APP-007367

OPERATIONS OF NOORDOEWER GUESTHOUSE, NOORDOEWER, //KHARAS REGION: ENVIRONMENTAL MANAGEMENT PLAN

Prepared by:

Prepared for:

November 2025

Project:	OPERATIONS OF NOORDOEWER GUESTHOUSE, NOORDOEWER, //KHARAS REGION: ENVIRONMENTAL MANAGEMENT PLAN	
Report: Version/Date:	Final November 2025	
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Cite this document as:	Bosman Q, Faul A, Strauss J; 2025 November; Operations of Noordoewer Guesthouse, Noordoewer, //Kharas Region: Environmental Management Plan	
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Report Approval	**Quzette Bosman** **Social & Environmental Practitioner**	

I Marais van der Merwe acting as the Proponent's representative (Noordoewer Guesthouse), hereby confirm that we approve the Environmental Management Plan as presented in this document. All material information in the possession of the proponent that reasonably has or may have the potential of influencing the Environmental Management Plan was provided to the consultant.

Signed at Noordoewer on the 22 day of April 2026

Noordoewer Guesthouse

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ECC	Environmental Clearance Certificate
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EMS	Environmental Management System
GPT	Geo Pollution Technologies
HIV	Human Immunodeficiency Virus
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
mm/a	Millimetres per annum
MSDS	Material Safety Data Sheet
PPE	Personal Protective Equipment
SADC	Southern African Development Community
SANS	South African National Standards
WHO	World Health Organization

GLOSSARY OF TERMS

Alternatives - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The "no-go" alternative constitutes the 'without project' option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Competent Authority - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

Construction - means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".

Environmental Impact Assessment (EIA) - process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the project.

Environmental Management System (EMS) - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company's financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

Evaluation - means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Interested and Affected Party (IAP) - any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an

activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

Public - Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

Scoping Process - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

Significant Effect/Impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Stakeholder Engagement - The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation”.

Stakeholders - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (IAPs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Sustainable Development - “Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations” – the definition of the World Commission on Environment and Development (1987). “Improving the quality of human life while living within the carrying capacity of supporting ecosystems” – the definition given in a publication called “Caring for the Earth: A Strategy for Sustainable Living” by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

1 INTRODUCTION

Noordoewer Guesthouse (the Proponent), requested Geo Pollution Technologies (Pty) Ltd to prepare an environmental management plan (EMP) for their existing guesthouse situated in Noordoewer, approximately 3 km from the Noordoewer border post, //Kharas Region (Figure 1-1). The guesthouse has 14 rooms, with a total occupancy capacity of 32 persons per night, and operates on a bed and breakfast principle. Infrastructure and amenities include a reception area, inside dining area, outside dining area (lapa), swimming pool, and braai facility. Food is prepared in an onsite kitchen. Water for operations is sourced from the Orange River. The guesthouse mainly caters for travellers between Namibia and South Africa, requiring a halfway stopover, and for business persons working in Noordoewer and surrounds.

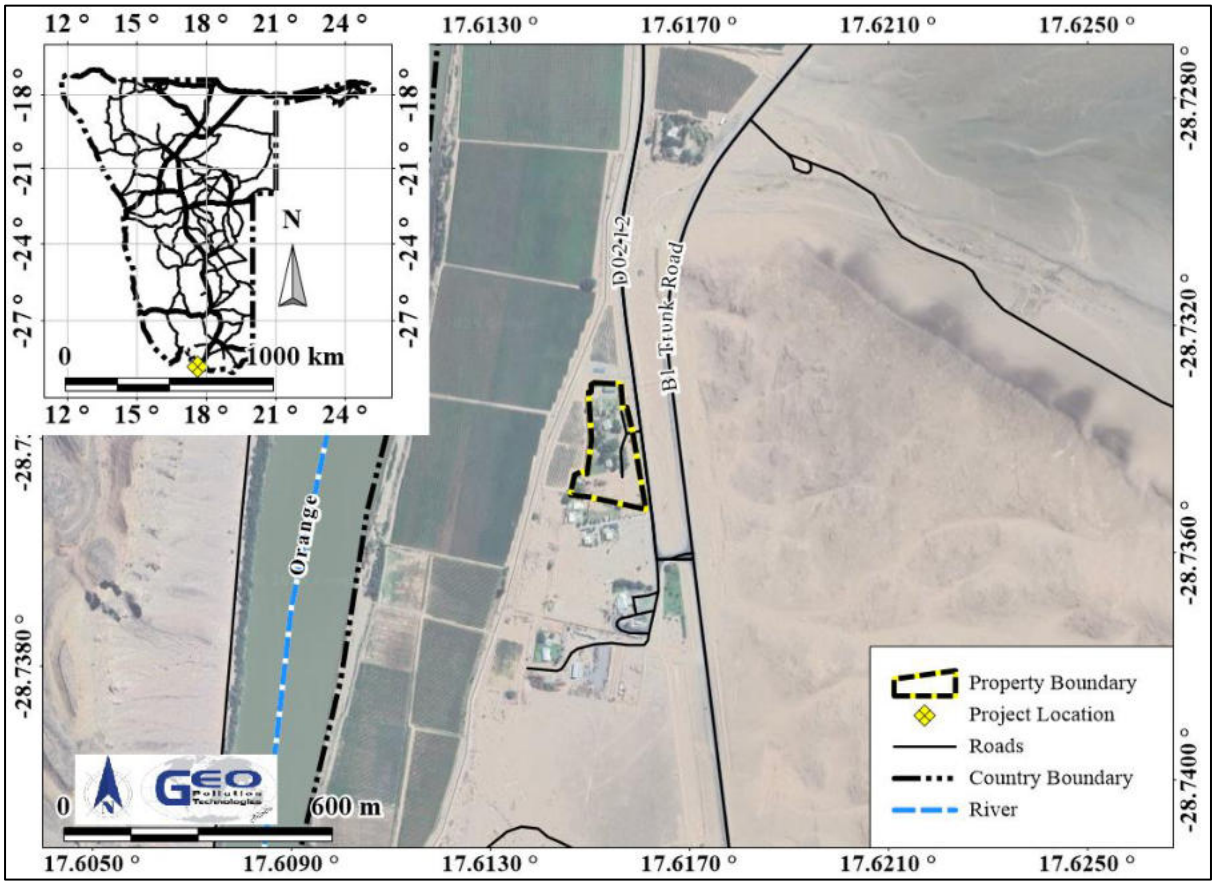


Figure 1-1 Project Location

In order to comply with Namibian legislation, and to adhere to all codes and standards applied in their operations, the Proponent wishes to apply for an environmental clearance certificate (ECC) for the guesthouse operations. In support of the ECC application, an EMP will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT). The EMP provides management options to ensure environmental impacts of the guesthouse are continually minimised. The environment being defined in the Environmental Assessment Policy and Environmental Management Act as "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".

The EMP will be used to apply for renewal of the existing ECC in compliance with Namibia's Environmental Management Act (Act No 7 of 2007).

2 SCOPE

The scope of this EMP, in compliance with the requirements of EMA, is to:

- Provide a brief overview of all components and related operations of the guesthouse.

- Summarise the legal and regulatory framework within which the guesthouse operates.
- Provide a brief environmental description.
- Identify potential impacts of the guesthouse on the environment.
- Identify a range of management actions which could mitigate the identified adverse impacts to acceptable levels.
- Provide sufficient information to the MEFT to make informed decisions regarding the application for the ECC.

3 ESTABLISHMENT OPERATIONS AND RELATED ACTIVITIES

Noordoewer Guesthouse is an existing establishment. The following section provides a brief description of the infrastructure, services supply, and operations.

3.1 GUESTROOMS

Noordoewer Guesthouse offers 14 air-conditioned rooms varying from double rooms to family rooms with en-suite bathrooms (Photo 3-1). The guesthouse can accommodate 32 guests per night and provide dinner, bed, and breakfast services. A braai area (Photo 3-2) is available at the facility for guests who prefer to braai (self-catering) rather than dine at the restaurant. Rooms are equipped with a coffee station and mini fridge.

Photo 3-1 Guest rooms

Photo 3-2 Braai area

3.2 RESTAURANT, LAPA AND SWIMMING POOL

A small, indoor restaurant and a lapa (Photo 3-3 and Photo 3-4) are present where breakfast and dinner are served, with food prepared on site. Next to the lapa area is a swimming pool for use by guests.

Photo 3-3 Lapa

Photo 3-4 Lapa area

Photo 3-5 Swimming pool

Photo 3-6 Old farm stall now used as storage shed

3.3 ADMINISTRATIVE, MAINTENANCE AND SERVICES SUPPLY

The main building has a reception area, office space, kitchen and the indoor dining area. Support infrastructure includes an old farm stall building now used for storage, laundry rooms, parking areas, etc. The manager stays onsite, while general staff lives in Noordoewer. Fire extinguishers are strategically placed throughout the facility for easy access in the event of a fire (Photo 3-7). Electricity for operations is supplied by NamPower (Photo 3-7). Water is supplied from a channel fed by the Orange River. Before it's distributed, the water is cleaned in a treatment plant where it settles, passes through several filters and is sterilised. It's then stored in a distribution tank before being used.

All wastewater and sewerage of the guesthouse drains into septic tanks (Photo 3-9). Chambers in the septic tanks allows for anaerobic digestion of solids. The septic tanks are periodically pumped out by a third party for disposal. General domestic waste is disposed of at a nearby waste disposal area while some food scraps are used as feed for chickens.

Photo 3-7 Fire extinguisher

Photo 3-8 NamPower transformer

Photo 3-9 Septic tank

Photo 3-10 Domestic waste on a trailer before removal

4 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. The legislation and standards provided in Table 4-1 and Table 4-2 govern the environmental assessment process in Namibia and/or are relevant to the establishment.

Table 4-1 Namibian law applicable to the establishment

Law	Key Aspects
The Namibian Constitution	♦ Promotes the welfare of people ♦ Incorporates a high level of environmental protection ♦ Incorporates international agreements as part of Namibian law
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promotes sustainable management of the environment and the use of natural resources ♦ Provides a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Act No. 7 of 2007, Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act ♦ List activities that requires an environmental clearance certificate ♦ Provides Environmental Impact Assessment Regulations
Namibia Tourism Board Act Act No. 21 of 2000, Government Notice 261 of 200, 2000	♦ Provides for the registration and grading of accommodation establishments ♦ Provides for the declaration of any sector of the tourism industry as a regulated sector and for the registration of businesses falling within a regulated sector ♦ Provides regulations and minimum requirements pertaining to o Levies payable o Registrations of regulated businesses o Registrations of accommodation establishments
Accommodation Establishments and Tourism Ordinance 20 of 1973	♦ Consolidate and amend the laws relating to accommodation establishments and tourism and to provide for the establishment of tourist recreation areas and incidental matters ♦ Provides for regulations of tourism establishments ♦ Numerous amendments and repeals
Water Resources Management Act Act No. 11 of 2013, Government Notice No. 332 of 2013	♦ Provides for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability ♦ Permits and licencing for borehole drilling and water abstraction
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	♦ Defines the powers, duties and functions of local authority councils ♦ Regulates discharges into sewers
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ♦ Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation

Law	Key Aspects
Labour Act Act No. 11 of 2007, Government Notice No. 236 of 2007	♦ Provides for Labour Law and the protection and safety of employees ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)
Hazardous Substances Ordinance Ordinance No. 14 of 1974	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet ♦ Provides for prevention and control of pollution and waste ♦ Provides for procedures to be followed for licence applications

Table 4-2 Relevant multilateral environmental agreements for Namibia and the establishment

Agreement	Key Aspects
Charter of the Regional Tourism Organisation of Southern Africa (RETOSA), 1997	♦ Development of tourism through effective marketing of the Region in collaboration with the public and private sector ♦ To facilitate, encourage and assist in the development of legal and ethical tourism throughout the Southern African Region taking due consideration of the overall development of the people, the Region and the Region's natural and cultural resources
Stockholm Declaration on the Human Environment, Stockholm 1972	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment
Protocol on the Development of Tourism in SADC, 1998	♦ The Protocol sets out SADC's objective to build upon the region's potential as a tourist destination
Statutes of the World Tourism Organization, 1970	♦ Promotion and development of tourism with a view to contributing to economic development, international understanding, peace, prosperity, and universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language or religion
United Nations Framework Convention on Climate Change (UNFCCC)	♦ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention
Convention on Biological Diversity, Rio de Janeiro, 1992	♦ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity

Listed activities which require an ECC application (Government Regulation No. 29 of 2012) related to this project include the following:

Section 6 of Government Notice No.29 of 2012: Tourism Development Activities

- 6. The construction of resorts, lodges, hotels, or other tourism and hospitality facilities. The guesthouse was constructed and currently in operation and maintained accordingly.

Section 8 of Government Notice No. 29 of 2012: Water Resource Developments

- 8.3 Any water abstraction from a river that forms an international boundary: Water is abstracted from the Orange River, which forms an international boundary with South Africa.
- 8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems: The Proponent has existing septic tanks.

5 ENVIRONMENTAL CHARACTERISTICS

This section lists pertinent environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

5.1 LOCALITY AND SURROUNDING LAND USE

The guesthouse is located in Noordoewer, a border town in the //Kharas Region of Namibia (28.734059 °S17.615352 °E) and accessed from the C13 Route (D2012 District Road). The town is located on the banks of the Orange River which forms an international border with South Africa. Existing vineyards are located to the north and west of the guesthouse, while the B1 (T0101) trunk road, which runs from the Noordoewer border post towards Keetmanshoop and further north into Namibia, is located east of the guesthouse. South of the guesthouse are developed properties.

Implications and Impacts

The guesthouse facilitates accommodation in the town, by providing hospitality facilities. Contribution to the local community is made through direct employment. The guesthouse has diversified the local and regional land-use that is mostly dominated by agriculture activities, thereby strengthening the local economic resilience.

5.2 CLIMATE

According to the Köppen–Geiger Climate Classification system, the project area is located within a hot desert climate (BWh). This climate type is characterised by extremely low rainfall and high temperatures. Annual precipitation is well below potential evapotranspiration, with the area receiving less than 100 mm rainfall per year, and showing a variability of 50 to 60 %. The potential evapotranspiration is approximately 2,700 to 2,800 mm/a. By dividing the mean annual potential evapotranspiration into the mean annual precipitation, an aridity index value for the area was computed as 0.02, which indicates the area to be arid.

The mean annual temperature exceeds 18 °C, with the average annual minimum temperature between 8 and 10 °C and maximum temperature between 36 and 38°C, resulting in an annual temperature range of 22 to 24 °C. Higher temperatures have been recorded by the Proponent during the summer months. An average diurnal temperature (difference between daily minimum and maximum temperature) for this area is ranging from 16 to 18 °C. Direct normal solar irradiance for the area is 8.235 kWh/m²/day.

Implications and Impacts

High radiation and UV exposure levels coupled with very high summer temperatures may result in heatstroke of workers and guests. Solar radiation may be beneficial in generating additional electricity through PV Solar systems. The guesthouse may employ solar geyser or power systems to reduce reliance and pressure on the localised electricity grid.

5.3 TOPOGRAPHY AND DRAINAGE

The project is located within the Gamkab Basin, a landscape dominated by large, open valleys of gently south draining ground, underlain with rocks of the Namaqua Metamorphic Complex and younger sediments and dolerites of the Karoo Supergroup. Noordoewer located on the northern bank of the Orange River in an area known for the incised riverbed, resulting in high ridges constituting the southern bank, the ridges of the southern bank is visible from the facility. Localised drainage is well developed. All runoff flows towards the Orange River and mainly through the Uhabis River. Ground surface elevation is between 100-200 m above sea level in the area and falls within the Orange River catchment.

Photo 5-1 Ridges on the southern border of the Orange River

Photo 5-2 Ridges on the northern border of the Orange River, visible from the guesthouse

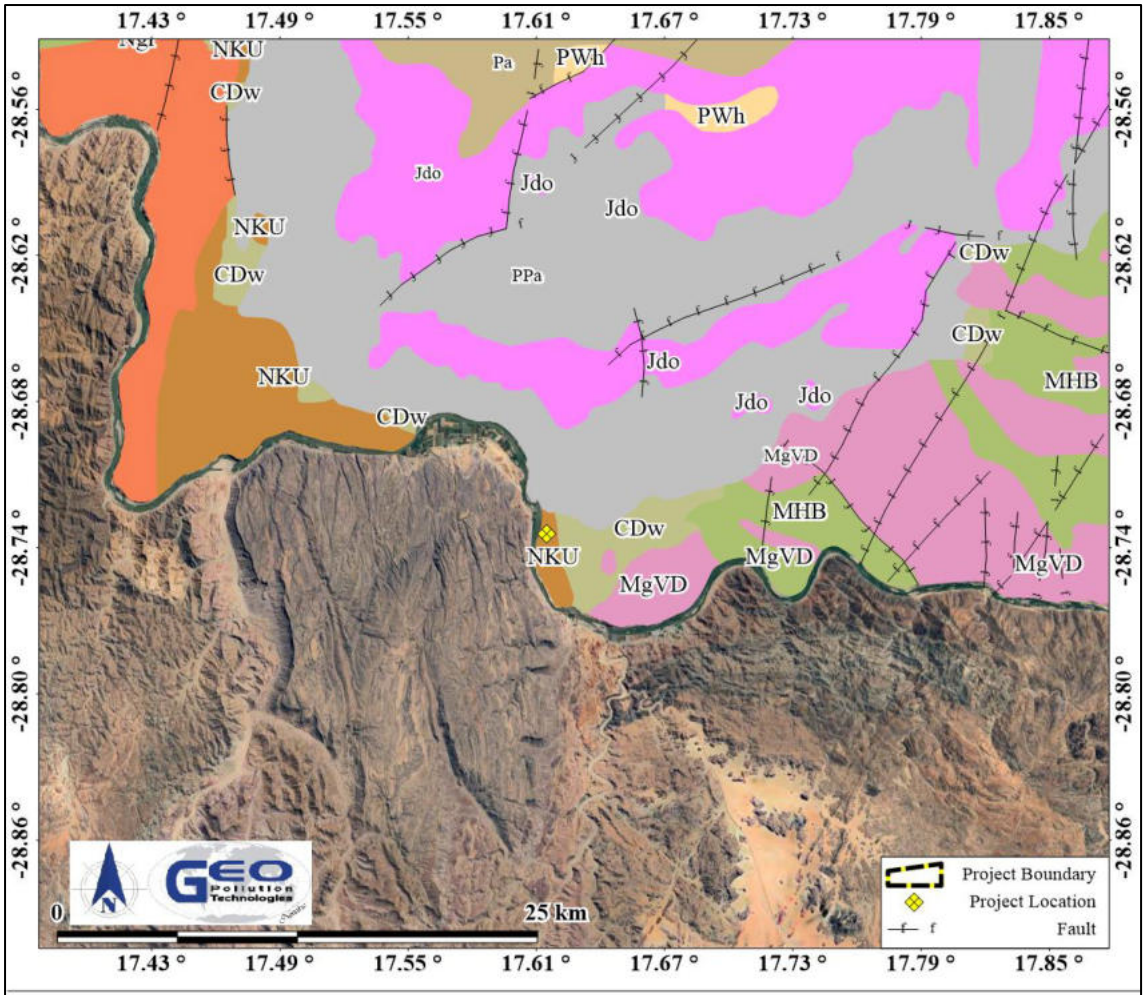
Implications and Impacts

Flash floods may present a risk due to a minor drainage line traversing the northern portion of the guesthouse, however, the probability thereof is low and the septic tanks are located south of the drainage line. Any pollutants that are not contained and are transported via surface water flow will be transported away from the project location and potentially pollute surrounding areas and ultimately the Orange River.

5.4 GEOLOGY AND HYDROGEOLOGY

The project area is underlain by rocks of the Kuibis Subgroup which belongs to the Nama Group of the greater Damara Sequence. This group formed roughly 550 – 540 million years ago during the late Precambrian (Ediacaran Period). These rocks (NKU), made up of limestone, shale, sandstone and minor conglomerate were deposited in shallow-marine environments and have since become well-cemented, forming a hard and stable bedrock surface. Beneath the Nama rocks lies the much older Damara Sequence, a deeply deformed package of metamorphic rocks formed during the Pan-African Orogeny (approximately 650 - 550 million years ago) when ancient continental plates collided. Compared to the complex and folded Damara basement, the overlying Kuibis Subgroup represents a younger, more stable sedimentary cover. Due to the dense and compact nature of the Kuibis rocks, the groundwater storage capacity in the area is low (Le Heron, 2025). Overlaying the Kuibis Subgroup, the geological sequence in the Noordoewer region continues upward into the Dwyka Group and then the Ecca Group, both part of the Karoo Supergroup. The Dwyka Group (Late Carboniferous, approximately 300 million years old) consists mainly of glacial deposits, including diamictite and dropstone-bearing shales, which were laid down during the Late Palaeozoic Ice Age. Overlying the Dwyka is the Ecca Group (Early Permian), beginning with the Prince Albert Formation, which is made up of dark marine shales that formed after the glaciers retreated and the region was covered by a quiet, deepening sea (Le Heron, 2025).

Groundwater information in the area is very limited as groundwater resources were not developed due to the Orange River supplying an easier resource. Flow in the subsurface soil will mainly be through primary porosity in the unconsolidated top layers and through secondary porosity in the consolidated formations. It is conceptualised that the majority of flow will be towards the river in the unconsolidated layers.



Age	Lith Code	Supergroup	Group	Subgroup	Formation	Suite	Description
Jurassic to Cretaceous	Jdo	Karoo					Dolerite
Permian	Pa	Karoo	Ecca		Aussenkjer		Shale;limestone;siltstone
Permian	PWh	Karoo	Ecca		Whitehill		Shale
Permian	PPa	Karoo	Ecca		Prince Albert		Shale
Permo-Carboniferous	CDw	Karoo			Dwyka		Tillite;shale;sandstone
Namibian	NKU	Damara	Nama	Kuibis			Sandstone/quartzite;limestone;conglomerate
Cambrian	Ngr	Damara				Red Granite	Granite and granitic rocks
Kheisian	MgVD					Vioolsdrif	Granite and granitic rocks
Kheisian	MHB		Orange River	Haib			Andesite;dacite;rhyolite

Figure 5-1 Geology of the project area

Implications and Impacts

Groundwater is not utilized in the area, but remains an important resource and would be at risk if sewage spills are not contained, cleaned and disposed of properly. Polluted groundwater may transport pollutants to the nearby Orange River.

5.5 WATER SUPPLY

All water supply to Noordoewer is pumped from the Orange River. Households and general businesses are supplied by a NamWater supply scheme that consists of an abstraction point in the irrigation canal, which transports raw water to a treatment plant. From there, clean water is distributed to elevated towers for supply to the town. All agricultural operations in the area are also reliant on the Orange River. The guesthouse pumps water from the Orange River directly and is not reliant on the NamWater supply scheme.

Implications and Impacts

The guesthouse is responsible for cleaning their water, which is abstracted from the Orange River, to a standard suitable for domestic use supply.

5.6 FAUNA AND FLORA

Noordoewer lies along the lower Orange River in southern Namibia and forms part of the Lower Orange River vegetation zone, a narrow riparian corridor in the wider Nama Karoo Biome. The surrounding landscape is dominated by arid dwarf-shrubland typical of the region. The Orange River banks support lush riparian vegetation due to the perennial flow of the river. This creates a striking ecological contrast in the otherwise dry and mostly barren land. The riparian vegetation has, however, been significantly impacted by anthropogenic activities and is dominated by alien invasive *Prosopis* spp. (mesquite) and *Phragmites australis* (common reed).

The upland areas away from the river are characterised by sparse dwarf shrubs, succulents, and scattered grasses adapted to low and variable rainfall (typically <100 mm/yr). Vegetation cover in these dry plains is generally low, with extensive bare gravel plains and rocky substrates.

Due to the transformation of the landscape by mainly agricultural activities, mammals are rarely seen in the area and close to the guesthouse. However, animals may still move through less-disturbed areas, in the broader landscape, to access the Orange River as a water source. This includes kudu, klipspringer and baboons. The riparian vegetation provides critical habitat for birds, small mammals, and invertebrates in an otherwise semi-desert environment. Snake and scorpion species may be found at the guesthouse where they could pose danger to guests or employees.

Implications and Impacts

The guesthouse itself is developed and does not present a future threat in the form of habitat destruction. Pollution, such as from possible septic tank leakages or overflow, chemical spillages, etc. can cause very localised ecological impacts. Temporary storage of food wastes may present an opportunity to wildlife to scavenge for food. This can lead to human-wildlife conflict.

5.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

The project is located within the Karasburg West Constituency of the //Kharas Region. The total population for this region is 109,893 of which 54,452 are male and 55,441 are female. The region also has a density of 0.68 people/km² and a literacy rate of 96.1%, while the constituency has a total population of 17, 741 and a density of 1.3 people/km² (Namibia Statistics Agency, 2023).

Implications and Impacts

Current operations have increased employment locally and created positive economic spin-offs for the surrounding community that is mainly employed by the agriculture sector. Employment opportunities and economic diversification, as brought on through the guesthouse, may influence the demographic profile of the community through mainly in-migration and education. Skills development and training benefit employees while the guesthouse may have an influence on further stimulating economic growth for the area.

6 ENVIRONMENTAL MANAGEMENT PLAN

The EMP provides management options to ensure impacts of the establishment are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The environmental management measures are provided in descriptions below. These management measures should be adhered to during the various phases of the operation and maintenance/ construction of the establishment. This section of the report can act as a stand-alone document. All personnel taking part in the operations of the establishment should be made aware of the

contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- to include all components of construction (maintenance) activities and operations of the guesthouse;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the establishment;
- to monitor and audit the performance of operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible operational personnel.

Various potential and definite impacts will emanate from the operations, maintenance / construction and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts as well as prevention and mitigation measures are listed below.

As depicted in the descriptions below, impacts related to the operational phase are expected to mostly be of medium to low significance and can mostly be mitigated to have a low significance. The extent of impacts are mostly site specific to local and are not of a permanent nature. Due to the nature of the surrounding areas, cumulative impacts are possible and include groundwater contamination and traffic impacts.

6.1 PLANNING

During the phases of planning for the operations, maintenance / construction and decommissioning of the establishment, it is the responsibility of Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to, and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the operations, maintenance / construction and decommissioning activities of the project remains valid. These include registration with the Tourism Board of Namibia, and a water abstraction license from the Ministry of Agricultural, Fisheries, Water and Land Reform.
- Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, and employees on site.
- Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- Have the following on site, where reasonable, to deal with all potential emergencies:
    - Emergency response plans
    - Health safety and environment (HSE) manuals
    - Procedures, equipment and materials required for emergencies
    - Adequate protection and indemnity insurance cover for incidents
- If one has not already been established, establish and maintain a fund for future ecological restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- Establish and / or maintain a reporting system to report on aspects of operations, maintenance / construction, and decommissioning as outlined in the EMP.
- Prepare EMP compliance monitoring reports for submission to MEFT as per the conditions of the ECC. Keep monitoring reports on file and available for inspection by officials from MEFT.

- Appoint a specialist environmental consultant to update the EMP and apply for renewal of the ECC prior to expiry.

6.1.1 Employment

A workforce is required for the day to day operations of the establishment. Employees with various skill levels are required. Skilled employees are for example required to run the kitchen and restaurant while less skilled labourers are employed to tend to rooms and gardens. The Proponent, through their establishment, contributes to the reduction in unemployment in Noordoewer and Namibia.

Desired Outcome: Provision of employment to local Namibians and in line with the relevant laws of Namibia.

Actions

Enhancement:

- The Proponent must employ local Namibians where possible.
- If the skills exist locally, employees must first be sourced from the region and then nationally.
- Deviations from this practice must be justified.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual summary report based on employee records.

6.1.2 Skills and Development

Training is periodically provided to a portion of the workforce to enable them to conduct certain tasks according to the required standards. Skills are periodically transferred to an unskilled workforce for general tasks. Development of people and technology are key to economic development. Noordoewer guesthouse plays a role in promoting and sustaining the Namibian hospitality industry.

Desired Outcome: To see an increase in skills of local Namibians, as well as development and advancements in the hospitality industry.

Actions

Enhancement:

- Skills development and improvement programs to be made available as identified during performance assessments.
- Employees to be informed about parameters and requirements for references upon employment.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Record should be kept of training provided.
- Ensure that all training is certified or managerial references provided (proof provided to the employees) inclusive of training attendance, completion and implementation.

6.1.3 Demographic Profile and Community Health

The scale of the Proponent's establishment is limited and it has not created a large change in the demographic profile of the local community. The local community may be exposed to factors such as communicable disease like HIV/AIDS as well as alcoholism/drug abuse. These are typically aggravated during the presence of possible foreign construction teams and / or contractors. An increase in foreign people in the area may potentially increase the risk of criminal and socially/culturally deviant behaviour.

Desired Outcome: To prevent the occurrence of social ills and prevent the spread of diseases such as HIV/AIDS.

Actions

Prevention:

- Employ local people from the region, deviations from this practice should be justified appropriately.
- Ensure sanitation facilities and all related sanitation requirements are available and maintained at the guesthouse for all employees.
- Implement periodic training or educational sessions for employees on various topics of social behaviour, sexually transmitted diseases (STIs), and general upliftment of employees' social status (e.g. Making sound financial choices).
- Appointment of reputable contractors.

Mitigation:

- Disciplinary action in line with employee contracts and the labour law for transgressions such as alcohol and or drug abuse.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual summary report based on educational programmes and training conducted.
- Bi-annual report and review of employee demographics.

6.1.4 Traffic

Potential traffic impacts are limited to the turnoff from the B1 road to Noordoewer Guesthouse and the C13 road leading to the guesthouse. The C13 road is however a relatively low traffic road and impacts here are expected to be unlikely. Due to the relatively small size of the establishment, it does not contribute to significant traffic volumes.

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Prevention:

- Erect clear signage regarding access and exit points at the establishment as well as speed limits.

Mitigation:

- If any traffic impacts are expected, possibly as a result of delivery of equipment or construction material, traffic management should be performed to prevent these.
- The placement of signs to warn and direct traffic will mitigate traffic impacts.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- A report should be compiled every bi-annually of all incidents reported, complaints received, and action taken.

6.1.5 Health

Daily operational and maintenance and construction activities are reliant on human labour. Such activities have varying degrees of health risks. Examples include exposure to hazardous chemicals with inherent health hazards, such as disinfectants (e.g. pool and wastewater treatment chlorine, pool acid, pesticides, etc.) Exposure can include dermal or eye contact, inhalation or ingestion.

Visitors and foreign tourists may unknowingly infect staff (or other guests) with an infectious disease/illness. This has the potential to spread among workers who are in close contact with each other.

Food and kitchen hygiene is important to prevent guests and staff from getting food poisoning. Certain guests may have severe allergies to certain foodstuffs.

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- Ensure that all relevant employees receive adequate training on the health hazards associated with chemicals as well as safe handling techniques. Employees must also be trained in the use and understanding of the respective chemicals' material safety data sheets (MSDS).
- Maintain an MSDS file for all chemicals kept and used on site and ensure that summaries of the most important aspects of each is available (and visible) at each chemical's storage area.
- Ensure drinking water is safe for human consumption.
- Encourage staff to immediately report any signs/symptoms of illness. Managers to determine whether such staff should go off duty to prevent infection of other staff and whether medical treatment will be required.
- Maintain a robust food safety program with clearly defined hazard control points and ensure the cold chain is maintained for temperature sensitive foodstuffs.
- Regularly clean and disinfect areas with a high probability of bacterial or virus contamination such as bathrooms, restaurants, kitchens, etc.
- Promote good hygiene and regular hand washing among staff and especially those working in kitchens and with food and beverages.
- Ensure kitchen staff understand the risks associated with severe food allergies (as opposed to clients with certain food preferences) and that food prepared for clients who indicate such allergies are segregated from any allergy causing foods.
- Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- Provide all employees with required and adequate personal protective equipment (PPE) where required.

Mitigation:

- Seek medical attention for all serious health related incidents.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Any incidents must be recorded with action taken to prevent future occurrences.
- A report should be compiled every six months of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

6.1.6 Safety and Security

Various operational and maintenance/construction activities have inherent safety risks. Examples include the operation of lawn movers and smaller garden implements, working with sharp utensils in the kitchen, working at heights, working with potentially dangerous chemicals that can ignite, explode or release dangerous gasses (e.g. chlorine and pool acid when mixed), etc. Encounters with wild animals and especially venomous species like snakes or scorpions may pose risks to staff and especially uninformed guests.

Security risks will be related to unauthorized persons entering the establishment for malicious reasons such as theft. Theft of guests' belongings may occur, especially in their rooms by housekeeping staff and or other patrons.

Desired Outcome: To prevent injury, theft and damage to property.

Actions

Prevention:

- Develop a risk specific safety management plan inclusive of emergency equipment that must be present on site, emergency response drills, training and awareness, contact details of all emergency services, etc.
- Ensure that relevant personnel receive adequate training on the operational procedures of equipment and machinery and the handling of incompatible or dangerous substances (consults relevant MSDS instructions).
- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Implement a maintenance register for all equipment whose malfunction can lead to injury or exposure to hazardous substances.
- Provide all employees with required and adequate PPE where required.
- Train selected personnel in first aid and ensure first aid kits are available on site to treat minor injuries.
- Security procedures and proper security measures must be in place to protect workers and guests.
- Reduce the amount of cash kept on site to reduce the risk of robberies.
- Lock away or store all equipment and goods on site in a manner suitable to discourage criminal activities (e.g. theft).
- Advise guests to lock away valuables in their rooms and not to leave valuable items unattended.
- Contractors on site must wear identifiable nametags so that staff (and guests) can recognise them as being permitted to be on site.

Mitigation:

- Treat all minor work related injuries or guest injuries and medical events immediately and obtain professional medical treatment if required.
- Assess any safety problems and implement corrective action to prevent future occurrences.
- In line with the Labour Act and any other relevant legislation, take disciplinary action against staff who are guilty of theft.
- If the need arise, improve security measures to prevent entrance of potentially deviant people onto the premises.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Any incidents must be recorded with action taken to prevent future occurrences.
- A bi-annual report should be compiled of all incidents or thefts reported. The report should contain what was done to prevent similar events in the future.

6.1.7 Fire

Construction activities, failing electrical infrastructure and fires outside of designated areas may increase the risk of the occurrence of uncontrolled fires which may spread into the nearby vineyards. Risk of fire during the operational phase relate to kitchen operations, open flames, such as the braai facility and smoking, including irresponsible disposal of cigarette buds which may all lead to fire. Fires may also originate elsewhere that in turn pose a risk to the establishment, guests and employees.

Desired Outcome: To prevent property damage, fires, possible injury and impacts caused by uncontrolled fires.

Actions

Prevention:

- A holistic fire protection and prevention plan is needed. This plan must include evacuation plans and signage, an emergency response plan and a firefighting plan.
- Personnel training (safe operational procedures, firefighting, fire prevention and responsible housekeeping practices).
- Ensure the kitchen is equipped with fire extinguishers, heat alarms and fire blankets.
- Ensure fire extinguishers are present throughout the facility such as at rooms.
- Erection of a lighting conductor near the lapa that has a thatched roof.
- Ensure all chemicals are stored according to MSDS and SANS instructions and all spills / leaks are cleaned.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Maintain fire breaks at strategic locations around the property.
- No smoking in rooms (indicate fines for smoking the room).
- Areas designated for smoking must be equipped with ash trays for cigarette but disposal.

Mitigation:

- Implement the fire protection and firefighting plan in the event of a fire.
- Quick response time by trained staff will limit the spread and impact of fire.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- A report should be compiled every six months of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

6.1.8 Noise

Since the guesthouse is a hospitality establishment, noise are typically kept to a minimum not to be a disturbance to guests. However, during construction and maintenance activities some noise generating activities can exist that may lead to hearing loss in workers.

Desired Outcome: To prevent any nuisance and hearing loss due to noise generated.

Actions

Prevention:

- Follow Health and Safety Regulations of the Labour Act and/or World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- All machinery must be regularly serviced to ensure minimal noise production.

Mitigation:

- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Health and Safety Regulations of the Labour Act and WHO Guidelines.
- Maintain a complaints register.
- Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

6.1.9 Waste

Solid waste generated on site is largely general and or domestic waste. Maintenance waste can include discarded or obsolete equipment, fuels and contaminated rags and materials. Some wastes can be dangerous / hazardous such as obsolete or expired chemicals, hydrocarbon contaminated material and rotting food waste, etc. General and domestic waste is kept separate from hazardous waste and usually transported from site by the local town council. Old oils are transported from site to a waste oil collection point.

Sewage originates from ablution facilities during the operational phase. It is disposed of via septic tank systems. Sewage effluent especially may present a contamination risk.

Desired Outcome: To reduce the amount of waste produced, and prevent pollution and littering.

Actions

Prevention:

- The septic tanks / french drain soak away systems should be designed and operated according to the general guidelines set forth in the *Department of Water Affairs and Forestry, Code of Practice: Volume 1, Septic tank Systems*.
    - It is recommended that a site-specific effluent management plan be drafted for each operational site inclusive of design, operations and locations and should also be communicated to all staff
- Ensure all ablution facilities are connected to the system to prevent groundwater contamination.
- No foreign objects, hazardous chemicals, fuels or excessive amounts of cooking grease may enter the sewage system.
- Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate and, where possible sent to recycling establishments.
- Ensure adequate temporary waste storage facilities are available.
- Ensure waste cannot be blown away by wind.
- Prevent scavenging (human and non-human) of waste at the storage facilities.

Mitigation:

- Communication to relevant land owners and or authorities in the event of any sewage spill.
- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, and contaminated materials, soil and water).
- Liaise with the applicable authority regarding waste and handling of hazardous waste.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- Any complaints received regarding waste should be recorded with notes on action taken.
- All information and reporting to be included in a bi-annual report.

6.1.10 Ecosystem and Biodiversity Impact

Noordoewer Guesthouse is an existing establishment. No further impact on vegetation is expected. Impacts may be related to pollution of the environment and / or creating an altered habitat for insects, birds etc.

Desired Outcome: To avoid pollution of, and impacts on, the ecological environment.

Actions

Prevention:

- Educate all contracted and permanent employees on the value of biodiversity of especially feared species such as bees, scorpions and snakes.
- Disciplinary actions to be taken against all employees failing to comply with contractual conditions related to poaching and the environment.

Mitigation:

- For construction activities, contain construction material to a designated laydown area and prevent unnecessary movement out of areas earmarked for clearing and construction.
- Report any extraordinary animal sightings to the MEFT.
- Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- Avoid scavenging of waste by fauna.

Responsible Body:

- MEFT
- Contractor
- Proponent

Data Sources and Monitoring:

- All information and reporting to be included in a bi-annual report.

6.1.11 Groundwater, Surface Water and Soil Contamination

Numerous sources exist that may potentially pollute soil and subsequently groundwater. This include vehicles that leak oil untreated sewage or effluent not sufficiently treated that enters the environment and chemical spills. In terms of the guesthouse operations, the possible contamination events will be small in scale, localised and it is not foreseen to pose a significant risk to the soil structure, groundwater or the Orange River.

Desired Outcome: To prevent the contamination of water and soil.

Actions

Prevention:

- All machinery, equipment and vehicles should be maintained to be in a good working condition during operations.

Mitigation:

- Spill clean-up means must be readily available on site as per the relevant MSDS and spills must be cleaned up immediately.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken.

6.1.12 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the establishment. The nature of the facility is contrary the existing landscape character.

Operations will be kept tidy and neat which will promote effectiveness while being aesthetically pleasing.

Desired Outcome: To minimise aesthetic impacts associated with the establishment.

Actions

Mitigation:

- Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A bi-annual report should be compiled of all complaints received and actions taken.

6.1.13 Impacts on Utilities and Infrastructure

Any damage caused during construction and maintenance activities to existing infrastructure and services supply like roads and electricity where present.

Desired Outcome: No impact on utilities and infrastructure.

Actions

Prevention:

- Appointing qualified and reputable contractors is essential.
- The contractor must determine exactly where amenities and pipelines are situated before construction commences (utility clearance e.g. ground penetrating radar surveys).
- Liaison with the suppliers of services is essential.

Mitigation:

- Emergency procedures for corrective action available on file.

Responsible Body:

- Roads Authority
- NamPower
- Proponent
- Contractors

Data Sources and Monitoring:

- A bi-annual report should be compiled of all incidents that occurred and corrective action taken.

6.1.14 Cumulative Impact

The guesthouse contributes to several positive cumulative impacts in the Noordoewer settlement. Positive impacts include supporting local employment, strengthening the hospitality industry, and enhancing the economic resilience all of which promote the long term sustainability of the settlement and its surrounding area.

Negative cumulative impacts associated with the guesthouse includes waste generation, water abstraction from the Orange River (although the Proponent's share of the abstracted water is minimal compared to the volume used for agriculture), and the increase of traffic on the C13, which my lead to increased collisions. Among these, challenges with waste management remains the most significant concern due the existing challenges faced by the Noordoewer Settlement Office to handle waste. Therefore strong emphasis should be placed on the waste management measures implemented by the Proponent.

Desired Outcome: To minimise cumulative impacts associated with the establishment.

Actions

Mitigation:

- Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- Reviewing biannual and annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Annual summary report based on all other impacts must be created to give an overall assessment of the impact of the operational phase.

6.2 DECOMMISSIONING AND REHABILITATION

Closure and decommissioning of Noordoewer Guesthouse as a whole is not foreseen during the validity of an ECC or in the foreseeable future. However, it is more likely that certain components of the guesthouse may be decommissioned. Decommissioning is therefore included for this purpose as well as the fact that construction activities may also include modification and decommissioning. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within the Labour Act and/or WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. The EMP for the establishment will have to be reviewed at the time of decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

7 CONCLUSION

Operations of Noordoewer Guesthouse has a positive impact on the hospitality sector operational in the area. It provides accommodation in the area and provides employment opportunities and skills development to a local workforce.

Negative impacts associated with the operations and maintenance / construction activities can successfully be mitigated. Implementing a safety, health, environment and quality (SHEQ) policy will contribute to effective management procedures to prevent and mitigate impacts. All regulations relating to hospitality and health and safety legislation should be implemented. Groundwater and soil pollution must be prevented at all times. Fire prevention should be key and fire response plans must be in place and regular training provided. Any waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site.

The EMP should be used as an on-site reference document for the operations of the guesthouse. Parties responsible for transgressing of the EMP should be held responsible for any rehabilitation that may need to be undertaken. The Proponent could use an in-house EMS in conjunction with the environmental management plan. All operational personnel must be taught the contents of these documents.

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