incidences**

DESCRIPTION	The construction of the school facilities might attract many workers to the area. This might lead to some incidences of poaching and illegal collection wildlife products. This issue has been experienced in similar developments in the past.
MITIGATION MEASURES	<ul style="list-style-type: none"> • Offenders must be reported to the authorities and prosecuted. • Raise awareness of construction workers. • Alert the Anti-poaching Unit of Marula Conservation Park to be on the lookout. • Regular inspection of workers quarters for any signs of wildlife products.

MONITORING	<ul style="list-style-type: none"> Keep records of all poaching incidents and deal with the culprits accordingly.
RESPONSIBLE PARTY	Project Manager

- Health and Safety**

DESCRIPTION	Marula Conservation Park hosts a number of animals that might be aggressive when disturbed. Animals such as ostrich, rhino and Oryx can be aggressive when disturbed by humans. Wildlife does not usually attack humans unless they feel threatened, they usually move away when they encounter human. Encounters with wildlife will therefore only happen when the animals feel cornered and threatened by the construction workers.
MITIGATION MEASURES	<ul style="list-style-type: none"> Movement of construction workers should be confined to the project site as far as possible to limit encounters with wild animals. First Aid kits should be kept on site to attend to any injured workers.
MONITORING	<ul style="list-style-type: none"> Keep records of all encounters with wild animals and implement corrective measures.
RESPONSIBLE PARTY	Project Manager

- Visual impacts**

DESCRIPTION	Marula Conservation Park is known for its pristine natural surroundings. It is therefore important to ensure that the construction of the school should blend in with the natural setting and aesthetics of the area.
MITIGATION MEASURES	Blending the built structures with the natural surrounding will help to maintain the natural aesthetic value of the area e.g., school buildings should be of earth colours instead of bright colours.
MONITORING	Ensure the protection of aesthetic properties of the area by enforcing the agreed upon design and colour schemes of the buildings.
RESPONSIBLE PARTY	Project Manager

5. CONCLUSIONS

It should be noted that the ultimate responsibility lies with the Project Manager, to ensure that all the contents of this document are clearly understood and implemented by all stakeholders. The successful implementation of this EMP is dependent on the collaboration of all stakeholders who are involved at all levels of project implementation. To ensure that it is legally binding to all parties, all agreements entered into with contractors must incorporate the contents of this EMP.

Turnix Environmental Consulting believes that a comprehensive assessment of the proposed project has been achieved and that this EMP covers all pertinent components of the project that need to be mitigated. It is therefore recommended that an Environmental Clearance can be awarded to the project.