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ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
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 Impact Assessment Study
PROJECT LOCATION:	Marula Conservation Park, Khomas Region, Namibia
ENVIRONMENTAL ASSESSMENT PRACTITIONER	Turnix Environmental Consulting cc Contact person: Mr. Olavi Makuti Cell: +264 811405033 E-mail: olavi.makuti@gmail.com P.O Box 27488, Windhoek, Namibia
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NON-TECHNICAL SUMMARY

Turnix Environmental Consulting (herein referred to as the consultant) has been engaged by Marula Conservation Park (herein referred to as the 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 school is envisaged to accommodate about 200 learners. The school will have hostel facilities for the learners and accommodation for teachers and institutional workers.

Marula Conservation Park is located about 60 km southeast of Windhoek in the Khomas Region of Namibia. The ranch can be accessed via the B6 road and then turn into the C23 road to Dordabis. The park is located about 15 km before Dordabis.

The proposed development of this school will include activities such as site clearing, provision of infrastructure for water, sewage management and the development of a solar plant to provide electricity amongst other activities. In terms of the Environmental Management Act No.7 of 2007 and the Environmental Impact Assessment (EIA) Regulations of 2012, the project triggers listed activities that cannot be undertaken without an Environmental Clearance Certificate (ECC). An environmental clearance application will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for approval before the commencement of the anticipated project activities.

The identification of potential impacts included impacts that may occur during the construction and operational phases of the project.

The following potential impacts on the environment during construction and operations of the school have been identified:

- Noise
- Disturbance of natural slope and habitat

- Dust
- Pollution
- Poaching
- Health and safety
- Visual impacts

Due to the limited scope of the proposed activities, the significance of potential environmental impacts of the proposed project activities on the receiving environment will be medium and localized extent. All the impacts identified and assessed during this study are generic impacts associated with the development of a school of this nature. With strict adherence to the recommended mitigation measures, the significance of these impacts can be reduced to a “low” significance rating.

The benefits to be derived by the country from this investment will far out-weighs the few impacts identified. In fact, the development of the proposed community school will significantly contribute to the attainment of Namibia’s goal of ensuring that every Namibian child have access to equitable and quality education. The project will also provide much-needed jobs during the construction phase and a number of permanent jobs during the operational phase of the school.

It is thus recommended that the project be issued with Environmental Clearance on condition that the mitigation measures recommended in the Environmental Management Plan are fully implemented.

TABLE OF CONTENTS

1. INTRODUCTION.....	8
1.1 BACKGROUND.....	8
1.2 NEED AND DESIRABILITY.....	8
1.3 TERMS OF REFERENCE.....	9
1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP).....	10
2. PROPOSED PROJECT DESCRIPTION.....	11
11	
2.1 LOCATION.....	11
2.2 MARULA CONSERVATION PARK.....	12
2.3 LAYOUT AND FACILITIES OF THE PROPOSED SCHOOL.....	12
2.4 PROVISION OF SERVICES TO THE SCHOOL.....	16
2.4.1 WATER SUPPLY.....	16
2.4.2 ELECTRICITY.....	16
2.4.3 SEWAGE MANAGEMENT.....	17
2.4.4 ACCESS ROAD.....	17
2.5 WASTE MANAGEMENT.....	18
3. LEGAL REQUIREMENTS.....	20
4. DESCRIPTION OF THE RECEIVING ENVIRONMENT.....	22
4.1 CLIMATE.....	22
4.2 GEOLOGY AND SOILS.....	22
4.3 HYDROLOGY AND HYDROGEOLOGY.....	22
4.4 BIODIVERSITY AND ECOLOGY.....	23
4.5 SOCIO-ECONOMIC SETTING.....	27
4.6 ARCHAEOLOGY.....	28
5. PUBLIC CONSULTATION.....	29
5.1 OBJECTIVES OF PUBLIC CONSULTATION.....	29
5.2 PUBLIC PARTICIPATION DURING THE SCOPING PHASE.....	29
6. ENVIRONMENTAL IMPACT ASSESSMENT.....	31
6.1 METHOD OF ASSESSMENT.....	31
6.2 POTENTIAL IMPACTS IDENTIFIED AND ASSESSED.....	32
6.2.1 CONSTRUCTION RELATED IMPACTS.....	32
6.2.2 OPERATIONS RELATED IMPACTS.....	38
7. CONCLUSIONS.....	40
8. REFERENCES.....	41

LIST OF FIGURES, TABLES AND PICTURES

FIGURES

Figure 1: Location of Marula Conservation Park.....	11
Figure 2: Layout of the proposed Community School.....	13
Figure 3: Waste Management Hierarchy.....	19

TABLES

Table 1: Legal framework of the project.....	20
Table 2: Species of conservation importance found in different habitats.....	24
Table 3: Criteria used to determine the significance of impacts and their definitions..	31
Table 4: Definition of the various significance ratings.....	32
Table 5: Assessment of impacts associated with noise.....	33
Table 6: Assessment of impacts associated with disturbance of natural slope and habitat.....	33
Table 7: Assessment of impacts associated with pollution.....	34
Table 8: Assessment of impacts associated with dust.....	35
Table 9: Assessment of impacts associated with poaching.....	35
Table 10: Assessment of impacts associated with health and safety.....	36
Table 11: Assessment of impacts associated with visual impacts.....	37
Table 12: Assessment of impacts associated with employment.....	37
Table 13: Assessment of impacts associated with pollution from operations.....	38
Table 14: Assessment of impacts associated with permanent employment.....	39

PICTURES

Picture 1: Site were the proposed school will be developed.....	12
Picture 2: Artist impression of the facilities to be built at the school.....	13

LIST OF APPENDICES

APPENDIX A: ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B: CV OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

APPENDIX C: INTERESTED AND AFFECTED PARTIES REGISTER

APPENDIX D: BACKGROUND INFORMATION DOCUMENT

APPENDIX E: PRESS NOTICES

APPENDIX F: LAYOUT PLAN OF PROPOSED SCHOOL

1. INTRODUCTION

1.1 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.

1.2 NEED AND DESIRABILITY

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.

Furthermore, the Convention on the Rights of Children, which was ratified by Namibia, amongst other international instruments, calls for the development of educational infrastructure to ensure that every Namibian child should have access to equitable and quality education.

The proposed community school will be a welcomed relieve for the Marula Conservation Park community. The only school nearby is located about 20 km away at Dordabis. However, the Dordabis School like many public schools in Namibia lacks quality infrastructure and personnel to provide an effective and efficient education. The proposed school will be a modern school with state of the art infrastructure and facilities. The proposed school will significantly contribute to the improvement of educational quality in the Khomas Region and Namibia as a whole.

1.3 TERMS OF REFERENCE

The proponent required the Environmental Assessment Practitioner to carry out this study as per the requirements of the Environmental Management Act No.7 of 2007 and the Environmental Assessment Regulations (February 2012).

The EIA process investigated if there are any potential significant biophysical and socio-economic impacts associated with the development of the school and associated infrastructure.

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Turnix Environmental Consulting cc (Reg. No. CC/2012/7856) is a wholly Namibian owned company, established in 2012 to provide consulting services to various public and private sectors in areas such as Strategic Environmental Assessments (SEA) & Environmental Impact Assessments (EIA), development of Environmental Management Systems, Environmental Auditing, Monitoring and Evaluation, Water Management, Solid Waste Management and Project Management.

The Environmental Assessment Practitioner (EAP) for this study was Mr. Olavi Makuti. Mr. Makuti's main area of expertise includes Urban Environmental Management, Biodiversity Conservation, Strategic Environmental Assessments (SEA), Environmental Impact Assessments (EIA), and Environmental Management Systems (EMS). Olavi has 18 years' experience in the field of environmental management and has a Master's Degree in Environmental Management (University of the Free State, South Africa), B.Tech Degree in Natural Resources Management (Polytechnic of Namibia) and National Diploma in Nature Conservation (Polytechnic of Namibia). He has also done the MDP (Management Development Program) with the University of Stellenbosch and other short courses. His CV is attached for further information on his educational qualifications and experience.

2. PROPOSED PROJECT DESCRIPTION

2.1 LOCATION

Marula Conservation Park is 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.

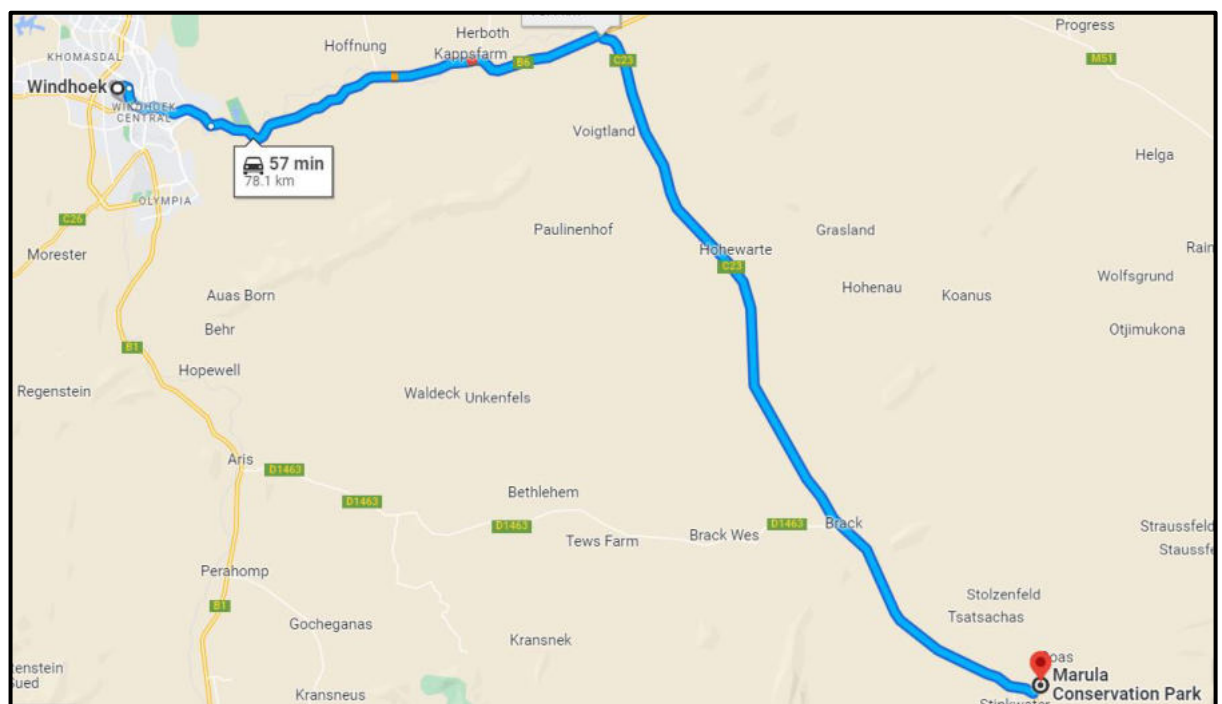


Figure 1: Location of Marula Conservation Park.



Picture 1: Site where the proposed school will be developed

2.2 MARULA CONSERVATION PARK

Marula Conservation Park is owned and managed by COMSAR Properties SA. The company purchased a few farms in the area and consolidated them into what is now known as Marula Conservation Park. Due to statutory limitations on the number of farms that can be bought by the company, COMSAR Properties SA is also leasing some farms from the Namibian Government for 99 years.

Marula Conservation Park consists of seven (7) farms in total. Three (3) of the farms (Hillside, Coas and Otjimukona) are owned by the company and four (4) farms (Wolfsgrund, Reinhof, Kameelboom and Smaldeel) are leased from the Namibian Government. The park has a total area of 47,000 ha (the farms owned by the company has an area of 29,500 ha and the leased farms 17,500 ha).

2.3 LAYOUT AND FACILITIES OF THE PROPOSED SCHOOL

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



Figure 2: Layout of the proposed Community School



Picture 2: Artist impression of the facilities to be built at the 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.

2.4 PROVISION OF SERVICES TO THE SCHOOL

In order to operate a school various services will be required. The various services for the proposed community school will supplied as discussed below.

2.4.1 WATER SUPPLY

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.

2.4.2 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. This will also in its small way contribute to Namibia's emission targets as set out in the

country's Nationally Determined Contribution document to the United Nations Framework Convention on Climate Change.

2.4.3 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.

2.4.4 ACCESS ROAD

The school will accessed from a turn off that will be created from the C23 Road. An application has been submitted to the Roads Authority in this regard. Within the school, gravel roads will be constructed to access the various facilities as shown on the layout plan.

2.5 WASTE MANAGEMENT

Various waste streams will emanate from this project. Waste from the two development phases of the school will be managed as follow:

- **Construction Phase**

The waste to be generated from the construction activities will be stored in skip containers. Once the containers are full they will be transported to Windhoek for proper disposal at designated waste disposal sites. Construction workers will also be encouraged to refrain from littering. Hazardous waste generated from construction activities such as used oil and grease will be stored in specialized containers and transported to the hazardous waste disposal facilities in Windhoek such as the hazardous waste cell at the Kupferberg landfill.

- **Operational Phase**

During the operations of the school, there will be various waste streams. If not managed properly, some waste such as plastic bags and packaging material can be blown by the wind to other parts of the Marula Conservation Park. This will have a negative impact on the pristine natural environment and wildlife. Waste can also have an impact on the visual properties of the area.

A waste management system that will be based on environmental sustainability principles will be introduced at the school. Waste at the school will be collected and deposited in centralized bins. Each different part of the school will have their own waste bins that will be emptied by the cleaners and deposited at the central collection point. The waste will then be transported to Windhoek for proper disposal.

The transportation and disposal of waste can be a very expensive exercise that requires many resources. The school will try to minimize the cost involved in waste management by implementing the Integrated Waste Management Hierarchy as shown on figure 3 below.



Figure 3: Waste Management Hierarchy

In the Integrated Waste Management Hierarchy the emphasis should first be to avoid the production of waste, were the avoidance of waste is not possible the amount of waste produced should be minimized, reuse and recycle before disposal is contemplated. This is the approach that is been promoted worldwide.

3. LEGAL REQUIREMENTS

This section provides an analysis of the policies and legislations that are relevant to the proposed development of the school and associated infrastructure. This section aims to inform the proponent about the requirements to be fulfilled in undertaking the proposed project.

The table below lists the various environmental and developmental policies and legislations that have relevance to the project.

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 uses and fair and equitable sharing of benefits from biodiversity.	Ministry of Environment, Forestry and Tourism	Provision of this convention should be fully observed.
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 adhered to in all employment contracts that will be entered into.

4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 CLIMATE

The climate of central Namibia is described as arid with a typically hot and dry summer and moderate dry winters. Namibia has a low humidity in general, and the lack of moisture in the air has a major impact on its climate by reducing cloud cover and rain and increases the rate of evaporation. The average annual rainfall in this area is 300-350 mm. The average annual temperature is 18-20 °C. During the hottest month of the year which is mainly December the average maximum temperature is about 28-30 °C. During July, which is the coldest month, the average minimum temperature is 2-4 °C (Mendelsohn, et al 2001).

4.2 GEOLOGY AND SOILS

The landscape in this area is classified as the Khomas Hochland Plateau. This is the large ridge of higher ground in the center of the country. This landscape consists of rolling hills. The Damara Sequence dominates the geology of the central Namibian region. Mica schist of the Kuiseb Group (Damara Supergroup) underlies Marula Conservation Park. The soil cover in the general surrounding area is largely shallow, has been derived from the underlying lithologies, and is classified as leptosol referring to shallow soil cover over hard rocks. Soils closer to the river courses consist of alluvial sands (Mendelsohn, et al 2001).

4.3 HYDROLOGY AND HYDROGEOLOGY

The area has no permanent watercourses with an exception of the man-made farm dams. An ephemeral river passes through the farm. This river only flow when heavy rainfall is received in its catchment area. The banks of the ephemeral watercourses are lined with indigenous vegetation species such as Camelthorn (*Acacia erioloba*).

The water that will be used at the school will be sourced from existing borehole at Marula Conservation Park. The aquifer in this area comprises of mica schist of the Naos Formation. The Naos Formation consists mainly of mica schist, diamictite and pebbly schist, micaceous quartzite, amphibolite and ferruginous quartzite are also present in minor contents.

4.4 BIODIVERSITY AND ECOLOGY

Marula Conservation Park has a rich faunal diversity. Although the regular censuses conducted in this area is mainly focused on mammals, previous studies shows that at least 78 species of reptile, 13 amphibian, 77 mammal and 173 bird species (breeding residents) occur in the general/immediate area of which a high proportion are endemics.

The vegetation in this area can be classified as Highland Shrubland and the dominant structure of plant life is shrubs and trees.

According to Steenkamp, 2014, the dominant landscape of the Marula Game Ranch is the Khomas Hochland Plateau, which is typified by rocky outcrops with prominent ridges and steep slopes, side slopes and drainage lines. The vegetation in this area can be classified as Highland Shrubland and the dominant structure of plant life is shrubs and trees.

Marula Conservation Park commissioned a biodiversity and ecology specialist study in 2014. The table below was extracted from this study and provides a synopsis of the different forms of biodiversity that is expected to occur at the different habitats found in Marula Game Park.

Table 2: Species of conservation importance found in different habitats

RIDGELINE, PROMINENT RIDGES AND STEEP SLOPES				
Conservation status	Vegetation	Invertebrates	Birds	Vertebrates
Endemic/Near Endemic	Herb Species with restricted distributions: <i>Convolvulus argillicola</i> ; <i>Dicoma dinteri</i> , <i>Haemanthus avasmontanus</i> , <i>Heteromorpha papillosa</i> , <i>Helichrysum cerastioides</i> var. <i>aurosicum</i> , <i>Hibiscus discophorus</i> , <i>Lapeirousia avasmontana</i> , <i>Lotononis pallidirosea</i> , <i>Namacodon schinzianum</i> , <i>Peristrophe hereroensis</i> , <i>Plectranthus dinteri</i> , <i>Senecio windhoekensis</i> , <i>Thesium xerophyticum</i> ; <i>Pegolettia pinnatilobata</i> ; and <i>Lotononis pallidirosea</i> are endemics not found anywhere else.	<i>Gelacondylops windhoekensis</i> , <i>Sparrmania namibia</i> . <i>Africallagma glaucum</i> and <i>Sympetrum fonscolombii</i> have a status of Least Concern.	Damara (Red-billed) Hornbill; Monteiro's Hornbill; Carp's (Black) Tit ; Rockrunner; White-tailed Shrike	Dombe toad ; Hoesch's toad; Anchieta's Dwarf Python (see figure); Dwarf Beaked Snake; Cape Cobra ; Black-necked Spitting Cobra; Spotted Sandveld Lizard; Spotted Sand Lizard; Jordan's Girdled Lizard; Namibian Rock Agama; Festive Gecko; Velvety Thick-toed Gecko; Cape Thick-toed Gecko; Turner's Thick-toed Gecko ; Rough Thick-toed Gecko; Weber's Thick-toed Gecko; Common Barking Gecko
Protected/Specially protected	Four protected tree species occur in this habitat, <i>Aloe littoralis</i> , <i>Ficus cordata</i> , <i>Moringa ovalifolia</i> , <i>Cyphostemma curreri</i> , although none is restricted to it. The following species are of particular importance since they are not or very seldom recorded in other habitats: <i>Obetia carruthersiana</i> , <i>Euphorbia avasmontana</i>			
Vulnerable				Round-eared Elephant Shrew; Smith's Rock

				Elephant-shrew; Angola Wing-gland Bat; Pangolin; Cheetah, Leopard
Near threatened			White-backed Vulture; Verreaux's (Black) Eagle; Peregrine Falcon; Lesser Kestrel ; Lappet-faced Vulture; African Fish Eagle	South African hedgehog Rüppell's Horseshoe Bat; Geoffroy's Horseshoe Bat; Darling's Horseshoe Bat; Dent's Horseshoe Bat ; Dassie rat ;Kaokoveld Ground Squirrel
Endangered			Tawny Eagle); Booted Eagle ; Martial Eagle	Brown Hyena

**DRAINAGE LINES AND
ASSOCIATED RIPARIAN
VEGETATION**

Conservation status	Vegetation	Invertebrates	Birds	Vertebrates
Endemic/Near Endemic	<i>Antiphiona pinnatisecta, Aspilia eenii, Chenopodium amboanum, Convolvulus argillicola, Crotalaria dinteri, Ondetia linearis, Peristrophe hereroensis. Jamesbrittenia canescens, Plicosepalus undulatus Peristrophe hereroensis</i> , has a limited distribution, while the others are reasonably widespread in Namibia, and all occur in more than one habitat in the townlands. <i>Crotalaria dinteri</i> was recorded only in the riverine and valley habitats.		Rüppell's Parrot Damara (Red-billed) Hornbill; Monteiro's Hornbill ; Carp's (Black) Tit	Dombe toad; Hoesch's toad; Marbled rubber frog Boyle's beaked blind snake Schinz's beaked blind snake Anchieta's Dwarf Python Southern African Python Two- striped Shovel-snout Dwarf Beaked Snake Sundevall's Garter Snake; Cape Cobra ; Black-necked Spitting Cobra ; Namibian Rock Agama; Bradfield's Dwarf Gecko

Protected/ Specially protected	<i>Acacia erioloba</i> (camelthorn), <i>Albizia anthelmintica</i> (worm-cure Albizia), <i>Boscia albitrunca</i> (shepherd's tree), <i>Maerua schinzii</i> (ringwood tree)		Rüppell's Parrot	
Vulnerable				Pangolin
Near threatened			Verreaux's (Black) Eagle; Peregrine Falcon; Lesser Kestrel; Rüppell's Parrot	South African hedgehog ; Kaokoveld Ground Squirrel
Endangered			Booted Eagle	
VALLEY				
Conservation status	Vegetation	Invertebrates	Birds	Vertebrates
Endemic/Near Endemic	<i>Bulbostylis mucron</i> <i>Crinum carolo-sch</i> <i>Crotalaria dinteri</i> ; <i>inearis</i> ; <i>Peristroph</i> <i>hereroensis</i> ;	<i>Mantophasmatidae</i> or gladiators.	Rüppell's Parrot Damara (red-billed) Hornbil; Monteiro's Hornbill; Carp's (black) Tit; White-tailed Shrike	Dombe toad; Hoesch's toad; marbled rubber frog; Boyle's Beaked Blind snake; Anchieta's Dwarf Python; two-striped Shovel-snout; Dwarf Beaked Snake; Cape Cobra; Black-necked Spitting Cobra; Spotted Sandveld Lizard ; Spotted Sand Lizard; Namibian Rock Agama; Bradfield's Dwarf Gecko; Festive Gecko; Velvety Thick-toed Gecko; Cape Thick-toed Gecko; Turner's Thick-toed Gecko; Rough Thick-toed Gecko; Weber's Thick-toed Gecko); Common Barking Gecko

Protected/ Specially protected	<i>Acacia erioloba</i> (Camelthorn); <i>Boscia albitrunca</i> (Shepherd's Tree); <i>Searsia lancea</i> (Karee); <i>Albizia anthelmintica</i> (Wormcure albizia). The valley is the preferred habitat for <i>Acacia erioloba</i>			
Vulnerable			Lappet-faced Vulture; African Fish Eagle	Round-eared Elephant Shrew; Smith's Rock Elephant-shrew; Angola Wing-gland Bat ; Pangolin; Cheetah.
Near threatened			White-backed Vulture; Verreaux's (Black) Eagle; Peregrine Falcon; Lesser Kestrel; Rüppell's Parrot	South African Hedgehog; Rüppell's Horseshoe Bat; Geoffroy's Horseshoe Bat; Darling's Horseshoe Bat; Dent's Horseshoe Bat; Kaokoveld Ground Squirrel; Ratel or Honey Badger
Endangered			Tawny Eagle; Booted Eagle; Martial Eagle	Brown Hyaena
Alien Invasives	<i>Prosopis glandulosa</i> , <i>Nicotiana glauca</i> , <i>Argemone ochroleuca</i> , <i>Datura spp</i>			

4.5 SOCIO-ECONOMIC SETTING

Marula Conservation Park is surrounded by commercial farms. The only settlement areas near this park include "Stinkwater" which is situated about 5 km from the park and Dordabis, which is about 15 km south of the park. "Stinkwater" has a population of about 1500 people, of which most work at neighbouring farms.

Dordabis has a population of about 5000 people. Dordabis is surrounded by several farms and it serves as a commercial center for all the farms in its vicinity. Dordabis

has a primary school, clinic, police station and other small businesses that sell a variety of goods.

4.6 ARCHAEOLOGY

The scoping exercise did not discover any archaeological material on the site where the school will be constructed. Should there be any such discovery during the course of the school construction and operation, the National Heritage Council of Namibia should be informed immediately. The National Heritage Council will assess the discovery and based on the findings of their assessment they will advise on the way forward.

5. PUBLIC CONSULTATION

5.1 OBJECTIVES OF PUBLIC CONSULTATION

The Public Participation Process is undertaken in response to the requirements of Regulation/Part 21 of the Environmental Management Act. Regulation 21 require that a person who undertakes an environmental impact assessment process to obtain an Environmental Clearance Certificate, must do the public participation process.

Public participation is the cornerstone of the EIA process as this is the stage where Interested and Affected Parties are considered and involved in the decision making process. Its key objective is to assist stakeholders to raise issues of concern and suggestions for enhanced benefits, and to comment on the findings of the EIA.

5.2 PUBLIC PARTICIPATION DURING THE SCOPING PHASE

This project did not garner interest from potential Interested and Affected Parties. This is because the project school will be constructed within Marula Conservation Park boundaries for the use of Marula workers' children. There are therefore no affected parties.

Information to Interested and Affected Parties regarding the proposed development of a community school was disseminated through the following means:

- **Newspaper notices**

Newspaper notices were placed in the *Namibian Sun*, *Republikein* and *Allgemeine Zeitung* dated 25 September 2023 and 2 October 2023. The notices were placed once a week for two consecutive weeks as required by the EIA Regulations. The newspaper notices are attached as **Appendix E**.

The newspaper notices stated that an application for an Environmental Clearance is to be submitted to the Environmental Commissioner, provided information on the nature of the activity and location, invited I&AP to register as such and provided contact details where further information on the application or activity can be obtained.

- **Background Information Document (BID)**

A BID was prepared for the proposed project (Appendix D). The BID was intended to provide information about the EIA being undertaken for the proposed project and provided: an overview of the project; a description of the manner in which the EIA was undertaken, an indication of how Interested and Affected Parties (I&AP) may become involved in the EIA process; and provided contact details of the person to whom I&APs may submit their comments.

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1 METHOD OF ASSESSMENT

The significance of the identified impacts of the proposed construction of a community school at Marula Conservation Park was assessed using the criteria discussed on table 2 below.

Table 3: Criteria used to determine the significance of impacts and their definitions.

CRITERIA	DESCRIPTION
NATURE	This criteria indicates whether the proposed activity has a positive or negative impact on the environment (environment comprises both socio-economic and biophysical aspects).
EXTENT	This criteria measures whether the impact will be site specific; local (limited to within 15 km of the area); regional (limited to about 100 km radius); national (limited to within the borders of Namibia) or international (beyond Namibia's borders).
DURATION	This criteria looks at the lifetime of the impact, as being short (days, less than a month), medium (months, less than a year), long (years, less than 10 years), or permanent (more than 10 years).
INTENSITY	This criteria is used to determine whether the magnitude of the impact is destructive and whether it exceeds set standards, and is described as none (no impact); low (where the environmental functions are negligible affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease).
PROBABILITY	Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will happen regardless of prevention measures).
DEGREE OF CONFIDENCE IN PREDICTION	This is based on the availability of information and knowledge used to assess the impacts.

The significance of the potential impacts identified for this project is determined using a combination of the criteria discussed on the above table. The significance rating of impacts is described on the table below.

Table 4: Definition of the various significance ratings

SIGNIFICANCE RATING	CRITERIA
Low	Where the impact will have a negligible influence on the environment and no mitigations are required.
Medium	Where the impact could have an influence on the environment, which require some modifications on the proposed project design and/or alternative mitigation.
High	Where the impact could have a significant influence on the environment and, in the case of a negative impact, the activity causing it, should not be permitted.

6.2 POTENTIAL IMPACTS IDENTIFIED AND ASSESSED

6.2.1 CONSTRUCTION RELATED IMPACTS

- **Noise**

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.

Noise and vibrations will also have an impact on animals such as birds and reptiles. Birds are known to abandon their nests if subjected to continuous noise. Other animals such as big game will mitigate the impacts of noise by moving to quieter areas.

Table 5: Assessment of impacts associated with noise

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	short	Low	Probable	Medium	Medium	Low

Mitigation measures:

- All workers on site must be equipped with earplugs to be used when the noise becomes unbearable.
- Switch off machines that are not used.
- Noise equipment should not be used at night.

- **Disturbance of natural slope and habitat**

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.

Table 6: Assessment of impacts associated with disturbance of natural slope and habitat

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Permanent	Low	Probable	Medium	Medium	Low

Mitigation measures:

- 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.

- **Pollution**

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.

Table 7: Assessment of impacts associated with pollution

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation measures:

- Ensure that all waste from construction activities is stored and contained in designated containers and transported to Windhoek for proper disposal.

- **Dust**

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.

Table 8: Assessment of impacts associated with dust

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation measures:

- 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

- **Increased poaching incidences**

The construction of the school facilities might attract many workers to the area who will temporarily reside at the construction site. This might lead to some incidences of poaching and illegal collection wildlife products. This issue has been experienced in similar developments in the past.

Table 9: Assessment of impacts associated with poaching

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation measures:

- 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.

- **Health and safety**

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. The park might also be home to dangerous predators such as hyenas and snakes that might attack even when they are not provoked. It is therefore very important to ensure that workers are informed on how to behave to avoid encounters with wildlife.

Table 10: Assessment of impacts associated with health and safety

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Medium	Low	Probable	Medium	Medium	Low

Mitigation measures:

- 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.

- **Visual impact**

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.

Table 11: Assessment of impacts associated with visual impacts

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Permanent	Low	Probable	Medium	Medium	Low

Mitigation measures:

- Blending the built structures with the natural surrounding will maintain the natural aesthetic value of the area e.g., school buildings should be of earth colours instead of bright colours.

- **Employment opportunities**

The project will provide employment opportunities to a few people during the construction phase. This will be a welcomed relieved considering the high rate of unemployment in Namibia.

Table 12: Assessment of impacts associated with employment

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Positive	National	Medium	Low	Probable	Medium	Medium	Low

Mitigation measures:

- The Project Management have indicated that community members from the nearby Stinkwater settlement will be used for unskilled work during the construction of the school facilities.

6.2.2 OPERATIONS RELATED IMPACTS

- **Pollution from operational activities**

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.

Table 13: Assessment of impacts associated with pollution from operations

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Negative	Local	Permanent	Low	Probable	Medium	Medium	Low

Mitigation measures:

- 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.

- **Permanent employment opportunities**

The will require qualified teachers who can teach up to grade 12 and other professionals such as IT Technicians. There will also be a need for a number of institutional workers who will do cleaning, maintenance work and work in the kitchen facilities. This will provide permanent jobs to a number of qualifying Namibians and thus contributing to the alleviation of unemployment.

Table 14: Assessment of impacts associated with permanent employment

IMPACT TYPE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
						PRE MITIGATION	POST MITIGATION
Positive	National	Permanent	Low	Probable	Medium	Medium	Low

Mitigation measures:

- The employment opportunities should preferably benefit Namibians.
- In cases where the skills required is not available in Namibia, training should be provided to Namibians to fill the positions.

7. CONCLUSIONS

It can be concluded from this study that the proposed development of a community school will not cause any irreversible threats to the biophysical and socio-economic environment of the area. In fact, the development of the proposed school will contribute to the attainment of Namibia's goal of ensuring that every Namibian child have access to equitable and quality education.

All the impacts identified and assessed during this study are generic impacts associated with the development of public facilities such as a school. With strict adherence to the recommended mitigation measures, the significance of the assessed impacts can be reduced to a "low" significance rating.

8. REFERENCES

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APPENDICES

APPENDIX A: ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B: CV OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

APPENDIX C: INTERESTED AND AFFECTED PARTIES REGISTER

APPENDIX D: BACKGROUND INFORMATION DOCUMENT

APPENDIX E: PRESS NOTICES

APPENDIX F: LAYOUT PLAN OF PROPOSED SCHOOL

