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Environmental Impact Assessment (EIA) Study: Report

The Proposed Construction of a Gravel Access Road (3km) from DR3609 to Iipanda-YaAmiti Clinic and Combined School in the Omusati Region - Application for Environmental Clearance Certificate (ECC)

ECC Application No.: **APP-005804**

Document Version: **Final for Submission**

Proponent: **Ministry of Works and Transport**

Republic of Namibia
Ministry of Works and Transport

Project Consulting Engineer: **Caldera Investment CC**

Caldera investment cc

August 2025

Declaration of authorship

APPLICATION NUMBER: 005804

Project Title:

The Proposed Construction of a Gravel Access road (3km) from DR3609 to Iipanda ya Amiti Clinic and Combined School in the Omusati Region

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I, Fredrika Shagama (full name of Environmental Assessment Practitioner - EAP) understand and agree that the information I have furnished in this submission will be reviewed by the Office of the Environmental Commissioner (OEC). I accept that the Environmental Commissioner, will hold me accountable in terms of Section 43(1)(b) of the Environmental Management Act, Act No. 7 of 2007 for any inaccurate or misleading information knowingly provided in the following documentation.

Tick the box (es) applicable to your submission:

- ☐ Pro Forma Environmental Contract for Mining Claim(s)
- ☐ Environmental Questionnaire For Mining
- ☑ Scoping report
- ☐ Environmental Impact Assessment (EIA)
- ☑ Environmental Management Plan (EMP),
- ☑ Consent from Relevant Authority

I certify, and, acknowledge that the provision of such information will impede the lawful carrying out of the duties, responsibilities and functions of the Environmental Commissioner. I declare that the information submitted is my own work. All direct or indirect sources used are acknowledged as references.

Consultancy Name: Serja H&E Consultants cc

EAP Signature: F Shagama

Date: 07/08/2025

NB- To be submitted jointly with Scoping Report, EIA, EMP documents to the Office of the Environmental Commissioner

DOCUMENT INFORMATION

Title: Environmental Impact Assessment (EIA) Study: The Proposed Construction of a Gravel Access Road (3km) from DR3609 to Iipanda-YaAmiti Clinic and Combined School in the Omusati Region – Application for an ECC

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Signature:	
Date:	07/08/2025

SERJA'S STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the EIA Study for the Proposed Construction of a Gravel Access Road (3km) from DR3609 to Iipanda-YaAmiti Clinic and Combined School in the Omusati Region, Serja Hydrogeo-Environmental Consultants declare that we:

- do not have, to our knowledge, any information or relationship with Ministry of Works and Transport (the Proponent) nor the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) that may reasonably have potential of influencing the outcome of this Environmental Assessment and the subsequent Environmental Clearance Certificate (ECC) applied for.
- have knowledge of and experience in conducting environmental assessments, the Environmental Management Act (EMA) No. 7 of 2007, and its 2012 Environmental Impact Assessment (EIA) Regulation, as well as other relevant national and international legislation, guidelines, policies, and standards that govern the project activities as presented herein.
- have performed work related to the ECC application in an objective manner, even if the results in views and findings, or some of these may not be favourable to the Proponent.
- have complied with the EMA and other relevant regulations, guidelines, and other applicable laws as listed in this document.
- declare that we do not have and will not have any involvement or financial interest in the undertaking/implementation of the project activities, other than remuneration (professional fees) for work performed to conduct the EIA and apply for the ECC in terms of the EIA Regulations' requirement as an Environmental Assessment Practitioner (EAP).

Disclaimer: Serja Hydrogeo-Environmental Consultants will not be held responsible for any omissions and inconsistencies that may result from information that was not available at the time this document was prepared and submitted for evaluation.

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Signature:

Fredrika N. Shagama: Principal Environmental Assessment Practitioner & Hydrogeologist

Date: August 2025

EXECUTIVE SUMMARY

The Ministry of Works and Transport (MWT) intends to construct an access gravel road from the DR3609 (tarred road) to Iipanda YaAmiti Clinic and Combined School. The access road aims to improve accessibility from the tarred road to the Iipanda YaAmiti Settlement. The proposed 3km access road will start from the turn off of DR3609 (Omungwelume-Oshakati road), which is in Ombalala Village, before proceeding to the Iipanda-YaAmiti Village/Settlement, where the Clinic and Combined School are. Both villages (Ombalala and Iipanda yaAmiti) where the proposed access road will be constructed (pass through) are within the Ukwambi Traditional Authority, Etayi Constituency of the Omusati Region.

The road construction will commence upon completion of the project design by Caldera Investment cc, who will administer the construction contract and supervise the construction works. Furthermore, other activities associated with gravel road construction include the abstraction of road construction materials from one or two borrow pits along the proposed route, as well as water supply for construction near the road route.

The road is currently a single-track pathway comprising sand, making travel difficult during the rainy seasons, particularly for small vehicles (non-four-wheel drive vehicles). Thus, upgrading the existing route to a gravel road is necessary so that the road will serve the purpose of:

- Improving access to services to the Iipanda YaAmiti Clinic and Combined School,
- Improving rural and regional accessibility, and
- Reducing road user costs.

The project will involve inter alia the following:

- Upgrading of the sandy single-track roadway to gravel road standards,
- Provision of and Improvement of drainage facilities and features,
- Establishment of the 30m road reserve.

Project Activities

The project will involve the upgrading of the existing sandy single-track from the DR3609 tarred road (in Ombalala Village) to Iipanda YaAmiti Settlement/Village, where the Clinic and Combined School are. The proposed road follows a slight southwestern trend from the DR3609, then westwards until the Iipanda YaAmiti Settlement. Furthermore, the road construction to gravel standards will address the problem of small pipe culverts and low-level water crossing structures, the widening of the road to increase capacity, as well as providing additional road structures where applicable.

In addition to the above, the road construction will also address the erosion aspects through the drainage systems to be designed. Road construction materials from one or two borrow pits with quality material sites (to be identified and sited by materials personnel), as well as sources of nearby raw and fresh water, will be determined.

Road design and planning

The planning and design phase of the proposed gravel road is guided by national standards and environmental regulations. This phase involves route selection, topographical surveys, the EIA Study, and the design of road alignment, drainage systems, and gravel layer thickness. Community consultation and stakeholder engagement (as part of the EIA) are also key components to ensure minimal disruption and sustainable development. It is also during this phase that the administrative documentation, including the tendering process for the construction phase, is prepared. Some of the key design aspects are as follows.

The components of the project to be carried out by Caldera Investment, as predetermined in the Terms of Reference, may be summarised as follows:

- The detailed engineering design, including consultation, data collection, survey, geotechnical and materials investigation and testing, pavement design, geometric design, structural and drainage design, tender documentation
- Administration of the tender process
- Contract administration and site supervision of the construction phase.

The upgrade from the single-track sandy road to gravel standard warrants a reconsideration of the geometric standards to accommodate and comply with the upgraded operating speeds of up to 100km/h and all associated implications. The EIA study also aims to assess the existing condition of the road to determine which areas are a matter of concern and to generate alternative solutions accordingly. As such, the engineering, social, economic, and environmental aspects that relate to the proposed upgrade will be investigated to provide sufficient and accurate information regarding the proposed upgrade.

Road furniture

The following road furnishings are considered for the proposed road upgrade:

- Fencing: New fences will be installed where impacted due to construction and relocated to establish the boundaries of the road reserve. Borrow pit areas will also need to be fenced for the protection of the public and animals as a once-off, and provision for this will be made in the bill of quantities.
- Road signs: Road signs will be installed (where necessary) will be installed along the road. The bulk of these signs will be required at major community centres and intersections. The positioning and the design of all road signs specified will comply with the stipulations contained in the Roads Authority Road Traffic Signs Policy.

- Rest areas and pedestrian facilities: Rest areas will be constructed at intervals of at least 10km along the road. It is generally not required in rural areas that provision be made for pedestrians. In areas where heavy pedestrian traffic is experienced. However, crossing or traffic calming signs may be installed at areas close to schools and public service centres (health centres).
- Intersections and accesses: Standard Roads Authority access types are anticipated on this project.

Construction Phase

The construction phase will include clearing of vegetation along the demarcated road route and reserves, stripping topsoil, and shaping the roadbed. The layers of gravel are sourced from approved borrow pits in the area, transported, spread, and compacted in layers. Culverts and side drains are installed to manage surface water, and signage and safety features are added. The environmental management plans (this EMRP) will be implemented and monitored throughout to minimize ecological and social impact.

Borrow Pits (BPs) for road construction works.

The road construction requires materials such as sand and gravel that will be sourced (extracted) from selected localities along the road route (between DR3609 and Iipanda YaAmiti Settlement). The selection of BP sites (upon completion of exploration) will be determined by the material that meets the quality for constructing roads. However, the final BP locality has not yet been finalized pending approvals from local authorities and the MWT.

It is important to note that the BPs will be on communal land (localities to be determined if on anyone's land or general communal land). Thus, the exploration for BP sites has been communicated with communities in the consultation meeting held on the 22nd of May 2025.

For any new BPs, where additional BPs may be required and they would be inside someone's fence, compensation guidelines as per the Roads Authority and relevant government policies (National Compensation Policy) will be followed for implementation. This is to ensure that the affected landowners are compensated fairly and that the process and material extraction are done efficiently, safely, and amicably.

Anticipated Resources and Services Infrastructure

Human resources

The road construction will potentially employ up to one hundred (100) people or more. The workforce will likely comprise safety officers, the resident engineer, the contracts manager, the land surveyor, quality control technicians, maintenance artisans, general foremen, operators, laborers, security guards, etc. Priority for employment (semi to unskilled labor) will be given to the locals.

Contractors' accommodation

The project workforce that is out of the area will be accommodated in camps along the road. This is to ensure that workers commence work on time without the need to transport workers from and to their homes daily. However, where possible, local labourers will be commuting to the site from their homes, within a reasonable distance.

Vehicles and equipment

The project equipment, machinery, and vehicles will be stored at designated areas inside the contractor's campsites. Machinery and vehicles such as excavators, dump trucks, bulldozers, loaders, support vehicles (such as 4x4 wheel drive cars and other maintenance vehicles), etc., will also be parked at a designated site at the campsites.

Water supply

The water required for the project will be obtained from the nearby Rural Water Supply scheme, and stored in tanks and fenced off in a lined water holding dam (to be carted by a water truck to working sites by a water trucker). This water will be used for the actual road works and dust suppression. For human consumption and domestic use, there is a tap installed at the campsite.

Fuel supply

Diesel will be used for machinery and equipment, and a fuel generator to ensure an uninterrupted fuel supply to the project. The fuel will be stored in a 23,000-liter temporarily installed fuel tank at a selected point along the constructed road to ensure uninterrupted supply during construction. The base of the tank will be lined with the impermeable Polyvinyl chloride (PVC) material under a concrete layer to prevent infiltration of accidental oil spills into the soil and groundwater. There will be oil spill control measures onsite, i.e., the absorbent material contained in the fuel spill equipment (such as a natural sponge-like material) that can absorb accidental fuel spillage or leaks. It is anticipated that the fuel tank will be refilled once a week. A consumer installation certificate for the tank will be applied for from the Ministry of Industries, Mines and Energy (MIME) by the Construction Contractor.

Occupational health and safety

All project workers will be supplied with appropriate and adequate personal protective equipment (PPE) while carrying out project activities on-site. The site will be equipped with fully furnished first aid kits.

Accidental fire outbreaks

The campsite and vehicles will be equipped with fire extinguishers in case of accidental fire outbreaks.

Waste management (solid waste)

All waste generated from the project activities will be sorted, stored on-site in designated waste containers, and transported to the nearest approved solid waste dumping site in a Town such as Oshakati. Consent and approval to dispose of solid waste on the Town dumpsite will need to be obtained from the Oshakati Town Council before doing so.

Human waste/sanitation

The appointed contractor will install flushing toilets with a septic tank for the workers and project-related visitors. The tank will be emptied according to the manufacturer's instructions and as regularly as deemed necessary. For the project personnel stationed along the road, portable toilets will be placed/erected at working sites along the road.

Hazardous waste (fuels)

The hazardous waste (waste fuel, grease, and oils) will be properly captured, stored on site in designated waste containers, and transported to the appropriate hazardous waste management facility (in Windhoek). Therefore, no hazardous waste will be disposed of in the project area or any other unapproved waste management facility in the project area or the Omusati Region at large.

Decommissioning and Rehabilitation of Borrow Pits

After construction works are completed, temporary infrastructure like construction camps and detours will be dismantled. Borrow pits are rehabilitated according to environmental regulations, usually by reshaping and re-vegetating the land. Topsoil is replaced, and disturbed areas are stabilized to prevent erosion and encourage natural regrowth, ensuring long-term environmental sustainability.

Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. Therefore, it is best practice for the Proponent through their contractor to ensure the project and associated activities, mainly the BP sites, are ceased in an environmentally friendly manner and sites are rehabilitated by carrying out the following:

- Dismantling and removal of campsites and associated infrastructures from the project site areas,
- Carrying away all project equipment and vehicles, and
- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the waste facility operator/owner),

Further decommissioning and rehabilitation practice at the BPs will include:

- Backfilling of pits and trenches associated with the construction materials sourcing in the area,
- Closing of holes to ensure that they do not pose a risk to both people and animals in the area, and
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left as close to their original state as possible.

Operational and Maintenance Phase

This is the phase that succeeds the construction phase, when the newly constructed gravel road will be operational with regular maintenance to ensure usability and safety. It is anticipated that maintenance of the road will be done through the Roads Authority of Namibia's Maintenance Department in the Region. The maintenance works will include grading to smooth out surface irregularities, repairing erosion damage, cleaning and maintaining drainage systems, and periodically reapplying gravel. Routine inspections will also be critical to prolong road life and reduce long-term costs.

Communication with I&APs and Means of Consultation Employed

Communication with I&APs with regards to the project activities was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the project activities was compiled, uploaded on the MEFT (ECC) Portal for project registration, and shared with registered stakeholders / Interested and Affected parties (I&APs).
- A Stakeholders (I&AP) List was developed and updated as new I&APs register for the EIA. The BID was shared with the pre-identified key stakeholders.
- Project EIA notices were published in the following newspapers and dates:
    - *New Era*: The notice appeared in the newspaper on the 14th & 21st of May 2025.
    - *Windhoek Observer*: The notice appeared in the newspapers on the 14th, 19th, 21st & 23rd of May 2025. The consultation period ran from the 14th of May 2025 to the 30th of June 2025.
- EIA notices (posters) were prepared for printing and pasted in Iipanda YaAmiti.

Concluding remark on stakeholder and public consultation: A few key comments and issues raised during the consultation meetings were significant, but they did not object to the project. These are summarized below

- The issue of a 3km road in the documents and about 2km only distance from the DR3609 to the Iipanda YaAmiti Settlement
- Duration taken for complete road projects
- Rehabilitation of borrow pits for community livestock water holding (rainwater earth dams)
- The topography and levelling of the road
- Design of the road

- Recruitment of project personnel (labourers) and people working without contracts and proper protective equipment
- The abandonment of unfinished projects by contractors
- Maintenance of roads after construction (negligence of aftercare for roads)
- The removal of big trees that may take a long time to grow (avoiding the removal of such trees).

The above comments serve as significant suggestions to make the design better for both biological, physical, and social environments. Furthermore, stakeholders and I&APs would just like to see the project implemented as well as the implementation of management and mitigation measures to reduce the significance of the impacts during road construction works to improve the mobility and accessibility to economic and social services centers in the Constituency and neighbouring constituencies and regions.

Potential identified positive and adverse (negative) impacts of the proposed project.

Positive impacts (benefits) of the gravel road access construction and ultimate operations

- Socio-economic development through temporary job (employment) creation in the area during the road construction phase for 100 people or more.
- Improved accessibility: better road connections enhance accessibility to remote rural areas, facilitating transportation of goods and services, and access to healthcare and education centers in the area.
- Economic development: better roads can stimulate economic growth by attracting investment, promoting tourism in this part of the Omusati Region, and other neighboring regions such as Oshana and Ohangwena, and fa.
- Safety: The new road with improved design and signage can enhance road safety, thus reducing the risk of accidents and fatalities.
- Social cohesion: the road will improve connectivity that can strengthen social ties within rural communities by enabling easier access to growth centres, schools, healthcare centers (such as the clinic), and other social services.

Potential environmental and social (adverse) impacts of road construction work

The potential negative (adverse) impacts of the proposed road (mainly during the construction) are listed below. The mitigation measures for these impacts are included in the borrow pits' EMRP.

- Soil erosion as well as soil and water pollution
- Habitat destruction and deforestation
- Depletion of the local groundwater table

- Land use change
- Potential displacement of properties such as fences, pipelines, and or homes to allow for sufficient road reserves
- Impact on air quality (dust generation)
- Noise associated with the movement of heavy machinery and trucks can disturb locals and animals
- Disruption of hydrological systems by borrow pits
- General environmental pollution through the mishandling of project-related waste associated with the project
- Occupational and community health and safety
- Potential archaeological and cultural heritage impact: borrow pits may impact local cultural heritage sites.

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on issues raised by I&APs during the consultation period. The issues raised by I&APs were addressed and incorporated into this Report, whereby mitigation measures have been provided in the Environmental Management & Rehabilitation Plant (EMRP) for implementation to avoid and/or minimize their significance on the environmental and social components.

Impact Assessment: The key negative impacts were described, assessed. The potential negative impacts indicated a medium rating of significance. To minimize the significance, appropriate management and mitigation measures are made for implementation by the Proponent, their contractors, and workers to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

Recommendations and Conclusions

The EIA Study was deemed sufficient and concluded that no further detailed assessments are required for the ECC application for the road construction and associated activities.

Serja Consultants are confident that the potential negative impacts associated with the project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures, and with more effort and commitment put on monitoring the implementation of these measures. It is therefore recommended that the project be granted an ECC, provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the activities are obtained as required. These include permits and licenses, and ensuring compliance with these specific legal requirements.
- Transparency in communication and continued engagement with the communities and or through their leaders (local leaders and constituency councillors), and stakeholders should be maintained throughout the project cycle.
- The Proponent, their project workers and contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by issuing authorities.
- Site areas where excavations were carried out and have ceased are rehabilitated, as far as practicable, to their pre-excavation state. This includes the levelling of stockpiled topsoil, backfilling trenches, and closing/capping of project-associated holes, as well as borrow pit rehabilitation.
- The EMRP implementation should be checked and done by the responsible team member onsite (Environmental Control Officer / Safety Officer), and audited by an Independent Environmental Consultant on a bi-annual basis to compile Environmental Monitoring (audit) reports. These reports are to be submitted to the Environmental Commissioner at the DEAF This will be required by the Environmental Commissioner (as part of the ECC conditions).

In conclusion, although significant, the identified impacts would not hinder the project activities. However, the recommended measures should be effectively implemented and monitored to ensure that the significance of adverse impacts is reduced to a low level, where it is medium, and eventually to a negligible significance rating. The effectiveness of the implementation of the management and mitigation measures and EMP compliance will be done by an Environmental Control Officer (ECO) or Safety Officer and audited by an Independent Environmental Consultant on a bi-annual basis. This is to ensure that EMRP implementation can be tracked via Bi-Annual Environmental Monitoring exercises and documented in the monitoring reports to the Environmental Commissioner. The monitoring of EMRP implementation will not only be done to ensure that the impact's significance is reducing and or maintaining a low significance rating, but also to ensure that all potential unforeseen impacts that might arise during implementation are properly identified in time and addressed immediately.

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Appendix F: Original Copy of the EIA notification poster placed for the access road EIA Study

Appendix G: Minutes from the consultation meetings with stakeholders / interested & affected parties

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BID	Background Information Document
BP	Borrow Pit
CEB	Cuvelai-Etosha Basin
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSR	Corporate Social Responsibility
DEAF	Department of Environmental Affairs and Forestry
DR	District road
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GN	Government Notice
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
MAFWLR	Ministry of Agriculture, Fisheries, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MIME	Ministry of Industries, Mines and Energy
MWT	Ministry of Works and Transport

Abbreviation	Meaning
NHC	National Heritage Council (NHC) of Namibia
NORED	Northern Regional Electricity Distributor Company
PPE	Personal Protective Equipment
Reg, S	Regulation, Section
UNCCD	The United Nations Convention to Combat Desertification

GLOSSARY (KEY TERMS)

Term	Definition
Alternative	A possible course of action, in place of another that would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	The part of the environment that does not originate with human activities (e.g., biological, physical, and chemical processes).
Borrow Pit	Literal pits are dug to provide fill material, such as sand and gravel, for construction projects.
Cumulative Impacts / Effects Assessment	Concerning an activity, it means the impact of an activity that may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal
Ecological Processes	Processes that play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).
Environment	As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.

Term	Definition
Environmental Management Plan (Draft EMP)	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environmental effects are to be mitigated, controlled, and monitored.
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.
Fauna and Flora	The animals and plants found in an area.
Mitigate	Practical measures to reduce adverse impacts.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of an action on the affected environment
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Proponent	Organization (private or public sector) or individual intending to implement a development proposal. As defined in the Environmental Management Act, the Proponent is a person who proposes to undertake a listed activity. The Proponent in this case is the Ministry of Works and Transport (MWT).
Public Consultation/Involvement	A range of techniques that can be used to inform, consult, or interact with stakeholders affected by the proposed/project activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended.
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into a full EIA.
Significant impact	Means an impact that, by its magnitude, duration, intensity, or probability of occurrence, may have a notable effect on one or more aspects of the environment

1 INTRODUCTION

1.1 Project Background and Location

The Ministry of Works and Transport (MWT) (*the Proponent*) intends to construct an access gravel road from the DR3609 (tarred road) to Iipanda YaAmiti Clinic and Combined School. The access road aims to improve accessibility from the tarred road to the Iipanda YaAmiti Settlement. The proposed 3km access road will start from the turn off of DR3609 (Omungwelume-Oshakati road), which is in Ombalala Village, before proceeding to the Iipanda-YaAmiti Village/Settlement, where the Clinic and Combined School are. Both villages (Ombalala and Iipanda yaAmiti) where the proposed access road will be constructed (pass through) are within the Ukwambi Traditional Authority, Etayi Constituency of the Omusati Region. The locality map and land use (regional constituencies) are shown in Figure 1-1 and Figure 1-2, respectively.

The road construction will commence upon completion of the project design by Caldera Investment cc, who will administer the construction contract and supervise the construction works. Furthermore, other activities associated with gravel road construction include the abstraction of road construction materials from one or two borrow pits along the proposed route, as well as water supply for construction near the road route.

The road is currently a single-track pathway comprising sand, making travel difficult during the rainy seasons, particularly for small vehicles (non-four-wheel drive vehicles). Thus, upgrading the existing route to a gravel road is necessary so that the road will serve the purpose of:

- Improving access to services to the Iipanda YaAmiti Clinic and Combined School,
- Improving rural and regional accessibility, and
- Reducing road user costs.

The project will involve inter alia the following:

- Upgrading of the sandy single-track roadway to gravel road standards,
- Provision of and Improvement of drainage facilities and features,
- Establishment of the 30m road reserve.

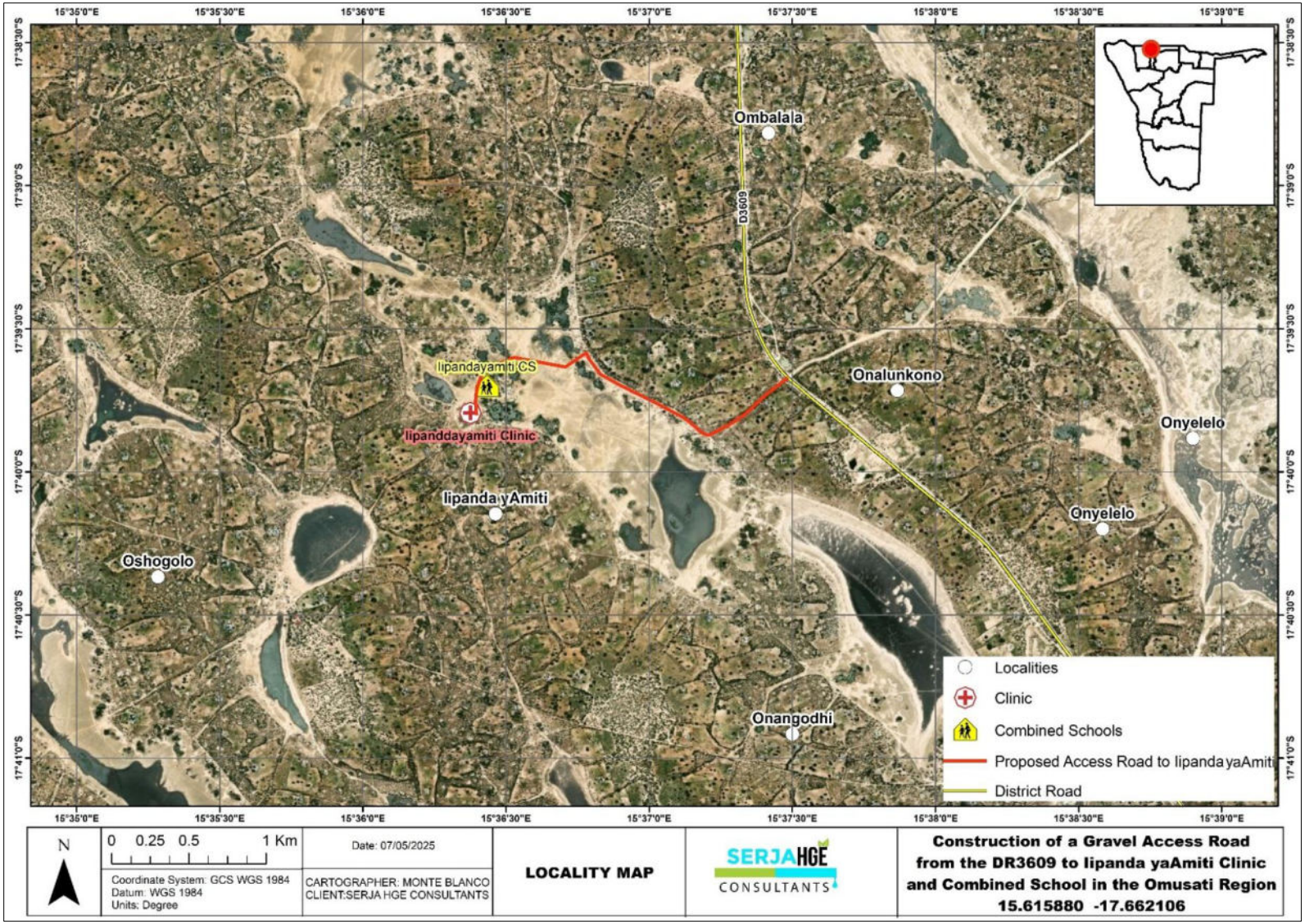

Figure 1-1: Locality map of the proposed access gravel road from DR3609 to Iipanda YaAmiti Clinic and School in the Omusati Region

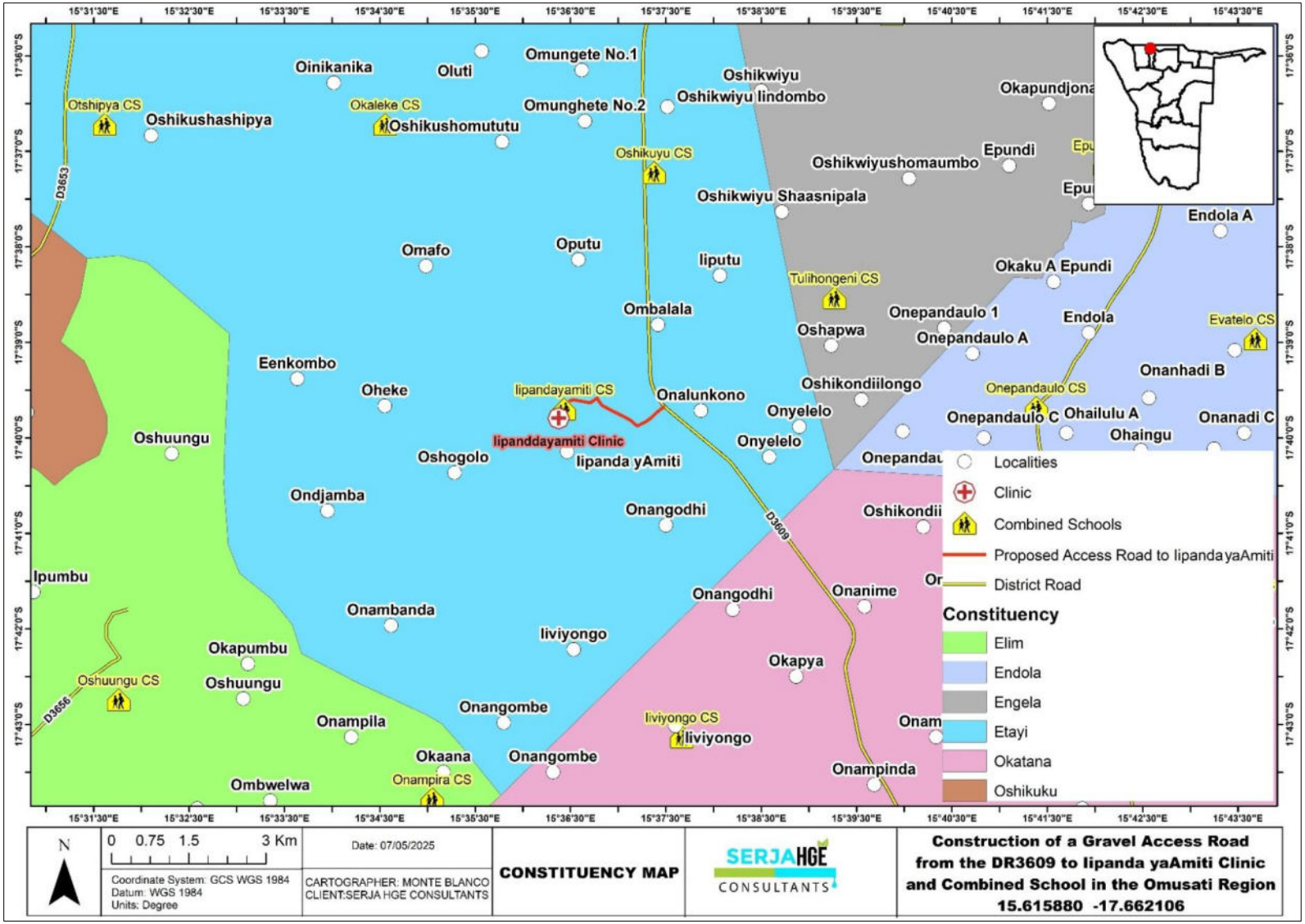

Figure 1-2: The land use map for the proposed access road connecting to the DR3609 with the electoral constituencies

1.2 The Need and Desirability of the Project Activities

The access road from the DR3609 will efficiently serve the areas along the route, thus providing improved and better access to the health center (Iipanda YaAmiti Clinic) and Iipanda YaAmiti Combined School, and other nearby growth and social centres such as Uukwanatshikale along and near the route. Thus, the project will serve significant economic activities and services along the road.

Furthermore, the constructed gravel access road will ease the access of locals and travelers alike to the area to access the clinic, school, and nearby areas such as settlements and villages with ease.

1.3 Need for an Environmental Clearance Certificate (ECC)

The road construction and associated works such as the abstraction of construction materials and water to supply the road construction works, are listed activities in the Environmental Impact Assessment (EIA) Regulations (2012) of the Environmental Management Act (EMA) No. 7 of 2007 that may not be undertaken without an Environmental Clearance Certificate (ECC). The listed activities that are relevant to the proposed project activities are as follows:

- *Listed Activity 10.2: the construction of the route determination of roads and the design of associated physical infrastructure, where –*
    - (a) It is a public road
    - (b) The road reserve is wider than 30 meters; or
    - (c) The road caters for more than one lane of traffic in both directions

Associated activities

Mining and quarrying activities for sand and gravel from borrow pits

- *Listed Activity 3.1 The construction of facilities for any process or activities that require a license, right, or other forms of authorization, and the renewal of a license, right, or other forms of authorization, in terms of the Minerals (Prospecting and Mining Act), 1992.*
- *Listed Activity 3.2 Other forms of mining or extraction of any natural resources, whether regulated by law or not.*

Water resources development – to supply the road construction

- *Listed Activity 8.1: The abstraction of ground or surface water for industrial or commercial purposes.*

The purpose of the EIA Study and subsequent issuance of the ECC is therefore to ensure that the project activities are undertaken in an environmentally & socially friendly and sustainable manner, through the effective implementation of recommended environmental management measures to minimize the adverse identified impacts while maximizing the positive impacts.

To comply with the EMA and its EIA Regulations and ensure environmental sustainability, the Proponent, through the consulting engineer supervising the construction contractor, has appointed Serja Hydrogeo-Environmental Consultants CC (Serja HGE Consultants), independent environmental consultants, to apply for the ECC on their behalf.

An application for the ECC is being launched with the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) by Serja Consultants. Upon screening of this Background Information Document (BID), Serja Consultants has been required to prepare an Environmental Scoping Report and Environmental Management Plan & Rehabilitation Plan (EMRP) in an application for the ECC. The required documents (Scoping Report and EMP/EMRP) will be submitted to the MEFTs for evaluation and consideration of the ECC.

1.4 Appointed Independent Environmental Consultant

To comply with the EMA and its Regulations and ensure environmental management, protection, and sustainability, the Proponent through the project design engineer (Caldera Investment/Consulting Engineers, who will administer the construction contract and supervise the construction works) appointed Serja Hydrogeo-Environmental Consultants CC, Independent Environmental Consultants to apply for the ECC and conduct the required Environmental Assessment Process, which includes Public Consultation and prepare the EIA Report and EMP – Appendix A.

The EIA process (stakeholder / public consultation and engagement, including consultation meeting facilitation) and reporting were done by Ms. Fredrika Shagama. Ms. Shagama is a qualified and experienced Hydrogeologist and Environmental Assessment Practitioner by training and experienced with over 10 years of experience in Groundwater and Environmental Management Consulting. Ms. Shagama' s is attached to this Report as Appendix B.

1.5 Application for the Environmental Clearance Certificate

The application for the ECC process was done as follows:

- Preparation of the Background Information Document (BID) for the project activities,
- Launching of the ECC application on the ECC Portal of the Ministry of Environment, Forestry and Tourism (MEFT) with the Proponent details (accompanied by the BID) for project registration purposes and obtaining a MEFT application/reference number (APP-005804),
- Completion of the ECC Form 1 (Section 32) of the EIA Regulations with the required project and Proponent information,

- Submission of the printed hard copy of the ECC application (with affixed NAD300 revenue stamps as application fees attached hereto) is submitted to the MEFT. The MEFT's date-stamped copy of the ECC application is uploaded on the ECC Portal as proof of application and payment.

The next component of the ECC application was to undertake an EIA process, which entails a Baseline Assessment of the Biophysical and Social environments, as well as public consultation and engagement. The findings of the EIA process are then incorporated into an EIA Report, and an EMP is also developed for the mitigation of potential adverse impacts anticipated from the project activities. The two documents and associated documents (appendices) are then submitted to the Environmental Commissioner at MEFT's Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration of the ECC.

1.6 Scope of Work and Report Contents

This Study has been conducted according to the EMA No. 7 of 2007, and its 2012 EIA Regulations as mentioned in the preceding subsections, i.e., the project requires an ECC. Therefore, the process has been undertaken as required and guided by the Regulations.

This Report has been compiled as a required output of an environmental assessment process after the ECC application has been launched with MEFT. The Scoping Report, together with the EMRP and all its appendices, will be submitted to the DEAF.

The document (report) covers the following chapters or sections, in addition to the introductory chapter:

- Project description and associated activities - (Chapter 2).
- Project alternatives considered (that were found to be environmentally friendly and technically feasible) - Chapter 3.
- The Legal requirements governing the project and its related activities, i.e., the legislation that the project activities must comply with (Chapter 4).
- The Environmental and Social Baseline of the project area - Chapter 5.
- The Public Consultation & Engagement Process undertaken to inform, invite, and engage the public (stakeholders and interested & affected parties) on the project activities - Chapter 6.
- The Assessment of identified potential impacts associated with the project activities (Chapter 7) - This chapter presents both the positive and negative (adverse) as well as cumulative impacts, assessment methodology, and the assessment of the negative impacts. The mitigation measures in the form of management action plans, with a timeframe and implementation responsibilities, are given in the EMP.

- The recommendations and conclusions of the environmental assessment are presented under Chapter 8. The data sources (literature/references) consulted for the assessment are listed under Chapter 9.

Based on the information provided by the Proponent and the EAP's experience, a description of the project activities is presented in the next chapter.

2 DESCRIPTION OF THE PROJECT ACTIVITIES

The project will involve the upgrading of the existing sandy single-track from the DR3609 tarred road (in Ombalala Village) to Iipanda YaAmiti Settlement/Village, where the Clinic and Combined School are. The proposed road follows a slight southwestern trend from the DR3609, then westwards until the Iipanda YaAmiti Settlement. Furthermore, the road construction to gravel standards will address the problem of small pipe culverts and low-level water crossing structures, the widening of the road to increase capacity, as well as providing additional road structures where applicable.

In addition to the above, the road construction will also address the erosion aspects through the drainage systems to be designed. Road construction materials from one or two borrow pits with quality material sites (to be identified and sited by materials personnel), as well as sources of nearby raw and fresh water, will be determined.

2.1 Road Planning and Design

The planning and design phase of the proposed gravel road is guided by national standards and environmental regulations. This phase involves route selection, topographical surveys, the EIA Study, and the design of road alignment, drainage systems, and gravel layer thickness. Community consultation and stakeholder engagement (as part of the EIA) are also key components to ensure minimal disruption and sustainable development. It is also during this phase that the administrative documentation, including the tendering process for the construction phase, is prepared. Some of the key design aspects are as follows.

2.1.1 Road design

The components of the project to be carried out by Caldera Investment, as predetermined in the Terms of Reference, may be summarised as follows:

- The detailed engineering design, including consultation, data collection, survey, geotechnical and materials investigation and testing, pavement design, geometric design, structural and drainage design, tender documentation
- Administration of the tender process
- Contract administration and site supervision of the construction phase.

The upgrade from the single-track sandy road to gravel standard warrants a reconsideration of the geometric standards to accommodate and comply with the upgraded operating speeds of up to 100km/h and all associated implications. The EIA study also aims to assess the existing condition of the road to determine which areas are a matter of concern and to generate alternative solutions accordingly. As such, the engineering, social, economic, and environmental aspects that relate to the proposed upgrade will be investigated to provide sufficient and accurate information regarding the proposed upgrade.

2.1.2 Road furniture

The following road furnishings are considered for the proposed road upgrade:

- Fencing: New fences will be installed where impacted due to construction and relocated to establish the boundaries of the road reserve. Borrow pit areas will also need to be fenced for the protection of the public and animals (particularly livestock) as a once-off, and provision for this will be made in the bill of quantities.
- Road signs: Road signs will be installed (where necessary) will be installed along the road. The bulk of these signs will be required at major community centres and intersections. The positioning and the design of all road signs specified will comply with the stipulations contained in the Roads Authority Road Traffic Signs Policy.
- Rest areas and pedestrian facilities: Rest areas will be constructed at intervals of at least 10km along the road. It is generally not required in rural areas that provision be made for pedestrians. In areas where heavy pedestrian traffic is experienced. However, crossing or traffic calming signs may be installed at areas close to schools and public service centres (health centres).
- Intersections and accesses: Standard Roads Authority access types are anticipated on this project.

2.2 Construction Phase

The construction phase will include clearing of vegetation along the demarcated road route and reserves, stripping topsoil, and shaping the roadbed. The layers of gravel are sourced from approved borrow pits in the area, transported, spread, and compacted in layers. Culverts and side drains are installed to manage surface water, and signage and safety features are added. The environmental management plans (this EMRP) will be implemented and monitored throughout to minimize ecological and social impact.

2.2.1 Borrow Pits (BPs) for road construction works

The road construction requires materials such as sand and gravel that will be sourced (extracted) from selected localities along the road route (between DR3609 and Iipanda YaAmiti Settlement). The selection of BP sites (upon completion of exploration) will be determined by the material that meets the quality for constructing roads. However, the final BP locality has not yet been finalized pending completion of the borrow pits exploration/survey and materials testing to select a suitable area for borrow pit(s) for the road construction materials.

It is important to note that the BPs will be on communal land (localities to be determined if on anyone's land or general communal land). Thus, the exploration for BP sites has been communicated with communities in the consultation meeting held on the 22nd of May 2025. The consent letters for the establishment and utilization of the BPs in the area have been issued by the Uukwambi Traditional Authority local Headmen (for Iipanda yaAmiti and Ombalala Villages) - Appendix C.

For any new BPs, where additional BPs may be required and they would be inside someone's fence, compensation guidelines as per the Roads Authority and relevant government policies (National Compensation Policy) will be followed for implementation. This is to ensure that the affected landowners are compensated fairly and that the process and material extraction are done efficiently, safely, and amicably.

2.2.2 Anticipated Resources and Services Infrastructure

2.2.3 Human resources

The road construction will potentially employ up to one hundred (100) people or more. The workforce will likely comprise safety officers, the resident engineer, the contracts manager, the land surveyor, quality control technicians, maintenance artisans, general foremen, operators, laborers, security guards, etc. Priority for employment (semi to unskilled labor) will be given to the locals.

2.2.4 Contractors' accommodation

The project workforce that is out of the area will be accommodated in camps along the road. This is to ensure that workers commence work on time without the need to transport workers from and to their homes daily. However, where possible, local labourers will be commuting to the site from their homes, within a reasonable distance.

2.2.5 Vehicles and equipment

The project equipment, machinery, and vehicles will be stored at designated areas inside the contractor's campsites. Machinery and vehicles such as excavators, dump trucks, bulldozers, loaders, support vehicles (such as 4x4 wheel drive cars and other maintenance vehicles), etc., will also be parked at a designated site at the campsites.

2.2.6 Water supply

The water required for the project will be obtained from the nearby Rural Water Supply scheme, and stored in tanks and fenced off in a lined water holding dam (to be carted by a water truck to working sites by a water trucker). This water will be used for the actual road works and dust suppression. For human consumption and domestic use, there is a tap installed at the campsite.

2.2.7 Fuel supply

Diesel will be used for machinery and equipment, and a fuel generator to ensure an uninterrupted fuel supply to the project. The fuel will be stored in a 23,000-liter temporarily installed fuel tank at a selected point along the constructed road to ensure uninterrupted supply during construction. The base of the tank will be lined with the impermeable Polyvinyl chloride (PVC) material under a concrete layer to prevent infiltration of accidental oil spills into the soil and groundwater. There will be oil spill control measures onsite, i.e., the absorbent material contained in the fuel spill equipment (such as a natural sponge-like material) that can absorb accidental fuel spillage or leaks. It is anticipated that the fuel tank will be refilled once a week. A consumer installation certificate for the tank will be applied for from the Ministry of Industries, Mines and Energy (MIME) by the Construction Contractor.

2.2.8 Occupational health and safety

All project workers will be supplied with appropriate and adequate personal protective equipment (PPE) while carrying out project activities on-site. The site will be equipped with fully furnished first aid kits.

2.2.9 Accidental fire outbreaks

The campsite and vehicles will be equipped with fire extinguishers in case of accidental fire outbreaks.

2.2.10 Waste management (solid waste)

All waste generated from the project activities will be sorted, stored on-site in designated waste containers, and transported to the nearest approved solid waste dumping site in a Town such as Oshakati. Consent and approval to dispose of solid waste on the Town dumpsite will need to be obtained from the Oshakati Town Council before doing so.

2.2.11 Human waste/sanitation

The appointed contractor will install flushing toilets with a septic tank for the workers and project-related visitors. The tank will be emptied according to the manufacturer’s instructions and as regularly as deemed necessary. For the project personnel stationed along the road, portable toilets will be placed/erected at working sites along the road.

2.2.12 Hazardous waste (fuels)

The hazardous waste (waste fuel, grease, and oils) will be properly captured, stored on site in designated waste containers, and transported to the appropriate hazardous waste management facility (in Windhoek). Therefore, no hazardous waste will be disposed of in the project area or any other unapproved waste management facility in the project area or the Omusati Region at large.

2.3 Decommissioning and Rehabilitation of Borrow Pits

After construction works are completed, temporary infrastructure like construction camps and detours will be dismantled. Borrow pits are rehabilitated according to environmental regulations, usually by reshaping and re-vegetating the land. Topsoil is replaced, and disturbed areas are stabilized to prevent erosion and encourage natural regrowth, ensuring long-term environmental sustainability.

Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. Therefore, it is best practice for the Proponent through their contractor to ensure the project and associated activities, mainly the BP sites, are ceased in an environmentally friendly manner and sites are rehabilitated by carrying out the following:

- Dismantling and removal of campsites and associated infrastructures from the project site areas,
- Carrying away all project equipment and vehicles, and
- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the waste facility operator/owner),

Further decommissioning and rehabilitation practice at the BPs will include:

- Backfilling of pits and trenches associated with the construction materials sourcing in the area,
- Closing of holes to ensure that they do not pose a risk to both people and animals in the area, and
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left as close to their original state as possible.

2.4 Operational and Maintenance Phase

This is the phase that succeeds the construction phase, when the newly constructed gravel road will be operational with regular maintenance to ensure usability and safety. It is anticipated that maintenance of the road will be done through the Roads Authority of Namibia's Maintenance Department in the Region. The maintenance works will include grading to smooth out surface irregularities, repairing erosion damage, cleaning and maintaining drainage systems, and periodically reapplying gravel. Routine inspections will also be critical to prolong road life and reduce long-term costs.

The next chapter is the presentation different and relevant alternatives considered for the project activities.

3 PROJECT ALTERNATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and identify the alternative that will be the most practical, but least damaging to the environment is identified.

Once the alternatives have been established, these are examined by asking the following three questions:

- *What alternatives are technically and economically feasible?*
- *What are the environmental effects associated with the feasible alternatives?*
- *What is the rationale for selecting the preferred alternative?*

The alternatives considered for the project activities are presented below.

3.1 The "No-Go" Alternative

The “no action” alternative implies that the status quo remains, and nothing happens. Should the proposed road construction be discontinued, the current link between DR3609 and Iipanda YaAmiti would remain as it is (single-track sandy road). Consequently, there will be no road upgrading to a gravel road from the DR3609 to the Iipanda YaAmiti Clinic and School. Moreover, none of the potential impacts (positive and negative) identified would occur. If the project activities are to be discontinued, the status quo of the land would remain unchanged. This option was considered, and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not completed.

Considering the above losses, the “no-action/go” alternative was not considered a viable option for this project.

3.2 Road Route (Location)

The road route is site-specific from the DR3609 to the Iipanda YaAmiti Clinic and School, which needs to be upgraded to improve accessibility between these areas. Therefore, finding alternative locations for the road may not be feasible from a social and economic perspective.

3.3 Services Infrastructure

Alternatives were considered for different supporting infrastructures to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternative considered in this regard is presented in Table 3-1 below.

Table 3-1: The presentation of service infrastructure alternatives considered for the project activities

Category of Infrastructure	Alternatives Considered	Justification for the selected option
Ablution facilities	-Install a fixed facility with a septic tank -Portable facilities with a septic tank	-To minimize rehabilitation costs and ensure good hygiene onsite, a flushing portable facility was selected as the best option. For the personnel along the road, portal toilets are provided.
Water supply	-Bring water from elsewhere -Abstract from site boreholes	-The project will be sourced from the water supply scheme in the area, but not from boreholes due to very poor water quality – refer to Chapter 5 (groundwater quality map).
Fuel storage	-Trailer-mounted diesel tank -Fixed bunded fuel tank	-A fixed bunded fuel tank will be installed at the construction campsite near the road. The fuel will be dispensed under controlled conditions from one dedicated site for the project.
Power supply	-Diesel generator set, and if considered, solar power. -Powerline (grid) supply	-The actual road works will use generators. A campsite can be established in Iipanda YaAmiti Settlement, where there is already a power grid.
Offices, accommodation	-Erect dismantable prefabricated units -Fixed structures	-Dis-mantable prefabricated units are favored due to: (a) Ease of installation, (b) Low installation costs, and (c) Ease of dismantling and moving.
Accommodation site	-Setting up a campsite -Commuting from towns -Commuting from home in the area	-Set up a temporary campsite in the Settlement for out-of-area specialized personnel. -Other personnel, such as some casual laborers and operators from the communities, will commute from their homes to the site, where possible.

The following chapter presents the national and international legal requirements that are applicable and relevant to the project.

4 APPLICABLE LEGAL FRAMEWORK

The project's activities or some of them may be regulated and governed by certain legal policies. Therefore, it is necessary to review and consider these legislations and legal requirements. These legal requirements are either on a local (institutional), national (Namibian), or international legislation, policies, guidelines, etc. The review of the relevant legal framework serves to inform the project Proponent, interested and affected parties, and the decision-makers at the DEAF of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the project activities.

4.1 National Legal Framework: Laws, Policies, and Regulations

The national applicable legal framework and policies relevant to the project are presented in Table 4-1.

Table 4-1: List of applicable legislation for the project activities

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
The Constitution of the Republic of Namibia, 1990, as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at: "…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."	By implementing the environmental management plan, the establishment will be in conformant with the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the project.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Environmental Assessment Policy of Namibia 1994	The policy provides a definition of the term "Environment" broadly interpreted to include biophysical, social, economic, cultural, historical, and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes, and plans.	This EIA outlines the environmental consequences of this project and considers the definition of the Environment.
Environmental Management Act No. 7 of 2007 and its 2012 EIA Regulations	The Act aims to ensure that the potential impacts of the development on the environment are considered carefully and in good time; that all interested and affected parties have a chance to participate in the environmental assessments and that the findings of the environmental assessments are fully considered before any decisions are made about activities which might affect the environment.	The Act aims at promoting sustainable management of the environment and the use of natural resources. The EMA is broad; it regulates land use development through environmental clearance certification and/or Environmental Impact Assessments. The Act provides for the clearance certification for quarrying activities associated with borrow pits.
Traditional Authority Act (Act No. 25 of 2000):	The Act also stipulates that Traditional Authorities (TAs) should ensure that natural resources are used on a sustainable basis that conserves the ecosystem. This Act implies that TAs must be fully involved in the planning of land use and development for their area. It is the responsibility of the TAs' customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area.	The road falls within the Iipanda YaAmiti Village and through Ombalala Village, under the local traditional representatives (headmen and women). Therefore, they should be consulted for the land use consent, and engagement should continue throughout the project.
Communal Land Reform Act 5 of 2002	To provide for the allocation of rights in respect of communal land; to establish Communal Land Boards; to provide for the powers of Chiefs and Traditional Authorities and boards concerning communal land; and to make provision for incidental matters.	The Proponent should ensure that the project complies with the regulations provided therein for road reserve, furniture, and borrow pits.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Roads Authority Environmental Manual (October 2014)	The manual seeks to inform practitioners regarding the legal and contractual framework within which roads must be designed and built. It also seeks to guide the requirements of the Roads Authority in respect of environmental issues	The EIA and resultant road upgrade design and activities should be conducted in line with the guidelines within the document.
Roads Ordinance No. 17 of 1972	The Ordinance consolidates the laws relating to roads: Section 3.1 deals with the width of proclaimed roads and road reserve boundaries. Section 27.1 is concerned with the control of traffic on urban trunk and main roads. Section 36.1 regulates rails, tracks, bridges, wires, cables, subways, or culverts across or under proclaimed roads. Section 37.1 deals with infringements/obstructions on and interference with proclaimed roads.	The road upgrade must adhere to all applicable provisions in the Roads Ordinance.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent, through their construction contractor, should obtain the necessary authorisation from the MIME for the storage of fuel on-site. This entails the application of a consumer installation certificate.
Road Traffic Ordinance 30 of 1967	The Ordinance governs road traffic comprehensively.	The project should consider the impact it will have on road traffic in the subject area.
Roads Authority Act No. 17 of 1999	The Act establishes a Roads Authority to manage the national road network of Namibia.	Although not the Proponent for the project, the Roads Authority is ultimately responsible for the operational phase of the project activities (road maintenance).
National Road Safety Act No. 9 of 1972	The Act establishes the National Road Safety Council and includes provisions intended to promote road safety.	The project should consider the impact it will have on road safety in the subject area.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Hazardous Substance Ordinance, No. 14 of 1974	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal, and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment.
National Solid Waste Management Strategy	The Strategy ensures that the future directions, regulations, funding, and action plans to improve solid waste management are properly coordinated and consistent with national policy, and to facilitate co-operation between stakeholders. Waste disposal is the main problem with the current solid waste management in Namibia. The top priority is to reduce risks to the environment and public health from current waste disposal sites and illegal dumping in many areas of Namibia.	The road upgrade can potentially generate a significant amount of solid waste (stockpiles, soil remains, rubble) that might need proper management by contractors to avoid pollution. Waste management plans should be generated and implemented before the commencement of civil works and during project operations. Contractors operating BPs and actual road works should reduce the risk of solid waste to the environment and the surroundings of the project area.
The Regional Councils Act (No. 22 of 1992)	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Omusati Regional Council (Etayi Constituency); therefore, they should be consulted.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Traditional Authority Act (Act No. 25 of 2000):	The Act also stipulates that Traditional Authorities (TAs) should ensure that natural resources are used on a sustainable basis that conserves the ecosystem. This Act implies that TAs must be fully involved in the planning of land use and development for their area. It is the responsibility of the TA's customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area.	The proposed gravel access road passes through the communal land of Ombalala and Iipanda YaAmiti villages. Therefore, the local representatives (headmen of the two villages) should be consulted for the land use consent, and engagement should continue throughout the project.
Water Resources Management Act (No 11 of 2013) and its 2023 Water Regulations	The Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services; and provides for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	The protection (both quality and quantity/abstraction) of water resources should be a priority. Relevant consent and or agreement should be obtained from NamWater/Rural Water Supply to supply water for construction.
National Heritage Act No. 27 of 2004	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with these Acts' requirements. The necessary management measures and related permitting requirements must be taken. This is done by consulting with the National Heritage Council of Namibia. A Chance Finds Procedure provided to the Draft EMP should be implemented upon discovery of archaeological and heritage resources.
The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Soil Conservation Act (No 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement, and conservation of soil, vegetation, and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Forestry Act (Act No. 12 of 2001	The Act provides for the management and use of forests and forest products. Section 22. (1) provides: "Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a dune or drifting sand or a gully unless the cutting, destruction or removal is done to stabilise the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary to remove protected trees along the road.
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Public and Environmental Health Act No. 1 of 2015	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding the health and safety of labourers.	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Atmospheric Pollution Prevention Ordinance (1976)	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for section 4(1) (a) of the ordinance.	The project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented.
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	Mitigation measures should be provided for if the roads and traffic impact cannot be avoided.
Labour Act (No. 6 of 1992)	The Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety, and enhanced labour market services for the benefit of all Namibians. This ministry ensures the effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the project activities do not compromise the safety and welfare of workers.

4.2 International Policies, Principles, Standards, Treaties, and Conventions

4.2.1 Applicable International statutes (treaties and conventions) and policies

The other international statutes, such as policies, standards, and conventions that may govern the project activities, are provided under Table 4-2 below.

Table 4-2: Other international treaties and conventions governing the project activities

Statue	Relevant Provisions	Implications for the project / Requirements
The United Nations Convention to Combat Desertification (UNCCD) 1992	Addresses land degradation in arid regions with the purpose of contributing to the conservation and sustainable use of biodiversity and the mitigation of climate change. The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability.	The project activities should not be undertaken in such that contributes to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity, whether within or outside protected areas, to ensure their conservation and sustainable use. Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings.	The removal of vegetation cover and destruction of natural habitats should be avoided, and where not possible, minimised.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: “a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

Other relevant international Treaties and Protocols ratified by the Namibian Government are:

Other relevant international Treaties and Protocols ratified by the Namibian Government are:

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.
- Convention on Biological Diversity, 1992, and
- World Heritage Convention, 1972.

In addition to the project description, alternatives, and legal framework, it is also important to note that the project activities are undertaken in a specific environment, in terms of biophysical and social factors. Therefore, understanding these existing environmental features before the project activities is crucial for the assessment of the potential impacts stemming from the project activities on the features.

5 BIOPHYSICAL AND SOCIAL BASELINE

The road works and associated activities are undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment aids in describing the status quo versus future projections of environmental conditions once the project is implemented. The baseline information also aids in identifying the sensitive environmental features and how the best suitable management and mitigation measures can be recommended for implementation. The summary of selected biophysical and social baseline information about the project area is given below.

The baseline information presented below is sourced from a site visit (done on the 02nd of May 2025), online sources ranging from old reports, books, and publications, as well as other relevant research information in the broader area. The project baseline that is deemed necessary for the project activities is as follows.

5.1 Biological Environment

5.1.1 Fauna

The area through which the access road passes is a communal area with livestock farming in the villages. The common livestock kept in these villages are goats, sheep, donkeys, cattle, and pigs.

5.1.2 Flora

The route along the proposed access road is dominated by grass, shrubs and trees comprising the following (alongside their protection status):

- Small and big trunk Mopane (*Colophospermum mopane*) trees – protected under the Forestry Act
- Jackalberry (*Diospyros mespiliformis*) trees – not protected
- Red-bark acacia (*Vachellia reficiens*) shrubs and trees – not protected
- Stinkbush (*Pechuel-loeschea*) – not protected
- Bird Plum (*Phyllogeiton discolor*) trees – not protected
- Makalani Palm (*Hyphaene petersiana*) trees – protected.

Some of the vegetation species observed during the site visit are shown in Figure 5-1. In terms of vegetation structure, the project area falls within both the grassland and woodland - Figure 5-2.

Figure 5-1: Photos of some vegetation observed along the access road

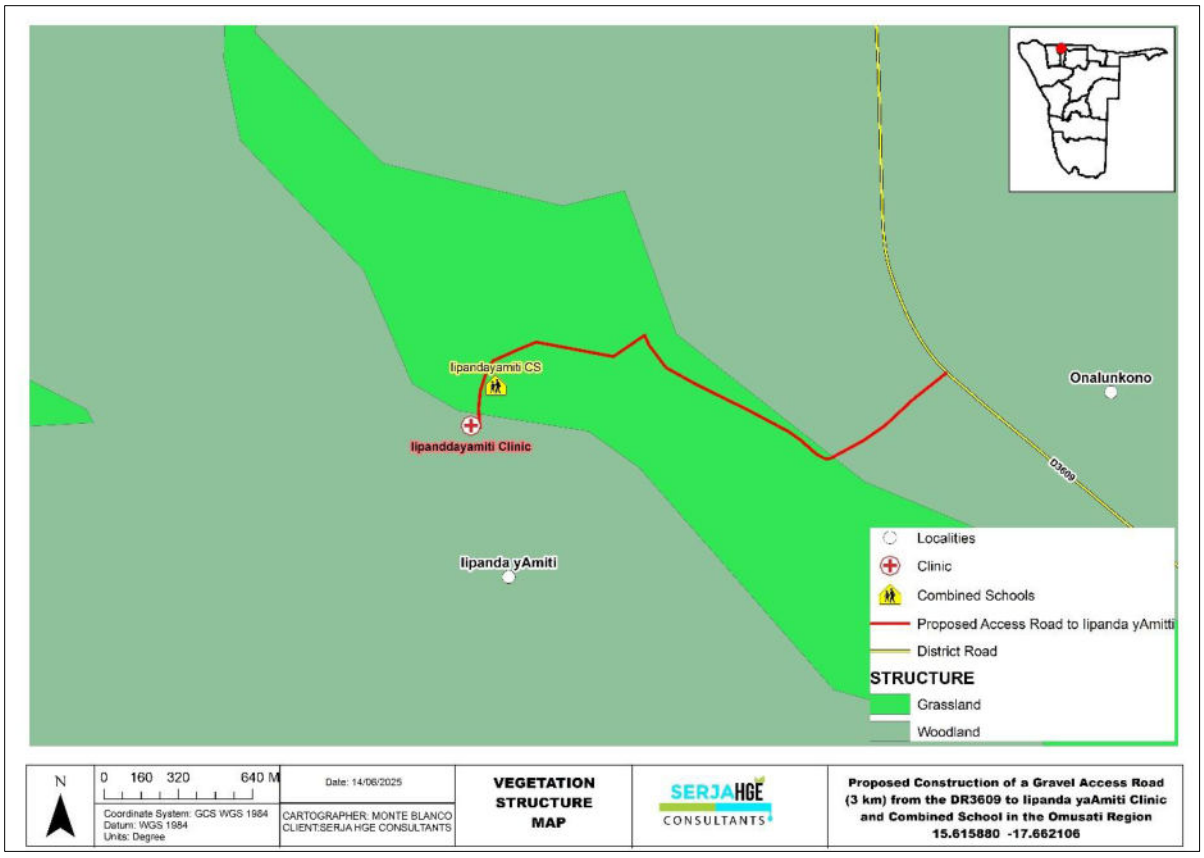

Figure 5-2: The vegetation structure map in the project area

5.2 Physical Environment

5.2.1 Climate

There is no data for Iipanda YaAmiti specifically, but the data for Omungwelume Settlement has been used as a baseline for the climatic conditions of Iipanda YaAmiti Settlement due to the fact that the two settlements are 18km away from each other. The climate data is sourced from the World Weather Online website.

Temperature

The area experiences the minimum and maximum temperatures of 10ºC around July and 37ºC around October, respectively (World Weather Online, 2025). The average low and high temperatures are 12 ºC in June/July and 35ºC in September/October, as shown in Figure 5-3.

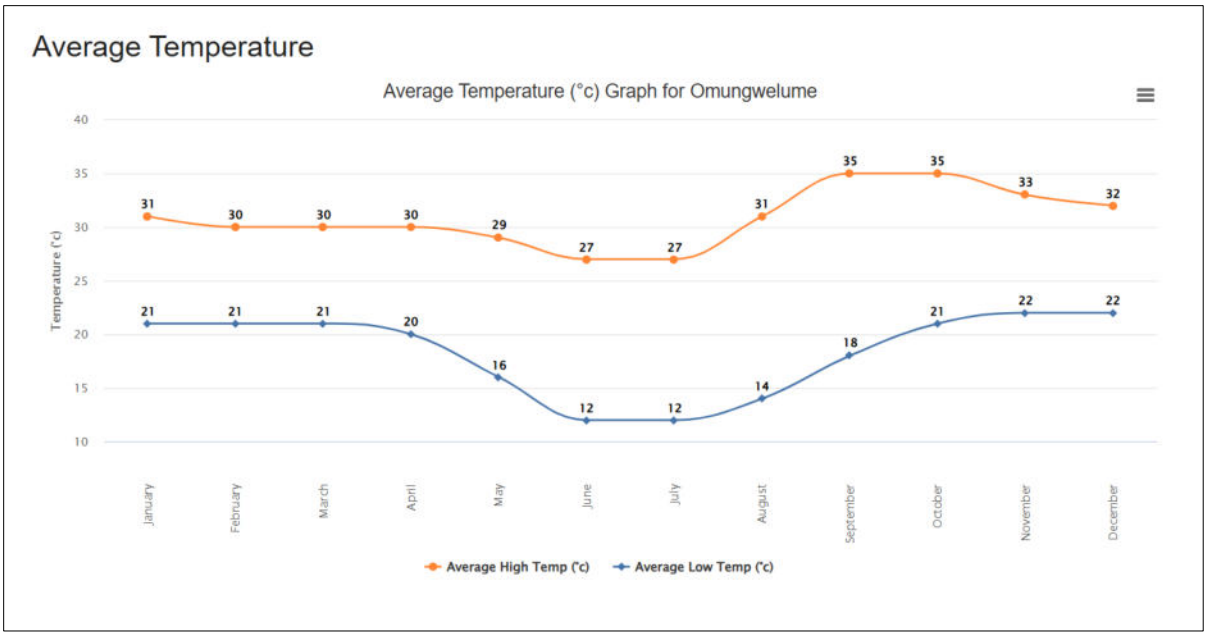

Figure 5-3: Average low and high temperature chart for the area (source: World Weather Online, 2025)

Rainfall

The area experiences good annual rainfall ranging between 100 and 250mm between January and March, with the highest rainfall recorded at 240mm in 2011, 225mm in 2009, 206mm in 2012, and 180mm in 2020 (World Weather Online, 2025). The highest average rainfall for the area is 136mm in February and 132mm in January, as shown on the chart in Figure 5-4.

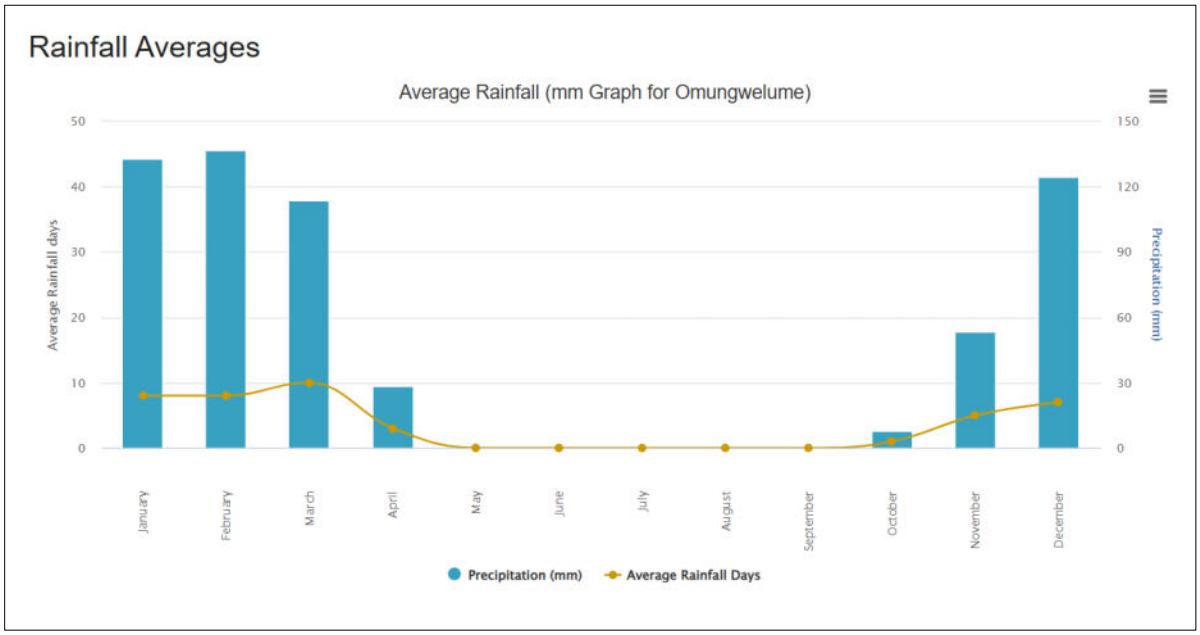

Figure 5-4: Average rainfall chart for the area (source: World Weather Online, 2025)

5.2.2 Landscape and topography

The project area and most areas in northern Namibia are situated in the Cuvelai Basin (Figure 5-5), whereby most of the land surface is very flat, dipping from 1,150m above sea level in the northeast to 1,080m above sea level in the Etosha Pan to the south (Lohe et al., 2021). This landscape is dominated by savannah woodlands growing on sands deposited by wind over the last 70-56 million years. The landscape is particularly flat, although the sand has been moulded into dunes in some areas (Mendelsohn et al., 2002)

The project area is relatively flat with elevations ranging between 951 and 1,216 meters above sea level (masl), as shown on the topographic map in Figure 5-5 below.

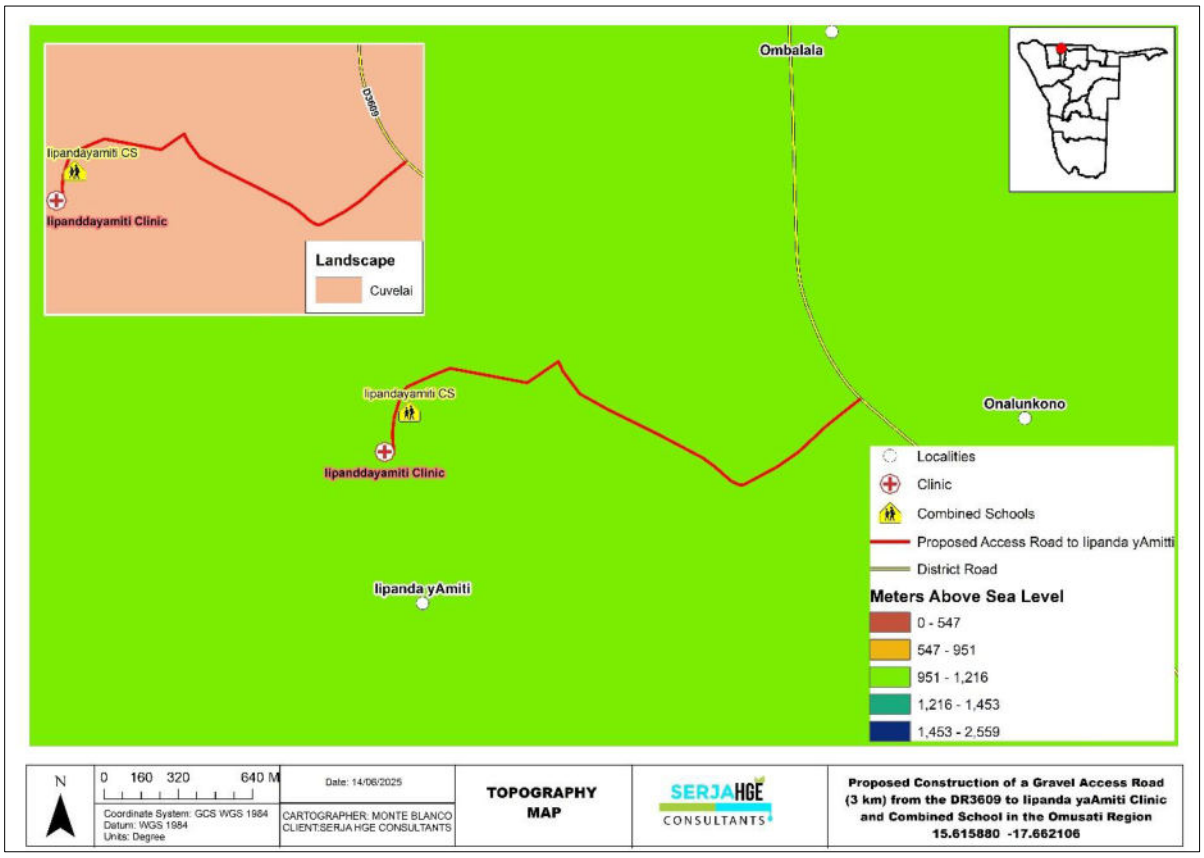

Figure 5-5: The topography and landscape of the area

5.2.3 Geology

The geology of the area is characterized by the unconsolidated to semi-consolidated sands, calcrete, and gravel sediments of the Quaternary and Tertiary age of the Kalahari Group, which covers most of the northern parts of Namibia and extends across the Namibian border into Botswana and Angola. According to the geology map in Figure 5-6, shows that the site lies over unconsolidated alluvium, sand, calcrete, and gravel of the Kalahari Group.

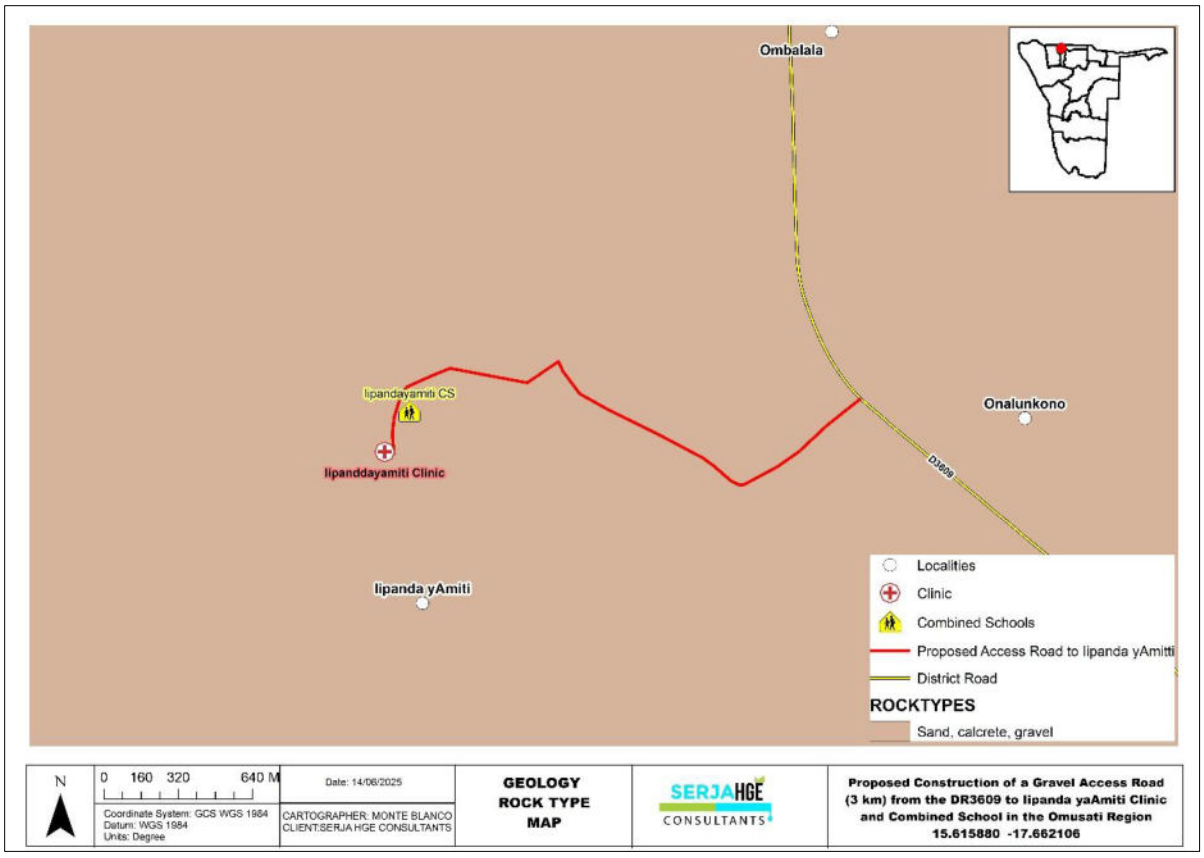

Figure 5-6: The geology of the project route area and surroundings

5.2.4 Soils

The dominant soil types in the area are eutric cambisols as shown on the soil map in Figure 5-7. According to Mendelsohn et al (2002), eutric soils are fertile soils with high base saturation. Cambisols are soils that were formed quite recently in geological time, mainly from medium and fine textured parent material deposited during sporadic flooding (Mendelsohn et. al, 2002).

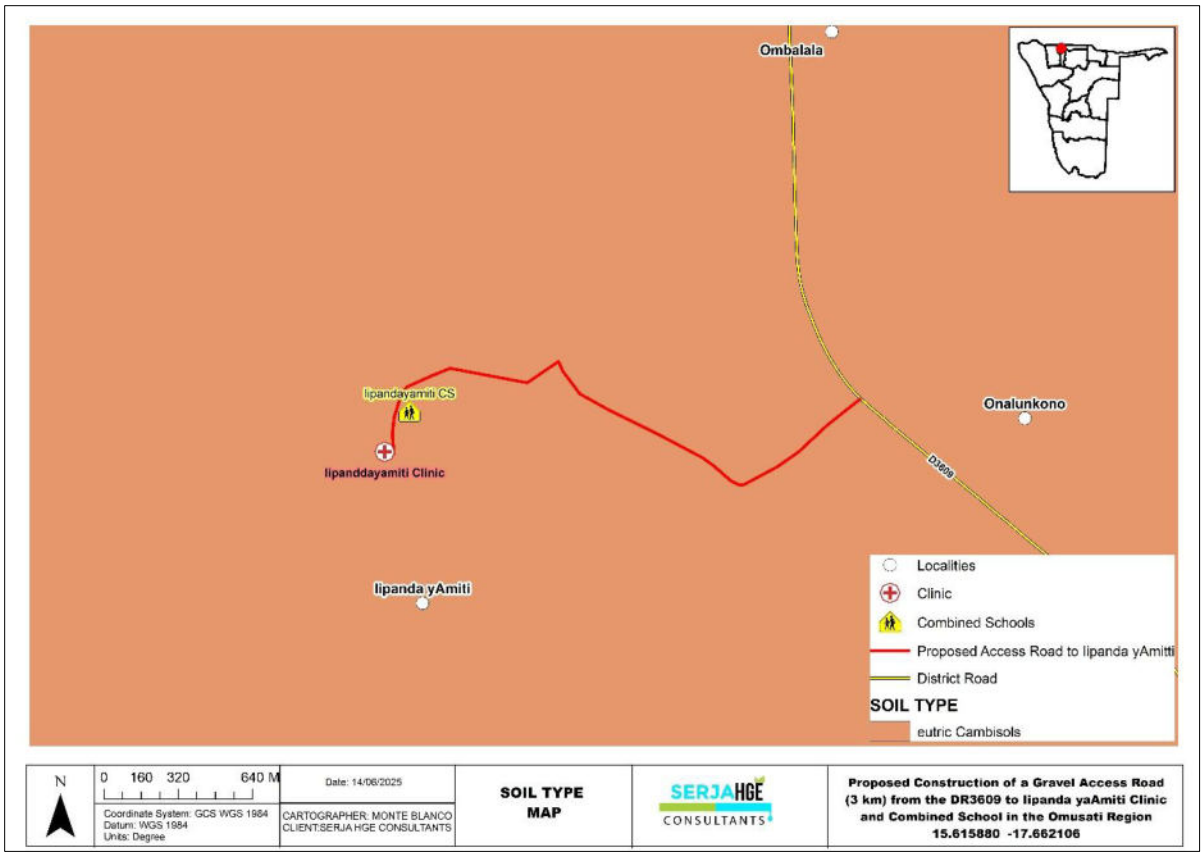

Figure 5-7: The dominant soil types along the access road

Soils along the road route are thick loamy sand soils with a light brown color, covered by grass - Figure 5-8.

Figure 5-8: The common light brown soils along the access road

5.2.5 Water resources: groundwater (hydrogeology) and surface water (hydrology)

The project area and the Omusati Region at large fall under the Cuvelai-Etosha Basin (CEB), which is defined as the Namibian part of the Cuvelai River catchment. The hydrogeology of the CEB comprises, in addition to Omusati, the Oshana, Ohangwena, Oshikoto Regions, and parts of the Kunene Region (Lohe et al., 2021).

Groundwater flow is mostly through primary porosity in the Kalahari cover, but flow along secondary structures known as fractures, faults. The flow can also be influenced by the presence of other geological structures underlying formations, such as contact rock unit zones. Furthermore, recharge from rainfall is an important parameter determining the groundwater potential, but the degree of metamorphism affects the groundwater potential too. The groundwater potential of the rocks decreases as the degree of metamorphism increases (Lohe et al., 2021).

Groundwater in the project site area is hosted in the porous Kalahari sediments (primary aquifers) as shown on the site-specific geohydrology map in Figure 5-9. There are seven boreholes along and within proximity to the road (in Ombaalala and Onangodhi Villages), drilled in 1995. However, there is no information on yields or depth in the database.

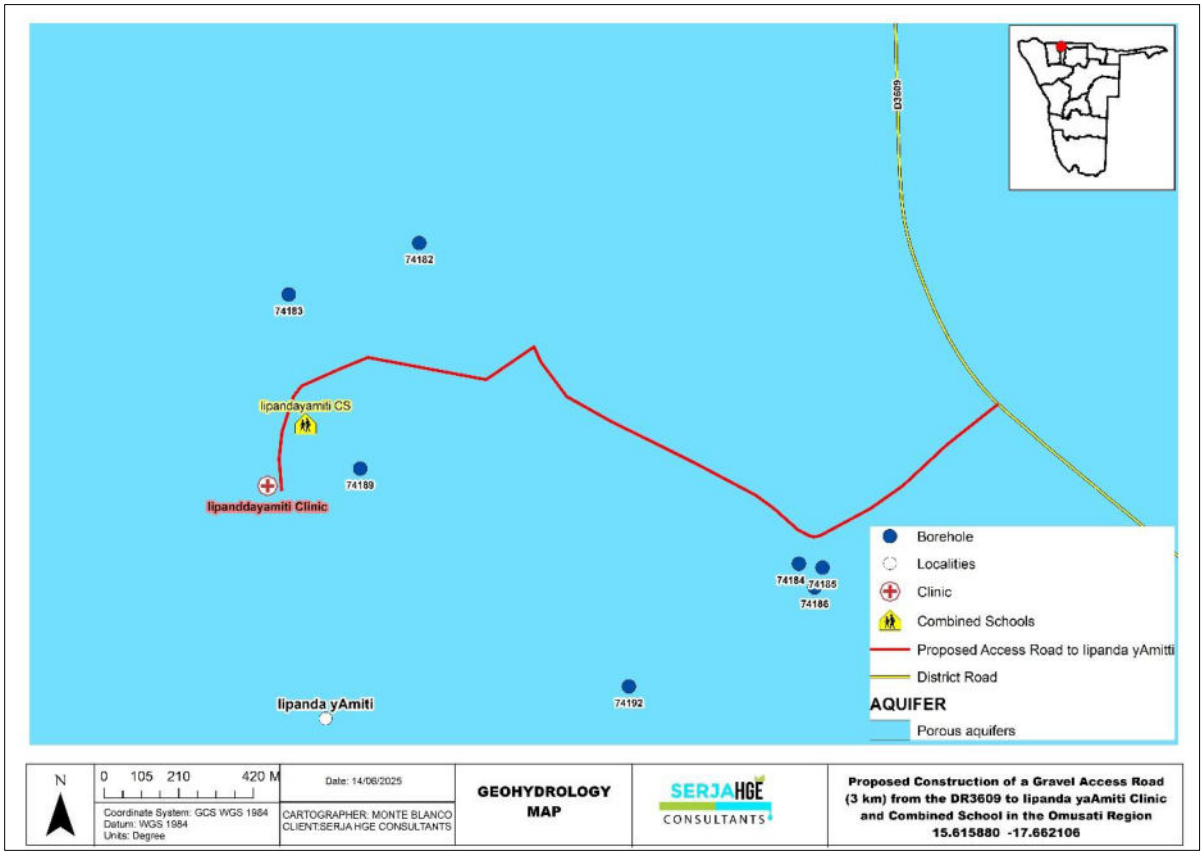

Figure 5-9: The surface and groundwater (geohydrology) map of the area

The groundwater quality map of the area is shown in Figure 5-10. The groundwater quality around the project area is not suitable for drinking (human consumption), as shown on the groundwater quality map (Figure 5-10). Thus, this water cannot also be used for road construction works.

The groundwater quality map indicates that the quality of water along the road has a concentration of total dissolved solids (TDS) in the range of 2,000 to 5,000 milligrams per litre (mg/l), and Sulphate (SO_4) concentration ranging between 300 and 1,200mg/l. Furthermore, the nitrate (NO_3) concentration of the groundwater is in the range of 11 and 110mg/l, and Fluoride (F) in the range of 1.5 and 2mg/l. Therefore, the water quality is classified as category D: Not suitable for any drinking water.

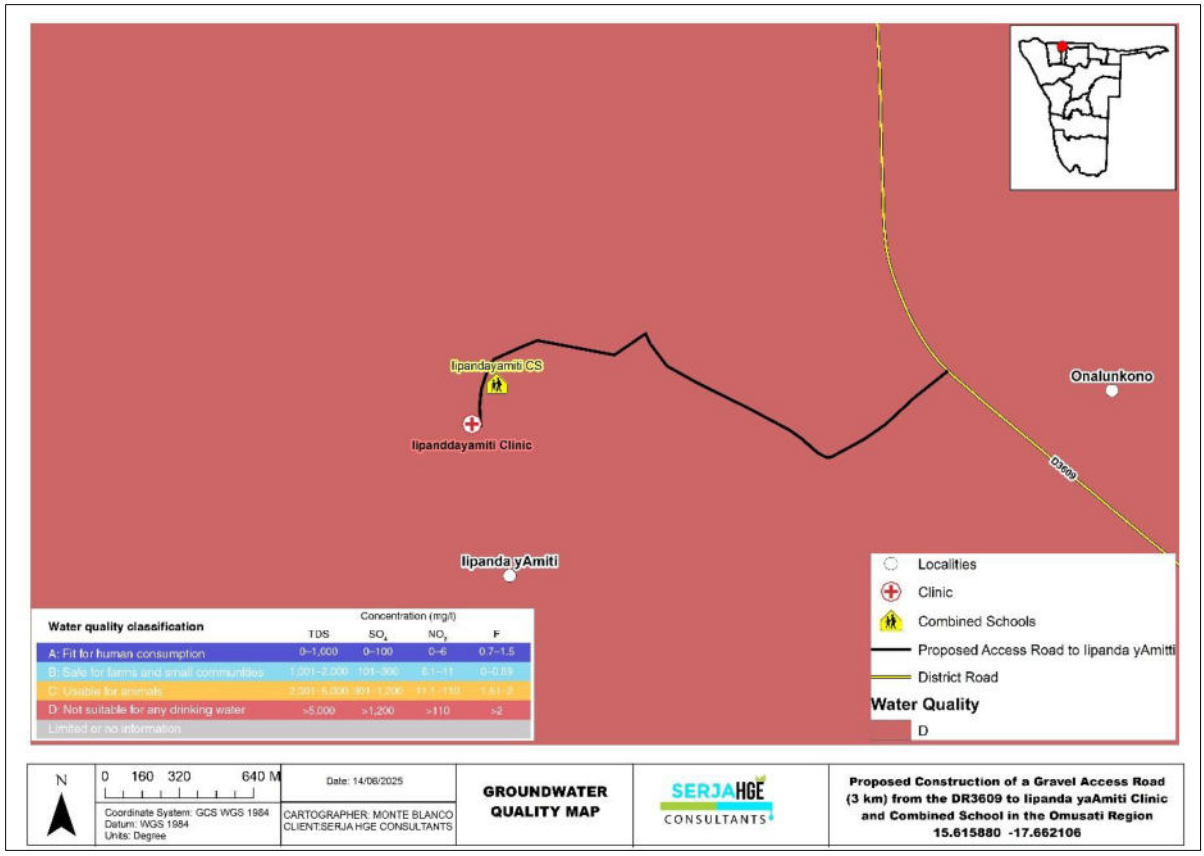

Figure 5-10: Groundwater quality map of the area

5.2.6 Surface and Groundwater Vulnerability to Pollution

With regards to surface water, potential pollution is likely if construction works are undertaken during heavy rain seasons. i.e., between December and March, particularly where the highest rainfalls are recorded, there would be a high risk of accidental spills of hydrocarbons (oils or fuels) and effluent (wastewater) washed off into nearby surface water bodies.

In the case where road construction works are carried out during the dry season (dry months of the year i.e., April to November/December), then the risk of surface water pollution will be low to none because accidental wet waste spills would be easy to control, and manage compared to the rainy season with surface runoff. In terms of groundwater vulnerability, the project route area has a moderate vulnerability to pollution - Figure 5-11.

The moderate vulnerability of groundwater to pollution in the area could be explained by the unconsolidated Kalahari sediments overlying the project site, where the nature of such rock units could provide ready and easy pathways for polluted water to flow in case of a pollutant.

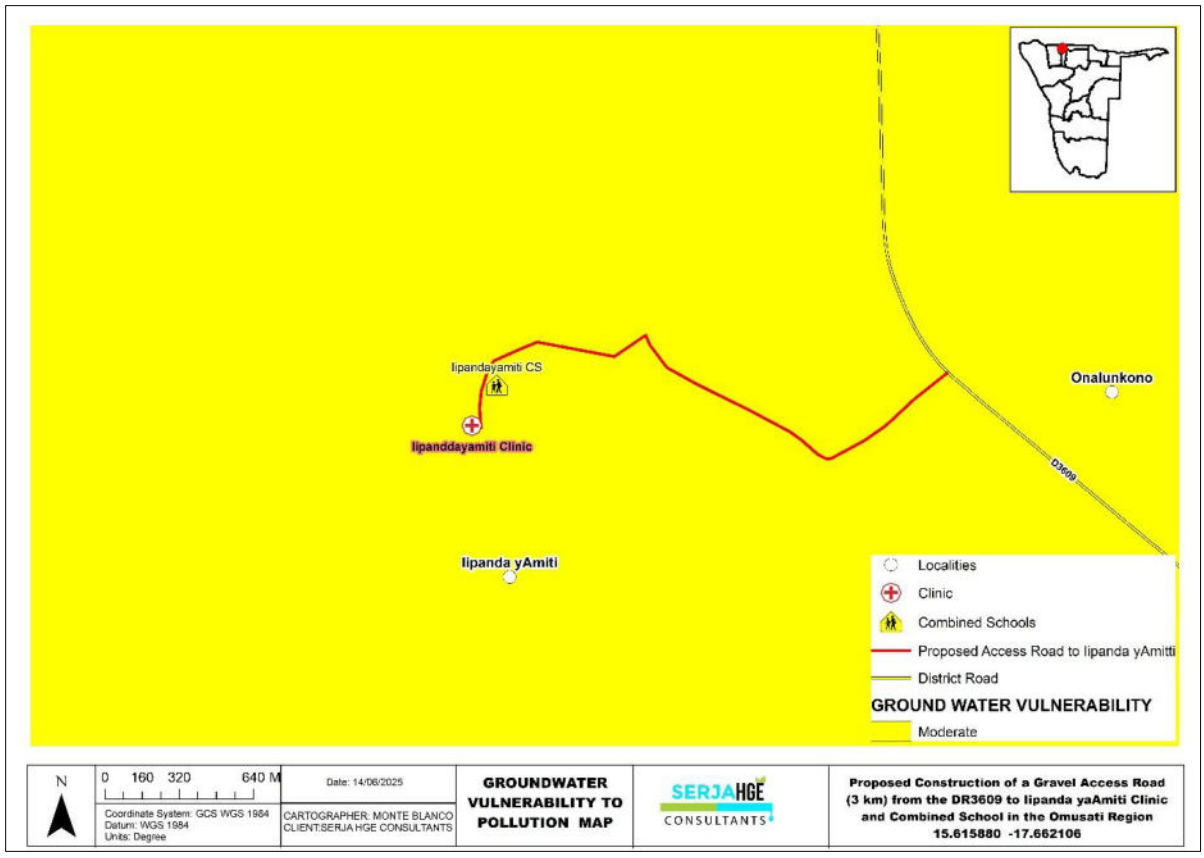

Figure 5-11: Groundwater vulnerability to Pollution map of the area

5.3 Social and Economic Environment

5.3.1 Demography

According to the 2023 Population and Housing Census data, the Omusati Region has a total population of 316,671 as per the 2023 National Population and Housing Census. Of the total population, 147,265 were males and 169,406 females (Namibia Statistics Agency (NSA), 2024a), with a population density of 11.9 persons per square kilometer (km^2). The proposed access road is in the Etayi Constituency, which has a population of 33,088 and a population density of 60.8 persons/km^2, respectively (NSA, 2024b).

Omusati Region has a high literacy rate of 84.1%. The early childhood development (age 0 to 5) stands at 22.0%, while for the population of 15+ years of age, 12.3% have never attended school, 21.1% is the population that is currently at school, and 63.2% have left school (NSA, 2024a). Furthermore, NSA (2024a)

indicates that the population of 3 years and above has access to the internet (15.3%), and the population that owns cellphones is at 46.4%.

5.3.2 Economic activities

According to the NSA (2024a), the main sources of income in households in the Omusati Region are farming (9.3%), wages and salaries (50.4%), old age pension (13.9%), as well as business, non-farming (5.0%). The Etayi Constituency thrives on both livestock (cattle, goat, and sheep) and crop farming as well as small-scale businesses at settlements and villages.

5.4 Infrastructure and Services

Omusati West Region is well equipped with good infrastructure and services such as roads (tarred and gravel), water supply, powerlines, and telecommunications. In terms of the site area, this is a rural area with quite some good infrastructure, such as access roads and single-track roads, solar energy, and water supply. The map of services and infrastructures at the proposed site route and the broader area is shown in Figure 5-12.

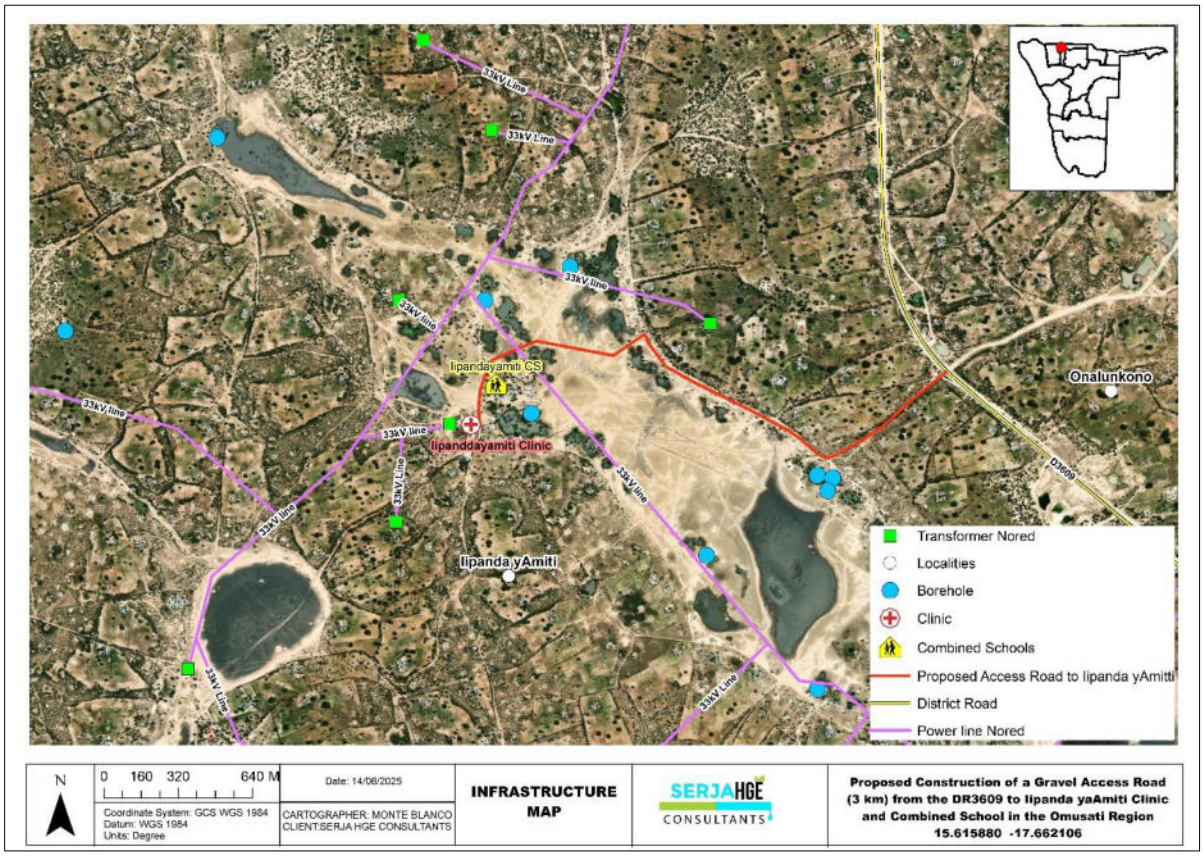

Figure 5-12:The infrastructure map of the project area

The summary of the current services infrastructure in the project area (Etayi Constituency) includes:

- Road network: The project site is accessed from the DR3609 tarred road (Omungwelume-Oshakati road), which provides access to nearby villages and settlements.
- Electricity supply: The communities are in rural areas where most houses use firewood to cook, light, and heat water. The major settlements use electricity supplied from Northern Namibia's Regional Electricity Distributor (NORED) power grid, and a few houses have the privilege of getting connected to the grid, while some use solar energy for power supply.
- Water supply: The community relies on borehole water in some areas, and others rely on MAFWLR's Rural Water Supply Division facilitated schemes that are NamWater operated.
- Telecommunication services: The area has good network coverage for MTC and Telecom Namibia.
- Education and health services: The two constituencies have health centres (Such as the Iipanda YaAmiti Clinic), while further medical care is provided in Oshakati in the broader area. There are also schools such as the Iipanda YaAmiti Combined School.

5.5 Archaeology and Heritage Aspect

5.5.1 Local Perspective and Findings

The expected archaeological and cultural heritage resources in the broader area of the site are graves (marked and unmarked), artefacts, etc. However, none of these had been picked up or observed at or near the road route. The local leaders and communities consulted and accompanied the consulting team in the field on the 02nd of May 2025, also indicated that there are no known graves along the road route that would be affected by the road works. Regardless, it is recommended that the National Heritage Act, No. 27 of 2004, should be strictly enforced, and concurrently, the recommendations given in the statutory documents for this project should be strictly adhered to.

Furthermore, if a heritage site or items of heritage significance are found in the course of the excavation, then a chance finds procedure should be followed as per the National Heritage Act, No. 27 of 2004.

From a local context, and according to the information provided in the consultation meetings, there are no known archaeological and heritage resources along the proposed road route. Despite that, care should be taken during excavation to implement archaeological management and precautionary measures. Thus, ensuring the continued protection of the resources during excavation activities in the area.

The public consultation and engagement process and means employed for the EIA Study are presented under Chapter 6.

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS

Public consultation and participation form an important component of an EIA process. It provides potential Interested and Affected Parties (I&APs) and stakeholders with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process. This greatly assists the EAP (Environmental Consultant) to thoroughly identify and record potential impacts and to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. The consultation for this project has been done under the EMA and its EIA Regulations, and as per the following subsections.

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers were registered as I&APs upon their request.

6.2 Communication with I&APs and Means of Consultation Employed

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process, and these have been used in guiding this process. Communication with I&APs with regards to the project was facilitated through the following means and in this order. Local community input is essential for the EIA and ultimately the project to ensure the road serves both local and regional development goals.

- A Background Information Document (BID) containing brief information about the project activities was compiled, uploaded on the MEFT (ECC) Portal for project registration, and shared with registered stakeholders / Interested and Affected parties (I&APs).
- A Stakeholders (I&AP) List was developed and updated as new I&APs register for the EIA. The BID was shared with the pre-identified key stakeholders (Appendix D).
- Project EIA notices were published in the following newspapers - Appendix E:
    - *New Era*: The notice appeared in the newspaper on the 14th & 21st of May 2025.
    - *Windhoek Observer*: The notice appeared in the newspapers on the 14th, 19th, 21st & 23rd of May 2025. The consultation period ran from the 14th of May 2025 to the 30th of June 2025.
- EIA notices (posters) were prepared for printing and pasted in Iipanda YaAmiti, as shown in Figure 6-1 and copy of the notices is attached hereto as Appendix F.

Figure 6-1: The EIA public notice posters in Iipanda YaAmiti

- An EIA consultation meeting was scheduled and held with the community and local stakeholders in Iipanda YaAmiti at the gathering tree in front of the Iipanda YaAmiti Combined School on the 22nd of May 2025 - Figure 6-2. The meeting was attended by thirty-seven (37) people, which included one environmental assessment practitioner from Serja HGE Consultants, two engineers from Caldera Investment, and one representative (Project Control Engineer) from MWT.

Figure 6-2: Consultation meeting in progress at Iipanda YaAmiti on the 22nd of May 2025

Minutes were taken from both meetings, and these are attached hereto as Appendix G.

6.3 Feedback and Issues Raised by the Stakeholders (I&APs)

Some issues were raised by I&APs during the consultation period (consultation meetings). These issues have been recorded and incorporated into the EIA Report and EMP. The summary of these few key issues is presented in Table 6-1.

Table 6-1: Summary of main issues and comments received throughout the consultation period

Aspect	Summary of impact or concern
Comments and Issues received or noted during the consultation period (in the meeting)	
The issue of a 3km road in the documents and about 2km only distance from the DR3609 to Iipanda YaAmiti Settlement	A proposal should be considered for the access road to reach Andreas Amushila Primary School, northwest of Iipanda YaAmiti, to complete the 3km route in documents.
Duration taken for complete road projects	The construction takes a long time, even if it starts during the dry season (month), it would be rainy season again, and the work would not be completed.
Rehabilitation of borrow pits for community livestock water holding (rainwater earth dams)	The contractor should consider leaving the borrow pit or some pits rehabilitated to hold water for community livestock, because right now, rainwater just disappears, which is a waste.
The topography and levelling of the road	The road should be elevated and not just constructed flat, so that it is easy for rainwater to wash it away.
Design of the road	The road should be properly designed so that it can last a long time, even for future generations.
Recruitment of project personnel (labourers) and people working without contracts and proper protective equipment	The community requested fairness and transparency during the recruitment process for the local communities along the road. The workers should have contracts in place and proper PPE.
The abandonment of unfinished projects by contractors	The community expressed concerns about experiences with contractors in the country who do not complete work on time or abandon projects incomplete.
Maintenance of roads after construction (negligence of aftercare for roads)	There is a need to have a maintenance truck for the area to ensure that the road remains in good condition after construction (aftercare). The road maintenance and inspection should be done every 2 years.
Comments and Issues received or noted via email	
Removal of big vegetation	The gravel road should be constructed in such a way that it avoids removing big trees that take many years to grow.

The consultation period ran from the 14th of May to the 30th of June 2025 to allow the submission of comments after the consultation meeting. Comments received during the consultation meeting and email were summarized as above and indicated in the meeting minutes.

6.3.1 Concluding remark on the overall EIA Consultation process and feedback

The comments and issues raised during the consultation period were significant; however, they were not objections that would hinder, halt, or terminate the project activities. The stakeholders and I&APs would just like to see the implementation of management and mitigation measures to reduce the significance of the impacts during the road construction works because they need the road to improve their mobility and accessibility to economic and social services centers in the Etayi Constituency.

The next chapter (Chapter 7) is the presentation of potential impacts identified, the impact assessment methodology, description of impacts, and their assessment.

7 IMPACTS IDENTIFICATION, ASSESSMENT, AND MEASURES

7.1 Identification of Potential Impacts

Borrow pits establishment, operations, and associated road construction works are usually associated with different potential positive and negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts that are likely to affect the host environment and social features. The assessment is done to ensure that these impacts are sufficiently addressed, and adequate mitigation measures are recommended thereto for implementation so that the impact's significance is brought under control, while maximizing the positive impacts. The potential positive and negative impacts that have been identified from the project activities are listed as follows:

7.1.1 Positive impacts (benefits) of borrow pits

The positive impacts (benefits) of the proposed construction of the access road are listed below.

- Socio-economic development through temporary job (employment) creation in the area during the road construction phase for 100 people or more.
- Improved accessibility: better road connections enhance accessibility to remote rural areas, facilitating transportation of goods and services, and access to healthcare and education centers in the area.
- Economic development: better roads can stimulate economic growth by attracting investment, promoting tourism in this part of the Omusati Region, and other neighboring regions such as Oshana and Ohangwena, and fa.
- Safety: The new road with improved design and signage can enhance road safety, thus reducing the risk of accidents and fatalities.
- Social cohesion: the road will improve connectivity that can strengthen social ties within rural communities by enabling easier access to growth centres, schools, healthcare centers (such as the clinic), and other social services.

7.1.2 Potential environmental and social (adverse) impacts of road construction work

The potential negative (adverse) impacts of the proposed road (mainly during the construction) are listed below. The mitigation measures for these impacts are included in the borrow pits' EMRP.

- Soil and water pollution: improper handling of wastewater may lead to pollution of surrounding soils and eventually water resources systems (through wastewater runoff and infiltration). Runoff from roads can carry pollutants such as oil, salt, and heavy metals into nearby water bodies such as oshanas, impacting aquatic ecosystems.

- Habitat destruction: excavation of road construction borrow pits can lead to the destruction of natural habitats for plants and animals. This can disrupt local biodiversity and reduce the availability of resources for animals and people.
- Soil erosion: The removal of large amounts of soil and vegetation from borrow pits can increase the risk of soil erosion, especially during heavy rainfall events.
- Depletion of local groundwater table: Excavation of borrow pits may affect the local water table, leading to changes in groundwater levels. This can impact the availability of water for vegetation that relies on groundwater as a water source in the area.
- Land use change: The conversion of natural landscapes into borrow pits can permanently alter landscapes, affecting the aesthetic value of the area.
- Deforestation: Road construction may require the clearing of trees and vegetation along the route, leading to habitat loss.
- Potential displacement of properties such as fences, pipelines, and or homes to allow for sufficient road reserves.
- Impact on air quality: dust and particulate matter generated during the excavation of materials (sand and gravel) and transportation (the movement and operation of heavy vehicles and machinery) can compromise air quality in the surrounding area.
- Noise associated with the movement of heavy machinery and trucks can disturb locals and animals.
- Disruption of hydrological systems by borrow pits can alter natural drainage patterns, causing changes in surface water flow in the area and potentially exacerbating flooding or drought conditions in the area.
- General environmental pollution through the mishandling of project-related waste associated with the project.
- Occupational and community health and safety: Improper handling of materials and equipment may cause health and safety risks to workers and locals. Community safety can also be compromised by unfenced borrow pits or abandoned borrow pits (that are not properly rehabilitated to safe conditions).
- Potential archaeological and cultural heritage impact: borrow pits may impact local cultural heritage sites or traditional land use practices through inadvertent unearthing of such resources (sites and objects). This may potentially lead to social tensions or conflicts between the construction contractor and local communities.

The impacts are briefly described and assessed under the next subheadings. The management and mitigation measures are provided in the EMRP for implementation.

7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is following Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity), and probability (likelihood of occurring), as presented in Table 7-1.

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact,
- Assessment of the pre-mitigation significance of the impact, and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria (in Table 7-1) were applied in this impact assessment:

Table 7-1: Criteria used for impact assessment (extent, duration, intensity, and probability)

The Criteria used to assess the potential negative impacts.				
Extent or (spatial scale) - extent is an indication of the physical and spatial scale of the impact.				
Low (1)	**Low/Medium (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Impact is localised within the site boundary: Site only	Impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond the site boundary: Regional	Impact extends beyond National or international boundaries

The Criteria used to assess the potential negative impacts.				
Duration- Duration refers to the timeframe over which the impact is expected to occur, measured concerning the lifetime of the project				
Low (1)	**Low/Medium (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Immediate mitigating measures, immediate progress	Impact is quickly reversible, short-term impacts (0-5 years)	Reversible over time; medium term (5-15 years)	Impact is long-term	Long term, beyond closure, permanent, irreplaceable, or irretrievable commitment of resources
Intensity, Magnitude/severity - Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. This is a qualitative type of criterion.on				
H-(10)	**M/H-(8)**	**M-(6)**	**M/L-(4)**	**L-(2)**
Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat/diversity or resource, severe alteration, or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat/biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration.
Probability of occurrence - Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment.				
Low (1)	**Medium/Low (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.3 Impact Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact "without mitigation" is the main determinant of the nature and degree of mitigation required. As stated in the introduction to this chapter, for this assessment, the significance of the impact without prescribed mitigation actions was measured.

Once the above factors (Table 7-1) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

SP = (magnitude + duration + scale) x probability

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate, or low significance, based on the following significance rating scale (Table 7-2).

Table 7-2: Impact significance rating scale

Significance	Environmental Significance Points	Colour Code
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	<30	L
Neutral	0	N
Low (negative)	>-30	L
Medium (negative)	-30 to -60	M
High (negative)	>-60	H

For an impact with a significance rating of high, mitigation measures are recommended to reduce the impact to a low or medium significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a period to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the project phases is done for both pre-mitigation (before implementing any mitigation) and post-mitigation (after mitigations are implemented). The objective of the mitigation measures is to firstly avoid the risk, and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once the mitigation measures have been applied, the identified risk will be of low significance.

7.1 Description and Assessment of Potential Impacts

The potential impacts of the project activities are described and assessed in Table 7-3 and Table 7-4. The management and mitigation measures in the form of management action plans are provided in the EMP / EMRP.

Table 7-3: The description and assessment of the potential positive impacts of the proposed road construction and associated activities

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Positive Impacts											
Employment creation	Socio-economic development through temporary job (employment) creation in the area during the road upgrading phase, for over 100 people.	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M / H - 4	H - 5	M - 6	H - 5	H - 75
Empowerment of local businesses	Procurement of local goods and services for the project activities by small and medium businesses in the area and Region will promote local entrepreneurship empowerment and local economic development (income generation).	L / M- 2	L / M - 2	L / M - 4	L / M - 2	L - 16	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44
Improved accessibility:	Better road connections enhance accessibility to remote rural areas, facilitating transportation of goods and services, and access to healthcare and education centers in the area.	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M - 3	M / H - 4	L / M - 4	M / H - 4	H - 75
Economic development	The road will stimulate local economic growth in the Constituency. The movement of goods and people to services	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M / H - 4	H - 5	M - 6	H - 5	H - 75

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	from the DR3609 will be made easier.										
Community safety and social cohesion	The new road with improved design and signage can enhance road safety, thus reducing the risk of accidents and fatalities. The road will improve connectivity that can strengthen social ties within rural communities by enabling easier access to economic points, schools, healthcare centers, and other social services.	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M / H - 4	H - 5	M - 6	H - 5	H - 75

Table 7-4: The description and assessment of the potential negative impacts of the road construction and associated activities on the biophysical and social environment

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Negative (Adverse) Impacts associated with road construction activities											
Unfair recruitment and procurement process	The employment of outsiders at the expense of capable local communities would create tensions and conflicts between the construction contractor and communities.	M - 3	M - 3	M/H - 8	M/H - 4	M – 56	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	Similarly, the outsourcing of the procurement of goods and services that are locally available may create conflicts and loss of income to local communities and businesses.										
Soil and Water Resources Pollution	Project activities are associated with a variety of potential pollution sources (i.e., lubricants and fuel) that may contaminate/pollute soils and eventually groundwater and surface water (such as nearby streams), if not handled properly. The anticipated potential source of pollution to water resources from the project activities would be accidental spills of fuels and oil from project vehicles and machinery. Runoff from road construction works can carry pollutants such as oil, salt, and heavy metals into nearby streams and rivers, impacting aquatic ecosystems. This impact would occur during the heavy rainy season when surface runoff would be inevitable. However, it should be noted that the scale and footprints of the	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	activities where potential sources of pollution will be handled are small. Therefore, the impact will be moderately low and manageable.										
Habitat destruction and deforestation	Excavation for road construction to make provision for road reserves and erecting supporting infrastructure can lead to the destruction of natural habitats for plants and animals. This can disrupt local biodiversity and reduce the availability of resources for animals and people. Added to that, road construction may require significant clearing of trees and vegetation along the route, leading to habitat loss.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16
Soil erosion	The removal of large amounts of soil and vegetation to allow road works can leave soils exposed to erosion, especially during heavy rainfall events.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L / M -2	L / M - 2	L - 2	L / M - 2	L - 12
Air pollution	There is potential for dust owing to the movement and operation of heavy vehicles and machinery, and excavations.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	This can compromise air quality in the surrounding area.										
Noise	The nuisance associated with the movement of heavy machinery and trucks in the area can disturb locals and animals.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12
Waste Generation (Environmental pollution)	Waste types such as solid, wastewater, sewage, and hazardous (waste fuels and oils) will be produced during project activities. If the generated waste is not disposed of in a responsible way, land pollution may occur at or around the borrow pit sites. If solid waste such as papers and plastics is not properly stored or just thrown into the environment (littering), these may be consumed by animals, which could be detrimental to their health.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L - 1	L - 1	L - 2	L / M - 2	L - 8
Occupational and community health and safety	Improper handling of materials and equipment by personnel may cause health and safety risks to workers and locals. Community safety can also be compromised by unsecured project materials such as fuel,	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	oils, and unattended heavy equipment near communities.										
Accidental fire outbreaks	The use of heavy equipment, especially if there is a presence of hydrocarbons at borrow pits sites, may result in accidental fire outbreaks. This could pose a safety risk to the project personnel (workers) and locals.	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12
Archaeological or cultural heritage impact	Excavation for site preparation may result in inadvertent unearthing of archaeological cultural heritage resources.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16
Negative (Adverse) Impacts from the establishment of borrow pit(s)											
Physical disturbance to the site soils results in erosion.	The removal of large amounts of soil and vegetation from borrow pits can increase the risk of soil erosion, especially during rainfall events. This erosion can result in sedimentation of nearby water bodies, leading to water quality issues and habitat degradation. Furthermore, the movement of heavy vehicles and equipment may lead to compaction of soils.	M - 3	M / H - 4	L / M - 4	M / H - 4	M – 44	L / M - 2	L / M - 2	L / M - 4	L / M - 2	L - 16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Property displacement and land loss	The excavation of borrow pits potentially results in the loss of useful communal land. Borrow pits inside private land would result in the loss of productive land and the displacement of fences, pipelines, to allow for sufficient road reserves and the movement of heavy vehicles.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16
Habitat destruction	Excavation of borrow pits can destroy natural habitats for plants and animals. Thus, disrupting local biodiversity and reducing the availability of resources for animals and people along the road route.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16
Impact on flora biodiversity	The clearing of sites to establish borrow pits and associated access roads can potentially affect vegetation and the loss of species, especially protected tree species. The sites will be strategically located mainly in areas with minimal vegetation or at already disturbed sites where no further vegetation removal is required. Hence, the impact will be localized, site-specific, and therefore manageable.	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Impact on groundwater table: Lowering of the local groundwater table	The borrow pit excavations may affect the local water table, leading to changes in groundwater levels. This can impact the availability of water for vegetation and communities that rely on groundwater as a water source in the area.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12
Air Quality: Dust Generation	There is a potential impact of dust (and particulate matter) emanating from excavation activities, heavy vehicles moving on site access and haul roads when transporting materials from borrow pit sites and travelling to the site. This may contribute to the dust level and compromise air quality in the area. The impact is considered short-term and localized as borrow pit activities are carried out over a specified duration and distance at selected sites only. Therefore, manageable with mitigation measures.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12
Noise	Noise associated with borrow pits (from heavy machinery and trucks, and excavation activities) can disturb local communities	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M: - 2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	and animals (livestock) in the area. Excessive noise to project personnel without any protective measures in place can also be a health risk. The activities are considered small to medium scale, and the noise level is bound to be limited to the site and some distance from nearby homes. Thus, the impact likelihood is manageable.										
Disruption of hydrological systems	Borrow pits can alter natural drainage patterns, causing changes in surface water flow and potentially exacerbating flooding or drought conditions in the area.		M - 3	M - 6	M / H - 4	M – 48	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12
Occupational and Community Health and Safety Risks	The mishandling of machinery and equipment by workers at the borrow pits may result in injuries, and if worse, can lead to fatalities on duty. The curiosity of local children may force them to go and play with unattended heavy trucks and big machinery at borrow pit sites near their homes. The unfenced, unrehabilitated and deep, and steep-sided borrow pits can be a	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	hazard to the communities (people) and their animals. The deep and steep-sided borrow pits can cause accidents such as drowning, especially for children or animals, if they fall in. If not properly managed, borrow pits can fill with water, creating stagnant pools. These pools can become breeding grounds for mosquitoes and other vectors of diseases like malaria and dengue fever, increasing health risks for nearby communities and animals.										
Vehicular Traffic Safety	The local roads, such as DR3609, are the main transportation routes for all vehicular movement in the area. There would be a potential increase in traffic flow owing to the transportation of construction materials from borrow pits. Not only materials transport, but also delivery of supplies, goods, and services to the sites and the road itself. Depending on the project needs, trucks, medium, and small vehicles will be frequenting	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	the borrow pit site areas. This would potentially increase slow-moving heavy vehicular traffic along these roads, which could result in road accidents.										
Impact on local road use	The movement of heavy trucks on the community roads (single-track sandy routes) would result in the deterioration of these roads, making it difficult for community small vehicles to use them, due to worsened road conditions. This is a concern if maintenance or leveling of these ''haul'' roads is not done.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L - 1	L - 1	M / L - 4	M / L -2	L - 12
Land use change	The conversion of natural landscapes into borrow pits can permanently alter landscapes, affecting the aesthetic value of the area.	M - 3	M - 3	M - 6	M / H - 4	M – 48	L - 1	L / M - 2	L - 2	L / M -2	L - 10
Archaeological or cultural heritage impact	The excavation of borrow pits may result in the inadvertent unearthing of unknown and unmarked graves in the area, potentially leading to social tensions or conflicts, if there are any at borrow pit sites.	M / H - 4	M - 3	M - 6	M - 3	M – 39	L - 1	L / M - 2	L - 2	L / M -2	L - 10

7.2 Cumulative Impacts Associated with the Borrow Pits

According to the International Finance Corporation (2013), cumulative impacts are defined as "those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future ones". The main cumulative impact that the project and associated activities potentially contribute to is:

- Impact of unrehabilitated borrow pits on the community and animals (livestock): Unrehabilitated borrow pits can pose threats to the community, especially children who may play around these sites during rainy seasons and drown when the pits are filled with water. Furthermore, deep and steep-sided borrow pits can cause accidents such as drowning, especially for children or animals, if they fall into the borrow pits in the future.

  Borrow pits that are not rehabilitated or not rehabilitated properly can cause conflicts and disputes in communities over their post-activity land uses. For instance, some community members may opt to have the borrow pits left for community rainwater storage, and some may opt to have them completely backfilled because they consider it unsafe or risky. These community conflicts over borrow pits can strain or damage community relations and local governance over a long time, if they remain unresolved. In some cases, community members tend to gang up against their leaders over issues in their villages. Therefore, it is important for traditional authorities, communities, and project contractors to come together and correctly decide on the way forward regarding the end use of borrow pits in their areas.

The recommendations and conclusions made for the EIA Study are presented in the next chapter.

8 RECOMMENDATIONS AND CONCLUSIONS

The EIA Study for the proposed construction of the gravel access road was done per the EMA No. 7 of 2007 and its 2012 EIA Regulations, and all the due processes were followed.

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on issues raised by I&APs during the consultation period. The issues raised by I&APs were addressed and incorporated into this Report, whereby mitigation measures have been provided in the Environmental Management & Rehabilitation Plant (EMRP) for implementation to avoid and/or minimize their significance on the environmental and social components.

Impact Assessment: The key negative impacts were described, assessed. The potential negative impacts indicated a medium rating of significance. To minimize the significance, appropriate management and mitigation measures are made for implementation by the Proponent, their contractors, and workers to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

8.1 Recommendations

The EIA Study was deemed sufficient and concluded that no further detailed assessments are required for the ECC application for the road construction and associated activities.

Serja Consultants are confident that the potential negative impacts associated with the project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures, and with more effort and commitment put on monitoring the implementation of these measures. It is therefore recommended that the project be granted an ECC, provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the activities are obtained as required. These include permits and licenses, and ensuring compliance with these specific legal requirements.
- Transparency in communication and continued engagement with the communities and or through their leaders (local leaders and constituency councillors), and stakeholders should be maintained throughout the project cycle.
- The Proponent, their project workers and contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by issuing authorities.

- Site areas where excavations were carried out and have ceased are rehabilitated, as far as practicable, to their pre-excavation state. This includes the levelling of stockpiled topsoil, backfilling trenches, and closing/capping of project-associated holes and borrow pits.
- The EMRP implementation should be checked and done by the responsible team member onsite (Environmental Control Officer / Safety Officer), and audited by an Independent Environmental Consultant on a bi-annual basis to compile Environmental Monitoring (audit) reports. These reports are to be submitted to the Environmental Commissioner at the DEAF This will be required by the Environmental Commissioner (as part of the ECC conditions).

8.2 Recommendations and Conclusions

In conclusion, although significant, the identified impacts would not hinder the project activities. However, the recommended measures should be effectively implemented and monitored to ensure that the significance of adverse impacts is reduced to a low level, where it is medium, and eventually to a negligible significance rating. The effectiveness of the implementation of the management and mitigation measures and EMP compliance will be done by an Environmental Control Officer (ECO) or Safety Officer and audited by an Independent Environmental Consultant on a bi-annual basis. This is to ensure that EMRP implementation can be tracked via Bi-Annual Environmental Monitoring exercises and documented in the monitoring reports to the Environmental Commissioner. The monitoring of EMRP implementation will not only be done to ensure that the impact's significance is reducing and or maintaining a low significance rating, but also to ensure that all potential unforeseen impacts that might arise during implementation are properly identified in time and addressed immediately.

9 LIST OF REFERENCES

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