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DRAFT REPORT:

ENVIRONMENTAL SCOPING PLUS IMPACT ASSESSMENT - FUEL SERVICE STATION ON ERF 1204, EXTENSION 4, KARIBIB, ERONGO REGION

PROJECT NUMBER: ECC-179-706-REP-08-A

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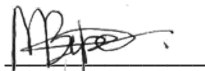
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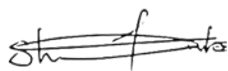
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EXECUTIVE SUMMARY

Environmental Compliance Consultancy (Pty) Ltd has been engaged by Karibib Fuel Centre CC (hereafter referred to as “the Proponent”) as the environmental assessment practitioner (EAP) to conduct an environmental scoping plus impact assessment and develop an environmental and social management plan (ESMP) for the proposed construction and operation of a fuel service station on Erf 1204, Extension 4, Karibib, Erongo Region, Namibia (hereafter referred to as “the Project”). The environmental scoping plus impact assessment is undertaken in terms of the Environmental Management Act, No. 7 of 2007 (EMA) and its associated Regulations of 2012. This report presents the findings of the draft environmental scoping plus impact assessment.

PROJECT OVERVIEW

The Proponent has been granted land use approval through a land rezoning process by the Karibib Town Council (KTC) to construct and operate a fuel service station on Erf 1204, Extension 4, Karibib, Erongo Region. The proposed development will include infrastructure such as fuel dispensing facilities with underground storage tanks, a retail shop/kiosk, a food takeaway outlet and a carwash facility. Additional supporting infrastructure will include parking areas, access roads, drainage systems, waste management facilities and municipal utility connections, such as water and electrical supply.

The Project will operate as a fuel supply facility offering both retail and wholesale services, supplying fuel to local residents, motorists travelling between coastal and inland towns and mining companies operating within the Erongo Region.

The Project is expected to contribute to national and regional economic development during the construction and operational phases through employment creation, skills transfer, procurement of goods and services and fiscal contribution to government.

SCREENING PHASE

The screening exercise was undertaken in accordance with the listed activities of the EMA and the Regulations of 2012. The screening exercise concluded that the proposed Project has the potential to trigger a range of environmental and social impacts during the different phases, including:

- Noise and air quality impacts;
- Surface and groundwater impacts;
- Impacts on cultural heritage;
- Traffic impacts;
- Impacts on biodiversity (flora, fauna and avifauna);

- Impacts on soil;
- Visual impacts;
- Socio-economic impacts (employment opportunities, revenue generation for both local and national economies);
- Social impacts (skills development, occupational health and safety and community health and safety);
- Cumulative biophysical impacts; and
- Cumulative socio-economic impacts.

The Project was registered on the Ministry of Environment, Forestry and Tourism (MEFT) environmental clearance certificate application online portal on 27 March 2026 and was assigned the application number APP-07238. The environmental clearance certificate application was also submitted to the office of the Petroleum Commissioner (PC) within the Ministry of Industries, Mines and Energy (MIME), the competent authority for the proposed Project and will provide input towards the record of decision (RoD).

SCOPING PLUS IMPACT ASSESSMENT (DRAFT)

The objective of the scoping plus impact assessment was to obtain a thorough understanding of the biophysical and socioeconomic environment in which the Project is located, through a review of publicly available literature, allowing the identification of potential impacts and gaps in the available information and data. It also provided an opportunity for the public to provide inputs into the scope of the assessment. The technical inputs combined with inputs from interested and affected parties (I&APs) led to the development of the terms of reference (ToR) for assessing the potential environmental and social impacts.

Biophysical and socio-economic baseline environment

The environmental and social baseline chapter (chapter 5) defines the existing biophysical and socio-economic conditions within the Project site (i.e. Erf 1204) and the broader landscape. The baseline was established through desktop studies and a site-specific field survey conducted by ECC EAPs on 06 May 2026. The baseline environmental information provides the reference framework for assessing Project-related impacts.

The Project site is situated within a pre-disturbed urban environment and forms part of an area currently undergoing rezoning for commercial, mixed-use and residential development. The surrounding land uses comprise municipal infrastructure, transport corridors, commercial businesses and residential developments.

Karibib is situated within a semi-arid climatic zone characterised by hot summers, cool winters and seasonal rainfall. No permanent surface water features occur within the Project footprint, except for the drainage line located north of the Project site and transverse the B2 national road.

The ecological value of the site is considered low, with limited habitat available for wildlife. Fauna expected to occur within the area are restricted to common urban-adapted species including small mammals, reptiles, birds and insects capable of tolerating regular human activity. No protected vegetation species or ecologically sensitive habitats were observed during the site inspection.

The desktop heritage literature review concluded that there are no known heritage resources, archaeological sites, graves or other culturally significant features within the Project footprint.

The socio-economic baseline reflects that Karibib's economy is primarily supported by mining, transportation, tourism, retail and municipal services. Its strategic location along the B2 highway facilitate the movement of goods, tourists and commuters between inland towns and coastal towns. Additionally, the socio-economic baseline reflects high unemployment, youth vulnerability and income inequality. Household livelihoods primarily depend on wage and informal activities. Access to social services is limited, with broader social challenges including gender-based violence, alcohol abuse and limited institutional capacity.

Overall, the baseline indicates that the Project is located in a pre-disturbed environment and socio-economically vulnerable setting, requiring careful management to avoid, minimise and mitigate potential environmental and social impacts.

Public consultation

Public participation and consultation was undertaken in compliance with Section 21 of the EMA and its 2012 Regulations and formed a core component of the environmental scoping impact assessment process. Consultation was designed to support transparent decision-making, inform stakeholders about the Project and timelines and establish mechanisms/platforms for ongoing engagement.

Public consultation commenced on 14 April 2026. Newspaper adverts were published in three (3) national newspapers for two consecutive weeks (on 22 April 2026 and 29 April 2026), whereby I&APs were invited to register for the Project. The public meeting was held on 06 May 2026 at KTC town hall, supported by a focus group meeting held with the Town Planning Department of KTC.

A structured stakeholder mapping exercise undertaken to guide the engagement methods and full records of consultation activities, attendance, issues raised and responses are provided in the I&APs comments and response report.

Environmental and social impact assessment process

No specialist studies were deemed necessary for the environmental scoping plus impact assessment as the Project area is located within an already pre-disturbed urban environment and is not considered to have sensitive ecological features that would warrant further specialist investigations. However, a site-specific field survey was undertaken by ECC's EAPs on 06 May 2026 to verify the existing environmental conditions within the Project area and inform the impact assessment.

The next stage was to conduct the impact assessment and develop the draft ESMP. The methodology used for assessing the impacts is described in chapter 6 of this report. A hierarchical decision-making process was followed, to prevent or eliminate, reduce or offset, mitigate or manage potential impacts. A high-level summary of the assessed impacts indicates that post mitigation, no impacts have a potential moderate or major adverse impact on the surrounding social and bio-physical environment. Assessed impacts that have an adverse minor impact post mitigation include potential increase in traffic flow, resulting in traffic congestion(s), temporary delays and traffic flow disruptions on the B2 national road and intersections and alteration of the visual landscape. Assessed beneficial socio-economic impacts include employment creation, skills development, local and regional economic growth and Project contributions to Namibia's gross domestic product (GDP).

The draft environmental plus impact assessment report and draft ESMP is issued to the Environmental Commissioner (EC) at MEFT, the PC at MIME and the registered I&APs for a seven (7) day review and commentary period from 12 – 19 August 2026. All I&APs comments will be captured and responded to by providing an explanation or further information in the comment and response table, which will be attached as an addendum report to this report. This report will be finalised along with the ESMP for submission to the competent authority – MIME and MEFT for review and RoD.

The phases of the environmental plus impact assessment are provided in Figure 1.

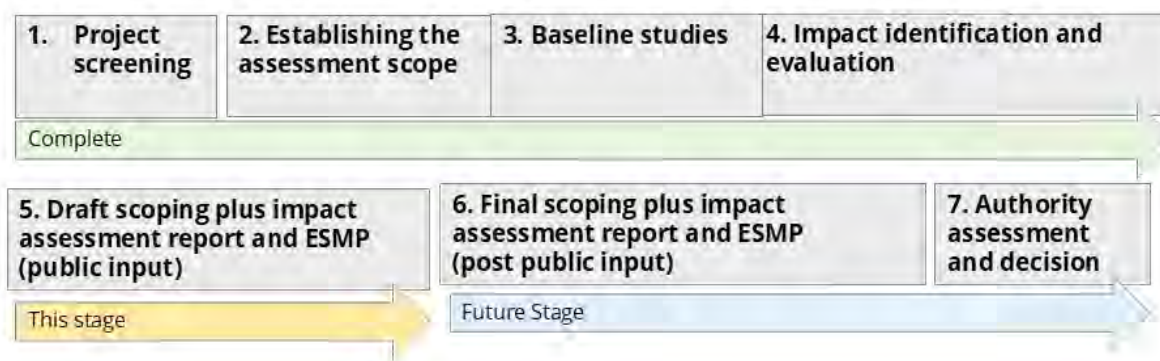


Figure 1 - Simplified environmental plus impact assessment process for the proposed Project

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ABBREVIATIONS

Abbreviation	Description
°	degree
°C	degree celcius
<	less than
%	percentage
AIDS	acquired immunodeficiency syndrome
AoI	Project's Area of Influence
BID	background information document
CIA	cumulative impact assessment
E	east
ESE	east southeast
EAP	environmental assessment practitioner
EC	Environmental Commissioner
ECC	Environmental Compliance Consultancy (Pty) Ltd
EMA	Environmental Management Act, No 7 of 2007

Abbreviation	Description
ESMP	environmental and social management plan
Erf	A piece of land or plot within a residential or commercial area. The number assigned to a specific plot of land helps to distinguish one plot from another for the purpose such as ownership, property taxes and planning.
ESIA	environmental and social impact assessment
GBV	gender-based violence
GDP	gross domestic product
GHGs	greenhouse gases
ha	hectares
HIV	human immunodeficiency virus
I&APs	interested and affected parties
IFC	International Finance Corporation
km	kilometre
Km ²	kilometre square
km/h	kilometre per hour
KTC	Karibib Town Council
Ltd.	limited
m ²	square metre
mabsl	meters above sea level
MEFT	Ministry of Environment, Forestry and Tourism
MIME	Ministry of Industries, Mines and Energy
MoHSS	Ministry of Health and Social Services
MPI	Namibia Multidimensional Poverty Index
ml	millilitre
mm	millimetre
MoHSS	Ministry of Health and Social Services
NDP	National Development Plan
NSA	Namibia Statistics Agency
NSRs	noise sensitive receptors
No.	number
NO ₂	nitrogen dioxide
OHS	occupational health and safety
PC	Petroleum Commissioner
PHC	primary healthcare
PPE	personal protective equipment
Pty	proprietary
RA	Roads Authority
RoD	record of decision

Abbreviation	Description
SO ₂	sulphur dioxide
ToR	terms of reference
VAT	value added tax
VECs	valued environmental and social components
VOC	volatile organic compounds
WHO	World health Organisation

1 INTRODUCTION

1.1 COMPANY BACKGROUND

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been engaged by Karibib Fuel Centre CC (hereafter referred to as “the Proponent”) as the environmental assessment practitioner (EAP) to undertake an environmental and social scoping plus impact assessment and develop a draft environmental and social management plan (ESMP) for the proposed construction and operation of a fuel service station on Erf 1204, Extension 4, Karibib, Erongo Region, Namibia. The scoping plus impact assessment study is undertaken in terms of the Environmental Management Act No. 7 of 2007 (EMA) and its 2012 Regulations. ECC determined, as per Section 32(1) of the EMA that the Ministry of Industries, Mines and Energy (MIME) is the competent authority for the proposed Project. However, the application for the environmental clearance certificate will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for a record of decision (RoD). MEFT is responsible for the administration of the environmental clearance certificates applications in terms of the EMA and its 2012 Regulations.

The Project site (Erf 1204) is approximately 25 392 square metres (m²) in size and is located within a pre-disturbed townland environment. The broader area is predominantly characterised by a mix of municipal infrastructure, roads and transport infrastructure, privately owned businesses and residential developments. The Project will include associated infrastructure such as a retail shop, food takeaway outlet, a carwash facility and is strategically located along the B2 highway to service both local and transit traffic. The development aims to improve fuel availability, support economic growth and create employment opportunities within the local community.

The Project site is shown in Figure 2 and Figure 3, respectively.

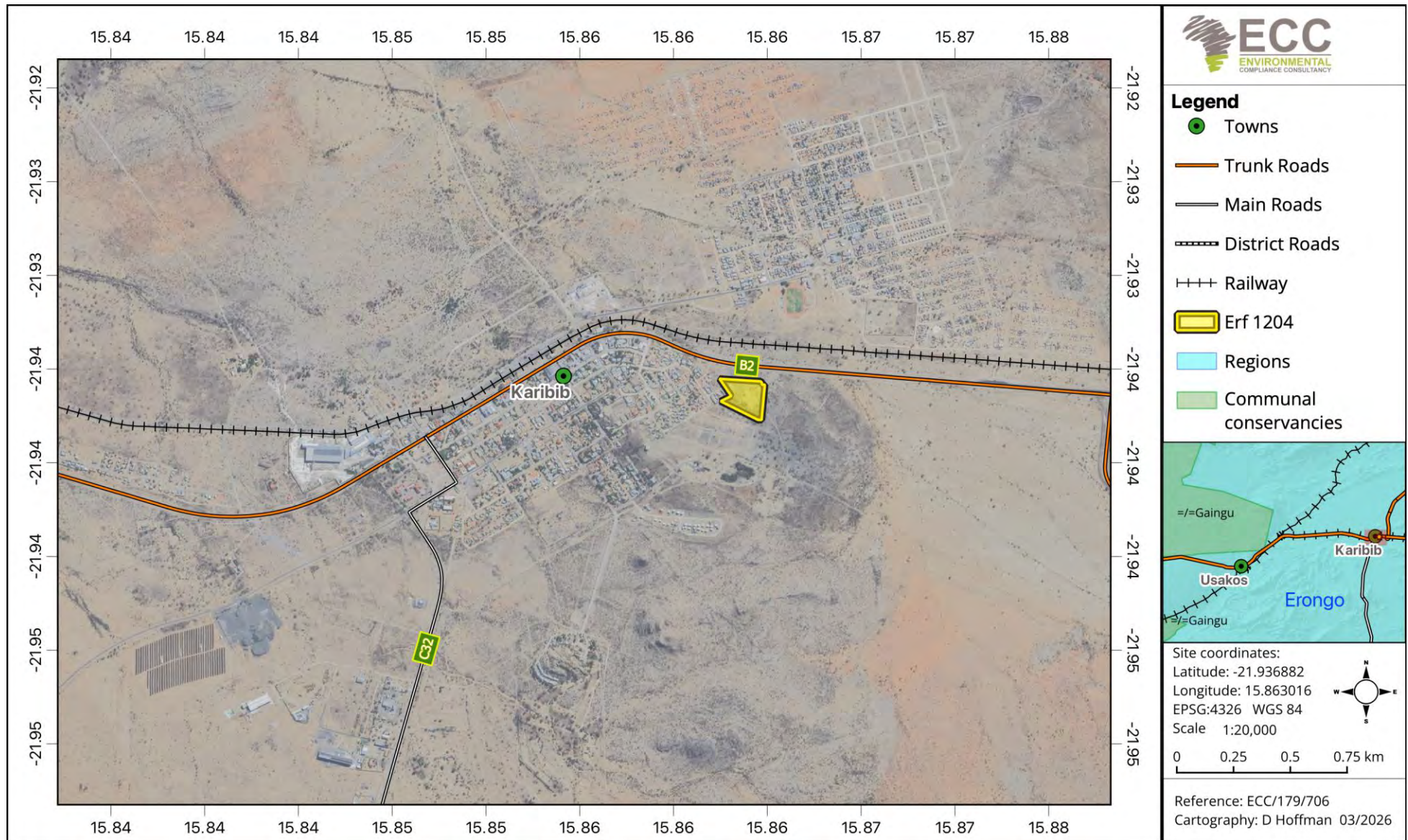


Figure 2 - Locality map of the Project site (Erf 1204)

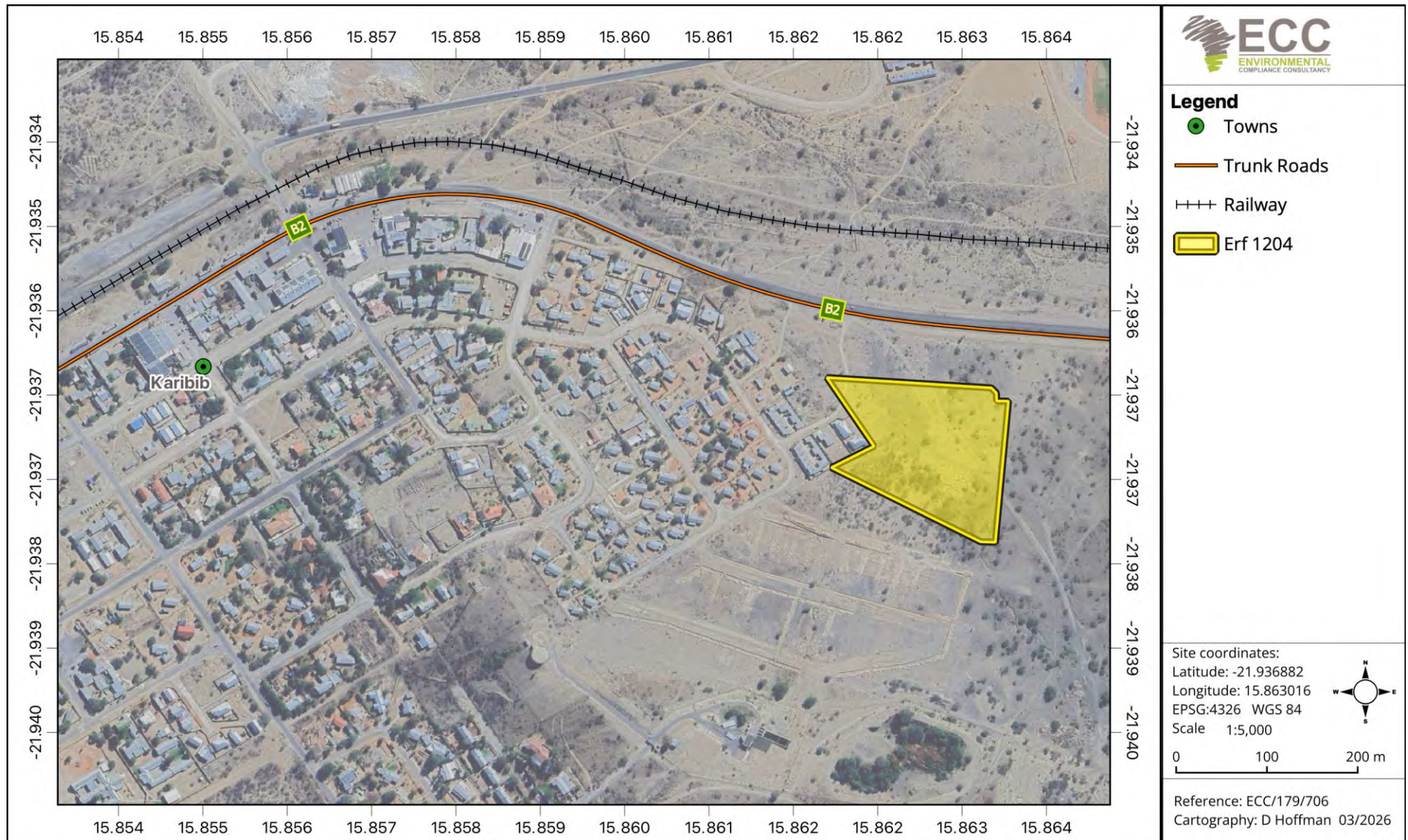


Figure 3 - Zoomed in locality map of Project site (Erf 1204)

1.2 THE PROPONENT'S DETAILS

The Proponent's details are provided in Table 1.

Table 1 - Proponent's details

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1.3 PURPOSE OF THE DRAFT SCOPING REPORT

This draft scoping plus impact assessment report summarises the prescribed environmental and social impact assessment (ESIA) process to be followed, provides information on the baseline biophysical and socio-economic environments, Project description and details, identify and assess potential impacts, whether positive or adverse and their relative significance, explore alternatives for technical recommendations and identify appropriate mitigation measures.

This draft report provides information to the public and stakeholders to aid in the decision-making process for the proposed Project by MEFT. The objectives are to:

- Describe in depth the proposed activity and the site on which the activities are to be undertaken;
- Describe the baseline environment that may be affected by the proposed activities;
- Identify the laws, legislations and guidelines that have been considered in the assessment and preparation of this report;
- Provide details of the public consultation process;
- Provide a high-level analysis of feasible or unfeasible alternatives that were considered;
- Describes the assessment methodology used in the assessment;
- Provide an assessment of potential significant impacts identified; and
- Develop the management, mitigation and monitoring measures to minimise the potential impacts.

The draft ESMP (Appendix A) provides a management framework for the planning and implementation of the proposed Project. The draft ESMP provides development standards and commitments to ensure that the identified potential environmental and social impacts are minimised, mitigated, prevented, and/or enhanced as far as reasonably practicable and that statutory requirements and other legal obligations are fulfilled.

The draft scoping plus impact assessment report and draft ESMP, with supporting appendices, will be provided to registered interested and affected parties (I&APs), the Karibib Town Council

(KTC), neighbouring properties to the development, MIME and MEFT for review and commentary for a period of seven (7) days. All comments received during this review period will be incorporated into a comments and responses report (addendum report) and any material changes will be included into the final scoping plus impact assessment report and final ESMP. The final scoping plus impact assessment report and final ESMP (Appendix A) will be submitted to MIME, as the competent authority and MEFT – Directorate of Environmental Affairs and Forestry (DEAF) for review and a RoD.

1.4 ENVIRONMENTAL REQUIREMENTS

The EMA and its 2012 Regulations stipulates that an environmental clearance certificate is required before undertaking any of the listed activities that are identified in the Act and its Regulations. Potential listed activities triggered by the Project are provided in Table 2.

Table 2 - Listed activities triggered by the Project

Listed activity	As defined by the regulations of the Act	Relevance to the Project
Energy generation, transmission and storage activities	(1.) The construction of facilities for: (a) The generation of electricity. (b) The transmission and supply of electricity.	– Diesel generators will be used during the construction phase.
Waste management, treatment, handling, and disposal activities	(2.3) The import, processing, use and recycling, temporary storage, transit or export of waste.	– Ablution facilities will be constructed as part of the operational infrastructure of the fuel service station. The ablution facilities will be connected to the town's wastewater drainage systems. – Temporary chemical/portable toilets will be used during the construction phase. – Waste bins will be in place to ensure proper collection and management of general waste (e.g. food waste from the kitchen, food packaging and customer litter), recyclable waste and hazardous and hydrocarbon waste streams.
Hazardous substance treatment, handling and storage	(9.4) The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location. (9.5) Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.	– The proposed Project primarily involves the construction and operation of a fuel service station, along with other associated infrastructure such as a retail shop, food takeaway outlet and carwash facility. – Petrol and diesel will be stored in underground storage tanks. In terms of the Petroleum Act, No. 13 of 1990 and its Regulations of 2000, a consumer installation certificate is required for bulk storage (below ground), handling and

Listed activity	As defined by the regulations of the Act	Relevance to the Project
		dispensing of fuel within a local authority. A fuel retail licence will also be required for the sale of fuel.

2 APPROACH TO THE ASSESSMENT

2.1 PURPOSE AND SCOPE OF THE ASSESSMENT

This assessment aims to determine which Project impacts are likely to be significant. Available data were reviewed to identify any information gaps, inform the spatial and temporal scope of the assessment, and define the methodology to be applied.

The scope of the assessment was established through a preliminary evaluation of the proposed Project in relation to the receiving environment, based on a desktop review. The Project site is located within previously disturbed land, characterised by existing municipal infrastructure, roads, businesses, and residential developments. During the screening phase, it was determined that no specialist studies are required, as the Project area has already been disturbed by ongoing and dynamic urban development in Karibib.

2.2 THE ASSESSMENT PROCESS

The ESIA methodology applied in this assessment has been developed in alignment with the International Finance Corporation (IFC) standards, in particular Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts (IFC, 2012; IFC, 2017). This standard emphasises the importance of:

- Integrated assessments to identify the environmental and social impacts, risks, and opportunities associated with Projects;
- Effective stakeholder engagement through the disclosure of Project-related information and consultation with local communities on matters that directly affect them; and
- The Proponent's management of environmental and social performance throughout the Project lifecycle.

In addition, the Namibian Draft Procedures and Guidance for ESIA and EMP (Republic of Namibia, 2008), together with applicable international and national best practice, and over 40 years of combined ESIA experience, have informed the assessment process.

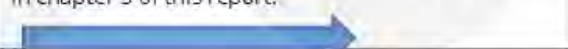
This impact assessment is a formal process through which the potential impacts of the Project on the biophysical, social, and economic environments are identified, assessed and reported, enabling the significance of these impacts to be considered in decisions regarding approval, consent, or support for the proposed Project, is illustrated in Figure 4.

2.3 SCREENING OF THE PROJECT

The initial stages of the ESIA process involve registering the Project with the DEAF within the MEFT and undertaking a screening exercise to identify any triggered listed activities under the EMA and the associated Regulations of 2012. The location, scale, and duration of Project activities were

considered in relation to the receiving environment to inform an initial assessment of potential impact significance.

The proposed Project constitutes a listed activity and potential impacts have been identified. It was therefore concluded that a Scoping Report, including an impact assessment, is required for the Project. In addition, an ESMP will be developed and submitted with the final scoping plus impact assessment report as part of the application for an environmental clearance certificate.

1. Project screening	2. Establishing the assessment scope	3. Baseline studies
Complete	Complete	Complete
The first stages in the environmental plus impact assessment process are to undertake a screening exercise to determine whether the Project triggers listed activities under the Environmental Management Act, 2007 (EMA) and its 2012 Regulations. The screening phase of the Project is a preliminary analysis, to determine ways in which the Project might interact with the biophysical, social, and economic environments. Stakeholder engagement: • Registration of the project; and • Preparation of the BID. 	Where a scoping plus impact assessment is required, the second stage is to scope the assessment. The main aim of this stage is to determine which impacts are likely to be significant; to scope the available data and any gaps that need to be filled; to determine the spatial and temporal scope and to identify the assessment methodology. The scope of this assessment was determined through undertaking a preliminary assessment of the proposed Project against the receiving environment. Feedback from consultation with the public and the Proponent informs this process. The following environmental and social topics were scoped into the assessment, as there was the potential for significant impacts to occur. Impacts that are identified as potentially significant during the screening phase are taken forward for further assessment in the scoping plus impact assessment process. These are: SOCIAL AND SOCIOECONOMIC ENVIRONMENT • Visual; • Traffic; • Noise; • Employment, skills development, revenue generation; • Air quality, including dust emissions; • Occupational/community health and safety; • Heritage; • Waste impacts; and • Cumulative impacts. BIOPHYSICAL ENVIRONMENT • Surface water and groundwater; • Biodiversity impacts (flora, fauna and avifauna); and • Soil impacts; and • Cumulative impacts. 	A robust baseline is required, to provide a reference point against which any future changes associated with a Project can be assessed and to allow suitable mitigation and monitoring to be identified. The region and general area have been studied for various projects and assessments. This literature was available to be referenced. The Project site-specific area has been studied as part of the environmental scoping plus impact assessment process, and the following has been conducted as part of this assessment: • A field verification survey; • Desktop studies; • Consultation with stakeholders; • Specialist field visits, and studies The environmental and social baselines are provided in chapter 5 of this report. 

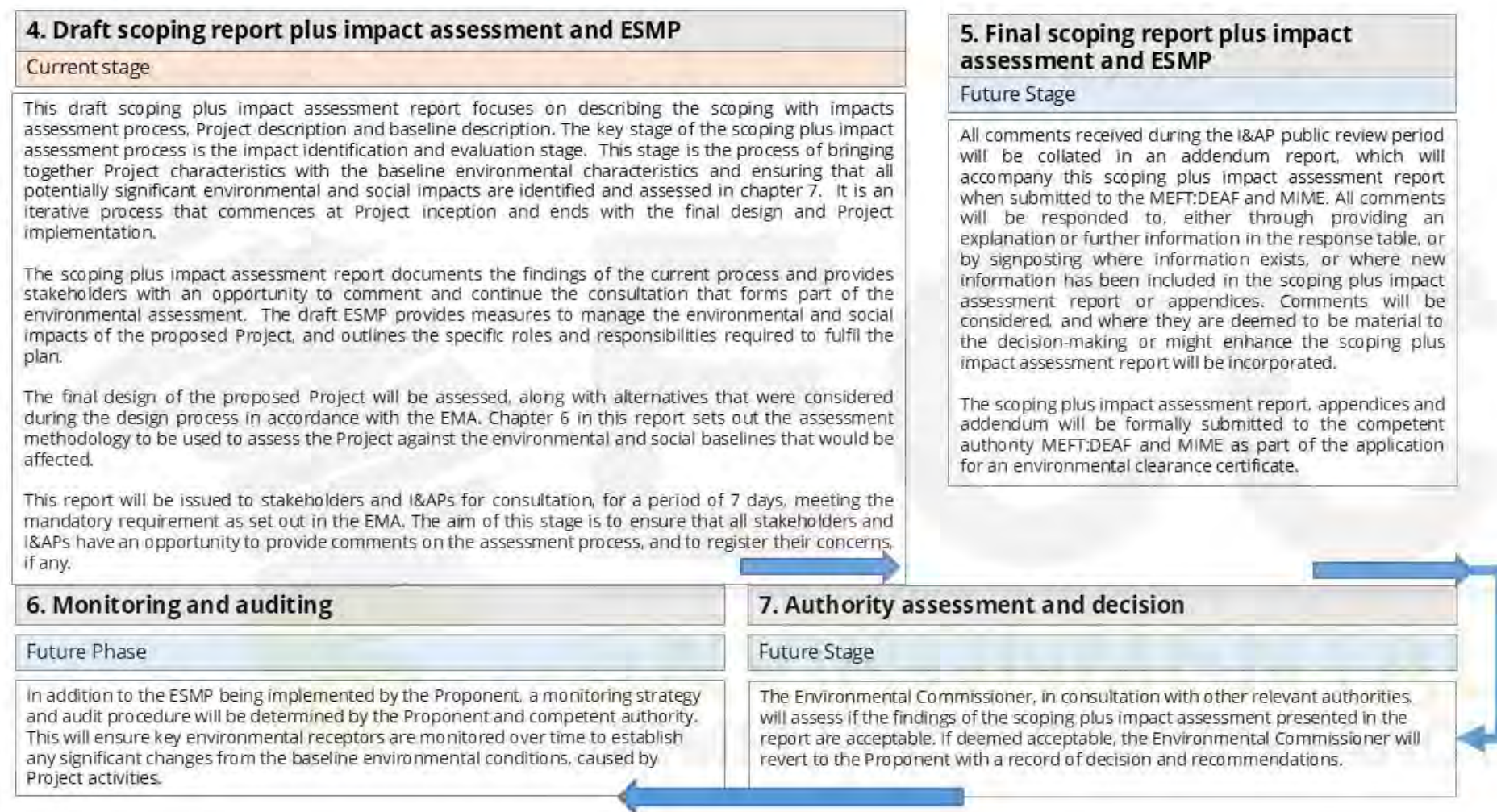


Figure 4 – Environmental scoping plus impact assessment flowchart

2.4 SCOPING AND THE ENVIRONMENTAL ASSESSMENT

Where a detailed assessment is required, the second stage of the ESIA process is the scoping phase. The primary objectives of this stage are to identify impacts that are likely to be significant, review available baseline data and identify any information gaps, define the spatial and temporal boundaries of the assessment, and establish the methodology to be applied.

The scoping phase involves a preliminary evaluation of how the Project may interact with the biophysical, social, and economic environments. Potential impacts are initially identified during the screening phase and are further evaluated during the scoping plus impact assessment phase. Feedback from stakeholder engagement, including consultation with I&APs, has informed the impact analysis.

The methodology and outcomes of the impact assessment are presented in chapters 6 and 7 of this draft report, respectively. The following environmental and social aspects were considered during the initial impact screening phase:

BIOPHYSICAL ENVIRONMENT

- Climate and air quality;
- Topography and geology;
- Soils and land capability (including contamination risks such as hydrocarbon spills and leakages);
- Surface water and groundwater (including hydrology and vulnerability);
- Biodiversity (including flora and fauna); and
- Cumulative impacts.

SOCIO-ECONOMIC ENVIRONMENT

- Visual impact (viewshed);
- Occupational health and safety;
- Community health, safety, and security;
- Impacts on cultural heritage (including disturbance to heritage objects or artefacts);
- Employment and economic opportunities;
- Local and regional economic impacts (including market competition);
- Contribution to government revenue; and
- Cumulative socio-economic impacts.

2.5 BASELINE STUDIES

Baseline studies are undertaken as part of the scoping stage and involve the collection of relevant information on the current status of the receiving environment. This establishes a reference point against which changes resulting from the proposed Project can be assessed.

For this Project, baseline information was obtained through a desktop study, focusing on environmental receptors that may be affected, and was verified through a site visit conducted by ECC on 06 May 2026. The baseline environment is described in chapter 5.

2.6 THE STUDY AREA

Baseline studies are undertaken as part of the scoping phase and involve the collection and review of relevant information to characterise the current condition of the receiving environment within the Project's area of influence (Aoi). This establishes a reference baseline against which potential changes resulting from the Project can be assessed.

For this Project, baseline information was primarily derived from a desktop review, with a focus on key environmental and social receptors, including valued environmental and social components (VECs) that may be affected by Project activities. The baseline was subsequently verified through a site visit conducted by ECC on 06 May 2026.

A detailed description of the baseline environment is provided in chapter 5.

2.7 PUBLIC CONSULTATION

Public participation and consultation are requirements stipulated in Section 21 of the EMA and its 2012 Regulations for projects requiring an environmental clearance certificate.

Consultation is a compulsory and critical component of the ESIA process, supporting transparent decision-making and contributing to the overall quality of the assessment. The consultation process is ongoing throughout the scoping plus impact assessment process for this Project.

The objectives of the public participation and consultation process are to:

- Provide information on the Project and introduce the overall Project concept and plan in the form of a background information document (BID) (provided in Appendix B);
- Identify relevant national, regional and local regulatory authorities;
- Engage with stakeholders to understand community concerns and to record issues and questions raised;
- Explain the scoping plus impact assessment process, including associated timeframes; and
- Establish a platform for ongoing stakeholder engagement.

Public consultation for the Project commenced on 14 April 2026, when stakeholder notification letters and the BID were distributed via email to identified key stakeholders and I&APs. A site notice was erected on-site on 06 May 2026. Advertisements were published in local newspapers to announce the public meeting and to invite members of the public to register as I&APs.

Advertisements for the public meeting were placed in the following newspapers on 22 April 2026 and 29 April 2026, respectively:

- The Republikein;
- The Namibian Sun; and
- Allgemeine Zeitung.

The public meeting was held at the Karibib Town Council Hall on 06 May 2026. The public consultation process and associated records are described in detail in the public consultation report presented in Appendix C.

2.7.1 IDENTIFICATION OF KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES (I&APS)

A stakeholder mapping exercise was undertaken to identify relevant stakeholders and determine appropriate methods of engagement during the scoping plus impact assessment process. Stakeholders were engaged through a combination of direct communication (letters and telephone calls), national press advertisements, a site notice erected at the Project boundary and electronic correspondence.

A summarised list of stakeholders that were engaged during the public consultation process is provided below:

- Karibib Town Council (KTC)
- Erongo Regional Council (ERC);
- Ministry of Industries, Mines and Energy (MIME);
- Ministry of Environment, Forestry and Tourism (MEFT);
- National Heritage Council (NHC);
- Department of Environment Affairs and Forestry (DEAF);
- Emerging and existing quarrying and mining projects surrounding Karibib (e.g. Twin Hills Gold Mine Project, QKR Namibia Navachab Gold Mine, African Big Rhino);
- Existing fuel retailers in Karibib (e.g. Karibib Engen and TotalEnergies);
- Karibib residents and neighbouring communities; and
- The general public with an interest in the Project.

The records of the public consultation process in the form of a summary report and a list of I&APs, evidence of consultation, including minutes of the public engagement meeting, advertisements in national newspapers and a summary of the comments and questions raised by the public are provided in the public consultation document presented in Appendix C.

2.7.2 SUMMARY OF ISSUES RAISED

In accordance with Section 22 of the EMA, a public meeting was held on 06 May 2026 to engage I&APs and to record comments, concerns and inputs to inform and enhance the environmental impact assessment process. A detailed summary of the issues raised by I&APs is provided in the public consultation report.

During the engagement, the primary concerns raised related to the proposed roadworks associated with the development of the fuel service station, particularly in relation to traffic safety and site accessibility. Stakeholders expressed concerns regarding how vehicles, especially trucks and other heavy vehicles travelling along the B2 national road would safely enter and exit the fuel service station without disrupting traffic flow or creating safety hazards. Additional concerns were raised as to whether the proposed development and associated access road would align with the town's current and planned road expansion and infrastructure development.

The Proponent engaged the KTC during the planning phase to obtain land use approval. The consent issued by the KTC is provided in Appendix D.

3 REVIEW OF THE LEGAL ENVIRONMENT

3.1 RELEVANT NATIONAL LEGISLATION

This chapter outlines the regulatory framework applicable to the proposed Project. A review of relevant legislations has been conducted to identify the applicable laws, policies and guidelines that aligns with the proposed Project. As stated in chapter 1, an environmental clearance certificate is required for any activity listed in Government Notice No. 29 of 2012 of the EMA. Compliance to the relevant laws and regulations will ensure that proposed Project activities do not violate fundamental human rights or adversely affect the welfare of the community.

Table 3 outlines the relevant legal requirements specific to the Project, Table 4 outlines Namibian national policies and plans applicable to the proposed Project and Table 5 lists specific permits, licences or certificates that will be required for the Project.

3.2 RELEVANT NATIONAL POLICIES AND PLANS

Table 3 - Details of the regulatory framework as it applies to the Project

National Regulatory Framework/ Policies/ Plans	Summary	Applicability to the Project
Constitution of the Republic of Namibia (1990)	The constitution defines the country's position in relation to sustainable development and environmental management. The constitution refers that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at the following: <i>"Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and the utilisation of living, natural resources on a sustainable basis for the benefit of all Namibians, both present, and future."</i>	The Proponent commits to the sustainable use of the environment and has aligned its corporate mission, vision, and objectives with the Constitution of the Republic of Namibia.
Regional Council Act No. 22 of 1992	The Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. Regional Councils are authorised under Section 28 of the Act to undertake the planning of the development of the region for which it has been established with a view of physical, social, and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation patterns and sensitivity of the natural environment.	The office of the Erongo Regional Council (ERC) has been identified as a key stakeholder for the Project and shall be engaged throughout the scoping plus impact assessment process.

National Regulatory Framework/ Policies/ Plans	Summary	Applicability to the Project
Local Authority Act No. 23 of 1992	The Act provides for the determination of local government, local authority council, the establishment of such local authority councils, their powers and functions. The Act also provides measures regarding incidental matters.	The Project site (Erf 1204) falls within the jurisdictions of the KTC, which has granted lease rights for the Project. The KTC, along with other key stakeholders and I&APs will be engaged throughout the scoping plus impact assessment process.
Public and Environmental Health Act No. 1 of 2015	The Act provides with respect to matters of public health in Namibia. The objectives of the Act are: (a) promote public health and well-being, (b) prevent injuries, diseases and disabilities, (c) protect individuals and communities from the public health risks, (d) encourage community participation in order to create a healthy environment, and (e) provide for early detection of diseases and public health risks.	The Project involves the storage and handling of fuel, which poses potential risks to public health. The Proponent will implement mitigation measures to prevent contamination in any form, manage waste and protect surrounding communities.
Environmental Management Act, (No. 7 of 2007) and its 2012 Regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2012)	The Act aims to promote sustainable management of the environment and use of natural resources. The Act requires certain activities to obtain an environmental clearance certificate prior to Project development. The Act states that an ESIA should be undertaken and submitted as part of the environmental clearance certificate application process.	The ESIA process has been undertaken in line with the requirements of the Act and its Regulations. This draft scoping plus impact assessment report documents the findings of the environmental assessment undertaken for the proposed Project. The draft ESMP discusses mitigation measures aimed at

National Regulatory Framework/ Policies/ Plans	Summary	Applicability to the Project
	The MEFT is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs (DEA), under the MEFT, is responsible for the administration of the EIA process.	ensuring that potential impacts are effectively mitigated, managed, minimised and monitored
Petroleum Products and Energy Act No. 13 of 1990	Regulates the storage, distribution, and sale of petroleum products in Namibia. Requires licensing for fuel storage and retail operations.	The Project involves the storage and retail of fuel and will require the relevant petroleum licences (consumer installation certificate and retail licence) from the MIME prior to operation.
Hazardous Substances Ordinance No. 14 of 1974	Controls the handling, storage, and disposal of hazardous substances to prevent harm to human health and the environment.	Fuel and associated products are classified as hazardous substances. The Proponent will ensure proper storage, handling and disposal practices, including spill prevention and emergency response measures.
Water Resources Management Act No. 11 of 2013	Provides for the management, protection, and sustainable use of water resources, including prevention of water pollution	Measure will be implemented to prevent groundwater and surface water contamination from fuel spills, leaks, and runoff.
Soil Conservation Act No. 76 of 1969	Provides for the prevention of soil erosion and the protection of soil resources.	As the site is pre-disturbed, soil impacts are expected to be minimal. However, good construction practices will be implemented to prevent erosion and contamination of soil.

National Regulatory Framework/ Policies/ Plans	Summary	Applicability to the Project
Labour Act No. 11 of 2007	Provides for the regulation of employment, working conditions, and occupational health and safety.	This Act recognises the safety and welfare of workers to prevent occupational health incidents and injuries. The Proponent and appointed contractors shall be responsible for implementing a health and safety management plan throughout the different phases of the Project.
Road Traffic and Transport Act No. 22 of 1999	Regulates road traffic and transportation safety in Namibia.	The Project will generate vehicle traffic (fuel delivery trucks and customers). Management measures for traffic management will be implemented to ensure road safety.
National Waste Management Policy (2010)	Provides guidelines for integrated waste management, including waste minimisation, recycling, and safe disposal.	The Project will generate general and hazardous and hydrocarbon waste (e.g. contaminated materials). Waste will be managed in accordance with best practices and disposed of at approved facilities.

Table 4 - Namibian national policies and plans applicable to the proposed Project

Policy or plan	Description	Applicability to the Project
Vision 2030	Vision 2030 sets out the nation's development targets and strategies to achieve its national objectives. Vision 2030 states that the overall goal is to improve the quality of life of the Namibian people aligned with the developed world.	The proposed Project shall aim to meet the objectives of Vision 2030 and shall contribute to the overall development of the country through continued employment opportunities and ongoing contributions to the gross domestic product (GDP).
Sixth National Development Plan (NDP6)	The NDP6 is the sixth in a series of seven five-year national development plans that outline the objectives and aspiration of Namibia's long-term vision. The NDP6 four (4) pillars are: - Economic growth, transformation, and resilience; - Human development and community resilience; - Environmental sustainability; and - Good governance and effective public service delivery.	The planned Project supports meeting the objectives of the NDP6 through creating opportunities for continued employment.
National Disaster Risk Management Policy	The policy provides a framework for disaster preparedness, prevention, mitigation, and emergency response.	The Project will develop and implement emergency preparedness and spill response measures to reduce risks associated with fire outbreaks, fuel spills, and other potential accidents.
National Road Safety Strategy	The strategy aims to improve road safety, reduce road accidents, and enhance safe transportation systems in Namibia.	The Project will support safer transportation through proper traffic management measures, safe fuel handling procedures, designated access points, and compliance

Policy or plan	Description	Applicability to the Project
		with road safety requirements during construction and operation.

3.3 PERMITS, CERTIFICATES AND LICENCES FOR THE PROJECT

Table 5 – Permit, certificates and licence(s) required for the Project

Permit, certificate or licence	Related activity requiring a permit/licence	Relevant Authority	Validity
Environmental clearance certificate	Required for any listed activities in terms of the EMA and its Regulations of 2012.	MEFT	Three (3) years
National Heritage Council consent	NHC consent for the management and preservation of heritage objects, if discovered within the Project's footprint as per National Heritage Council Act, No. 27 of 2004	NHC	One (1) year and may be renewed prior to expiry.
Retail licence	Required to operate a fuel service station and sell fuel to customers according to the Petroleum Products and Energy Act, No. 13 of 1990 and the Regulations of 2000	MIME	Valid from date of issue
Consumer installation certificate	Required for the bulk storage (>200 L) of fuel, handling and dispensing of fuel within a local authority in terms of the Petroleum Products and Energy Act, No. 13 of 1990 and the Regulations of 2000	MIME	Permanent

4 PROJECT DESCRIPTION

4.1 PROJECT OVERVIEW

The Proponent has been granted land use approval through a land rezoning process by the KTC to construct and operate a fuel service station on Erf 1204, Extension 4, Karibib, Erongo Region (Figure 5). The proposed development will include infrastructure such as fuel dispensing facilities with underground storage tanks, a retail shop/kiosk, a food takeaway outlet and a carwash facility. Additional supporting infrastructure may include parking areas, access roads, drainage systems, waste management facilities and municipal utility connections, such as water and electrical supply.

The Project site is located within a pre-disturbed townland environment, characterised by a mix of existing municipal infrastructure, roads, commercial businesses and residential developments. The proposed development is considered compatible with the current land use and urban setting and encroachment into undisturbed environmental sensitive areas are not anticipated (shown in chapter 5).

The Project will operate as a wholesale fuel supplier, specialising in bulk diesel distribution to mining companies in the Erongo Region and the general public. Additionally, the Project is expected to support local economic activities, improve service accessibility for residents and travellers and contribute to the town's ongoing economic advancement and development in line with its mandate and strategic corporate objectives.

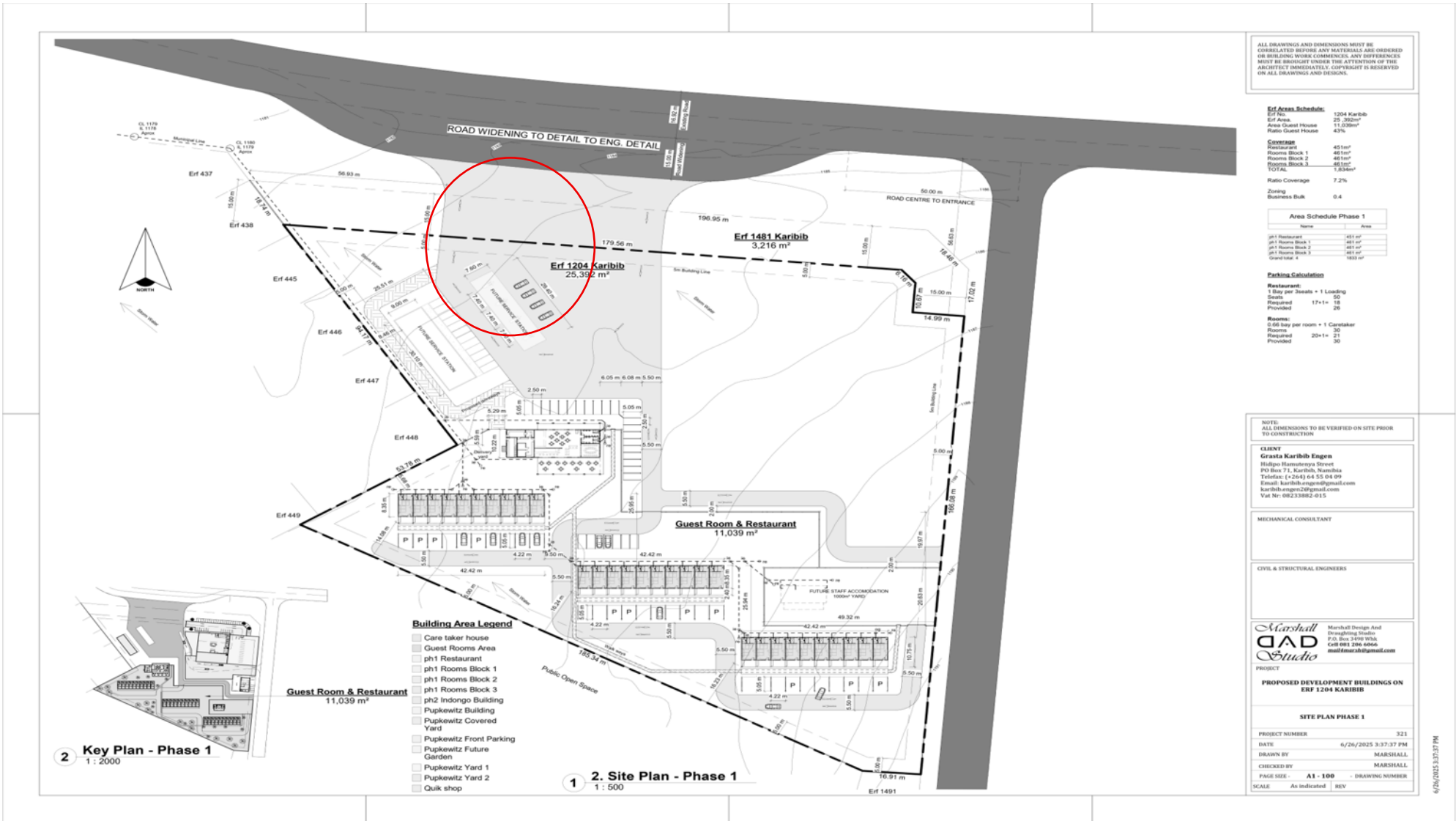


Figure 5 - Architectural design of the proposed fuel service station (red circle) (Source: Proponent, 2025)

4.2 NEED FOR THE PROJECT

The proposed fuel service station will be strategically located along the B2 corridor, which is a key transport route linking coastal and inland regions. This improves fuel availability and reliability within the Erongo Region, particularly for the mining sector, local traffic volumes and heavy-duty transport in transit.

As is typical for fuel service developments, the Project will create employment opportunities across various occupational levels. These are anticipated to include managerial positions, administrative and support team, logistics coordination personnel and financial officers.

Overall, the proposed fuel service station will complement existing fuel service stations in Karibib and reinforce the town's position as a strategic stopover point and service node along the B2 corridor. The development is further expected to contribute to municipal revenue generation through rates and services charges, improve service delivery and enhance regional economic development.

4.3 ALTERNATIVES CONSIDERED

In terms of the Environmental Management, Act No. 7 of 2007 (EMA) and its 2012 Regulations, alternatives considered should be presented and analysed in the draft scoping plus impact assessment report. This requirement ensures that during the design evolution and decision-making process, potential environmental and social impacts, costs and technical feasibility have been considered, which leads to the best option(s) being identified.

Erf 1204 is currently unoccupied and free of any existing structure or land use restrictions that could impede the proposed development. The KTC has granted formal land use approval for the Project through a land rezoning process. Therefore, no other alternative site was considered. This approval indicates that the Project is legally supported and aligns with the town's spatial planning framework and development objectives.

The best alternatives and eco-friendly solutions to reduce potential impacts are discussed in chapter 7 and the draft ESMP (Appendix A).

4.4 NO-GO ALTERNATIVES

Without the addition of the proposed fuel service station, the ability of Karibib to effectively support emerging mining activities and increased transport demand in the region may remain constrained. The fuel service network comprises of two (2) operational fuel service stations (Karibib Engen and Shell), which may experience significant congestion during peak periods. This situation is further compounded by prevailing fuel prices and supply fluctuations, which may introduce uncertainty and place additional pressure on the existing fuel distribution network. As such, the no-go alternative is not considered a preferred option.

4.5 PROPOSED ACTIVITIES

4.5.1 PROJECT PHASE

4.5.1.1 *Planning phase*

The planning phase involves the following:

- Securing the land lease through the KTC;
- Preparation of architectural and civil engineering designs for the proposed fuel service station and associated infrastructure;
- Appointment of qualified contractors and subcontractors through a tendering process; and
- Procurement of Project equipment and materials from the local and regional economy.

4.5.1.2 *Construction phase*

The construction phase will be overseen by approximately 20 – 50 employees who will include appointed contractors and subcontractors. Where applicable, prefabricated materials will be delivered and assembled onsite.

This phase will entail the following:

- Clearing, levelling and grading of the Project site;
- Civil works for underground fuel storage tanks and infrastructure, development of stormwater drainage systems, casting of concrete slabs for the canopy, kiosk structure and carwash facility;
- Installation of fuel dispensing systems;
- Construction of the canopy, kiosk, ablution facilities and carwash;
- Connection to municipal services (water, electricity and wastewater systems);
- Development of site access points from the B2 road to facilitate site access and parking slots; and
- Testing of fuel storage and dispensing systems and emergency response procedures.

All construction activities will be conducted in accordance with best practise environmental and occupational health and safety requirements to minimise the potential impacts on the receiving environment and surrounding social receptors. Rehabilitation of any disturbed sites not required for operational purposes will be completed before the operational phase commences.

4.5.1.3 Operational phase

Operational responsibilities will be structured across an operational team of approximately 10 – 30 permanent employees. This will be comprised of managers, who will be responsible for strategic direction, supplier engagement and contractual oversight. An operations manager will oversee logistics, fleet coordination and bulk fuel delivery scheduling to mining companies in the broader Erongo Region.

This phase will also include the safe dispensing of fuel from underground storage tanks, regular monitoring of fuel levels, customer services (i.e. fuel attendants and administrative personnel assisting customers with refuelling, processing payments, and record keeping), the wholesale supply and bulk diesel sales to mining companies, upkeep of ablution facilities, waste management, routine inspections to promptly detect leaks or equipment malfunctions, and general fuel service station operations.

4.5.1.4 Decommissioning phase

This phase will be conducted in a controlled environmental and socially responsible manner. The decommissioning phase will involve the safe closure and dismantling of the fuel service station and associated infrastructure in accordance with best practise environmental and regulatory requirements. Key activities will include the removal of underground fuel storage tanks, remediation of any contaminated soils, proper disposal of demolished materials and site levelling for its next future use. This phase will be conducted in consultation with the KTC.

4.5.2 EQUIPMENT AND MATERIAL

Construction will require typical building materials and equipment, including:

- Concrete, steel, generators, fuel bowzers, piping and fuel storage tanks;
- Construction machinery and light heavy vehicles; and
- Mechanical and electrical installation components.

All materials will be stored in designated areas to minimise environmental impacts.

4.5.3 EMPLOYMENT AND ACCOMMODATION

The construction phase will generate temporary employment opportunities. Contractors with specialised skills and workforce expertise will be appointed where required. Apart from onsite security personnel that may be deployed for safeguarding the site and equipment, no onsite accommodation is anticipated. Construction workers are expected to commute daily from surrounding towns and areas, including Usakos.

Most employees for the operational phase are expected to be sourced locally from Karibib. The fuel service station will operate on a 24-hour basis to ensure continuous service delivery to both local and transit users.

4.5.4 RESOURCE USE AND WASTE MANAGEMENT

Waste generated during the construction phase will include general construction waste, packaging materials, hazardous and hydrocarbon waste such as used oils, lubricants, cement/concrete effluent and fuel residues. All waste will be managed in accordance with good international industry practice and the draft ESMP. Waste will be segregated at source, stored in clearly designated and appropriately labelled containers and disposed of at the Walvis Bay Municipal landfill site or another disposal facility approved by the relevant local authority.

As the Project site is located on already serviced land, water, electricity, sewerage, and waste collection services are available through the existing Karibib Town Council municipal infrastructure. Connections to these services will be utilised during the construction phase to support contractor activities and workforce needs. Domestic wastewater generated during construction will be discharged to the existing municipal sewer system or managed through temporary sanitation facilities, as required.

During operations, the fuel service station will be fully integrated into the existing municipal service network. Solid waste, wastewater, water supply, and electricity will therefore continue to be managed through the established municipal systems and associated waste management infrastructure.

5 ENVIRONMENTAL AND SOCIAL BASELINE

5.1 BASELINE DATA COLLECTION

Desktop studies relevant to the proposed Project forms part of the current environmental and social assessment undertaken for the Project. No specialist field investigations were deemed necessary at the scoping stage due to the Project site's location within an existing urban environment that has already been disturbed through previous municipal development activities. Additionally, ECC conducted an infield visit on the 06 May 2026 to assess the Project location, acquire baseline information and determine potential significant impacts that could arise from the Project activities.

The baseline studies (this chapter) aim to establish the status of the receiving environment against which potential impacts (positive, negative and cumulative) associated with the proposed Project can be assessed. Understanding the existing environmental and socio-economic conditions assists in identifying sensitive receptors and ensures that appropriate mitigation measures are incorporated into the Project design to avoid, reduce or manage potential adverse impacts.

This chapter describes the existing biophysical and socio-economic environment through a review of available literature, spatial data, aerial imagery and publicly available reports, supplemented by observations from a site inspection and stakeholder engagement activities. The defined baseline environment provides the framework within which potential changes resulting from the proposed Project can be measured and evaluated.

5.2 LAND USE

Karibib is situated within the Erongo Region of central-western Namibia and serves as an important service and transit town along the B2 National Road linking Windhoek, Usakos, Arandis, Swakopmund and Walvis Bay. The town functions primarily as a residential, commercial and transport service hub that supports regional mining, tourism and agricultural activities.

The proposed Project site is located on Erf 1204, Extension 4, Karibib. The site is situated within a pre-disturbed urban environment and forms part of an area currently undergoing rezoning for commercial, mixed-use and residential development. The surrounding land uses comprise municipal infrastructure, transport corridors, commercial businesses and residential developments.

The Project site is strategically located adjacent to the B2 highway, making it well suited for a fuel service station that will serve both local residents and transit traffic travelling between central Namibia and the coast. Although fuel service stations already exist within Karibib, the existing station located along the main road experiences congestion, resulting in traffic delays

and potential road safety concerns for motorists and residents. The proposed fuel service station will help alleviate this pressure by improving fuel accessibility and service capacity. Furthermore, anticipated traffic growth and future development within Karibib Extension 4 support the need for additional fuel and associated retail services.

5.3 CLIMATE

Climate and weather data obtained from Meteoblue (2026) was used to characterise the climatic conditions of the Project area. Karibib is situated within a semi-arid climatic zone characterised by hot summers, cool winters and seasonal rainfall.

Rainfall occurs predominantly between November and April, while the period from May to September is generally dry. Average annual rainfall ranges between approximately 200 mm and 300 mm, with considerable interannual variability typical of Namibia's central plateau.

As shown in Figure 6, average daily maximum temperatures range between approximately 30°C and 35°C during the summer months, with the hottest months occurring between October and March. During winter, average maximum temperatures range between 22°C and 27°C, while minimum temperatures may drop below 5°C during June and July. The prolonged dry season and elevated summer temperatures increase the likelihood of dust generation during construction activities, particularly during vegetation clearing, excavation and earthworks.

Figure 6 illustrates the long-term monthly average temperature and precipitation patterns for Karibib. The figure confirms the semi-arid climatic conditions of the area, with rainfall concentrated during the summer months and prolonged dry conditions throughout winter.

Karibib

21.94°S, 15.86°E (1199 m asl).
Model: ERA5T.

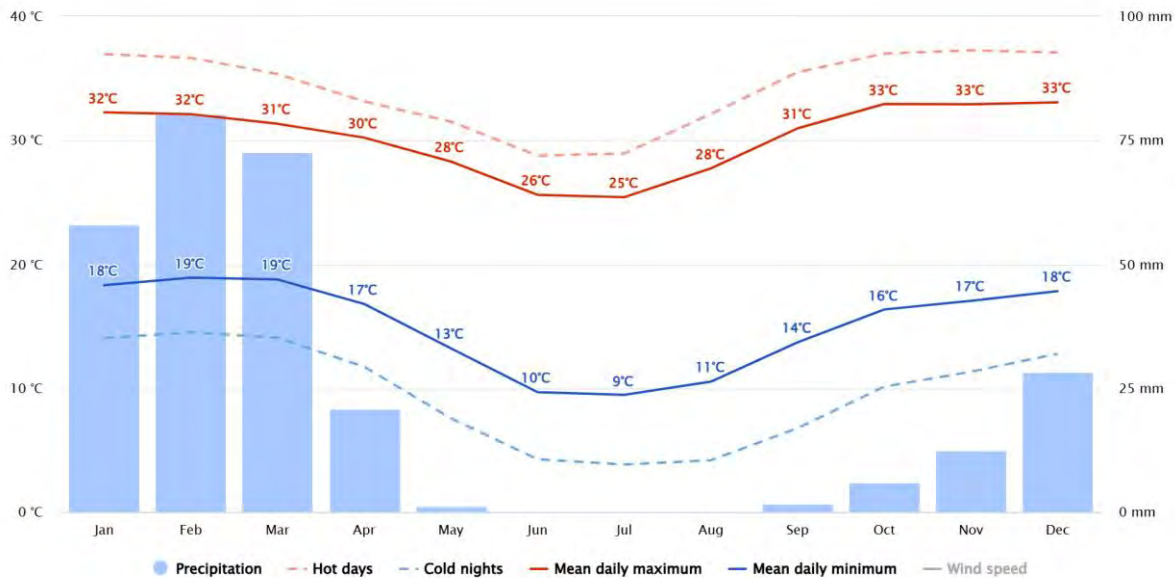


Figure 6 - Average temperatures and precipitation for Karibib (Source: Meteoblue, 2026)

The prevailing wind conditions for the Karibib area are illustrated in Figure 7. Winds predominantly occur from the southwest (SW) and west-southwest (WSW) and northeast (NE) directions throughout the year, with lower-frequency winds experienced from other directions. Average wind speeds are generally moderate and range between approximately 15 km/h and 30 km/h.

The prevailing south-westerly and northeasterly wind patterns may influence the dispersion of dust generated during construction activities, particularly during vegetation clearing, earthworks and periods of strong winds. Dust may therefore be transported towards surrounding properties, road users and nearby sensitive receptors depending on the prevailing wind direction at the time. Appropriate dust suppression measures will be required throughout the construction phase to minimise these impacts (Meteoblue, 2026). Overall, the climatic conditions of the Project area are favourable for the proposed development. However, stormwater management should be incorporated to accommodate seasonal rainfall events, while effective dust control measures should be implemented during dry and windy conditions.

Figure 7 presents the prevailing annual wind direction and average wind speed within the Karibib area. The dominant south-westerly and north-easterly wind patterns indicate the likely direction of dust dispersion during construction and potential vapour movement during operation. Understanding prevailing wind conditions assists in designing appropriate dust suppression and environmental management measures.

Karibib

21.94°S, 15.86°E (1199 m asl),
Model: ERA5T.

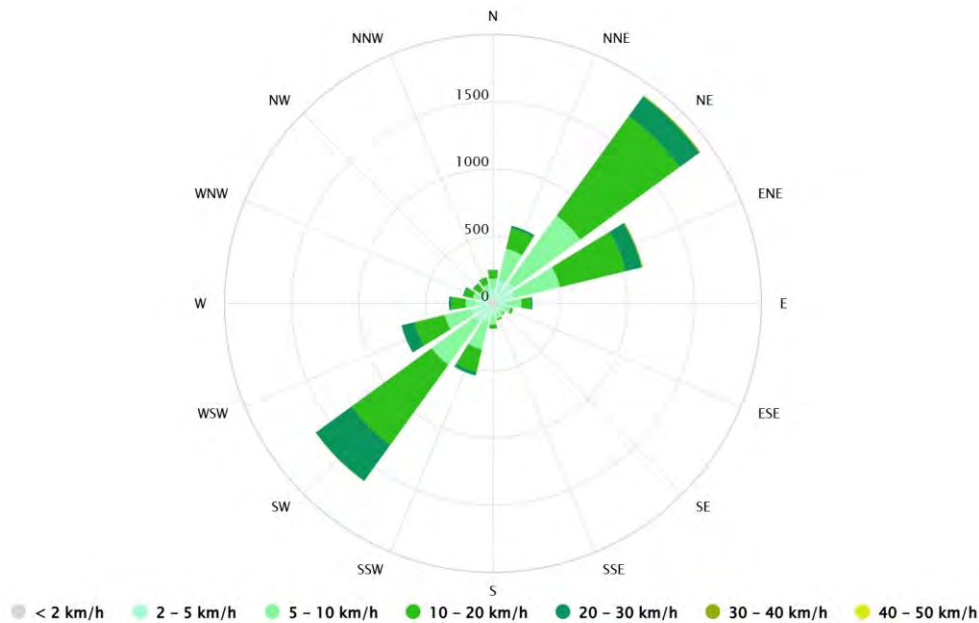


Figure 7 - Average wind direction and speed over the Karibib area (Source: Meteoblue, 2026)

5.4 SOIL, GEOLOGY AND TOPOGRAPHY

The Project area forms part of Namibia's Central Plateau and is characterised by gently undulating terrain underlain by geological formations of the Damara Supergroup. Previous urban development has significantly altered the natural soil profile across the site, resulting in a predominantly disturbed landscape with limited natural ecological value (Jarvis *et al.*, 2022).

5.4.1 SOIL

The soils within the Project area are generally shallow, sandy to gravelly and well drained, reflecting the semi-arid climatic conditions of central Namibia (Jarvis *et al.*, 2022). Due to previous disturbance and urban development, the natural soil profile has been extensively disturbed. The soil specific to the Project site are Skeletic Lithic Leptosol (Figure 8).

The relatively coarse soil texture promotes rapid infiltration of rainfall; however, these soils are also susceptible to erosion where vegetation cover is removed. During construction, exposed soils may generate dust during dry and windy conditions and may become vulnerable to erosion following rainfall if appropriate erosion control measures are not implemented.



Figure 8 - Existing soil conditions across the Project site

5.4.2 GEOLOGY

The regional geology is dominated by granites, schists and metamorphic rocks associated with the Damara Supergroup, one of Namibia's most significant geological formations (Mendelsohn *et al.*, 2009; Jarvis *et al.*, 2022). These competent rock formations provide stable foundation conditions suitable for infrastructure development.

The broader Karibib region is internationally recognised for its mining activities and mineral deposits, including marble, gold and industrial minerals. No significant geological hazards, such as faulting or unstable formations, are known to occur within the Project footprint (Figure 9). Minor site levelling may be required during construction to accommodate localised surface irregularities and ensure effective stormwater drainage.



Figure 9 - Geological setting surrounding Project site

5.4.3 TOPOGRAPHY

The Project site is located on relatively flat terrain within an established urban area. The absence of steep slopes or significant elevation changes reduces the potential for erosion and simplifies construction activities. Minor localised contours occur across the site but are not expected to constrain development (Figure 10).

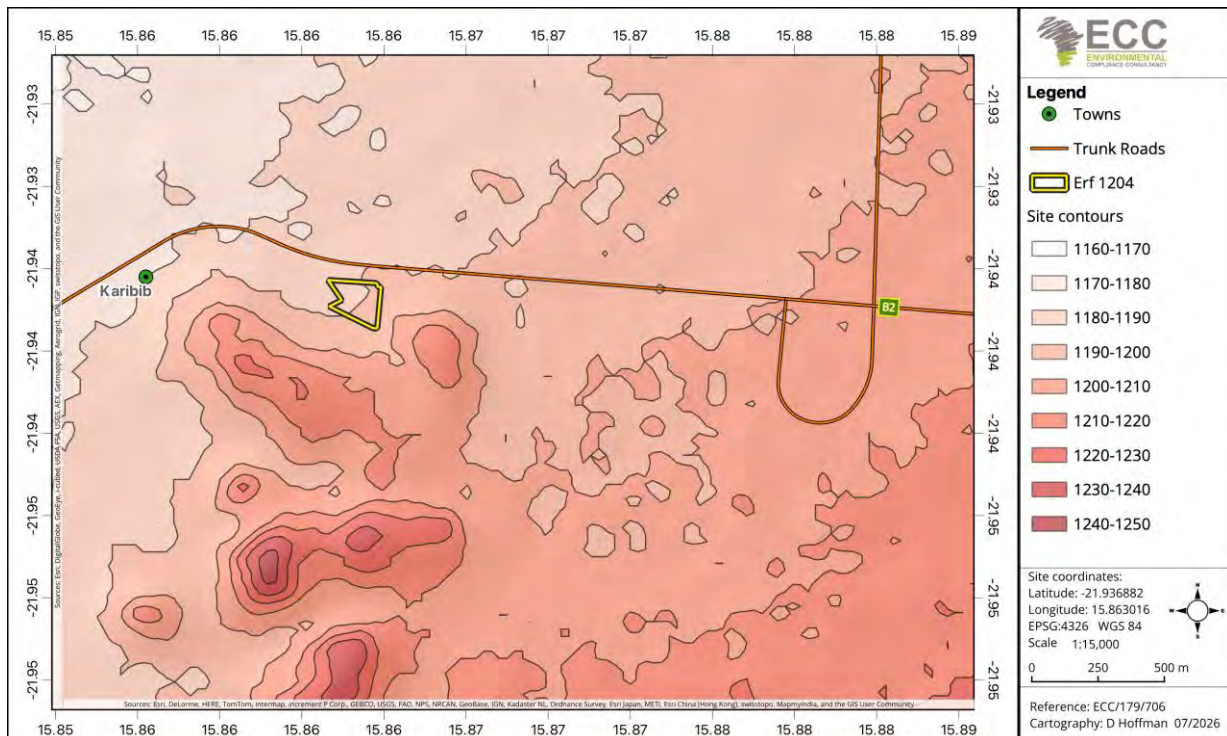


Figure 10 - Topography setting surrounding on Project site

5.5 HYDROLOGY AND HYDROGEOLOGY

The Project site is located within the broader Swakop River catchment, a region characterised by limited surface water resources and ephemeral drainage systems that flow only in response to significant rainfall events. Due to the semi-arid climate and low annual rainfall, no perennial rivers, wetlands or other sensitive aquatic ecosystems occur within or immediately adjacent to the Project site. However, there is a minor drainage line that intersect the Project site from the north (N) (Figure 11). The Project area is underlain by fractured, fissured and locally karstified aquifer systems that exhibit moderate groundwater potential (Figure 12).

Surface runoff or stormwater generated during rainfall events is expected to discharge into existing municipal drainage infrastructure and natural drainage pathways surrounding the development area.

Groundwater is an important resource within the Karibib area and is widely utilised for domestic, agricultural and industrial purposes (Mendelsohn *et al.*, 2009). As a result, the proposed fuel service station will require appropriate management of fuel storage, wastewater and stormwater systems to minimise the risk of soil and groundwater contamination. The Project design includes underground fuel storage tanks that will be installed and operated in accordance with applicable engineering standards and safety requirements to reduce potential contamination impacts.

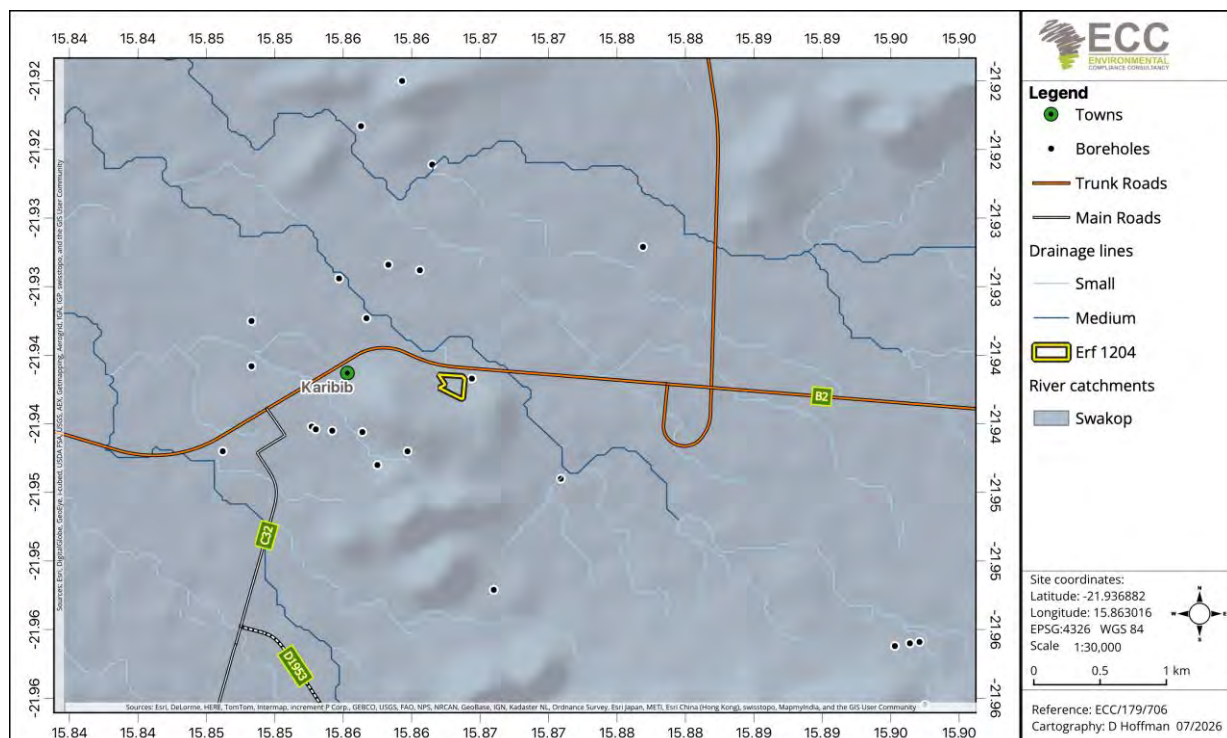


Figure 11 - Hydrological setting of Project site

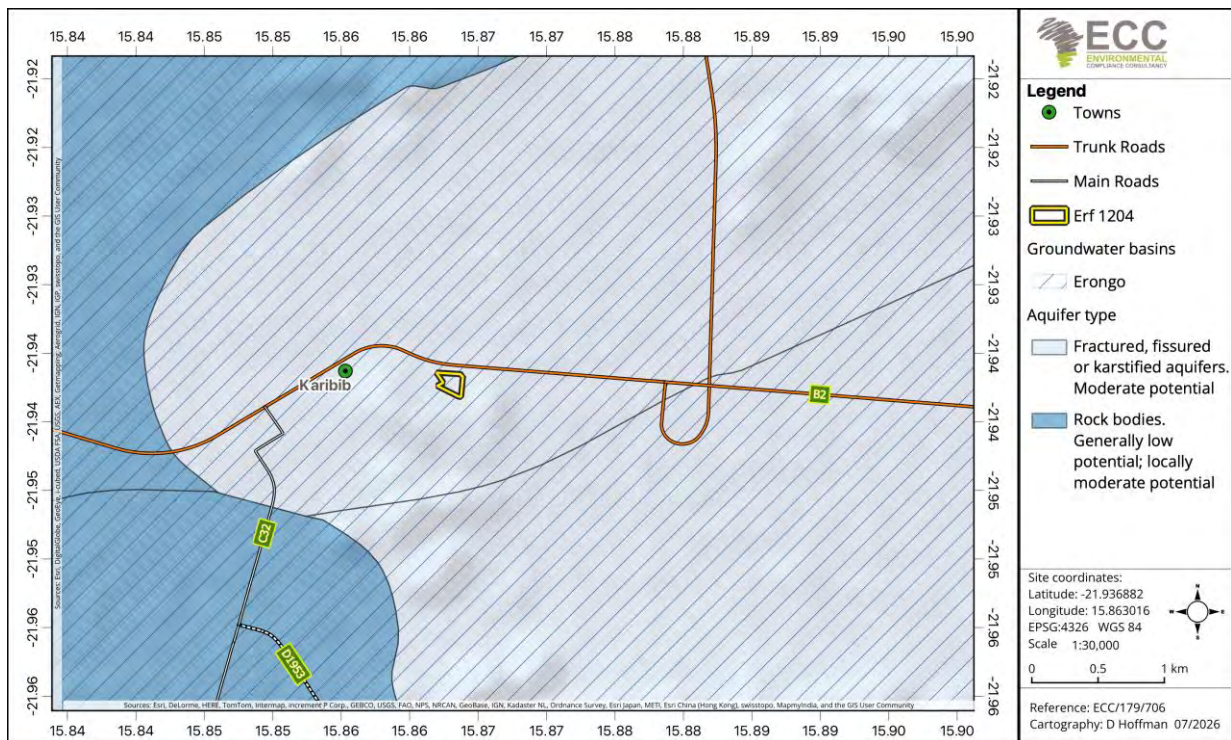


Figure 12 - Geohydrology setting of Project site

5.6 FAUNA AND FLORA

The Project site is located within a previously disturbed urban environment where natural vegetation has largely been cleared through historical development activities. Existing vegetation consists primarily of disturbed grasses, pioneer plant species and ornamental vegetation associated with surrounding urban properties (Figure 13).

The ecological value of the site is considered low, with limited habitat available for wildlife. Fauna expected to occur within the area are restricted to common urban-adapted species including small mammals, reptiles, birds and insects capable of tolerating regular human activity. No protected vegetation species or ecologically sensitive habitats were observed during the site inspection. Therefore, significant impacts on biodiversity are not anticipated and are discussed further in chapter 7.



Figure 13 - Existing vegetation within the Project site (Source: ECC, 2026)



Figure 14 - Vegetation within the Project site and pre-disturbed area (Source: ECC, 2026)

5.7 AIR QUALITY AND NOISE

Ambient air quality in the area is primarily influenced by vehicle emissions, wind-blown dust and routine commercial activities. Dust generation is most likely during the dry season when vegetation cover is limited and wind speeds increase. Prevailing south-westerly winds may contribute to the dispersion of dust and emissions within the surrounding area. The existing noise environment is typical of an urban setting and is dominated by road traffic, commercial activities and occasional heavy vehicles travelling along the B2 highway. Noise levels are expected to fluctuate throughout the day, with higher levels occurring during peak traffic periods. Given the existing commercial and transportation-related activities in the area, the receiving environment is already accustomed to moderate levels of noise and vehicle-related emissions. No significant air quality or noise sensitivities are anticipated within the Project footprint and are discussed further in chapter 7 of this report.

5.8 TRAFFIC

The proposed development is located adjacent to the B2 National Road, one of Namibia's primary transport corridors linking Windhoek with Swakopmund, Walvis Bay and the northern regions. The B2 accommodates substantial volumes of passenger vehicles, freight transport, mining vehicles and tourism-related traffic throughout the year (Figure 15).

Access to the proposed development will be provided via the existing municipal road network connecting directly to the B2 corridor. Existing traffic within the area is generally characterised by moderate daily volumes, with increased traffic experienced during holiday periods, weekends and peak commuting hours.

Stakeholder consultation undertaken during the public participation process identified congestion at the existing fuel service stations as a concern, particularly during busy travel periods. Stakeholders further indicated that the development of a dedicated access road and turning lane to the proposed fuel service station would be necessary to facilitate safe entry and exit for vehicles, improve traffic flow along the B2 national road, and reduce the potential for congestion and traffic conflicts. The inclusion of appropriately designed access infrastructure will enhance traffic operations, minimise queuing onto the B2 national road and improve overall road safety for both local and through traffic.

Although construction activities will temporarily increase heavy vehicle movements, these impacts are expected to be localised and short term and can be effectively managed through the implementation of a traffic management plan, as per the draft ESMP (Appendix A).

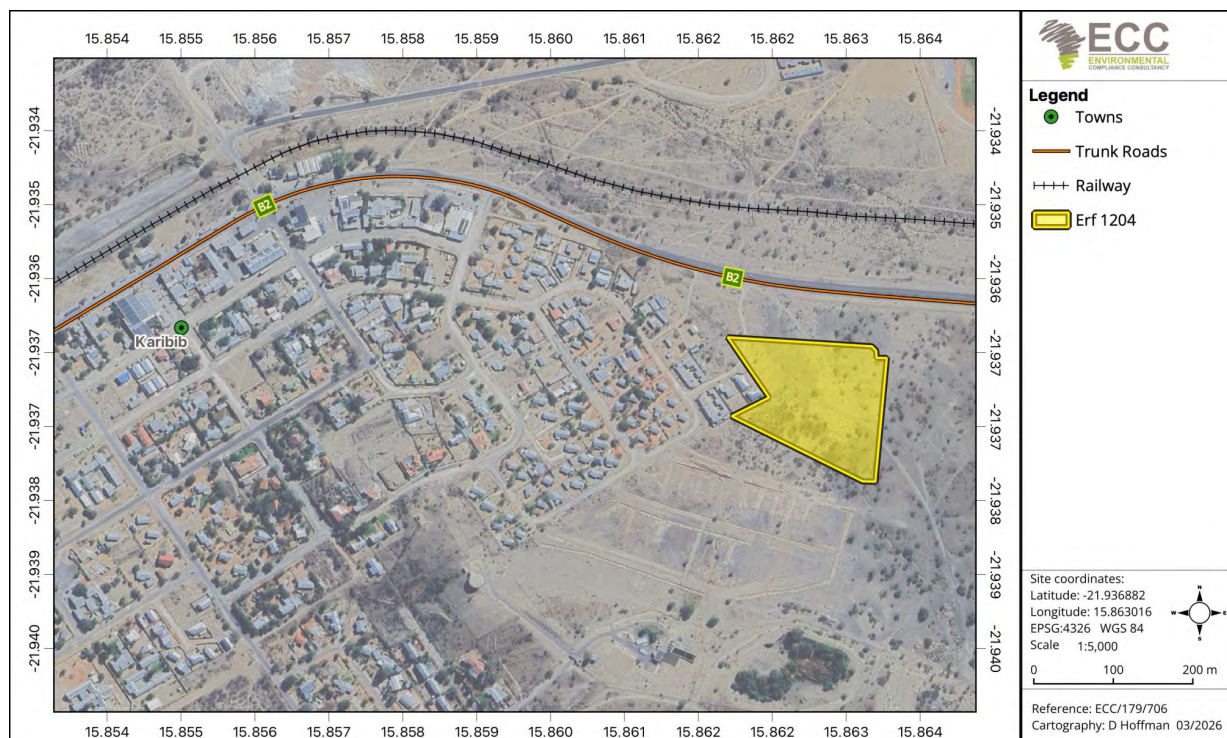


Figure 15 - Zoomed in locality map and road network surrounding the proposed Project site

5.9 SOCIO-ECONOMIC BASELINE ENVIRONMENT: ECONOMIC

5.9.1 GOVERNANCE

After gaining independence in 1990, Namibia has been governed by a stable, democratically elected government. In 2015, it ranked among the top five of 54 African countries on the Ibrahim Index of African Governance, excelling in areas such as governance quality,

government support for human development, sustainable economic opportunities, adherence to the rule of law and human rights and the development of smart information and communication technologies to facilitate socio-economic growth.

Erongo Region is governed by the Erongo Regional Council (ERC) as a statutory body promulgated under the Regional Act, Act No. 22 of 1922 and headed by a Governor, who is appointed by the President of Namibia. The current Governor of Erongo Region is Honourable Dr. Natalia JGoagoses. The ERC is responsible for the planning and development of the region in a sustainable manner for the benefit of its inhabitants by establishing, managing and controlling settlement areas and focusing on core services. The council is accountable for an area of 63 586 km² or approximately 7.7% of the total area of Namibia (Erongo Regional Council, 2015). The Project site is located in the Karibib constituency of the Erongo Region.

5.9.2 KARIBIB ECONOMIC PROFILE

The local economy is driven primarily by mining, transportation, tourism, retail trade and municipal services. Karibib's strategic location along the B2 highway contributes significantly to economic activity through the movement of goods, tourists and commuters. The presence of nearby mining operations further supports employment and business development within the area. The proposed Project is expected to contribute positively to the local economy through temporary employment opportunities during construction and permanent employment during operation.

5.9.3 UNEMPLOYMENT

The unemployment rate is widely regarded as one of the key labour market indicators and a good measure for employment creation and participation in economic activities in the country. A low unemployment rate indicates that the economy has the capacity to absorb a greater share of the working-age population, whereas a high unemployment rate reflects limited absorption capacity. The industries in which most Namibian citizens are employed are agriculture, forestry and fishing, wholesale and retail trade and manufacturing administration and support services (Namibia Statistics Agency, 2024). The Erongo Region ranks among the regions with the lowest unemployment rates in Namibia (NSA, 2019).

Although the Erongo Region records the second-lowest poverty headcount nationally, significant poverty persists in constituencies such as Daures, Karibib and Omaruru (National Planning Commission, 2015). In Karibib, unemployment remains relatively high, though slightly below the national average, due to opportunities in the mining and transport sectors. However, employment is largely concentrated among individuals with mining-related skills, limiting broader job absorption. Additionally, social concerns have emerged, including a reported increase in alcohol and drug abuse among residents. (New Era, 2021).

5.9.4 POVERTY, FOOD SECURITY AND NUTRITION

According to the July 2024 Afrobarometer report, nearly two-thirds (64%) of Namibians experienced "moderate lived poverty" (39%) or "high lived poverty" (25%) during the previous year, indicating frequent deprivation of necessities.

According to the 2021 Namibia Multidimensional Poverty Index (MPI) report (NSA, 2021), 34.4% of children under five experience growth impairment (stunting), 16.6% suffer from food insecurity and a significant proportion are considered malnourished. The report also indicates that Erongo Region is one of the Regions with the lowest multidimensional poverty incidence, estimated at approximately 16%.

Reports indicate growing alcohol and drug abuse, particularly among youth and unemployed individuals in Karibib, which is linked to growing unemployment, poverty and limited mental health support services, leading to increased gender-based violence (GBV) and other acts of violence.

5.10 SOCIO-ECONOMIC BASELINE ENVIRONMENT: SOCIAL

5.10.1 DEMOGRAPHIC PROFILE

Karibib is located within the Erongo Region, which covers approximately 63 579 km² and has a population of 240 206 people in 2023, making it one of Namibia's most urbanised and economically active regions (NSA, 2025). The town of Karibib recorded a population of approximately 8 434 inhabitants in 2023 and serves as an important transport and service centre between Windhoek and the coastal towns of Swakopmund and Walvis Bay (NSA, 2025). Presently, the Erongo Region is the fifth most populous region in Namibia, with a population density of 3.8 people per km². The region's average household size stands at 3.1 persons, below the national average of 3.8 (NSA, 2024).

5.10.2 HERITAGE AND CULTURE

The Project site is located within an existing urban environment that has been subjected to previous disturbance and development activities. No known heritage resources, archaeological sites, graves or culturally significant features have been identified within the Project footprint.

Should any archaeological materials, graves or heritage resources be discovered, all work in the immediate area will cease and the relevant authorities will be notified in accordance with applicable legislation and the chance find procedure, which forms part of the draft ESMP (Appendix A).

5.10.3 VISUAL – SENSE OF PLACE

The Project area is located within the urban environment of Karibib Town, where the visual landscape has already been substantially influenced by built infrastructure. This includes residential, commercial, institutional and industrial developments, as well as supporting

infrastructure such as roads, powerlines and municipal services. The existing developments and ongoing human activities have modified the visual character of Karibib.

5.10.4 PUBLIC HEALTH

Namibia's healthcare system consists of two main sectors: the private sector, which serves approximately 18% of the population with medical aid and the public sector, which provides care for the remaining 82% (Christians, 2020). Public health services fall under the mandate of the Ministry of Health and Social Services (MoHSS), which manages a four-tiered system comprising primary healthcare (PHC) facilities, district hospitals, intermediate hospitals and a national referral hospital (Christians, 2020). Karibib relies mainly on one public health centre and a few clinics, with referrals made to larger hospitals in Omaruru, Swakopmund or Windhoek. This leads to overburdened local facilities and long travel distances for specialised care (MoHSS, 2018). Furthermore, public facilities tend to be understaffed and shortages in equipment and facilities raises concerns (Christians, 2020).

It has been reported that Namibia has one of the highest estimated incidence rates of tuberculosis (TB) in the world, ranking ninth in the latest WHO report. In 2020, the country reported 6 137 drug-susceptible TB cases and 218 drug-resistant TB cases. Almost all (99%) of TB patients had a known human immunodeficiency virus/ acquired immunodeficiency syndrome (HIV/AIDS) status, of whom 31% were HIV/AIDS positive and all were put on antiretroviral therapy. It should be noted that for all forms of TB, five regions (Erongo, Kunene, Omaheke, Otjozondjupa and Zambezi) achieved a treatment success rate above 90%, which is the WHO's set target (New Era, 2022).

5.11 BUILT ENVIRONMENT

5.11.1 LANDUSE

Karibib townland has been designated for urban development and is characterised by a mix of residential, commercial, institutional and light industrial land developments. The surrounding area is characterised by established municipal infrastructure, such as the B2 national road, electricity, water supply, railway infrastructure and other public services.

The existing land use pattern is predominantly urban, with compatible commercial and municipal developments. Existing buildings, transport infrastructure and municipal services have established the current land use character of the area. As a result, the proposed development is expected to be compatible with the surrounding land uses and is not expected to conflict with adjacent properties, provided that it is implemented in accordance with the relevant planning requirements of the KTC.

6 IMPACT IDENTIFICATION AND EVALUATION METHODOLOGY

6.1 INTRODUCTION

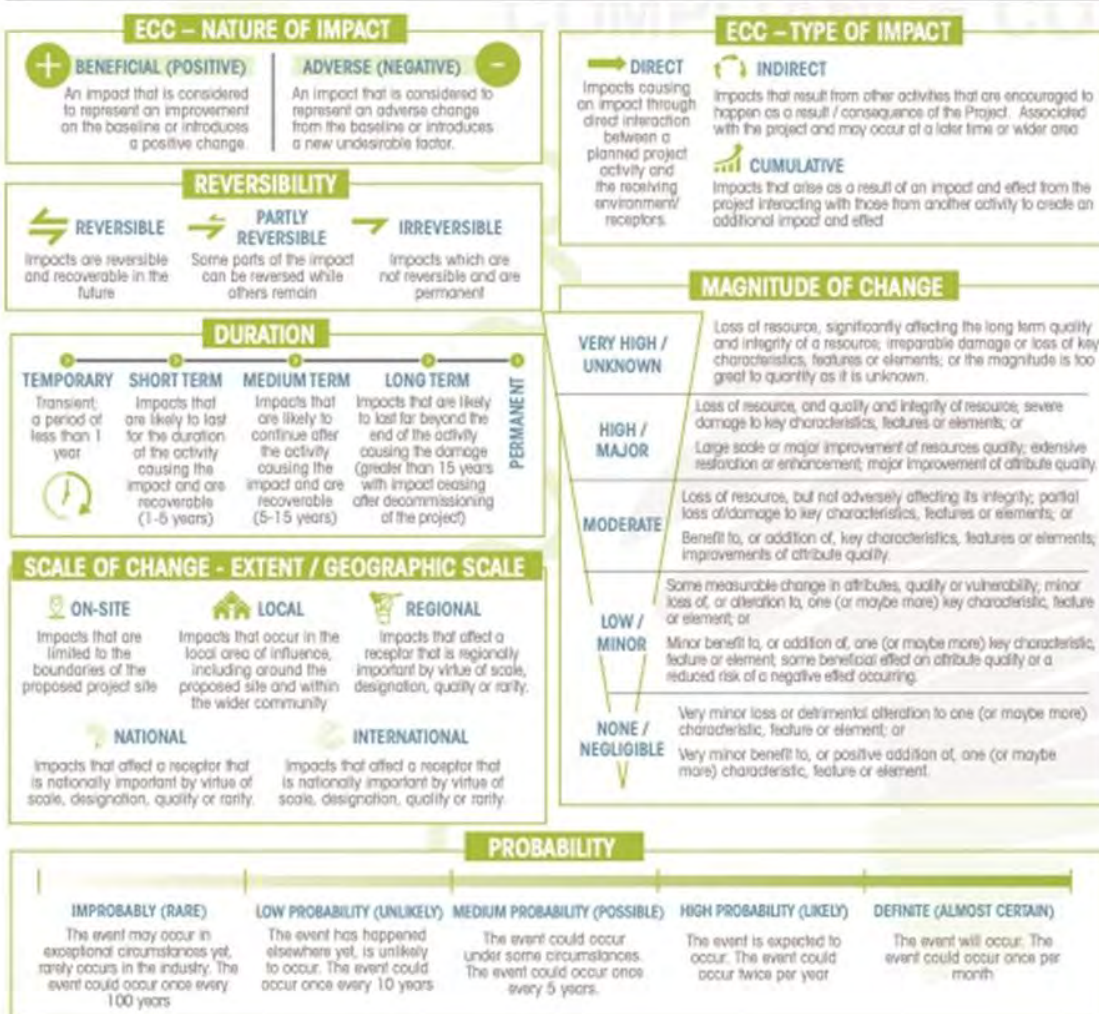
The impact assessment methodology (or method) described in this chapter by ECC is designed to systematically identify and evaluate potential environmental and social impacts that may arise from a proposed Project. The method takes into consideration the baseline characteristics of the Project area and assesses the significance of impacts based on various factors, including the sensitivity and value of environmental and social receptors, the nature and characteristics of the potential impact and the magnitude of potential change.

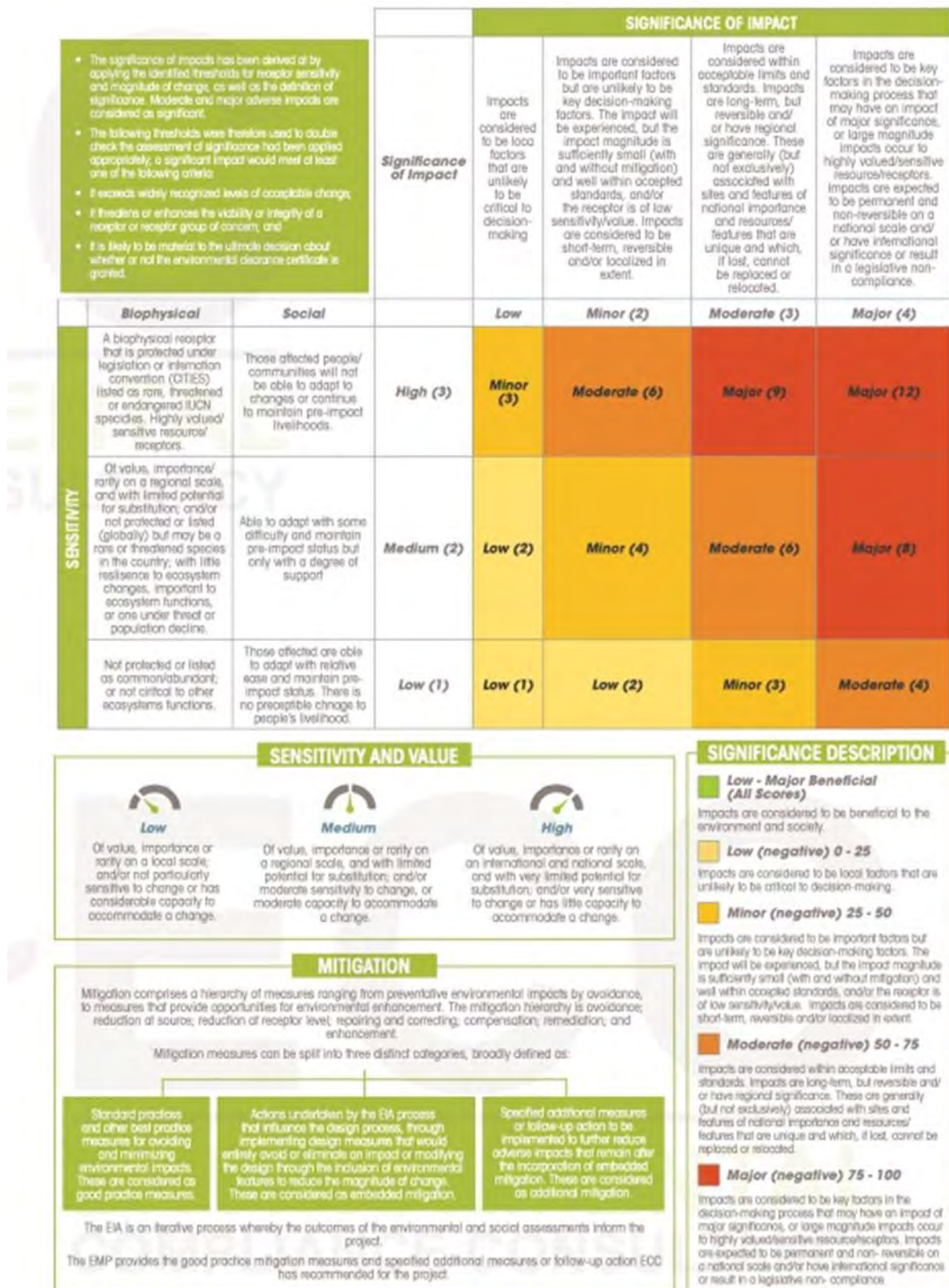
The method shown in Figure 16 provides assessment guidance that is used to evaluate impacts, and it also acknowledges any limitations, uncertainties and assumptions associated with the assessment methodology. It outlines how impacts are identified and evaluated and how the level of significance is derived. The method also addresses the application of mitigation measures in the assessment and how additional mitigation measures are identified.

This chapter provides a structured approach for evaluating the potential impacts of the proposed Project on the environment and social aspects. It considers various factors to determine the significance of impacts and provides guidance on how to identify and evaluate potential impacts. It also recognises the limitations and uncertainties associated with impact assessment methodologies, which adds transparency and credibility to the assessment process.

Overall, this chapter provides a comprehensive and systematic approach for conducting impact assessments, which can help ensure that potential environmental and social impacts are thoroughly evaluated and addressed in the decision-making process for the proposed Project.

ECC IMPACT PREDICTION AND EVALUATION METHODOLOGY





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Figure 16 - ECC ESIA methodology based on IFC standards

6.2 ASSESSMENT GUIDANCE

The principal documents used to inform the assessment method are:

- International Finance Corporation (IFC) standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2012 and 2017);
- International Finance Corporation Cumulative Impact Assessment (CIA) and Management Good Practice Handbook (International Finance Corporation, 2013); and
- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

6.3 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

The limitations and uncertainties associated with the assessment methodology in Namibia were observed to include the absence of topic-specific assessment guidance, with a generic methodology being applied based on IFC (International Finance Corporation) guidance and professional judgement with over 40 years of ESIA experience. This implies that there may be limitations in terms of tailoring the assessment to specific topics or issues relevant to Namibia, and that the methodology may not fully capture the unique characteristics and nuances of the local context.

The impact assessment process also acknowledges that the presence of uncertainties and assumptions were made based on realistic worst-case scenarios to ensure that potential environmental and social impacts were identified and assessed comprehensively. These assumptions and uncertainties were identified and documented during the assessment process, shown in line with best practice.

It is important to note that the limitations and uncertainties identified in the assessment methodology, shown in Table 6, may introduce potential biases or inaccuracies in the assessment results. Therefore, it is recommended to regularly review and update the methodology to address these limitations and uncertainties, and to ensure that it remains robust and relevant for the specific context of Namibia. Additionally, incorporating stakeholder feedback and local knowledge can also contribute to improving the accuracy and comprehensiveness of the assessment process.

Table 6 - Limitations, uncertainties and assumptions

Topic	Assumption/uncertainty
Topic-specific assessment guidance has not been developed in Namibia.	A generic assessment methodology will be applied to all topics using IFC guidance and professional judgement.
Construction methodology	Detailed construction methods, contractor appointments and construction schedules have not been finalised. The construction activities will be limited to site preparation, earthworks, installation of

Topic	Assumption/uncertainty
	underground storage tanks, construction of associated infrastructure and connection to municipal services.
Environmental and social baseline data	Data gaps in specific environmental or social indicators and the accuracy and reliability of existing data sources.
Fuel demand and economic benefits	Future fuel demand, customer numbers and associated economic benefits are subject to market conditions, mining sector activities and regional economic growth.

6.4 CUMULATIVE IMPACTS

Cumulative impacts may arise because of other Project activities (intraspecific), or due to the combination of two or more projects in the Project area (interspecific). A cumulative impact assessment (CIA) will be undertaken by applying the IFC CIA Good Practice Handbook (International Finance Corporation, 2013), which recommends that a rapid CIA is undertaken. A rapid CIA takes into consideration the challenges associated with a good CIA process, which include a lack of basic baseline data, uncertainty associated with anticipated development, limited government capacity, and the absence of strategic regional, sectoral, or integrated resource planning schemes.

The following five-step rapid CIA process will be followed:

1. Scoping – determine spatial and temporal boundaries.
2. Receptor identification – identify valued environmental and social receptors and identify reasonably foreseeable developments.
3. Determine the present conditions of valued environmental and social receptors (the baseline).
4. Evaluate the significance of the cumulative impacts.
5. Identify mitigation measures to avoid or reduce cumulative impacts.

The following information will be applied to the assessment in line with the above steps and IFC guidance:

- The spatial and temporal boundaries of the CIA are the extent of the Project boundaries and the duration of the construction and operation phases of the proposed Project.
- Valued environmental and social receptors that may be affected.
- A review of existing and reasonable, anticipated and/or planned developments has been undertaken, which is based on the information presented in chapter 4.
- The predicted future conditions of sensitive and common environmental and social receptors have been taken into consideration in the assessment.
- The assessment findings will be presented in the assessment report and will have the CIA applied in combination with professional judgment and published environmental assessment reports.
- A review of mitigation and monitoring measures will be undertaken, with any additional ones identified.

6.5 MITIGATION

Impacts that are identified throughout the draft scoping plus impact assessment process will be subjected to a process of impact mitigation, which is inherent in all aspects of the ESIA system. Embedded mitigation and good practice mitigation will be considered in the assessment. Additional mitigation measures will be identified when the significance of an impact requires it and causes the impact to be further reduced.

The principal of impact mitigation comprises a hierarchy of measures ranging from preventative environmental impacts by avoidance, to measures that provide opportunities for environmental enhancement and will be applied to all impacts associated with the proposed Project. The mitigation hierarchy is avoidance; reduction at source; reduction at receptor level; repairing and correcting; compensation; remediation; and enhancement. The draft ESMP for the Project provides good practice measures of the impact mitigation and specifies additional measures or follow-up action where required. On completion of the impact assessment, the mitigation measures from the impact assessment and recommendations are then incorporated into the draft ESMP (Appendix A).

Mitigation measures can be split into three distinct categories, broadly defined as:

- Actions undertaken by the ESIA process that influence the design process, through implementing design measures that would entirely avoid or eliminate an impact or modifying the design through the inclusion of environmental features to reduce the magnitude of change. These are considered embedded mitigation;
- Standard practices or other best practice measures for avoiding and minimising environmental impacts. These are considered good practice measures; and
- Specified additional measures or follow up actions to be implemented, to further reduce adverse impacts that remain after the incorporation of embedded mitigation. These are considered additional mitigation measures.

Where additional mitigation is identified, a final assessment of the significance of impacts (residual impacts) will be carried out, taking into consideration the additional mitigation.

The draft ESMP provides an outline of the good practice measures and specified additional measures or follow up actions to be undertaken. The Project approved final ESMP becomes a legal document once approved by the DEAF.

7 IMPACT ASSESSMENT FINDINGS AND PROPOSED MITIGATION MEASURES

This chapter presents the findings of the impact assessment for the proposed Project, with a focus on significant potential impacts. Impacts deemed as not significant are listed (Table 7) and are not discussed further in this report. The environmental and social assessment considered the Project design, baseline environmental and social conditions and best-practice mitigation measures to identify and evaluate potential impacts associated with the construction and operational phases.

The following aspects were considered during the draft scoping plus impact assessment phase:

- Air quality;
- Noise;
- Hazardous and hydrocarbon substances and potential spills;
- Surface and ground water quality;
- Soil quality;
- Traffic impacts;
- Cultural and heritage;
- Visual;
- Impacts on biodiversity (fauna, flora and avifauna);
- Socio-economic impacts (employment creation, skills development, local economy and national economy);
- Biophysical cumulative impacts; and
- Socio-economic cumulative impacts.

Impacts deemed as potentially significant are assessed in terms of their severity, duration, probability, sensitivity to receptors and nature of impact before mitigation, otherwise stated. Best management practices are stated where required.

Mitigation measures will focus on reducing the effects of the potential impacts and ensure an acceptable measure of operation can be maintained when an impact cannot be avoided completely. The draft ESMP has been compiled to accompany this draft scoping plus impact assessment report, which provides best practice, management, mitigation measures and monitoring requirements for the Project.

The impacts deemed as not significant are discussed in section 7.1 whereas, the potential environmental and social impacts associated with the proposed Project are discussed in detail in section 7.2.

7.1 IMPACTS DEEMED AS NOT SIGNIFICANT

Impacts that have been assessed as not being significant are summarised in Table 7 and are not discussed further. The listed impacts are expected to be of low significance due to the already disturbed nature of the Project site and the relatively small extent of the Project footprint. These impacts are not expected to result in significant environmental threats or adverse challenges that materially challenges the environment to continue in its modified form.

Table 7 - Table of non-significant impacts

Environmental and social topic	Potential impact	Summary of preliminary assessment findings
Land use	The modified land may no longer be suitable for future development projects.	- The Project site is within a well-established residential and commercial space and is already disturbed. - At the decommissioning phase, infrastructure can be removed and the site rehabilitated to allow for future redevelopments.
Sense of place	Loss of sense of place for road users travelling along the B2 and residents.	- The location of the proposed fuel station is close to the entrance of Karibib from Omaruru direction and is already semi-disturbed, with no significant land features.
Climate change	Potential for Project activities to emit greenhouse gases (GHGs) and contribute to climate change.	- The construction phase will generate GHG emissions through the use of construction vehicles, equipment and fuel combustion. However, the Project will not involve energy-intensive industrial processes, and the resulting emissions are expected to be limited in scale and duration. Therefore, the Project is not anticipated to make a significant contribution to global climate change.

7.2 SIGNIFICANT IMPACTS

7.2.1 SOCIO-ECONOMIC ENVIRONMENT – ECONOMIC

The socio-economic impact assessment considers both the social and economic effects associated with the proposed Project. The construction and operations of the proposed fuel service station are expected to result in several socio-economic benefits, including employment creation, skills development, local procurement and business opportunities, improved fuel availability and service delivery, support to key economic sectors such as mining, transport and tourism and revenue generation for the KTC and the Government through rates, taxes and other statutory contributions. An overview of the significant socio-economic impacts of interest to stakeholders and the local community prior to the implementation of mitigation measures is presented in Figure 17, for illustrative purpose only. Each specific impact is discussed in further detail in the sections below.

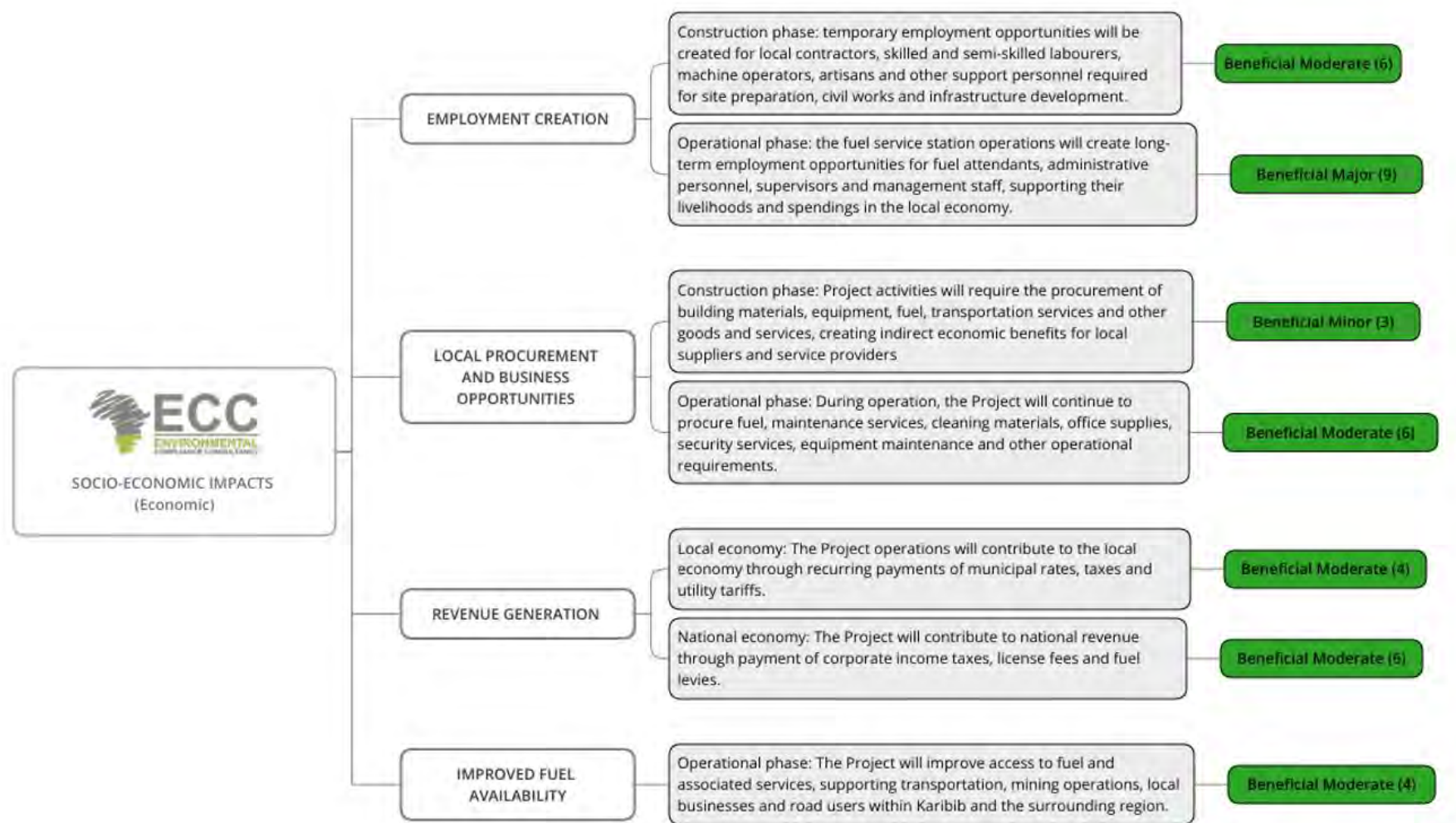


Figure 17 - An overview of the socio-economic impacts (economic)

7.2.1.1 Employment creation – construction and operational phase

7.2.1.1.1 Temporary employment opportunities during the construction phase

Construction activities will require the engagement of contractors (skilled and semi-skilled labourers), equipment operators, artisans and support personnel to undertake site preparation, earthworks, civil works and infrastructure installation. This will create temporary employment opportunities for residents of Karibib and the surrounding areas, contributing to and supporting local economic activities.

The impact is considered direct and beneficial as employment opportunities arise directly from the implementation of the Project. Although employment during construction is temporary, it is considered definite as workers will be required throughout the construction period. The impact is reversible since employment opportunities will cease once construction activities have been completed.

The magnitude of change is considered moderate as the Project will create a limited number of temporary jobs but will nevertheless provide meaningful socio-economic benefits to the local community. The duration of impact is considered temporary, corresponding to the construction period (~ six (6) months). The extent of the impact is expected to be regional as employment opportunities may benefit residents of Karibib and nearby settlements. The probability of the impact occurring is definite, since labour will be required to construct the proposed development. The sensitivity of receptor is rated medium due to the temporary nature of the employment opportunities, thus implying that the socioeconomic benefits cease upon completion of the construction phase. Overall, the significance of the impact is considered beneficial moderate (Table 8). No mitigation measures are required.

7.2.1.1.2 Permanent employment opportunities during the operational phase

The operational phase will create permanent employment opportunities for fuel attendants, cashiers, administrative personnel, supervisors, maintenance staff, cleaners, security personnel and management staff. These long-term employment opportunities will provide a stable source of income and contribute to sustainable economic development within the local community.

The impact is considered direct, beneficial, as employment is essential for the ongoing operation of the facility. Unlike the construction phase, these employment opportunities are expected to continue throughout the operational life of the Project. Therefore, the duration of the impact is rated long-term (> 15 years).

The magnitude of change is considered moderate, while the extent of the impact is considered local as employment opportunities will primarily benefit residents of Karibib. The likelihood of

the impact is considered definite as various operational and administrative positions are required to be filled as part of the fuel service station operations. The sensitivity of receptor is rated high as permanent employment opportunities will generate long-term income generating opportunities to the labour force. Overall, the significance of the impact is considered beneficial major (Table 8). No mitigation measures are required.

7.2.1.2 Local procurement and business opportunities – construction and operational phase

7.2.1.2.1 Economic benefits through procurement processes during the construction phase

Construction activities will require the procurement of construction materials, fuel, machinery, transport services, accommodation, catering and other goods and services. To the extent that these products and services are sourced locally, the Project will stimulate business activities and generate direct economic benefits for local suppliers, contractors and service providers. The injection of capital into the local economy will stimulate commercial activities, increase income for businesses and service providers.

The impact is considered indirect and beneficial, as Project expenditure on goods and services will support local businesses and stimulate economic activities. The impact is considered reversible as demand for these goods and services will decline upon completion of the construction phase, since procurement activities will decline following completion of construction. The Project will require a range of goods and services throughout the construction phase. Therefore, the likelihood of the impact occurring is deemed definite.

The magnitude of change is considered moderate as the Project will inject expenditure into the local economy through the procurement of construction materials, equipment hires and other goods and services. Procurements will likely be through contractors and subcontractors. The duration of impact is considered temporary, being limited to the construction phase (expected to be within six (6) months). The extent of the impact is rated local, as benefits are likely expected to be concentrated to retail businesses in Karibib. The sensitivity of receptor is rating low as the economic benefits are temporary and the local economy is resilient and will be capable to absorb short-term changes without long-term disruptions. in duration. Overall, the significance of the impact is expected to be beneficial minor (Table 8). No mitigation measures are required.

7.2.1.2.2 Economic benefits through procurement processes during the operations phase

During operations, the Project will continue to procure fuel, maintenance services, cleaning materials, office supplies, security services, equipment maintenance and other operational requirements. The presence of the fuel service station is also expected to stimulate secondary economic opportunities by increasing customer traffic to surrounding commercial establishments. The impact is considered direct, beneficial as continuous local procurement is

a core operational activity and benefits are immediate and attributable directly from Project expenditure.

The duration of the impact is assessed as long-term as procurement activities will continue throughout the operational phase (> 15 years). Additionally, the extent of the impact is considered regional, particularly with regard to fuel procurement and specialised maintenance services. The probability of the impact occurring is rated high considering that procurements of operational inputs are required to ensure continuous operations.

The magnitude of change is rated moderate as there will be guaranteed and continuous spendings throughout the operational phase. This will generate revenues for suppliers, service providers and retail shops. The sensitivity of the receptor is rated medium as local supplier may not only be dependent on the Project for income. In addition, long-term contractual agreements are expected to provide stability, rather than create significant vulnerability. Overall, the significance of the impact is rated beneficial moderate (Table 8). No mitigation measures are required.

7.2.1.3 Revenue generation – local and national economy

7.2.1.3.1 The Project's contribution to the local economy during the operational phase

During operations, the proposed fuel service station will make ongoing financial contributions to the KTC through the payment of municipal rates and taxes, water and electricity tariffs and waste management charges. These payments will contribute to the KTC's revenue base.

The impact is considered direct and beneficial, as the operations of the fuel service station will generate continuous revenue streams for the KTC through the utilisation of municipal services and payment of statutory municipal charges. The likelihood of the impact occurring is rated definite as payment for municipal rates, utility tariffs and service charges is a mandatory requirement for all commercial establishments. The extent of the impact is rated local as the financial benefits will accrue directly to the KTC and these benefits will only exist while the fuel service station is operational. Therefore, the impact is reversible. The duration of the impact is rated long-term, reflecting the Project's lifespan (> 15 years).

The magnitude of change is rated moderate as the Project will make long-term recurring payments, which will contribute to the Town Council's financial resources for the maintenance of municipal infrastructure and delivery of public services, although the contribution is not expected to significantly influence municipal finances in isolation. The sensitivity of the receptor is rated low as the KTC derive revenue from multiple sources and is not solely reliant on the Project for its financial sustainability. Overall, the significance of the impact is rated beneficial moderate (Table 8).

7.2.1.3.2 The Project's contribution to the national economy during the operational phase

During operations, the Project will contribute to the national economy through the payment of corporate income tax, value-added tax (VAT), fuel levies, licence and permit fees and other statutory charges. By providing a reliable fuel supply, the Project will also support the continued functioning and growth of key economic sectors such as mining, transport, agriculture, construction and tourism.

The impact is considered beneficial, direct and reversible as these financial contributions and broader economic benefits will arise from the ongoing operations of the Project. The probability of the impact is considered definite as the Proponent will be legally required to make statutory payments to Government throughout the Project's lifespan. The duration of the impact occurring is considered long-term (> 15 years) as the economic benefits associated with fiscal contributions and ongoing operational expenditure will persist for the full operational life of the Project. The extent of the impact is considered national as the Project will contribute to government revenue through taxes, licence and permit fees, fuel levies and other statutory payments that accrue at the national level.

Both magnitude of change and sensitivity of the receptor are rated low as the Project's economic contribution will be incremental rather than transformational. Although the Project will generate ongoing fiscal revenue and support commercial activity, the scale of these contributions is relatively limited when considered within the context of the national economy. Overall, the significance of the impact is rated beneficial moderate (Table 8). No mitigation measures are required.

7.2.1.3.3 Improved fuel availability, service delivery and support to the mining and transport sectors

The operation of the Project will improve the availability of fuel and associated retail services within Karibib, thereby enhancing convenience for local residents, tourists, and road users travelling along the B2 national road. The additional fuel retail capacity is also expected to alleviate pressure on existing service stations, contributing to improved service delivery and reduced waiting times during periods of high demand.

The impact is considered beneficial, direct, cumulative and reversible as the Project will provide reliable and accessible supply of fuel and associated retail services to the surrounding community, road users, transport operators and nearby mines. The likelihood of the impact occurring is considered definite as these benefits are inherent outcomes of the Project's operations and will be realised for as long as the Project is operational. The duration of the impact is rated long-term, in line with the anticipated Project lifespan (> 15 years).

The extent of the impact is considered regional as the Project is strategically located along the B2 national road and will serve users from Karibib and surrounding settlements, commercial transport operators, tourists and mining operations within the wider region.

The magnitude of change is considered high as the Project will present a positive change to the existing level of service provision and ensure a reliable fuel supply to key sectors such as mining, transport, tourism and local businesses. The sensitivity of the receptor is rated low as the Project will enhance an existing fuel supply network and service delivery, rather than introducing a dependency on a new service. Overall, the significance of the impact is rated beneficial moderate (Table 8). No mitigation measures are required.

Table 8 - Socio economic environment – economic impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of Impact
Fuel service station construction activities	– Local community (Karibib residents)	Temporary employment opportunities	Beneficial Direct Reversible Temporary Regional Definite	Medium	Moderate	Beneficial Moderate (6)
Fuel service station operational activities	– Local community (Karibib residents)	Permanent employment opportunities	Beneficial Direct Reversible Long-term Local Definite	medium	Moderate	Beneficial Major (9)
Fuel service station procurement activities during the construction phase	– Local economy	Support to the local economy through direct procurement processes	Beneficial Direct Reversible Short term Local Definite	Low	Moderate	Beneficial Minor (3)
Fuel service station procurement activities	– Local and regional economy	Local procurement and business opportunities	Beneficial Direct Reversible Long term Regional	Medium	Moderate	Beneficial Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of Impact
			High probability			
Fuel service station operational activities	– KTC	Revenue generation through recurring payment of municipal rates, taxes and utility tariffs	Beneficial Direct Reversible Long-term Local Definite	Low	Moderate	Beneficial Moderate (4)
Fuel service station operations	– National economy (GDP)	Revenue generation through recurring payment of corporate income tax, VAT and fuel levies	Beneficial Direct Reversible Long-term National Definite	Low	Low	Beneficial Moderate (4)
Fuel service station operations	– Residents, mining operators and transport operators	Improved fuel availability and service delivery to residents, transport operators and mining operators	Beneficial Cumulative Reversible Long-term Regional Likely	Low	High	Beneficial Moderate (4)

7.2.1 SOCIAL ECONOMIC ENVIRONMENT – SOCIAL

The social impact assessment considers the potential effects of the proposed Project on surrounding communities, road users, customers and employees. The most significant social impacts identified for the Project relate to temporary construction disturbances, increased traffic movements and community health and safety risks associated with the storage and handling of fuel products. An overview of the social impacts is shown in Figure 18, before mitigation. Figure 18

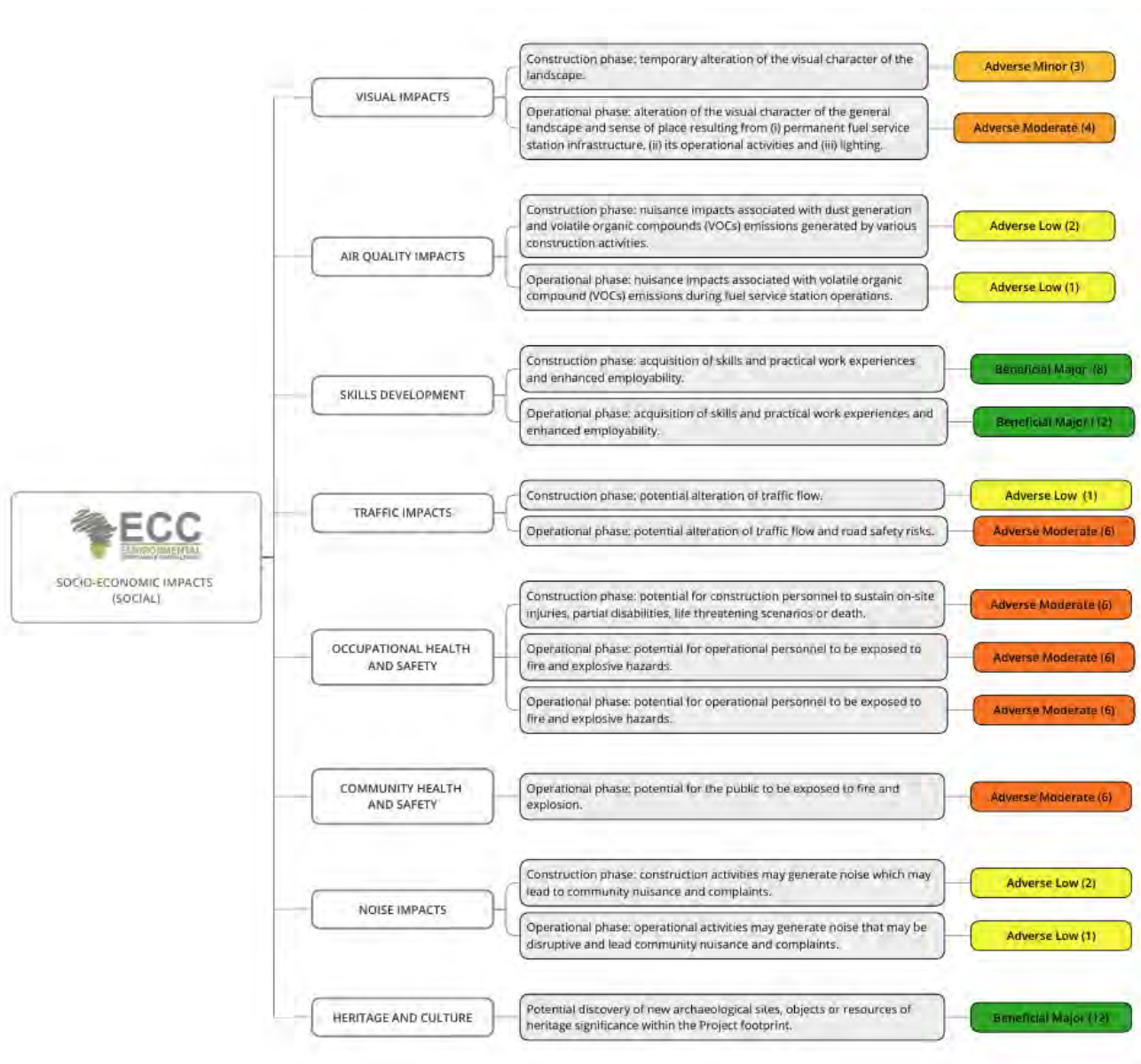


Figure 18 - An overview of the social impacts

7.2.2.1 Visual impacts

Visual impacts relate to changes in the existing visual character of the area arising from the construction and operation of the fuel service station. Key visual elements include the canopy, fuel pumps, signage, lighting, kiosk, carwash facilities and associated infrastructure. The specific visual impacts are discussed in detail in the sections below, before mitigation.

7.2.2.1.1 Temporary alteration of the visual character of the landscape during construction

During the construction phase, the visual character of the Project site and its immediate surrounding will be temporarily altered through site clearing, earthworks, material stockpiling, the establishment of laydown areas and the presence of construction equipment and

personnel. The use of lifting equipment will not be used for extended periods of time (e.g. cranes).

The nature of this impact is rated adverse, direct and reversible as construction activities will temporarily alter the visual character of the Project site through site preparation, earthworks, the presence of construction equipment, personnel and temporary structures. The resulting visual disturbance will be confined to the construction phase and will cease upon completion of construction activities and following rehabilitation of disturbed areas and removal of temporary structures. Therefore, the duration of the impact is rated temporary, in accordance with the anticipated one-year construction period. The likelihood of the impact is rated definite as deployment of construction equipment on-site; establishment of temporary structures and site preparation works are integral components required to establish the proposed fuel service station. The impact is localised as construction activities will be confined to the Project site and visual disturbance will be visible from the adjacent B2 national road and neighbouring properties. However, these effects are unlikely expected to influence the broader landscape. Both magnitude of change and sensitivity of the receptor are rated low as the construction-related visual disturbance will be temporary, localised and reversible. The broader urban area has already been modified by existing development and infrastructure and surrounding visual receptors and motorists travelling on the B2 national road are accustomed to commercial development and urban activities. Overall, the significance of the impact is rated adverse minor, before mitigation (Table 9). The mitigation measures are provided in the draft ESMP (Appendix A).

7.2.2.1.2 Alteration of the visual character of the general landscape and sense of place resulting from (i) permanent fuel service stations infrastructure, (ii) its operational activities and (iii) lighting

The proposed Project will introduce new built infrastructure, artificial lighting and operational activities that will modify the immediate visual character of the Project area. However, the broader urban environment is already developed and has similar visual intrusive elements associated with commercial and service-related infrastructure. Therefore, the resultant visual changes are expected to be compatible with the existing urban landscape dynamics.

The impact is considered adverse, direct and partly reversible as the fuel service station and its associated infrastructure will introduce additional built infrastructure, operational activities and lighting that will alter the existing visual character of the site. Additionally, the visual impact results directly from the existence and operation of the fuel service station and its associated infrastructure. The visual changes associated with operational activities and lighting would cease once the fuel service station is decommissioned. Therefore, the impact is rated as partly reversible. The impact is localised as the fuel service station; its artificial lighting and associated infrastructure will be visible to passing motorists on the B2 national road and nearby land users/residents. However, the visual influence will diminish rapidly with increasing distance from the site. The duration of this impact is rated long-term as the fuel service station is

expected to remain operational for a period exceeding fifteen (15) years. The associated visual changes to the area, arising from the existence of permanent infrastructure, lighting and ongoing operational activities are anticipated to persist throughout the operational life of the Project. The likelihood of the impact occurring is rated definite as the resulting visual changes will occur throughout the operational life of the fuel service station and the fuel service station will be operational 24 hours a day (day and night) throughout the year. Lighting will be used at night for safe operations.

The magnitude of change is rated low as the proposed development is expected to reinforce the prevailing urban character rather than introduce a distinctly new visual element. Both daytime and nighttime views are characterised by built infrastructure, vehicular movements and artificial lighting. The sensitivity of the receptor is rated low as the primary visual receptors are passing motorists on the B2 national road and nearby land users/residents, who are accustomed to the existing built urban environment. As a result, the development is expected to be perceived as a continuation of the town's established urban development patterns and would integrate into the surrounding built environment, rather than being perceived as a visually intrusive element. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 9).

Mitigation measures are discussed further below and included in the draft ESMP (Appendix A):

- Ensure that all outdoor lighting is directional, downward-facing and appropriately shielded to minimise light spill, glare and unnecessary illumination beyond the Project boundaries;
- Switch off or dim non-essential external lighting outside operating hours, where operationally and safety feasible;
- Maintain all buildings, canopies, signage, lighting and other infrastructure in good condition through routine inspections and maintenance to preserve the visual quality of the site;
- Keep the site clean and well maintained through regular housekeeping, including the prompt removal of litter, waste and redundant materials from public view;
- Designate appropriate storage areas for equipment, supplies and waste to prevent clutter and minimise visual intrusion;
- Ensure that waste is stored in enclosed or screened receptacles and removed regularly by a licensed waste contractor;
- Maintain illuminated signage in accordance with applicable municipal requirements, ensuring that illumination levels are appropriate and do not result in excessive glare or visual disturbance to surrounding land uses or passing motorists; and
- Conduct routine inspections of the site to identify and rectify any factors that may detract from the visual appearance of the facility, such as damaged infrastructure, faded signage or malfunctioning lighting.

Table 9 - Visual impact assessment ratings

Activity	Receptor	Impact	Nature of Impact	Value and sensitivity	Magnitude of change	Significance of impact
Construction activities, deployment of equipment and machinery on-site	Motorists travelling on the B2 national road and occupants of neighbouring properties.	Alteration of the visual landscape during the construction phase	Adverse Direct Reversible Local Temporary Definite	Low	Low	Adverse Minor (3)
Fuel service station operations	Residents and motorists travelling on the B2 national road	Alteration of the visual landscape resulting from the fuel service station infrastructure, its operational activities, artificial lighting and signage.	Adverse Direct Partly reversible Local Long-term Definite	Low	Low	Adverse Moderate (4)

7.2.2.2 Air quality impacts

Air quality impacts associated with the proposed Project are expected to arise during both the construction and operational phases. During construction, the primary source of emissions will be fugitive dust generated from site preparation, earthworks, excavation activities and vehicle movements on exposed surfaces. During operations, air quality impacts will mainly result from vehicle exhaust emissions, fuel tanker deliveries and minor fuel vapour emissions associated with the storage and dispensing of petrol and diesel. The specific air quality impacts are discussed in detail in the sections below, before mitigation.

7.2.2.2.1 Nuisance impacts associated with dust generation, volatile organic compounds (VOCs), sulphur dioxide (SO₂) and nitrogen dioxide (NO₂) emissions generated by various construction activities

Construction activities such as land clearing, earthworks, movement of construction vehicles, operation of construction machinery, the handling of construction materials and the handling of fuels and other hydro-carbon by-products on-site have the potential to generate dust and VOCs emissions that may impact nearby air quality sensitive receptors (AQSRs) (i.e. (nearby land users, residents and road users travelling on the B2 national road). The extent of these impacts

will depend on factors such as the duration of construction activities, distance from source and prevailing weather conditions.

The nature of this impact is considered adverse as construction activities may generate dust and VOCs emissions, which could temporarily propagate within the immediate Project area and impact AQSRs. The propagation, intensity and extent of these emissions will be influenced by prevailing weather and atmospheric conditions, particularly wind speed and direction. The impact is considered direct as it will occur as a direct result of construction activities and is considered reversible as these emissions are expected to dissipate following the completion of construction activities and cessation of emission-generating activities. The duration of the impact is rated temporary as construction activities are expected to be completed within one (1) year. This impact is localised because there is potential for dust, airborne, SO₂, NO₂ and VOCs emissions to disperse beyond the Project footprint under certain weather conditions and impact nearby AQSRs. The likelihood of the impact occurring is rated medium (possible) as the occurrence and extent of dust and VOCs emissions will depend on the intensity of construction activities and prevailing weather conditions.

Although dust, SO₂, NO₂ and VOCs emissions may result in temporary deterioration of ambient air quality, the magnitude of change is rated low as the construction timeframe is short and expected changes are expected to be minor due to relatively small scale of the development. Additionally, significant dust clouds or elevated VOCs emission are unlikely expected as the nature of construction activities does not include extensive land clearing, major excavation works, extension equipment/machinery idling periods (apart from lifting operations) or other pro-longed emission-generating activities of a significant scale. The sensitivity of the impact is rated low as the primary AQSRs are accustomed to background dust levels, vehicle emissions and are expected to adapt to general urban air quality fluctuations associated with ongoing development and activities within the town. Overall, the significance of the impact is rated adverse low, before mitigation (Table 10). Mitigation measures are provided in the draft ESMP (Appendix A).

7.2.2.2.2 Nuisance impacts associated with VOC emissions during fuel service station operations

The routine operational activities of the fuel service station have the potential to result in localised VOCs emissions during fuel storage, transfer and dispensing activities as well as exhaust emissions from customer vehicles and fuel delivery trucks.

The nature of this impact is considered adverse, direct and reversible as routine fuel handling and dispensing may result in minor VOC emissions, in addition to those generated by exhaust emissions from customer's vehicles and fuel delivery trucks. These emissions are directly associated with normal fuel service station operations and are expected to cease once the operations ceases. The duration of the impact is rated as long-term, as emission-generating

activities will likely occur throughout the operational lifespan of the fuel service station (> 15 years).

However, the extent of the impact is considered on-site, as VOCs emissions are expected to remain within operational areas and unlikely to disperse into the broader Project area. The potential for dust generation is also limited as all operational areas within the Project footprint will be paved. The likelihood of complaints occurring is considered improbable, as although minor emissions are expected during normal fuel service station operations, these are unlikely to result in measurable deterioration of ambient air quality.

The magnitude of change is rated as low as emissions are not expected to cause significant changes to the ambient air quality conditions. The sensitivity of the receptor is considered low, as no surrounding receptors will likely be impacted under normal operating conditions. Overall, the significance of the impact is rated adverse low, before mitigation (Table 10). The mitigation measures are provided in the draft ESMP (Appendix A).

Table 10 - Air quality impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Construction activities (land clearing, earthworks, material handling and machinery operation)	Nearby residents, businesses and road users on the B2 national road.	Dust generation, VOC emissions resulting in nuisance reception from surrounding AQSRs and road users traveling on the B2 national road.	Adverse Direct Reversible Temporary Local Medium (possible)	Low	Low	Adverse Low (2)
Operational activities (fuel handling, dispensing and vehicle movements)		VOCs generation and nuisance reception from AQSRs	Adverse Direct Reversible Long-term On-site Improbable	Low	Low	Adverse Low (1)

7.2.2.3 Skills development

7.2.1.2.1 Acquisition of skills and practical work experiences during the construction phase

The construction phase will provide workers with practical experience and opportunities to develop technical skills in construction activities, equipment operation, occupational health and safety and environmental management. The acquisition of these skills is expected to enhance worker's future employability and contribute to the development of a more skilled local workforce beyond the Project's lifespan.

The impact is considered direct and beneficial as skills will be acquired through active participation in Project-related construction activities. The knowledge, competencies and practical experience gained by workers are expected to provide long-term benefits by improving future employment prospects. Therefore, the impact is regarded irreversible as the skills acquired will remain with individuals after completion of the construction phase. Additionally, the likelihood of the impact occurring is rated definite as on-the-job learning and skills transfer are inherent components of construction activities.

The magnitude of change is considered moderate, as the Project will enhance the technical capacity of engaged workers. The duration is considered permanent, as the acquired knowledge and competencies are expected to be retained beyond the construction phase. The extent of the impact is considered regional as trained personnel may apply these skills on similar projects within the broader Erongo region. The sensitivity of the receptor is rated medium as workers will benefit from skills development and practical work experience. Overall, the significance of the impact is considered beneficial major (Table 11). No mitigation measures are required.

7.2.1.2.2 Acquisition of skills and practical work experiences during the operational phase

The operational phase will provide employees with continuous opportunities for training and skills development in areas such as fuel handling, customer service, cash handling, occupational health and safety, fire prevention, emergency response, environmental management and equipment maintenance. These activities are expected to improve employee's competency, support their career advancement and contribute to the retention of transferable skills that remain valuable beyond employment with the Project.

The impact is considered direct and beneficial as ongoing skills development form an integral part of the Project's operational requirements. The acquired knowledge, competencies and practical experience are expected to provide lasting benefits by improving employee's long-term employability and career prospects. The acquisition of skills is regarded irreversible as the retained skills remain with individuals after they leave the Project.

The magnitude of change is considered high as permanent employees will be afforded with the opportunities to enhance their technical and professional capacity. The duration of the impact is rated permanent as the knowledge and skills acquired will be retained beyond the operational phase. The extent is considered regional as these transferable skills may be applied in similar projects within Erongo Region or elsewhere. It is anticipated that employees will progressively acquire practical experience and strengthen their technical and operational competencies through the routine execution of operational activities. Therefore, the likelihood of the impact occurring is rated high. The sensitivity of the receptor is rated high as skills development opportunities will enhance employee competency and career progression, enabling them to apply such skills in comparable industries and sectors in future. Overall, the significance of the impact is rated beneficial major (Table 11). No mitigation measures are required.

Table 11 - Impact assessment ratings related to skills development

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of Impact
Fuel service station construction activities	– Construction labour force	Skills development and enhanced employability	Beneficial Direct Irreversible Permanent Regional Definite	Medium	Moderate	Beneficial Major (8)
Fuel service station operational activities	– Operational workforce	Skills development and enhanced employability	Beneficial Direct Irreversible Permanent Regional Definite	High	Moderate	Beneficial Major (12)

7.2.2.4 Traffic and road safety impacts

This section assesses the potential traffic and transport related impacts associated with the proposed fuel service station during the construction and operational phases. The assessment focuses on the interaction between Project-generated traffic and surrounding road networks, with particular emphasis on the B2 national road, which provides access to the site. It considers existing traffic conditions, anticipated traffic generation, site access agreements and the need for potential need for traffic management measures to maintain road safety and efficient operation of road networks. The potential traffic impacts are discussed in the sections below, before mitigation.

7.2.2.4.1 Potential alteration of traffic flow during the construction phase

Construction activities will involve the movement of heavy vehicles, construction machinery, delivery trucks and workforce vehicles to and from the Project site. These vehicle movements will mainly use the B2 national road to access the Project site.

The impact is considered adverse, direct and reversible as Project vehicles will utilise the B2 national road in the same manner as other developments and routine road users in the Karibib area. Considering the relatively small scale of the Project and limited number of construction vehicles, no noticeable changes to traffic flow or operational performance of the B2 national road are anticipated. Any minor increases in traffic will be temporary and traffic conditions will be expected to return to baseline conditions upon completion of the construction phase. The likelihood of the impact occurring is rated low as no major alterations in traffic flows are anticipated and there will be varying frequency of vehicle movements throughout the construction period.

The magnitude of change is considered negligible as the increase in traffic generated during the construction phase will be minor, relative to existing traffic on the B2 national road. Additionally, construction related vehicles movements will not impact the capacity, level of service or safe operation of the surrounding road network. The sensitivity of the receptor is rated low as the road is an established national transport route designed to accommodate a range of vehicle types, including heavy vehicles and the Project is not expected to place significant additional demand on its capacity of functionality. Overall, the significance of the impact is rated adverse low, before mitigation (Table 12). The mitigation measures are provided in the draft ESMP (Appendix A).

7.2.2.4.2 Potential traffic interaction and road safety risks during the operational phase

During operations, the Project access point will connect directly to the B2 national road (Figure 5). Vehicles travelling on the B2 national road will be required to decelerate as they approach the access point to allow turning movements into the site, road signage will legally be installed. Similarly, vehicles exiting the fuel service station will merge with traffic on the B2 national road with caution and road signage. These interactions may temporarily influence traffic flow in the immediate vicinity of the access point and increase the potential for vehicle conflicts (interactions) and interactions with pedestrians, if not appropriately managed.

These traffic impacts are considered adverse, direct and reversible as they arise from traffic volumes associated with the fuel service station operations. The likelihood of the impact is rated medium as operations of the fuel service station will result in ongoing interactions between vehicles travelling on the B2 national road and those entering and exiting the site. These recurring turning and merging movements increase the likelihood of traffic conflicts at the site access. The duration of impact is rated long-term (> 15 years), aligned to the anticipated lifespan of the fuel service station. The extent of the impact is rated local as traffic-related impacts will be limited to the Project access point and adjacent sections of the B2 national road.

The impacts are not expected to impact traffic conditions of the wider road network, when considered in isolation.

The magnitude of change is rated moderate, reflecting that any changes to traffic flow will be localised to the site and will not significantly alter the functioning of the surrounding road network. The sensitivity of the receptor is rated medium as the B2 national road is an important regional transport corridor and the safe movement of existing road users must be maintained. The existing road environment at the Project access point may have limited capacity to accommodate additional turning, deceleration and merging movements without appropriate access management measures. Therefore, traffic interventions will be required to ensure smooth traffic movements. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 12).

Mitigation are listed below and are also included in the draft ESMP (Appendix A):

- The implementation of traffic management measures as outlined in the traffic management plan (TMP);
- Erect appropriate road signage, speed control measures and other traffic control measures (as approved in consultation with Roads Authority (RA), Karibib traffic department and KTC); and
- Scheduling of fuel deliveries during off-peak traffic periods.

Table 12 - Traffic impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of Impact
Vehicle movements during the construction phase	- The B2 national road, residents and road users	Increased vehicle movements, resulting in temporary alteration of traffic volumes and traffic flow.	Adverse Direct Reversible Temporary On-site Unlikely	Low	Low	Adverse Low (1)
Vehicle movements entering and exiting the site and traffic travelling on	- Pedestrians and road users on the B2 national road	Potential traffic interactions and road safety risks	Adverse Direct Reversible Long-term Local Medium probability	Medium	Moderate	Adverse Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of Impact
the B2 national road						

7.2.2.5 Occupational and community health and safety (OHS) impacts

Occupational health and safety impacts relate to potential risks that may affect employees, contractors and visitors during the construction and operational phases of the Project. These include the operation of machinery and vehicles, handling of fuels, hydrocarbons and hazardous substances, working around moving equipment and exposure to potential fire and explosion hazards. The implementation of appropriate health and safety procedures, training programmes and emergency response measures is therefore critical to minimise risks to workers. The occupational, health and safety impacts are discussed in detail in the sections below, before mitigation.

7.2.2.5.1 Occupational health and safety: potential for construction personnel to sustain on-site injuries, partial disabilities, life threatening scenarios or fatalities

Construction activities will involve excavation works, use of earthmoving equipment, use of lifting equipment (e.g. cranes, forklifts etc.) and various power tools and machinery which have the potential to expose workers to occupational health and safety hazards. Common injuries may result from slips, mishandling of power tools, standing under loads, working in confined spaces, contact with Project vehicles and machinery and exposure to hazardous substances. A fast paced, high-pressure environment significantly increases the risk of injuries. Minor injuries can include cuts, bruises and sprains, while more severe injuries may include fractures, dislocations, or traumatic head injuries. In extreme cases, fatalities may occur due to machinery accidents, working under extended loads or falls from working at heights.

Employee's health and safety are top priority in the workplace. Injuries sustained in the work environment can lead to partial disabilities and can significantly impact an individual's long-term well-being. These injuries not only compromise the health and well-being of employees but can also limit future employment prospects.

The nature of this impact is considered adverse, direct and will directly affect workers on-site. Injuries sustained may be irreversible as they could result in serious, permanent disabilities or even fatalities. The likelihood of the impact occurring is rated medium as the Proponent is expected to appoint contractors with a competent and skilled workforce capable of working safely under challenging conditions. Therefore, injuries are likely to result from accidents, rather than from incompetence or practical inexperience.

The magnitude of change is rated high due to varying degrees of injuries that could occur. The sensitivity of the receptor is rated high as injuries could lead to permanent disabilities or death,

which may restrict workers from securing future employment opportunities and assisting their families as potential bread winners. Overall, the significance of impact is rated adverse major, before mitigation (Table 13).

The Proponent, contractors and their subcontractors are expected to abide to the following occupational health and safety measures, which are also included in the draft ESMP (Appendix A):

- The Proponent is to incorporate occupational health and safety requirements into the bidding and tendering process to ensure contractors and subcontractors meet such standards;
- Construction personnel must always comply with site-specific health and safety requirements and safe work procedures, with particular attention to excavation works, the operation of machinery and vehicles, lifting activities and adverse weather conditions where these may increase safety risks;
- Provide the relevant training, conduct job safety risk assessment and share regular awareness information;
- The consumption of alcoholic beverages, drugs or toxic substances is not permitted on-site. Intoxicated workers should not be permitted on-site;
- Ensure that semi-skilled workers (if employed) receive comprehensive training and clear instructions on safe handling of tools and equipment;
- Conduct regular supervision and site inspections to monitor compliance with safety standards (e.g. that personal protective equipment (PPE) gears are appropriately worn and tools are securely stored and in a manner that prevent them from free falling); and
- Maintain records of all injury statistics, track corrective actions and record lessons learnt to improve safety practices on-site.

7.2.2.5.2 Occupational health and safety risks: potential for operational personnel to be exposed to fire and explosive hazards

The storage, handling and dispensing of petrol and diesel during the operational phase presents potential fire and explosion hazards to employees. Occupational exposure may occur during fuel dispensing, tanker offloading, equipment maintenance or emergency response activities, particularly in the event of fuel spills, equipment malfunction, electrical faults, static discharge or human error.

The nature of this impact is rated adverse, direct and irreversible as it could result in permanent health issues and compromised quality of life. The likelihood of the impact occurring is rated improbable considering that the fuel service station will be designed, constructed and operated in accordance with recognised engineering standards, established operational procedures and occupational health and safety management systems. Furthermore, there is no known record of significant fire or explosion incidents at licenced fuel service stations in Namibia attributed to routine operational activities. Nevertheless, should such an incident occur, the consequence

to employees could be severe or life threatening. The employees on-site are the primary receptors; therefore, the extent of the impact is rated on-site.

The magnitude of change is rated high as a fire or explosion involving the storage or dispensing of flammable fuels has the potential to result in serious injuries or fatalities to employees and significant disruption of operations. The sensitivity of the receptor is rated high as employees work routinely in close proximity to flammable petroleum products and associated equipment. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 13).

The required mitigation measures to reduce the impact are listed below and are also included in the draft ESMP (Appendix A):

- Develop and implement standard operating procedures (SOPs) for fuel dispensing, tanker offloading, equipment maintenance, spill response and ensure that all personnel are trained in their application;
- Install and maintain appropriate fire detection and firefighting equipment, including portable fire extinguishers suitable for flammable liquid fires and ensure that equipment is regularly inspected, tested and serviced;
- Maintain emergency contact information and demarcate an emergency assembly point and evacuation routes throughout the facility;
- Ensure that all fuel storage tanks, dispensing pumps, pipelines and associated equipment are routinely inspected, tested and maintained in accordance with the manufacturer's specifications and applicable standards;
- Prohibit smoking, open flames and other ignition sources (e.g. use of mobile phones) within designated hazardous areas, and display clear warning and prohibition signage throughout the facility;
- Maintain spill response equipment on-site and ensure that employees are trained in the prompt containment and clean-up of fuel spills; and
- Record, investigate and report all incidents, near misses and unsafe conditions, and implement corrective actions to prevent recurrence.

7.2.2.5.3 Community health and safety: potential public to be exposed to fire and explosion during operations

As discussed in section 7.2.2.5.2, the operation of the fuel service station presents an inherent risk of fire and explosion. This section assesses the potential impacts of such an event to customers, road users travelling on the B2 national road and adjacent roads, neighbouring land users, residents and business operators.

The nature of this impact is considered adverse, direct and irreversible as fire or explosion events could result in permanent damage to infrastructure, economic losses and serious injury or loss of life. The likelihood of the impact occurring is rated improbable as it is expected the fuel service station will be designed, constructed and operated in accordance with recognised engineering standards and are subject to established operational procedures, routine

inspections and maintenance. Furthermore, there are no known records of significant fire or explosion incidents associated with the routine operation of licenced fuel service stations in Namibia. Therefore, these events are not common. The extent of the impact is considered local as any impacts are expected to be confined to the fuel service station, the adjoining section of the B2 national road and neighbouring properties.

The magnitude of change is considered high as an uncontrolled fire or explosion could result in significant damage to the fuel service station and adjacent infrastructure, could disrupt operations, the surrounding road network, result in costly repairs and potential injuries to customers, road users and other members of the public within the immediate vicinity of the Project. The sensitivity of the receptor is rated high as the receptors comprises members of the public whose health and safety could be directly impacted by a fire or explosion. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 13).

The mitigation measures listed below are also included in the draft ESMP (Appendix A):

- Design, construct and operate the fuel service station in accordance with all applicable Namibian legislation, recognised engineering standards, and relevant fire safety and petroleum industry codes;
- Obtain and maintain all required operational permits, licences and fire safety approvals from the relevant competent authorities;
- Ensure that all employees receive induction and refresher training on fire prevention, hazardous material handling, emergency response procedures, and the correct use of firefighting equipment;
- Conduct routine inspections, preventative maintenance and testing of fuel storage tanks, dispensing pumps, pipelines, valves, electrical installations and associated equipment to identify and rectify defects before failures occur;
- Install emergency shut-off systems that enable the immediate isolation of fuel dispensing and transfer operations in the event of an emergency;
- Prohibit smoking, open flames and other ignition sources within designated hazardous areas;
- Ensure spill prevention and containment measures are implemented to minimise the accumulation of flammable vapours;
- Maintain effective communication and coordination with the local fire and emergency services, including providing them with current site layouts and emergency contact information; and
- Maintain adequate public liability insurance and ensure all incidents, near misses and emergencies are recorded, investigated and corrective actions implemented to prevent recurrence.

Table 13 - Occupational and community health and safety impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Fuel service station construction activities	Construction personnel	Potential risk of on-site injuries and accidents during the execution of construction activities	Adverse Direct Irreversible Permanent On-site Medium (possible)	High	High	Adverse Major (9)
Fuel service station operation	Operational workforce	Potential for personnel to be exposed to fire and explosive hazards	Adverse Direct Irreversible Permanent On-site Improbable	High	High	Adverse Moderate (6)
	Road users on the B2 national road and neighbouring community	Potential for the public to be exposed to fire and explosive hazards	Adverse Direct Irreversible Permanent Local Improbable	High	High	Adverse Moderate (6)

7.2.2.6 Noise impacts

Noise impacts may arise during both the construction and operational phases of the Project. Construction activities such as excavation, earthworks, vehicle movements, lifting equipment and the use of construction equipment and generators may temporarily elevate ambient noise levels. During operations, noise may be generated by customer vehicles, fuel tanker deliveries, fuel pumps, compressors, back-up generators and carwash facilities (e.g. pressure sprayers). The noise impacts are discussed in the sections below, before mitigation.

7.2.2.6.1 Construction activities may generate noise which may lead to public nuisance and complaints

Construction activities may generate noise which may be disruptive on the acoustic environment and the noise sensitive receptors (NSRs). Noise is expected to be generated by excavators/front end loaders, graders, haul trucks, water bowsers and bulldozers used for site preparation. Additional noise may be generated by trucks delivering materials or removing debris from site. The Project site is within a residential and recreational space and is bordered by homesteads, therefore, the NSRs identified are nearby communities and businesses (red polygon in Figure 19). Although construction activities are expected to generate noise that could lead to disturbances, such as discomfort and interference with communication, intolerable

noise levels are not expected to significantly propagate from the Project site. Additionally, construction activities are expected to be scheduled during daytime hours to minimise the likelihood of community disturbances and complaints.



Figure 19 - Aerial view of the Project site and the surrounding residential and commercial environment (Source: Google Earth, 2026)

Noise impacts are rated adverse and direct as they will result directly from Project construction activities. The impact is reversible as noise generation will cease upon completion of the construction phase. The duration of the impact is rated temporary as construction activities are anticipated to be completed within six (6) months. It is expected that the propagation of noise levels will be influenced by meteorological conditions and local topography. As a result, the impact is expected to be localised. Noise levels are expected to diminish with increasing distance from the Project site. Therefore, the NSRs will unlikely be significantly impacted. No work is expected to occur overnight and therefore rest periods will not be disturbed. As a result, the likelihood of the impact occurring is rated as low. Both the magnitude of change of the impact and the sensitivity of the receptor are rated low, construction-related noise levels are expected to be of limited intensity, localised and temporary on nature. Furthermore, the Project is located within an existing urban environment where ambient noise levels are already influenced by road traffic and commercial activities. Construction noise is therefore expected to blend with the prevailing background noise environment. Overall, the significance of impact is expected to be adverse low, before mitigation (Table 14). Noise attenuation measures are provided in the draft ESMP (Appendix A).

7.2.2.6.2 Operational activities may generate noise levels that may be disruptive and lead to community nuisances and complaints

The operation of the fuel service station has the potential to generate elevated noise levels that may impact the NSRs. However, the intensity and frequency of noise levels will vary depending on customer activities and general site activities. This includes vehicle movements into and out of the site, vehicle idling and acceleration, activities at the car wash bay and waste collection.

The impact is considered adverse, direct and partly reversible as noise will be generated directly by the day-to-day operation of the fuel service station. The duration of the impact is rated long-term (> 15 years) as operational activities will continue to generate noise throughout the life of the Project. The extent of the impact is considered local, as noise is expected to be largely confined to the Project site and neighbouring properties, with noise levels attenuating with increasing distance from the source. The propagation of sound will also be influenced by prevailing meteorological conditions, including wind direction and atmospheric stability.

It is expected that the fuel service station operations will unlikely generate excessive noise as operations will be comparable to operation of existing operational fuel service station. Therefore, the magnitude of change is rated low. The sensitivity of the receptor is rated low as the NSRs are already accustomed to existing urban and traffic-related noise. Overall, the significance of the impact is rated adverse low, before mitigation measures (Table 14). Noise attenuation measures are provided in the draft ESMP (Appendix A).

Table 14 - Noise impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Fuel service station construction activities	Nearby residents, businesses and road users	Noise generated by construction activities, vehicle movements may lead to public nuisance and complaints	Adverse Direct Reversible Temporary Local Unlikely	Low	Minor	Adverse Low (2)
Fuel service station operations and vehicle movements		Noise generated during operations may lead to public nuisance and complaints	Adverse Direct Partly reversible Long-term Local Unlikely	Low	Minor	Adverse Low (1)

7.2.2.7 Heritage impacts

7.2.2.7.1 Heritage and culture: potential to discover or unearth new sites, objects or resources of heritage significance within the Project footprint

Archaeological sites and objects in Namibia are protected under the National Heritage Act No. 27 of 2004. This section discusses the impact related to the potential discovery of objects or resources of heritage significance in terms of the Act.

There are no known heritage resources, archaeological sites, graves or culturally significant features identified within the Project footprint. However, this does not preclude the likely chance of discovering or unearthing heritage objects or resources that may be buried beneath surface. Although minimal land preparation activities are anticipated, there is a potential that heritage objects could be discovered by chance or unintentionally disturbed by construction personnel who may be unaware of their aesthetic or cultural significance.

The discovery of new heritage site or objects is considered beneficial as this would demonstrate the Proponent's commitments in preserving archaeological site and artifacts within the Project footprint. These discoveries can be relocated to the national museum for preservation, thereby enriching the town's archaeological history. The likelihood of the impact is rated as medium (possible) as heritage objects or resources may be buried beneath surface. Considering the likelihood of the impact occurring, the magnitude of change is ranked moderate. Disturbances to resources could occur during the immediate discovery of these resources, although this is likely to be mitigated by the Proponent's prompt response and preservation procedures. The impact is therefore rated partly reversible. The sensitivity of the receptor is rated high due to the significant heritage resources that could be discovered within the erven. Overall, the significance of impact is expected to be beneficial major as it will lead to the preservation of heritage objects or resources. The impact ratings are presented in Table 15. The precautionary chance find procedure must be adopted throughout the Project's lifecycle.

Table 15 - Heritage impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Land clearing and excavation activities	Cultural heritage	Potential discovery of new archaeological sites, objects or resources of heritage significance within the	Beneficial Direct Partly reversible Medium National Permanent	High	Moderate	Beneficial Major (9)

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
		Project footprint.				

7.2.2 BIOPHYSICAL IMPACTS

This section evaluates the potential impacts on flora, fauna and avifauna. Key considerations include habitat and ecosystem disturbance or alteration, changes in behavioural patterns of key species, disruption or potential displacement of these species. In addition to biodiversity, the assessment also considers potential impacts on other environmental components, including soil quality, water resources and overall ecosystem health.

Most of these impacts are not expected to be triggered by the Project as the site is already disturbed and does not support any significant flora or fauna species (Figure 20). It is likely that species have relocated to less disturbed areas due to prior town rezoning, ongoing anthropogenic activities and other factors such as noise and light pollution.



Figure 20 - An overview of the Project site (Source: ECC, 2026)

An overview of the potential impacts on the biophysical environment, before mitigation are illustrated in Figure 21, for illustrative purposes only. Each specific impact is discussed in detail in the sections below.

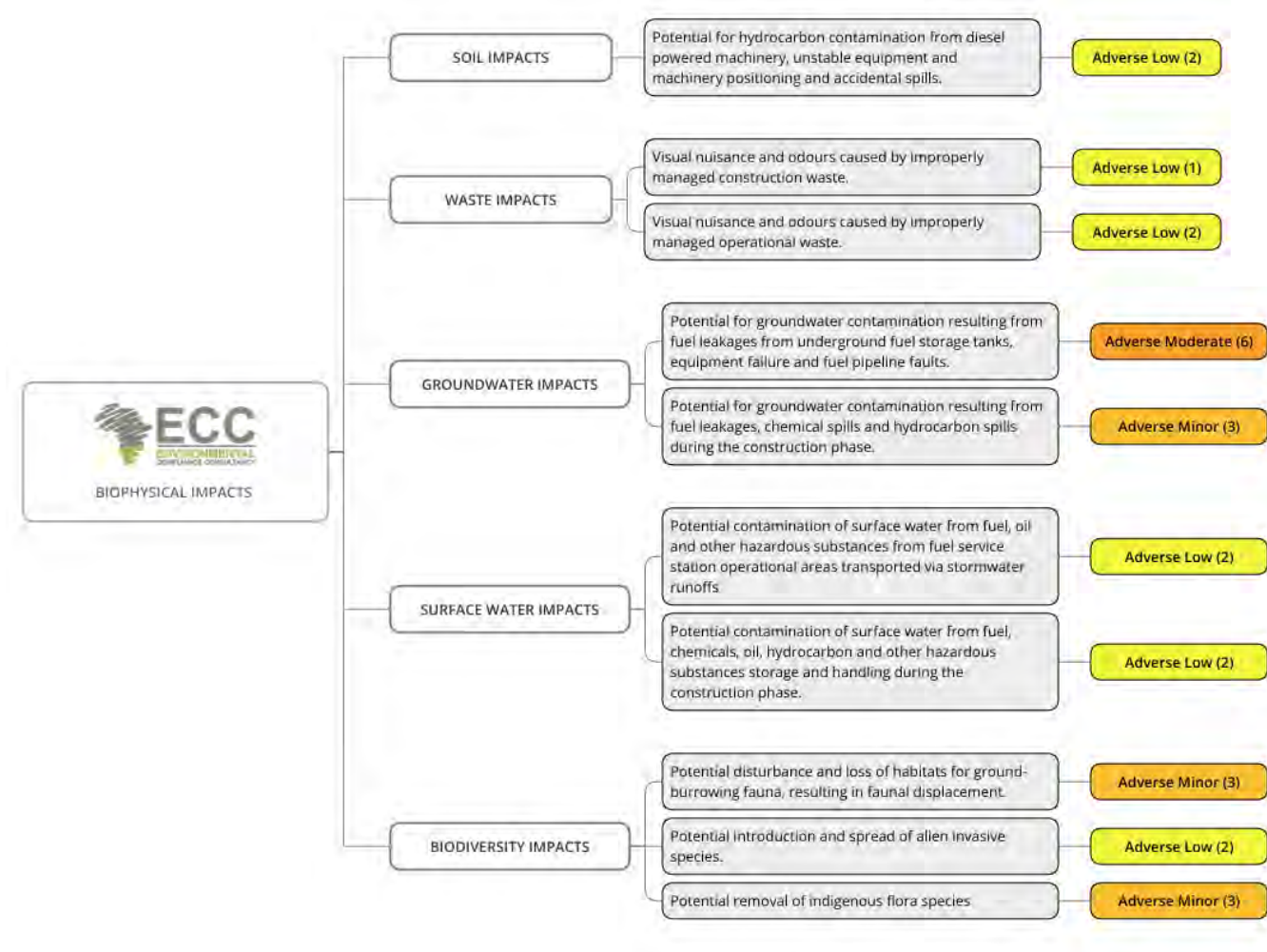


Figure 21 - An overview of the biophysical impacts

7.2.3.1 Soil impacts

7.2.3.1.1 Potential soil contamination by hydrocarbons or hazardous substances from diesel-powered machinery, unstable positioning of equipment and machinery, transport, handling and storage activities, maintenance activities and accidental spills

There is potential for soil contamination on-site during the construction phase due to the use of diesel-powered machinery. Hydrocarbon and hazardous chemical spills may result from the handling, maintenance activities and operation of machinery such as generators and other manually operated machinery. Additionally, from transport, storage and handling of cement/concrete, primers/paints, cleaning agents, wastewater/grey water and lubricants. The operation of machinery increases the likelihood of fuel leaks, accidental spills, seepage which could degrade soil quality, if not properly managed.

The impact is considered adverse, direct, temporary and on-site as contaminations will occur during construction activities. Hydrocarbon and hazardous substances spills could occur due to unstable storage conditions, machinery mishandling, equipment malfunction, chemical ablutions or accidental incidents. Therefore, the probability of spill occurrences is rated as

medium (possible). This impact is deemed reversible as hydrocarbon and hazardous substance spills can be cleaned up effectively and properly treated or disposed of and spill event ceases upon completion of construction activities.

The magnitude of change is rated low as minor spills are anticipated and there will be no significant or widespread contamination. A minor spill, in this context, constitutes a hydrocarbon spill that is less than (<) 500- 1000 ml and does not pose an immediate fire, safety, environmental or health hazard to personnel. The sensitivity of the receptor is rated low considering the limited scale of the impact. Overall, the significance of the impact is rated as adverse low, before mitigation (Table 16). Appropriate mitigation measures are provided in the draft ESMP (Appendix A) to ensure the proper handling of machinery, equipment as well as effective clean-up and management of any hydrocarbon and hazardous substances spills.

Table 16 - An overview of the soil impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Construction activities involving the use of machinery and generators	Soil quality	Potential for hydrocarbon and hazardous substance contamination from diesel-powered machinery, unstable equipment and machinery positioning and accidental spills.	Adverse Direct Reversible Temporary Medium On-site	Low	Low	Adverse Low (2)

7.2.3.2 Waste impacts

7.2.3.2.1 Waste generation: visual nuisance, contamination and odours caused by improperly managed construction waste

During the construction phase, various waste streams are expected to be generated. This includes food waste from construction personnel and construction related waste such as concrete debris, packaging materials, off-cuts building materials, effluent/grey water (e.g. concrete batching), concrete hydrocarbon and hazardous waste and domestic wastewater from ablution facilities. If not properly managed, such waste can be a visual nuisance, detract

the aesthetic value of the area and cause contamination of existing sewage systems, soils, surface water and groundwater resources. Improper disposal of these wastes would undermine the town's environmental management objectives of maintaining cleanliness and preserving its appeal to visitors.

This impact is adverse as waste of any kind disrupts the natural appeal of the environment. It is a direct impact as waste will be generated directly from construction activities. The duration of impact is rated temporary. The extent of the impact is considered on-site as different waste streams are expected to be generated within construction work areas. The likelihood of improper waste management on-site is rated as medium (possible), primarily due to the nature of construction activities. However, the different waste types expected to be generated will be manageable through standard operating procedures (SOPs). As a result, both the magnitude of change and sensitivity of the receptor are rated low. Overall, the significance of impact is rated as adverse low, before mitigation. Contractor personnel are expected to implement best waste management practices, as outlined in the draft ESMP (Appendix A). The impact assessment ratings are provided in

7.2.3.2.2 Waste generation: visual nuisance and odours caused by improperly managed operational waste

The fuel service station will generate various waste streams associated with the routine operational activities. These are expected to include general domestic waste from employees and customers, food and packaging waste and domestic wastewater from ablution facilities. Hydrocarbon-contaminated waste will also be generated during the handling and dispensing of fuel. The car wash facility will also generate wastewater and grey water.

This impact is considered adverse, as improper waste management adversely affects the visual amenity of the surrounding area. The impact is direct, as it would result directly from waste generation and handling associated with the operations and maintenance of the fuel service station. The duration of the impact is considered long-term, as waste generation will occur throughout the operational life of the facility (> 15 years). The extent of the impact is considered on-site, as waste generation and the associated risks are expected to be primarily confined to the fuel service station footprint. The likelihood of improper waste management is rated as low (unlikely), as the anticipated waste streams are expected to be managed through appropriate waste management procedures and good housekeeping practices and in accordance with the KTC waste management by-laws. The magnitude of change is rated low as waste generation during the operational phase is expected to be limited to the operational footprint of the fuel service station and waste streams will be effectively managed through segregation, appropriate storage, regular waste collection and disposal in accordance with waste management procedures. The sensitivity of the receptor is rated low as appropriate waste storage and disposal measures and connection of ablution facilities to municipal wastewater system will limit the potential for waste-related impacts. Overall, the significance of the impact is rated as adverse low, before mitigation (Table 17). The mitigation measures are provided in the draft ESMP (Appendix A).

Table 17.

7.2.3.2.2 Waste generation: visual nuisance and odours caused by improperly managed operational waste

The fuel service station will generate various waste streams associated with the routine operational activities. These are expected to include general domestic waste from employees and customers, food and packaging waste and domestic wastewater from ablution facilities. Hydrocarbon-contaminated waste will also be generated during the handling and dispensing of fuel. The car wash facility will also generate wastewater and grey water.

This impact is considered adverse, as improper waste management adversely affect the visual amenity of the surrounding area. The impact is direct, as it would result directly from waste generation and handling associated with the operations and maintenance of the fuel service station. The duration of the impact is considered long-term, as waste generation will occur throughout the operational life of the facility (> 15 years). The extent of the impact is considered on-site, as waste generation and the associated risks are expected to be primarily confined to the fuel service station footprint. The likelihood of improper waste management is rated as low (unlikely), as the anticipated waste streams are expected to be managed through appropriate waste management procedures and good housekeeping practices and in accordance with the KTC waste management by-laws. The magnitude of change is rated low as waste generation during the operational phase is expected to be limited to the operational footprint of the fuel service station and waste streams will be effectively managed through segregation, appropriate storage, regular waste collection and disposal in accordance with waste management procedures. The sensitivity of the receptor is rated low as appropriate waste storage and disposal measures and connection of ablution facilities to municipal wastewater system will limit the potential for waste-related impacts. Overall, the significance of the impact is rated as adverse low, before mitigation (Table 17). The mitigation measures are provided in the draft ESMP (Appendix A).

Table 17 - Waste generation impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Construction activities	Residents and motorists travelling on the B2 national road.	Visual nuisance, contamination and odours caused by improperly managed construction waste	Adverse Direct Reversible Temporary Medium (possible) On-site	Low	Low	Adverse Low (1)

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Operational activities		Visual nuisance and odours caused by operational activities	Adverse Direct Reversible Long-term Medium (possible) On-site	Low	Low	Adverse Low (2)

7.2.3.3 Groundwater impacts

Groundwater is an important resource within the Karibib area as it supports both domestic and commercial demands. As groundwater resources are generally limited and slow to recover once contaminated, protecting groundwater quality is a key environmental consideration for the proposed fuel service station. The potential impacts are discussed in the sections below.

7.2.3.3.1 Potential groundwater resource contaminations resulting from construction activities

During the construction phase, groundwater contamination could potentially occur through accidental spills or leaks of fuels, oils, lubricants, hydraulic fluids and other hazardous substances used by construction vehicles, machinery and equipment. Additional sources of potential contamination may include improper storage or handling of hazardous substances, accidental discharge of contaminated water, poor management of construction waste and wastewater, and the inappropriate disposal of hydrocarbon-contaminated materials. Where released contaminants infiltrate through the soil, they may migrate towards the groundwater table and impact groundwater quality.

The impact is considered adverse, direct, irreversible, long-term and localised. Although any contamination would initially occur within the Project footprint, contaminants that infiltrate the subsurface could potentially migrate beyond the immediate area depending on the local hydrogeological conditions. However, the likelihood of groundwater contamination during the construction phase is considered low (unlikely), as construction-related spills and releases are expected to be effectively prevented and controlled through appropriate handling, storage and management of fuels, oils, chemicals and wastewater.

The magnitude of change is considered low, as appropriate pollution prevention, spill response and waste management measures will be implemented to reduce the likelihood of a significant release reaching the groundwater resource. The groundwater resource is considered highly sensitive, given its importance as a water resource for domestic and commercial use and its relatively slow recovery following contamination. Therefore, the sensitivity of the receptor is

rated high. Overall, the significance of the impact is rated adverse minor, before mitigation (Table 18). The mitigation measures are provided in the draft ESMP (Appendix A).

7.2.3.3.2 Potential groundwater contamination resulting from fuel leakages from underground fuel storage tanks, equipment failure and fuel pipeline faults during the operational phase

During operation, the proposed fuel service station will store and dispense petrol and diesel using underground fuel storage tanks, associated pipework and dispensing equipment. Groundwater contamination could occur if petroleum hydrocarbons are released through structural failure of storage tanks, deterioration or rupture of underground pipelines, faulty dispensing equipment or accidental overfilling during fuel deliveries. Should fuel leakages migrate through the subsurface and reach the groundwater table, it could adversely affect groundwater quality, rendering it unsuitable for domestic, or commercial use. It will also pose ecological risks on dependent ecosystems that are supported by the same aquifer resource.

The impact is considered adverse, direct, long-term and localised as groundwater resources are important resources that influence the day-to-day activities of the residents and dependent ecosystems. Any contamination will compromise the quality of life of the residents and surrounding environment. The likelihood of such contamination, however, is expected to be low, as the facility will incorporate modern engineering and operational safeguards. The underground storage tanks will comprise double-walled (double-bunded) tanks specifically designed to provide secondary containment in the event of an inner tank failure. Furthermore, the fuel storage and dispensing system will include leak detection mechanisms, routine inspection and maintenance programmes, emergency shut-off systems, and operational procedures aimed at preventing accidental releases.

Hydrocarbon contamination is often difficult and costly to remediate and may persist in the subsurface for extended periods. The impact would be localised as contamination could migrate with groundwater flow.

The magnitude of change is considered low as the proposed fuel service station will incorporate modern engineering controls, leak detection systems and routine inspection and maintenance programmes, all of which significantly reduce the likelihood and extent of fuel releases. However, the groundwater resource is considered highly sensitive, as it is an essential water resource for domestic and commercial use and plays a critical role in sustaining the town's socio-economic activities. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 18).

Mitigation measures are listed below and are included in the draft ESMP (Appendix A):

- Install double-walled (double-bunded) underground fuel storage tanks and double-contained underground fuel pipelines designed and constructed in accordance with recognised industry standards;

- Equip all underground storage tanks and associated pipelines with continuous leak detection systems capable of providing early warning of any loss of product or breach of containment;
- Conduct routine inspections, preventative maintenance and periodic integrity testing of underground storage tanks, pipelines, valves, dispensers and associated infrastructure to identify and rectify defects before failure occurs;
- Install automatic overfill prevention devices and high-level alarms on fuel storage tanks to prevent spills during fuel deliveries;
- Supervise all fuel deliveries and ensure that transfer hoses, couplings and fittings are inspected prior to unloading to minimise the risk of accidental releases;
- Provide regular training to all personnel on fuel handling procedures, spill prevention, emergency response and the correct use of spill response equipment;
- Keep accurate records of inspections, maintenance activities, leak detection monitoring and any spill incidents, and investigate all anomalies promptly; and
- In the event of a confirmed leak or groundwater contamination, immediately isolate the affected system, notify the relevant authorities where required, undertake remediation of contaminated soil or groundwater, and verify the effectiveness of remedial measures through appropriate environmental monitoring.

Table 18 - Groundwater impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Fuel, chemical and hydrocarbon storage and handling during the construction phase	Groundwater quality, residents and depended on ecosystems	Potential groundwater contamination resulting from fuel leakages, chemical spills and hydrocarbon spills during the construction phase	Adverse Direct Irreversible Long-term Improbable Local	High	Low	Adverse Minor (3)
Fuel storage and dispensing (fuel service station operations)	Groundwater quality, residents and depended on ecosystems	Potential groundwater contamination resulting from fuel leakages from underground storage tanks, equipment	Adverse Direct Irreversible Long-term Unlikely Local	High	Low	Adverse Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
		failure or fuel pipeline faults during operations				

7.2.3.4 Surface water impacts

Surface water resources can be adversely impacted by the contaminants transported via stormwater runoff, if appropriate containment and drainage measures are not implemented. Although the proposed fuel service station is not located within a perennial surface water body, a minor drainage line is visible north of the site, transversing the B2 roadway towards the Project site (Figure 11). Accidental spills and leaks associated with fuel storage, dispensing and vehicle servicing activities could be mobilised by rainfall and conveyed through stormwater runoff into surrounding surface water resources. The potential impacts are discussed in the sections below.

7.2.3.4.1 Potential contamination of surface water resources from construction activities and stormwater runoffs

During the construction phase, potential sources of surface water contamination may include accidental spills or leaks of fuel, lubricants, hydraulic fluids and other hazardous substances from construction vehicles, machinery and equipment. Additional sources may include concrete wash water, cement slurry, construction materials, wastewater, poorly managed construction waste and other contaminants generated within construction work areas. During rainfall events, contaminants present on exposed surfaces or within construction areas could be mobilised by stormwater runoff and transported into nearby drainage lines.

Although the Project area is located within an existing urban environment, uncontrolled runoff from construction areas could temporarily reduce surface water quality. The impact is considered direct, adverse, localised and temporary, as any contamination would arise directly from construction activities and would primarily occur during rainfall events while construction areas remain exposed. The likelihood of contamination occurring is considered low (unlikely), as construction activities will be subject to appropriate pollution prevention, waste management and stormwater management measures.

The magnitude of change is considered low, as any potential releases are expected to be localised and manageable through standard construction controls, spill response procedures and best industry practices. The sensitivity of the receptor is considered low, as there are no major perennial or significant ephemeral drainage systems in close proximity to the Project site, except for the minor drainage line located north of the Project site and transverses the B2

national road. Overall, the significance of the impact is rated adverse low, before mitigation (Table 19).

7.2.3.4.2 Potential contamination of surface water from fuel, oil and other hazardous substances from fuel service station operational areas transported via stormwater runoffs during operations

During operation, small quantities of fuel, lubricating oils, chemicals from the car wash operations, cleaning chemicals and other hydrocarbons may be released from fuel dispensing areas, carwash activities, main shop/ablution facilities or fuel delivery operations. If these contaminants are not effectively contained, rainfall events could wash them from operational areas into the site's or adjacent stormwater drainage system and, ultimately, into nearby drainage lines or ephemeral watercourses. Such contamination could degrade surface water quality and its dependent aquatic species and other water-dependent ecological receptors (e.g. birds).

The impact is considered direct, adverse, localised and short-term as contamination of surface water resources degrade its overall quality and dependent aquatic species and ecological receptors. The likelihood of this occurring is considered low as the fuel service station will be designed with appropriate pollution prevention and stormwater management measures.

The magnitude of change is considered low as any contamination is expected to be limited in volume and confined to the immediate operational area. The sensitivity of the receptor is considered low as there are no major ephemeral drainage systems in proximity to the fuel service station (Figure 20). Overall, the significance of the impact is rated adverse low, before mitigation (

Table 19). The mitigation measures are provided in the draft ESMP (Appendix A).

Table 19 - An overview of the surface water impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Fuel, chemicals and hydrocarbon storage and handling during the construction phase	Surface water quality and depended on ecosystems	Potential contamination of surface water from fuel, chemicals, oil, hydrocarbon and other hazardous substances storage and handling during the construction phase	Adverse Direct Irreversible Short-term Local Unlikely	Low	Low	Adverse Low (2)
Carwash, fuel handling and dispensing activities (operational activities)	Surface water quality and depended on ecosystems	Potential contamination of surface water from fuel, oil and other hazardous substances from fuel service station operational areas transported via stormwater runoffs.	Adverse Direct Irreversible Short-term Unlikely Local	Low	Low	Adverse Low (2)

7.2.3.5 Biodiversity impacts

The proposed fuel service station will be developed on a pre-disturbed site within the Karibib urban area. The Project site has limited ecological value and does not support extensive natural vegetation or critical faunal habitats, as confirmed during the field survey undertaken by ECC (Figure 20). However, the site may provide refuge for a limited number of ground-burrowing fauna and avifauna, such as small mammals, birds, reptiles and invertebrates, which could be disturbed or displaced during site preparation and construction activities.

7.2.3.5.1 Potential disturbance and loss of habitats for ground-burrowing fauna, resulting in faunal displacement

Construction activities such as site clearance, earthworks, excavation and the movement of construction vehicles and machinery have the potential to disturb or destroy burrows used by ground-dwelling fauna and avifauna within the Project site. The removal or disturbance of these refuges may result in the temporary displacement of individual animals to adjacent areas, while slower-moving species may be at risk of injury or mortality if unable to escape construction activities. Increased human activity, noise and vibration during construction may further discourage fauna from utilising the site.

The impact is considered direct, adverse, on-site and permanent, as the developed footprint will remain occupied for the operational life of the fuel service station. However, the probability of occurrence is considered medium as habitat disturbance will inevitably occur during construction, although the ecological consequences are expected to be limited.

The magnitude of change is considered low as the Project site is predominantly bare, highly modified and of limited ecological value, with little natural vegetation available to support diverse faunal communities (Figure 20). Any habitat loss will be confined to the relatively small development footprint and is unlikely to affect species of conservation concern or interrupt ecological processes at a broader landscape scale. The sensitivity of the receptor is considered low as the site may provide habitat for common ground-burrowing species adapted to disturbed environments. It does not constitute critical habitat or an area of high biodiversity importance. Suitable habitats are available in the surrounding undeveloped areas. This will allow displaced fauna and avifauna to relocate. Overall, the significance of the impact is rated adverse minor, before mitigation (Table 20). The mitigation measures are provided in the draft ESMP (Appendix A).

7.2.3.5.2 Potential introduction and spread of alien invasive species via mobilisation of construction vehicles, equipment and machinery to the Project site during the construction phase

The mobilisation of construction vehicles, equipment and machinery from other areas to the Project site has the potential to introduce and spread alien invasive species. Seeds, plant fragments, soil and other biological material may be transported on vehicle tyres, undercarriages, machinery components and within loads of construction materials. If introduced to the Project area, these species may establish and spread into surrounding areas, particularly where construction activities disturb the soil and remove existing vegetation. These species compete with indigenous species for water, nutrients and space.

The impact is considered adverse, indirect, localised and temporary as the introduction of alien invasive species could occur indirectly as a result of vehicles, equipment or materials being deployed to the Project site. The likelihood of the impact occurring is rated medium (possible)

because the construction phase will require the mobilisation and movement of construction vehicles machinery and materials from external areas to the Project site. The impact is considered partly reversible as any alien invasive species introduced during construction can be identified and removed through appropriate monitoring and eradication measures. However, complete reversal may not always be achievable if invasive species become established and may require repeated control measures over an extended period.

Both the magnitude of change and the sensitivity of the receptor are rated low, as the Project footprint is located within a disturbed urban environment, which potentially could limit the extent for invasive species to establish and disperse. Additionally, vegetation within and immediately surrounding the Project footprint will be cleared as part of site preparation and construction and no vegetation is proposed as part of the landscaping of the fuel service station. Overall, the significance of the impact is rated adverse low, before mitigation (Table 20). The mitigation measures are provided in the draft ESMP (Appendix A).

7.2.3.5.3 Potential removal of indigenous flora species and ecologically sensitive flora species during the construction phase

Site establishment and construction of the proposed fuel service station will require vegetation clearance within the Project footprint to accommodate the fuel station infrastructure, access areas, parking, forecourt, drainage infrastructure and associated services. This will result in the removal of indigenous flora species occurring within the development footprint.

The Project area is characterised by existing disturbance and the vegetation occurring within the footprint is therefore expected to have limited ecological value compared to relatively undisturbed natural areas (Figure 13). Any vegetation occurring within the development footprint will be cleared as part of site preparation.

The impact is considered adverse, direct, on-site and permanent, as vegetation will be directly removed to facilitate construction and the cleared areas will remain largely developed for the operational life of the fuel service station. The likelihood of vegetation removal is considered definite as vegetation clearance will be required to prepare the site for construction. However, the extent of vegetation clearance will be restricted to the approved Project footprint.

The magnitude of change is considered low as the Project footprint is relatively small and situated within an already disturbed urban environment. The sensitivity of the receptor is considered low, considering the existing level of disturbance within the Project area and the limited ecological value of the vegetation occurring within the development footprint. Overall, the significance of the impact is rated adverse minor, before mitigation (Figure 21). Mitigation measures are included in the draft ESMP (Appendix A).

Table 20 - Biodiversity impact assessment ratings

Activity	Receptor	Impact	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact
Mobilisation of Project vehicles, machinery and equipment from external areas to the Project site	Indigenous species and ecological communities	Potential introduction and spread of alien invasive species	Adverse Indirect Partly reversible Temporary Unlikely Local	Low	Low	Adverse Low (2)
Land clearing activities and excavation works	Ground burrowing species and faunal habitats	Potential disturbance and loss of habitats for ground burrowing species, resulting in faunal displacement.	Adverse Direct Irreversible Permanent Medium On-site	Low	Low	Adverse Minor (3)
	Indigenous flora species	Potential removal of indigenous flora species.	Adverse Direct Irreversible Permanent Definite On-site	Low	Low	Adverse Minor (3)

7.2.3 CUMULATIVE IMPACTS

The ESIA Regulations state that cumulative impacts should be considered as part of the ESIA process. Good practice requires that, as a minimum, cumulative impacts are assessed during the ESIA process. Cumulative impacts can arise when a single resource or receptor is affected by more than one impact from the proposed Project. For example, sensitive receptors could be affected by noise from construction vehicles and dust from ground excavation during the construction phase. In isolation, the impacts of noise and dust may be insignificant, however, when combined the impacts on the receptor (if present) may result in a significant impact (intraspecific cumulative impacts).

Cumulative impacts may also arise because of the combination of two (2) or more projects (interspecific cumulative impacts). A receptor could be impacted by similar types of impact from

different developments or a receptor. Cumulative impacts have a wide temporal and spatial scope and are not restricted to a local area nor need to happen at the same time. It is, therefore, crucial to identify a suitable study and assessment area, as well as a timeframe to assess. Cumulative impacts can also be vast and complicated. Therefore, it is important to focus on the significant impacts.

7.2.4.1 Intraspecific impacts

The intraspecific cumulative impacts likely to result from combined Project activities are presented in Figure 22, before mitigation. Each specific impact is discussed in detail in the section below.

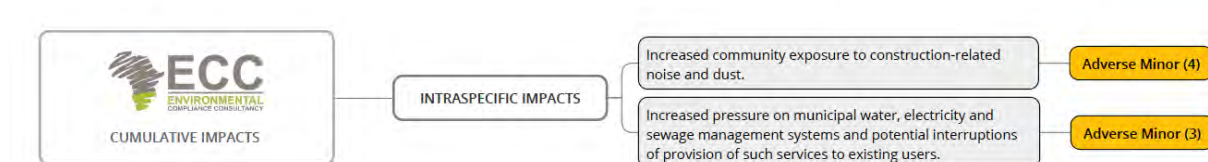


Figure 22 - Overview of the intraspecific cumulative impacts

7.2.4.1.1 Increased community exposure to construction-related dust and noise

During the construction phase, several environmental disturbances will be generated simultaneously. This includes dust emissions from site clearance, excavation, earthworks and vehicle movements and noise generated by construction machinery, equipment and heavy vehicles. Their combined occurrence over the construction period may cumulatively increase disturbance and annoyance experienced by nearby businesses, road users, sensitive receptors and members of the public.

The cumulative impact is considered adverse, direct, localised and temporary as dust and noise will arise from construction activities (~ six (6) years) and may impact nearby receptors, if not interventions are implemented. The impact is adverse as elevated dust may temporarily reduce air quality, create nuisance and impair visibility, while increased noise levels may cause annoyance and reduced amenity experienced by nearby businesses, road users and members of the public. The likelihood of the impact occurring is rated a medium probability as propagation of dust and noise from the Project site towards receptors can be influenced by prevailing meteorological conditions.

The magnitude of change is considered low as the construction footprint is relatively small, the activities are temporary and localised, and dust and noise emissions are expected to be intermittent throughout the construction period. The sensitivity of the receptor is considered medium as nearby businesses, customers, road users, residents and members of the public are located within an urban environment where some level of ambient traffic-related noise and

dust is already present. It is expected that they will not be significantly impacted by combined noise and dust levels. Overall, the significance of the impact is rated adverse minor, before mitigation (Table 21). Mitigation measures are further described in Table 21 and detailed in the draft ESMP (Appendix A)

Table 21 - Intraspecific cumulative impact assessment ratings related to dust and noise generation

Receptor	Impacts	Significance of impact	Impact management
Community	Activity: Land clearing, excavation works and use of noise generating machinery and equipment. Impact: Potential nuisances resulting from community exposed to elevated noise and dust levels.	Adverse Minor (4)	- Erect a clearly visible site notice at the Project entrance prior to the commencement of construction. The notice should include the Project name, the Proponent's contact details, the Contractor's details, the expected construction period, normal working hours, and a contact person for lodging complaints or reporting concerns related to dust, noise or other construction activities; - Restrict construction activities that generate significant noise and dust to normal daytime working hours to minimise disturbance to nearby businesses, road users and the public; - Regularly water exposed surfaces, stockpiles and unpaved access roads, particularly during dry and windy conditions, to suppress dust generation; - Ensure all construction machinery, vehicles and

Receptor	Impacts	Significance of impact	Impact management
			equipment are regularly serviced and maintained to minimise excessive noise and exhaust emissions; and - Inform adjacent businesses, landowners and other affected stakeholders in advance of particularly noisy or dust-generating activities and maintain an effective grievance mechanism to address complaints promptly.

7.2.4.1.2 Increased pressure on municipal water, electricity services and sewage management systems and potential interruptions of provision of such services to existing users

The proposed fuel service station will require a continuous supply of municipal water and electricity during its operational phase to support fuel dispensing, the retail shop, ablution facilities, administrative functions, external lighting and the proposed car wash. The car wash is anticipated to constitute the largest water-consuming component of the development, while electricity will be required to operate pumps, lighting, refrigeration, air conditioning and other electrical equipment. Although the Project will contribute incrementally to the demand on Karibib's municipal infrastructure, the anticipated consumption is relatively small in the context of the Town's existing service provision and is not expected to exceed available capacity or result in measurable changes to the reliability or performance of municipal water and electricity supply to other users or businesses.

The cumulative impact associated with increased demand on municipal water and electricity services is assessed as an adverse, direct and long-term impact as the operation of the fuel service station and associated infrastructure will require a continuous supply of these municipal services throughout the life of the Project. However, the anticipated water and electricity demand is expected to be relatively within the existing service capacity of the KTC. Therefore, the magnitude of change and likelihood of impact occurring are rated low. The sensitivity of receptor is rated low as the existing municipal water and electricity infrastructure is considered to have sufficient capacity to accommodate the operational demand of the proposed fuel service station, without adversely impacting service delivery to existing users.

Overall, the significance of the impact is rated adverse minor, before mitigation (Table 22). Mitigation measures are described in Table 22 and are detailed in the draft ESMP (Appendix A).

Table 22 - Intraspecific cumulative impact assessment ratings related to pressure on municipal services (water and electricity)

Receptor	Impacts	Significance of impact	Impact management
Municipal services (water, electricity and sewage treatment systems)	Activity: Operations of the fuel service station, including carwash. Lighting, ablution facilities and administrative functions. Impact: Potential demand for increased municipal services, impacting the supply of such services to existing users.	Adverse Minor (3)	- Connect the development to the existing municipal water and electricity networks only after obtaining the necessary approvals from the KTC; - Periodically review water and electricity consumption records and implement corrective measures where abnormal or excessive consumption is identified; - Ensure timely payment of municipal service charges to the KTC to maintain uninterrupted access to water and electricity services and provision of such services to other existing users; - Switch off non-essential lighting and electrical equipment when not in use; and - Install water-efficient fixtures and fittings.

7.2.4.2 Interspecific cumulative impacts

The potential interspecific cumulative impacts likely to result from the interaction of the proposed Project with other existing and planned projects are presented in Figure 23, before mitigation, for illustrative purposes only. Each identified cumulative impact is assessed and discussed in detail in the sections that follow.

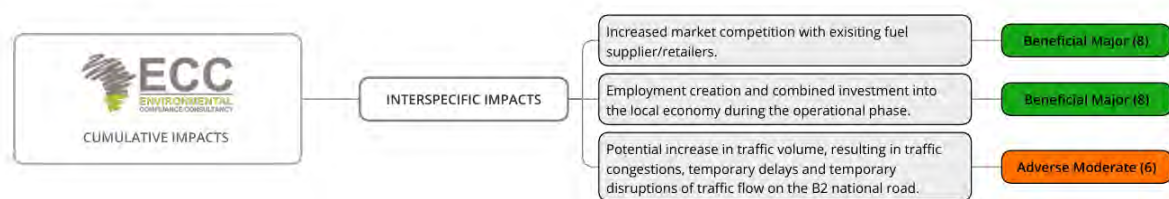


Figure 23 - An overview of the interspecific cumulative impacts

7.2.4.2.1 Increased market competition with existing fuel suppliers/retailers

The operation of the proposed fuel service station will introduce an additional fuel retail into the local market, thereby increasing competition with existing fuel service stations and other roadside retail businesses in Karibib. When considered in combination with the existing commercial establishments and any future fuel retail developments, the Project may contribute to a more competitive local marketplace through the redistribution of customers and market shares amongst businesses offering similar goods and services. This may also encourage improvements in service quality, product offerings, operating efficiency and pricing, ultimately benefiting consumers through greater choice and potentially more competitive prices.

This cumulative impact of increased market competition is assessed as beneficial, local and long-term as it will persist throughout the operational life of the fuel service station. Although the Project may result in the redistribution of customers among existing fuel retailers, it is not expected to significantly alter the overall commercial landscape or threaten the viability of existing businesses. This is therefore regarded beneficial from a socio-economic perspective as it may result in positive outcomes, improved service delivery, greater consumer choices and more competitive pricing.

The magnitude of change is considered low as the proposed Project is not expected to significantly alter the existing commercial landscape or threaten the long-term viability of competing businesses. Existing fuel service stations and retail businesses are expected to be moderately sensitive to the introduction of a new competitor as they may experience some redistribution of customers and market share. However, the local market is expected to remain sufficiently resilient to accommodate an additional service provider. Therefore, the sensitivity of receptor is rated medium. Overall, the significance of the impact is rated beneficial major (Table 23). No mitigation measures are required.

7.2.4.2.2 Employment creation and combined investment into the local economy during the operational phase

The operation of the proposed fuel service station will positively contribute to the local economy when considered alongside other existing businesses and planned commercial developments within Karibib. The Project will create permanent employment opportunities and generate ongoing demand for goods and services. These activities, together with the continued

operation of other businesses within Karibib will collectively contribute to sustained economic activity, increased income circulation and local business growth. Furthermore, these projects will generate ongoing revenue for KTC through the payment of municipal service charges, rates and taxes, thereby contributing to the maintenance and improvement of public infrastructure and service delivery.

The nature of this cumulative impact is considered beneficial as these developments will provide long-term employment opportunities, support local procurement and contribute to sustained economic activities within Karibib. The impact is localised and long-term, as the economic benefits will continue for the duration of the Project's operation. The likelihood of the impact occurring is rated definite as it is expected that the Project will operate jointly with other existing business operators.

The magnitude of change is rated moderate as the Project will make a positive contribution to the local economy when combined with other commercial activities. The sensitivity of the receptor is medium, reflecting the importance of sustained employment, local business development and municipal revenue to Karibib's socio-economic wellbeing. Overall, the cumulative impact is assessed to be beneficial major (Table 23). Mitigation measures are described in Table 23 and detailed in the draft ESMP (Appendix A).

7.2.4.2.3 Potential increase in traffic volumes, resulting in traffic congestion, temporary delays and temporary disruptions of traffic flow on the B2 national road

The operation of the proposed fuel service station will generate additional vehicle movements associated with customers, employees, fuel tanker deliveries and suppliers. When considered in combination with existing traffic on the B2 national road, as well as traffic generated by other existing commercial establishments within Karibib, the Project will contribute to traffic volumes along this transport corridor. Increased turning movements into and out of the fuel service station, together with periodic fuel tanker deliveries, may result in temporary interruptions to the free flow of traffic, particularly during peak travel periods. However, the Project is not expected to generate traffic volumes of a magnitude that would significantly alter the operational performance or capacity of the B2 national road. Any congestion or delays are expected to be localised, short in duration and primarily confined to the site access and immediate surrounding road network.

The nature of this impact is adverse as the cumulative increase in vehicle movements may contribute to temporary traffic congestion and interruptions to traffic flow. The impact is localised and long-term as it will occur throughout the operational life of the fuel service station.

The magnitude of change is rated moderate as multiple development operations may cause delays, particularly at junctions and intersections during peak hours or during road maintenance works. The probability of the impact occurring is definite, as vehicle access to and from the facility will form part of its daily operations. The sensitivity of the receptor is medium,

reflecting the importance of the B2 national road as a strategic transport route serving local, regional and long-distance traffic. It is expected that the road will have capacity to accommodate additional traffic. The additional traffic generated by the Project, when combined with other developments, is not expected to result in substantial congestion or a measurable deterioration in the level of service of the existing road network. Overall, the significance of the impact is rated adverse moderate, before mitigation (Table 23). The mitigation measures are described in Table 23 and described in the draft ESMP (Appendix A).

Table 23 - Interspecific impact assessment ratings

Receptor	Impacts	Significance of impact	Impact management
Operational fuel retailers	Activity: Operations of the fuel service station alongside other operational businesses in Karibib. Impact: Improved service delivery and market share.	Adverse Major (8)	- Nil.
Local economy (KTC)	Activity: Operations of the fuel service station alongside other operational businesses in Karibib. Impact: Combined revenue generation to KTC.	Adverse Major (8)	- Ensure the timely payment of municipal rates, taxes and service charges to support the KTC's revenue base and continued provision of municipal services. - Maintain the fuel service station and associated facilities to ensure continued operation and long-term employment opportunities.
Traffic on the B2 national road	Activity: Traffic entering and existing the fuel service station, traffic in transit on the B2 national road and those associated with other projects in Karibib.	Adverse Moderate (6)	- Design, construct and maintain the site access and exit in accordance with the requirements and approval conditions of the RA to ensure the safe ingress and egress of vehicles;

Receptor	Impacts	Significance of impact	Impact management
	Impact: Altered traffic flow and delays.		- Install and maintain appropriate traffic control signage, road markings and directional signage at the site entrance and exit to provide adequate warning to road users; - Schedule fuel tanker deliveries, where practicable, outside peak traffic periods to minimise disruptions to traffic flow; - Ensure that fuel tankers and delivery vehicles do not queue or park on the B2 national road while awaiting access to the site; - Regularly inspect and maintain the site access, road markings and traffic signage to ensure continued visibility and safe operation; and - Liaise with the RA and the KTC regarding any traffic management requirements arising from changes in traffic volumes or future road or site access upgrades.

8 CONCLUSION

A scoping plus impact assessment has been undertaken for the proposed Project to identify the potential impacts and evaluate their severity and significance. All aspects have been considered in the impact assessment chapter. These aspects have been thoroughly investigated against planned activities. Public participation has been positive with all issues raised during the public engagement process considered and recommended mitigation measures incorporated into the draft ESMP (Appendix A). This draft scoping plus impact assessment report and draft ESMP is available for public review for a period of seven (7) days. Following the public review period, updates and reassessments will be conducted, where material change are deemed necessary.

Table 24 to Table 26 below shows the overall biophysical, social and cumulative impacts assessed, after mitigation. On a scale from 1 to 12, low to high, the beneficial (B) and negative (N) impact significance is stated.

Table 24 – Socio-economic impacts assessed

Socio economic environment: Economic		Socio economic environment: Social	
Construction phase: temporary employment opportunities.	B6	Construction phase: temporary alteration of the visual character of the landscape.	N2
Operational phase: permanent employment opportunities	B9	Operational phase: alteration of the visual landscape and loss of sense of place.	N4
Construction phase: support to the local economy through procurement processes.	B3	Construction phase: potential nuisances associated with dust generation and VOCs emissions.	N2
Operational phase: support to the local and regional economy through procurement processes.	B6	Operational phase: potential nuisances associated with dust generation and VOCs emissions.	N1
Construction phase: revenue generation through recurring payment of municipal rates, taxes and utility tariffs.	B4	Construction phase: acquisition of skills and practical work experiences.	B8
Operational phase: national revenue generation through payment of corporate income taxes, licence fees and fuel levies.	B6	Operational phase: acquisition of skills and practical work experiences.	B12
Operational phase: Improved fuel supply to various sectors and residents.	B4	Construction phase: potential alteration of traffic flow.	N1

Socio economic environment: Economic	Socio economic environment: Social	
	Operational phase: potential alteration of traffic flow and road safety risks.	N4
	Operational phase: potential for operational activities to generate waste streams, resulting in visual nuisance and odours.	N1
	Construction phase: potential for construction personnel to sustain on-site injuries, partial disabilities, life threatening scenarios or death.	N4
	Operational phase: potential for the operational workforce to be exposed to fire and explosive hazards.	N4
	Operational phase: potential for the public to be exposed to fire and explosive hazards.	N4
	Construction phase: construction activities may generate excessive noise, resulting in community nuisance and complaints.	N2
	Operational phase: operational activities may generate noise that may result in community nuisance and complaints.	N1
	Construction phase: potential discovery of new site or objects of heritage significance.	B12

Regarding the social environment, impacts associated with air quality, noise, traffic, heritage resources, occupational and community health and safety are generally low after mitigation (N1-N4). Visual impacts, occupational and community health and safety had mostly minor impacts after mitigation. All potential impacts are expected to be remain manageable through adaptive management measures. The required mitigation measures to ensure effective management have been included in the draft ESMP (Appendix A).

Table 25 - Biophysical environmental impacts

Biophysical environment	
Soil impacts:	
Operational phase: potential for hydrocarbon contamination from diesel powered machinery, unstable equipment and machinery positioning and accidental spills.	N1
Waste impacts:	
Construction phase: visual nuisance and odours caused by improperly managed construction waste.	N1
Operational phase: visual nuisance and odours caused by improperly managed operational waste	N1
Groundwater impacts:	
Potential for groundwater contamination resulting from fuel leakage from underground fuel storage tanks, equipment failure and fuel pipeline faults.	N4
Construction phase: potential groundwater contamination resulting from fuel leakages, chemical spills and hydrocarbon spills.	N2
Surface water impacts:	
Operational phase: potential contamination of surface water from fuel, oil and other hazardous substances from fuel service station operational areas transported via stormwater runoffs.	N1
Construction phase: potential contamination of surface water from fuel, chemicals, oil, hydrocarbon and other hazardous substances storage and handling.	N1
Fauna and avifauna impacts:	
Potential disturbance and loss of habitats and loss of habitats for ground-burrowing faunal species, resulting in faunal displacement.	N2
Flora impacts:	
Potential introduction and spread of alien invasive species	N1
Potential removal of indigenous species within the Project footprint	N1

The biophysical assessment indicates that potential fuel leakage from underground fuel storage tanks could result in groundwater contamination (residual impact rating (N4)). Vegetation clearing, habitat loss and faunal displacement impacts are expected to remain N1 – N2 after mitigation. The required mitigation measures to ensure effective management have been included in the draft ESMP (Appendix A).

Table 26 - Intraspecific and interspecific cumulative impacts

Intraspecific cumulative impacts		Interspecific cumulative impacts	
Increased community exposure to construction-related noise and dust.	N2	Increased market competition with existing fuel suppliers/retailers.	B8

Intraspecific cumulative impacts		Interspecific cumulative impacts	
Increased pressure on municipal water, electricity and sewage management systems and potential interruptions of provisions of such services to existing users.	N2	Employment creation and combined investment into the local economy during the operational phase.	B8
		Potential increase in traffic flow, resulting in traffic congestions, temporary delays and disruption of traffic flow on the B2 national road and intersections.	N4

Importantly, no adverse impacts remain of high (major) significance after mitigation.

Cumulative impact assessment shown in **Error! Reference source not found.** indicates that the Project will not result in significant localised environmental degradation or social issues within the greater Karibib district. Although additional traffic load onto the B2 national road has been identified to result in minor alteration of traffic flow, this impact is expected to remain manageable through proper traffic management measures. Economic impacts are strongly positive as they contribute to local economic growth, employment generation and national revenue.

Importantly, no adverse impact remains of moderate or high (major) significance after mitigation.

In conclusion, the draft scoping plus impact assessment report adequately outlines the process of the impact assessment for the proposed Project and lists all the foreseeable outcomes and recommended mitigations to prevent or reduce the significance of potential impacts. The draft ESMP (Appendix A) includes the required mitigation measures and monitoring requirements throughout all the stages of the Project. All stakeholders and registered interested and affected parties (I&APs) will be given the opportunity to provide comments, if any, to ECC during the seven (7) day public review period of the draft scoping, plus impact assessment report and the draft ESMP. During the public review period, comments received from an I&APs will be consolidated into an addendum to the final scoping, plus impact assessment report and final ESMP for submission.

The draft scoping plus impact assessment report and draft ESMP report will be revised, finalised and submitted to the competent authority (i.e. MIME) and MEFT for review and record of decision (RoD).

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APPENDIX A – DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

APPENDIX B – BACKGROUND INFORMATION DOCUMENT

APPENDIX C – PUBLIC CONSULTATION DOCUMENT

APPENDIX D – KTC CONSENT



KARIBIB
TOWN COUNCIL

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Our Ref: Consent Letter/1204 Kar Ext 4_WINPLAN
Date: 2 February 2026

WINPLAN (Town and Regional Planning Consultant)

PO Box 90761, Klein Windhoek

Windhoek

Email: louis@winplan.com.na

Dear Mr. Louis Esterhuizen,

RE: APPLICATION FOR COUNCIL APPROVAL FOR CONSENT IN TERMS OF TABLE B OF THE KARIBIB ZONING SCHEME TO USE 1204, KARIBIB EXTENSION 4 FOR A SERVICE STATION WITH RETAIL SHOP, FOOD TAKE AWAY BUSINNES AND CAR WASH AND BLOCKS OF FLATS AND RESIDENTIAL BUILDINGS AS LISTED UNDER THE GENERAL BUSINESS ZONING

The Council at an Ordinary meeting held on **27th October 2025** resolved as per Council Resolution: **CM/0146/27/10/2025** to approved the application for council to grant consent use on erf 1204, Karibib Extension 4 (zoned General Business) on the below conditions:

- That Council grant approval for consent use on Erf 1204, Karibib Extension 4 for a service station with retail shop, food take-away business and car wash, as well as block of flats and residential buildings as listed under the General Business zoning.

Please do not hesitate to contact our Town Planning Office, Mrs. Selma Mutota at 064-550020 email: townplanner@karibibtown.org, should you require any additional information regarding the subject matter.

Yours Truly,


TANGENI ENKONO (MR.)
CHIEF EXECUTIVE OFFICER



All official correspondence must be addressed to the Chief Executive Officer.

APPENDIX E – EAP CVS