DRAFT BASIC ASSESSMENT REPORT

FOR THE PROPOSED CONSTRUCTION AND UPGRADING OF ROAD D5010 AND D5021, INCLUDING THE ASSOCIATED INFRASTRUCTURE WITHIN THE LEPELLE-NKUMPI AND FETAKGOMO TUBATSE LOCAL MUNICIPALITIES, CAPRICORN AND SEKHUKHUNE DISTRICT MUNICIPALITIES, LIMPOPO PROVINCE (RAL/T1282/2025)

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Prepared For:
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0700

May 2026

REVISION LOG

Prepared for

Roads Agency Limpopo (SOC) Ltd

Document:	**Draft Document**
LEDET Ref Number:	
Revision Number:	**01**
Issue Date:	**May 2026**

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Date of Report	May 2026	
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DATE: May 2026	Signature:	Signature:

GENERAL DECLARATION

QEMS Management and Business Solutions operates as an independent consultant under certain codes of conduct from the South African Council for Natural Scientific Professions (SACNASP) and the Environmental Assessment Practitioners Association of South Africa (EAPASA). We declare that we have no affiliation with or vested financial interest in the proponent (Roads Agency Limpopo (SOC) Ltd), other than for work performed under the Environmental Impact Assessment Regulations, 2017 as amended. We have no conflicting interest in the undertaking of this activity and have no vested interest in the project, other than to provide a professional service within the constraints of the project based on the principles of science.

PROTECTION OF PERSONAL INFORMATION ACT

In compliance with the Protection of Personal Information Act, No. 37067 of 26 November 2013, please note and adhere to the following:

- All documentation containing personal information must be destroyed as soon as the purpose for which the information was collected has run out.
- Unless permission has been obtained from the owner of the information, no additional copies of documents containing personal information may be made.

EXECUTIVE SUMMARY

Roads Agency Limpopo (SOC) Ltd (RAL) is undertaking a Basic Assessment (BA) process in support of an application for Environmental Authorisation (EA) to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for the proposed development. The BA process is being undertaken in accordance with the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended).

The proposed development also requires several associated regulatory applications, including a Water Use Licence Application (WULA) to the Limpopo-Olifants Catchment Management Agency (LOCMA), an application for the borrow pit authorisation from the Department of Mineral and Petroleum Resources (DMPR), and an application for a tree-cutting licence/permit in terms of the National Forests Act, 1998 (Act No. 84 of 1998). These associated applications are being undertaken in conjunction with the Environmental Authorisation process to ensure that all relevant environmental and resource-use requirements for the proposed development are addressed.

The proposed project entails the construction of a new bridge over the Olifants River. The proposed development also includes the upgrading of Road D5010 in Nkotokwane and the installation of culverts and the upgrading of Road D5021 between Nkotokwane and Apel within the Lepelle-Nkumpi and Fetakgomo Tubatse Local Municipalities, Capricorn and Sekhukhune District Municipalities, Limpopo Province. Both roads will be upgraded from gravel to a bituminous surfaced standard. The total length of the proposed road works is approximately 3.6 km, comprising 2.2 km for the upgrading of Road D5010 and 1.4 km for Road D5021. In addition, the project includes applications for the excavation of five borrow pits to provide construction materials for the road and bridge works.

QEMS Management and Business Solutions cc (QEMS) was appointed by RAL as the Independent Environmental Assessment Practitioner (EAP) to submit an application for environmental authorization to the Limpopo Department of Economic Development, Environment and Tourism (LEDET).

The proposed development requires Environmental Authorisation because it triggers activities listed under the Environmental Impact Assessment Regulations, 2014 (as amended), promulgated in terms of NEMA. The applicable listed activities include:

Government Notice R.327 (Listing Notice 1)

- Activity 12 (ii) (a) (b) & (c): Construction of a bridge that covers a footprint of approximately 1, 687 square meters within the Olifants River.

- Activity 19: Bridge construction over the Olifants River will require excavation, movement, and deposition of material within the watercourse for the establishment of bridge foundations and associated infrastructure. These activities will consist of approximately 1930 cubic metres.
- Activity 24 (ii): The project involves the development of a road with a reserve wider than 13.5 metres.

Government Notice R.324 (Listing Notice 3)

- Activity 4(e)(i) (ee): The road's width exceeds more than 4 meters. The proposed study site is also located within a critical biodiversity area (CBA 2).
- Activity 12 (e) (ii): The project entails the clearance of an area of 300 square metres or more of indigenous vegetation and it falls within a Critical Biodiversity Area (CBA 2).
- Activity 14(ii)(a) (e) (ff): Construction of a bridge with an approximate development footprint of 1,687 m². The proposed project area is located within a Critical Biodiversity Area (CBA 2).

In addition to the Environmental Authorisation process, the proposed development requires authorisation in terms of the National Water Act, 1998 (Act No. 36 of 1998). The following water uses, as defined in Section 21 of the Act, are applicable:

- Section 21(a): Taking water from a water resource.
- Section 21(c): Impeding or diverting the flow of water in a watercourse.
- Section 21(i): Altering the bed, banks, course, or characteristics of a watercourse.

The proposed development requires a tree cutting permit in terms of the National Forests Act, 1998 (Act No. 84 of 1998). The following are the National Forests Act Triggered Activities:

- Section 15 (1), No person may-: Cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

The environmental assessment undertaken for the proposed development considered the receiving environment, potential environmental impacts, feasible alternatives, and appropriate mitigation measures. The assessment concluded that the anticipated impacts can be effectively avoided, minimised, or managed by implementing the recommendations in this Basic Assessment Report and the accompanying Environmental Management Programme (EMPr).

The proposed bridge and Road D5021 and Road D5010 upgrading project is expected to make a positive contribution to local and regional socio-economic development by improving transport infrastructure,

enhancing road safety, and providing more efficient access for local communities, businesses, and emergency services. The project is also anticipated to create temporary employment opportunities during the construction phase and to facilitate long-term economic growth through improved connectivity in the surrounding area. Through the implementation of appropriate environmental management and mitigation measures during construction and operation, the project aims to minimise potential impacts on the receiving environment while ensuring that infrastructure development is undertaken in an environmentally responsible and sustainable manner.

Based on the findings of the Basic Assessment Process, it is the opinion of the Environmental Assessment Practitioner that the proposed development is environmentally acceptable and should be authorised, subject to the implementation of the mitigation measures contained in the Environmental Management Programme (EMPr) and compliance with all conditions of the Environmental Authorisation and other applicable statutory approvals.

LIST OF ABBREVIATION

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of South Africa
DFFE	Department of Forestry, Fisheries and the Environment
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
HIA	Heritage Impact Assessment
IDP	Integrated Development Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LIHRA	Limpopo Province Heritage Resource Authority
LMB	Limpopo Mobile Belt
NEMA	National Environmental Management Act
OHSA	Occupational Health and Safety Act
RAL	Roads Agency Limpopo
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANS	South African National Standard
WM	With Mitigation
WOM	Without Mitigation

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF

ECONOMIC DEVELOPMENT, ENVIRONMENT &

BASIC ASSESSMENT REPORT - EIA REGULATIONS, 2014

Basic Assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

File Reference Number:	
	(For official use only)
NEAS Reference Number:	
Date Received:	

Kindly note that:

1. This BAR form is current as of 04 March 2024. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

2. The report must be compiled by an independent Environmental Assessment Practitioner.

3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

4. Where applicable **tick** the boxes that are applicable in the report.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the Department of Economic Development, Environment and Tourism as the competent authority (Department) for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. An incomplete report may be returned to the applicant for revision.

7. Unless protected by law, all information in the report will become public information on receipt by the department. Any interested and affected party should be provided with the information contained in the report on request, during any stage of the application process.

8. This template should not restrict the EAP from providing other information that may be deemed relevant to the proposed project.

9. **Ensure that the requirements of the Screening Tool Report (STR) with regards to the specialist reports are adhered to. In a case whereby certain specialist studies recommended in the STR are not considered relevant for assessment, a motivation for such exclusions must be provided, and attached to Appendix D.**

10. The Act means the National Environmental Management Act (No. 107 of 1998) as amended.

11. Regulations refer to Environmental Impact Assessment (EIA) Regulations of 2014, as amended.

12. The Department may require that for specified types of activities in defined situations only parts of this report need to be completed. No faxed or e-mailed reports will be accepted.

13. This application form must be handed in at the offices of the Department of Economic Development, Environment and Tourism:-

Postal Address:	**Physical Address**:
Systems and Tools Office Environmental Impact Management Private Bag X9484 **POLOKWANE** 0700	Systems and Tools Office 20 Hans Van Rensburg or 19 Biccard Streets **POLOKWANE** 0699
Queries should be directed to the System and Tools: **For attention:** Mr E V Maluleke / Ms Letsoalo MJ / Malatji MM **Tel:** (015) 293 8439 / 015 293 8558 / 015 293 8616 **Email:** malulekeev@ledet.gov.za / LetsoaloMJ@ledet.gov.za / malatjimm@ledet.gov.za	

View the Department's website at http://www.ledet.gov.za/ for the latest version of the documents.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES	

If YES, please complete the form entitled "Details of specialist and declaration of interest" or appointment of a specialist for each specialist thus appointed:

Any specialist reports must be contained in Appendix E.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

Project background

Roads Agency Limpopo (SOC) Ltd (RAL) is undertaking a Basic Assessment (BA) process in support of an application for Environmental Authorisation (EA) to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for the proposed development. The BA process is being undertaken in accordance with the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended).

The proposed development also requires several associated regulatory applications, including a Water Use Licence Application (WULA) to the Limpopo-Olifants Catchment Management Agency (LOCMA), an application for the borrow pit authorisation from the Department of Mineral and Petroleum Resources (DMPR), and an application for a tree-cutting licence/permit in terms of the National Forests Act, 1998 (Act No. 84 of 1998). These associated applications are being undertaken in conjunction with the Environmental Authorisation process to ensure that all relevant environmental and resource-use requirements for the proposed development are addressed.

The proposed project entails the construction of a new bridge over the Olifants River. The proposed development also includes the upgrading of Road D5010 in Nkotokwane and installation of culverts and upgrading Road D5021 between Nkotokwane and Apel within the Lepelle-Nkumpi and Fetakgomo Tubatse Local Municipalities, Capricorn and Sekhukhune District Municipalities, Limpopo Province. Both roads will be upgraded from gravel to a bituminous surfaced standard. The total length of the proposed road works is

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

approximately 3.6 km, comprising 2.2 km for the upgrading of Road D5010 and 1.4 km for Road D5021. In addition, the project includes applications for the excavation of five borrow pits to provide construction materials for the road and bridge works.

QEMS Management and Business Solutions cc (QEMS) was appointed by RAL as the Independent Environmental Assessment Practitioner (EAP) to submit an application for environmental authorization to the Limpopo Department of Economic Development, Environment and Tourism (LEDET).

The primary objective of the proposed development is to improve transportation infrastructure, enhance road safety, and provide reliable all-weather access for surrounding communities. The project is expected to improve connectivity between settlements, facilitate the movement of people, goods, and services, and enhance access to essential social and economic services, thereby contributing to regional socio-economic development. During the construction phase, the project is also anticipated to create temporary employment opportunities and stimulate the local economy through the procurement of labour, materials, and services where feasible.

As the proposed development triggers activities listed under the Environmental Impact Assessment Regulations, 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), an Environmental Authorisation is required prior to the commencement of construction. The EIA process will identify and assess the potential environmental and socio-economic impacts associated with the proposed development and recommend appropriate mitigation measures to ensure that the project is implemented in an environmentally responsible and sustainable manner.

Furthermore, because the proposed bridge will be constructed within and across the Olifants River, the project is anticipated to trigger Section 21(a), (c) & (i) water uses under the National Water Act, 1998 (Act No. 36 of 1998) (NWA). The Water Use Licence Application (WULA) process will be undertaken with LOCMA before the commencement of construction activities.

Project Locality

The proposed construction and upgrading of Roads D5010 and D5021 project are located within Apel and Nkotokwane villages, with the construction of a bridge over the Olifants River within Lebowakgomo Town. The proposed project is located on Portion 0 of Farm Olifantspoort 479 KS, Portions 0 and 2 of Farm Mooiplaats 516 KS, and Portion 0 of Farm Eerste Recht 502 KS. The project site spans the boundary between the Fetakgomo Tubatse Local Municipality within the Sekhukhune District Municipality and the

Lepelle-Nkumpi Local Municipality within the Capricorn District Municipality, Limpopo Province. Figure 1 illustrates the location of the proposed development, while Table 1 provides a summary of the properties affected by the project.

Surveyor General 21-digit code

Table 1: 21-digit Surveyor General Code

Farm Name and No.	Farm Portion	Surveyor General 21 Digit code
Road D5021 & Bridge		
Olifantspoort 479 KS	0	T0KS00000000047900000
Mooiplaats 516 KS	0	T0KS00000000051600000
Mooiplaats 516 KS	2	T0KS00000000051600002
Eerste Recht 502 KS	0	T0KS00000000050200000
Road D5010		
Olifantspoort 479 KS	0	T0KS00000000047900000

Coordinates of the site

Table 2: Coordinates of the proposed site

Coordinates	Latitude (S)	Longitude (E)
Road D5021		
Start point	24°24'47.30"S	29°44'0.12"E
End point	24°24'58.75"S	29°44'47.79"E
Bridge		
Start point	24°24'50.92"S	29°44'12.54"E
End point	24°24'51.38"S	29°44'18.21"E
Road D5010		
Start point	24°23'53.17"S	29°43'50.17"E
End point	24°24'51.34"S	29°43'54.39"E

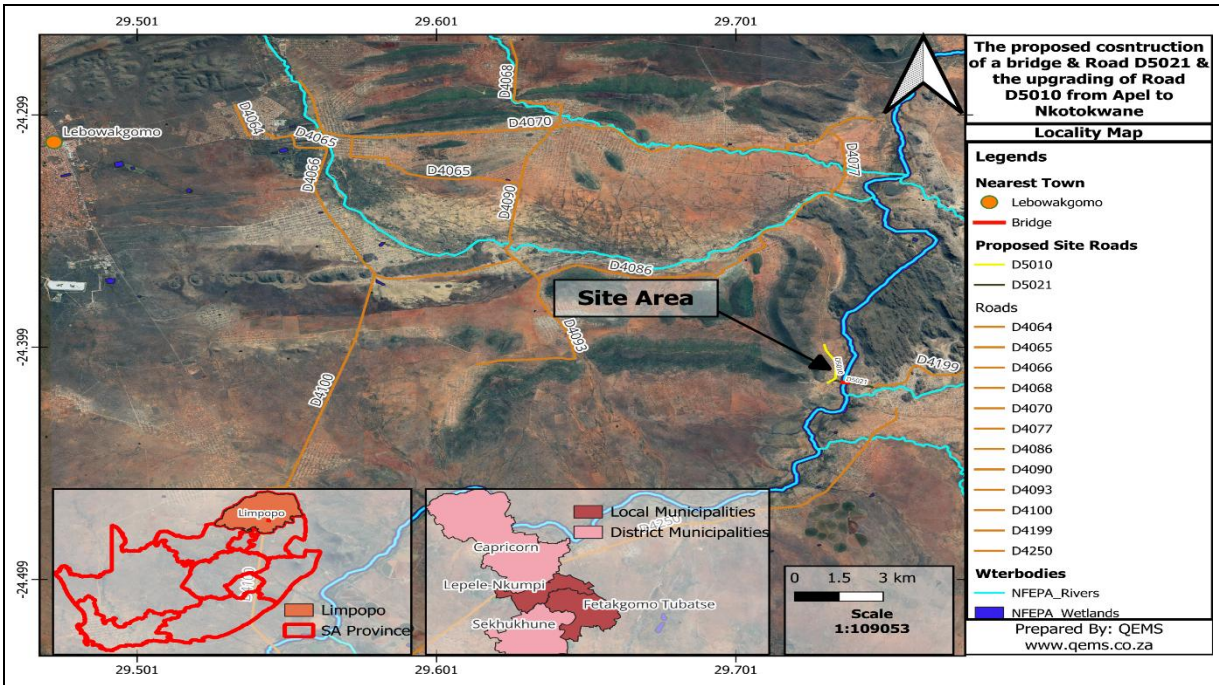


Figure 1: Locality map

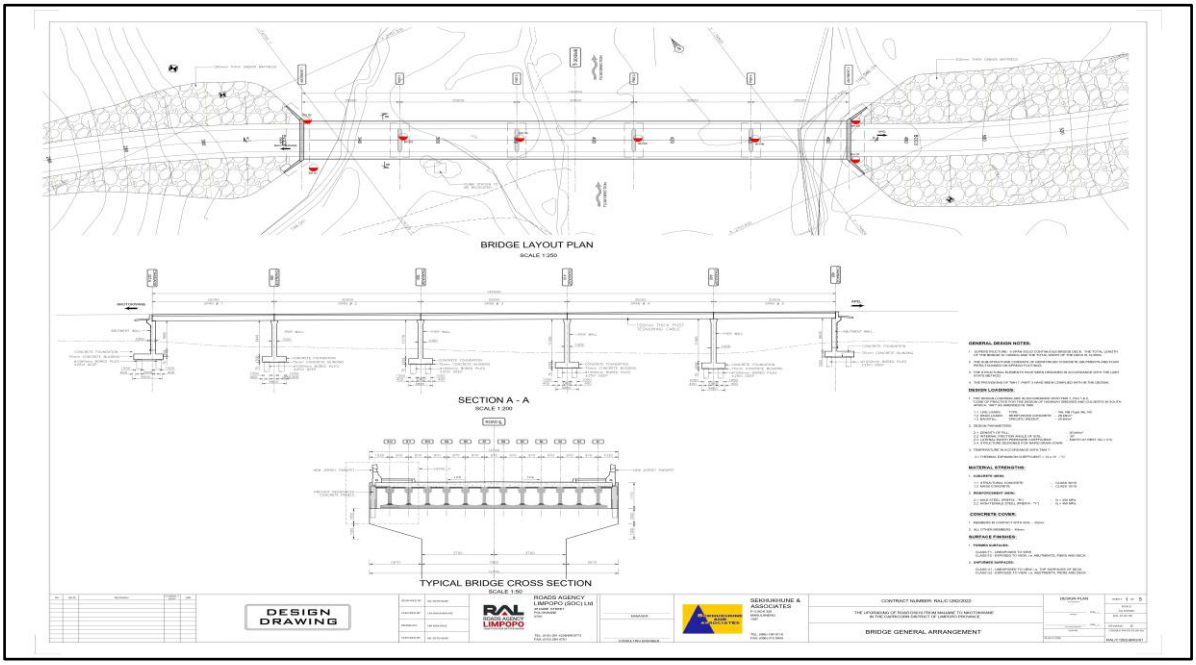


Figure 2: Bridge Design Drawings

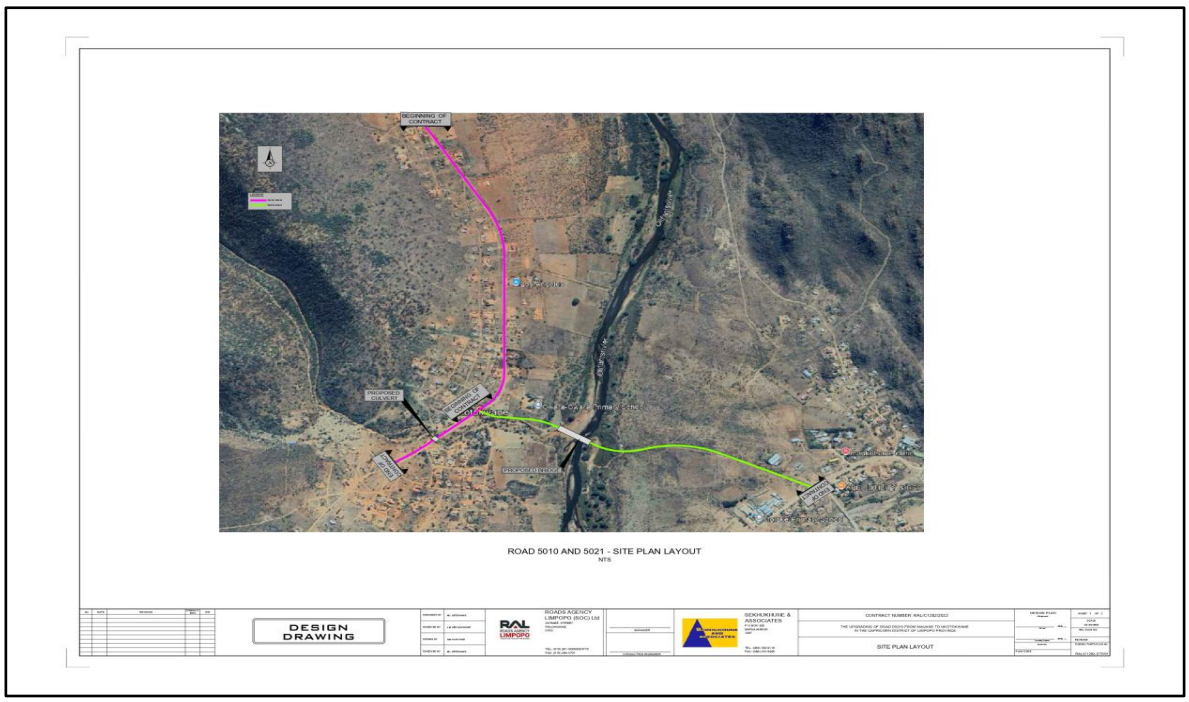


Figure 3: Project Layout

SEVICES REQUIRED

The provision of water

Water for the construction of the bridge, Road D5021, and upgrading of Road D5010 will be sourced from the nearby river (Olifants River), which will serve as the primary water source for activities such as concrete mixing, dust suppression, compaction, and general construction use. Any abstraction from the river will require authorisation in terms of the National Water Act, 1998 (Act No. 36 of 1998).

Furthermore, a Water Use License Application (WULA) in terms of the National Water Act, 1998 (Act No.36 of 1998) will be lodged with the Department of Water and Sanitation. This will trigger "Section 21 (a) - Taking water from a water resource", "Section 21(b) - Storing Water", "Section 21 (c) - Impeding or diverting the flow of water in a watercourse", as well as "Section 21 (i) - Altering the bed, banks, course, or characteristics of a watercourse" in terms of the NWA.

The provision of electricity

The proposed site currently has access to existing electricity infrastructure that is used by the local community. The Client may apply for permission to connect to the existing electricity supply; however, generators will also be used as an alternative power source during construction activities.

Sewage Facility

During the construction phase, mobile toilet will be used.

Waste Management

The proposed project will generate general domestic waste during the construction phase. This waste will primarily comprise waste generated by employees, as well as empty cement containers, packaging materials, and plastic sheeting used to cover pipes during transportation and delivery. The waste will be temporarily stored in designated waste receptacles or storage areas before being collected and transported to the Lebowakgomo Landfill Site or another appropriately licensed waste disposal facility for disposal.

Stormwater Management

Stormwater management infrastructure, such as culverts, side drains, and erosion protection measures, will be installed to control runoff from the upgraded road and bridge. Without proper management, stormwater may lead to erosion, sedimentation of the river, and instability of road embankments.

Construction Materials and Borrow Pits

Construction materials such as gravel, sand, aggregate, and fill material will be sourced from five (5) proposed borrow pits identified for the project. The use of borrow pits may result in vegetation removal, habitat disturbance, dust generation, and long-term landscape alteration, which will require rehabilitation and authorization. The use of these borrow pits will be subject to authorisation from the Department of Mineral Resources and Energy (DMRE) in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002).

No-Go Area

The proposed bridge construction and road upgrading project is located within a Critical Biodiversity Area (CBA) 2, which has been identified as an ecologically important area that supports biodiversity conservation, ecological connectivity, and the continued functioning of ecosystem processes. In addition, the proposed bridge will traverse the Olifants River, making the protection of the river and its associated riparian habitat a key environmental consideration during construction.

To protect these sensitive environmental features, all no-go areas identified through the specialist assessments shall be clearly demarcated on site prior to the commencement of construction. These no-go areas shall include, but are not limited to, the riparian zone of the Olifants River outside the approved construction footprint, sensitive vegetation, protected trees, drainage lines, wetlands, and areas of high terrestrial and aquatic ecological sensitivity.

No vegetation clearing, earthworks, stockpiling of materials, establishment of construction camps, vehicle movement, machinery parking, refuelling, waste disposal, or any other project-related activities shall be permitted within the demarcated no-go areas unless specifically authorised by the relevant competent authority. The final bridge and road alignment, including all associated infrastructure, shall avoid these environmentally sensitive areas as far as reasonably practicable. Access to the construction footprint shall be restricted to designated access routes to prevent unnecessary disturbance of surrounding natural vegetation and habitats.

All contractors and site personnel shall receive environmental induction training prior to commencing work to ensure that they are aware of the location of the no-go areas, the environmental sensitivities of the site, and the restrictions applicable within these areas. The implementation of these measures will minimise impacts on the Critical Biodiversity Area, protect the ecological integrity of the Olifants River and its associated habitats, maintain ecological connectivity, and ensure compliance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), the National Water Act, 1998 (Act No. 36 of 1998), and applicable biodiversity conservation objectives.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;

(b) the type of activity to be undertaken;

(c) the design or layout of the activity;

(d) the technology to be used in the activity;

(e) the operational aspects of the activity; and

(f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the Department may also request the applicant to assess

additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Location Alternative

The preferred location for the activity has been chosen as the proposed bridge and associated road upgrades, as the development is intended to provide a direct crossing point over the Olifants River between the affected communities, including Apel and Nkotokwane. The selected site aligns with the existing road network and the desired access route required to improve connectivity and mobility between communities located on either side of the river.

No-Go Alternatives

The No-Go Alternative entails that the proposed bridge construction over the Olifants River and the upgrading of Road D5010 Road D5021 do not proceed, and the project area remains in its current condition. Under this alternative, no bridge or road infrastructure would be constructed or upgraded, no vegetation clearing or earthworks would occur, and no activities would be undertaken within or adjacent to the Olifants River. Consequently, the existing environmental characteristics of the site, including the Critical Biodiversity Area 2 (CBA 2), riparian habitat, and associated aquatic ecosystem, would remain largely unchanged.

From an environmental perspective, the No-Go Alternative would avoid the potential impacts associated with vegetation clearing, habitat fragmentation, disturbance of terrestrial and aquatic fauna, soil erosion, sedimentation of the Olifants River, alteration of the riverbed and banks, and other construction-related impacts. It would also maintain the ecological integrity, biodiversity value, and ecological functioning of the CBA 2 and associated watercourse.

However, implementation of the No-Go Alternative would also mean that the existing transportation constraints would remain. Communities would continue to experience limited and unreliable access, particularly during periods of heavy rainfall when river crossings may become unsafe or impassable. The current gravel road sections would remain susceptible to deterioration, resulting in reduced road safety, increased vehicle operating costs, longer travel times, and continued challenges in accessing schools, healthcare facilities, markets, and other essential services.

The proposed project has been designed to minimise environmental impacts through careful route selection, limiting the construction footprint to the minimum area required, and implementing appropriate mitigation measures identified during the Environmental Impact Assessment process. In addition, compliance with the Environmental Management Programme (EMPr), specialist recommendations, and applicable legislative requirements, including the National Environmental

Management Act, 1998 (Act No. 107 of 1998), and the National Water Act, 1998 (Act No. 36 of 1998), will reduce potential impacts on the receiving environment.

Implementation of the No-Go Alternative would also result in the loss of anticipated socio-economic benefits associated with the project, including temporary employment opportunities during construction, improved road safety, enhanced connectivity between surrounding communities, reduced travel times, improved access to public services and economic opportunities, and the long-term benefits of a reliable all-weather transport network within the Fetakgomo Tubatse and Lepelle-Nkumpi Local Municipalities.

For these reasons, although the No-Go Alternative would provide the greatest level of environmental protection by avoiding direct impacts on the CBA 2 and the Olifants River, it is not considered the preferred option. The preferred alternative is the proposed bridge and Road D5021 construction and Road D5010 upgrading, subject to the implementation of appropriate environmental mitigation measures, compliance with specialist recommendations, and the protection of environmentally sensitive areas to ensure that the project is undertaken in an environmentally responsible and sustainable manner.

Paragraphs 3 – 13 below should be completed for each alternative.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the Hartebeeshoek 94 WGS84 spheroid in a national or local projection.

List alternative sites, if applicable.

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred or only site alternative)	[redacted]	
Alternative S2 (if any)		
Alternative S3 (if any)		



(More rows can be added if needed)

In the case of linear activities:

	Latitude (S):			**Longitude (E):**		
Preferred route						
• Starting point of the activity (**Road D5021**)	24˚	24'	40.84"	29˚	44'	47.79"
• Middle/Additional point of the activity	24°	24'	52.85"	29˚	44'	24.90"
• End point of the activity	24˚	24'	40.84"	29˚	44'	47.79"
• Starting point of the activity **(Bridge)**	24˚	24'	50.92"	29˚	44'	12.54"
• Middle/Additional point of the activity	24°	24'	51.06"	29°	44'	15.35"
• End point of the activity	24˚	24'	51.38"	29˚	44'	18.21"
• Starting point of the activity **(Road D5010)**	24°	23'	53.27"	29°	43'	50.14"
• Middle/Additional point of the activity	24°	24'	30.93"	29°	44'	3.81"
• End point of the activity	24°	24'	51.56"	29°	43'	54.40"
Alternative route 1 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						
Alternative route 2 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						

• End point of the activity	[redacted]

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1 (preferred activity alternative)	Bridge=1,687 m²
Alternative A2 (if any)	[redacted]
Alternative A3 (if any)	

or,

for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	Roads = 3.6 km
~~Alternative A2 (if any)~~	m
~~Alternative A3 (if any)~~	m

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	[redacted]

~~Alternative A2 (if any)~~	[redacted]
~~Alternative A3 (if any)~~	

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	[redacted]
Alternative A2 (if any)	
Alternative A3 (if any)	

5. SITE ACCESS

Does ready access to the site exist?	**YES** [redacted]
If NO, what is the distance over which a new access road will be built	[redacted]

Describe the type of access road planned:

The proposed development will utilise the existing access roads, namely Road D5021 from Apel and Road D5010 from Nkotokwane. No new access roads are planned as part of the project. The existing road will be upgraded together with the construction of the proposed bridge to improve accessibility, traffic flow, and road safety within the project area.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
- rivers;
- the 1:100 year flood line (where available or where it is required by Department of Water Affairs);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
6.11 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

SITE PHOTOGRAPHS

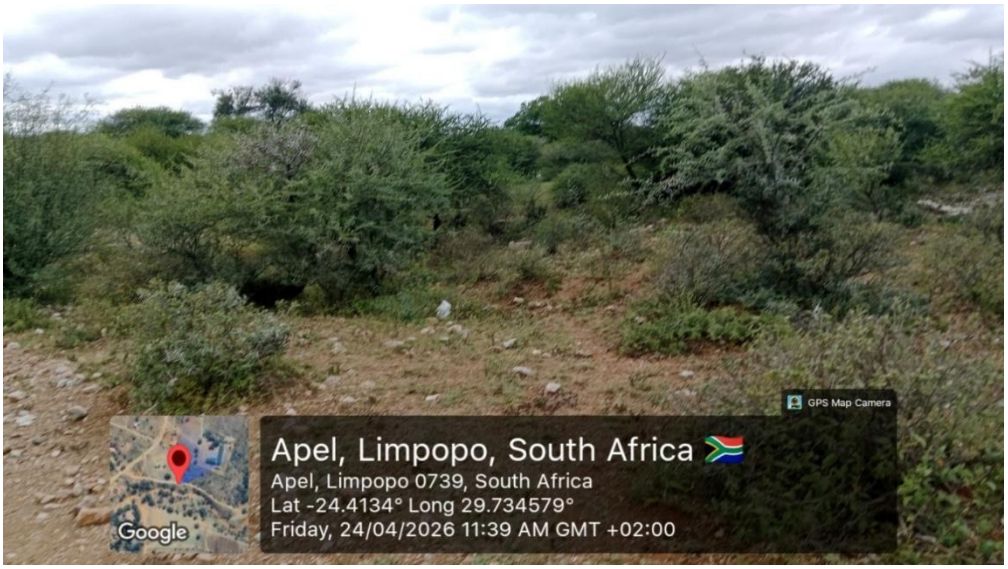


Figure 4: Vegetation on site

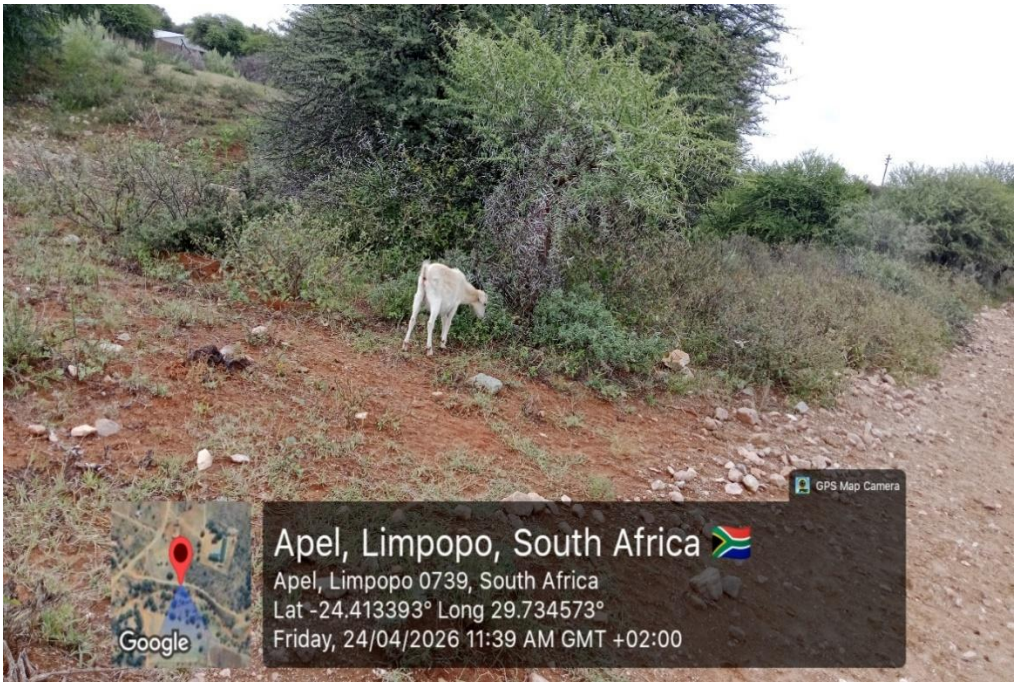


Figure 5: Domestic Animals on site

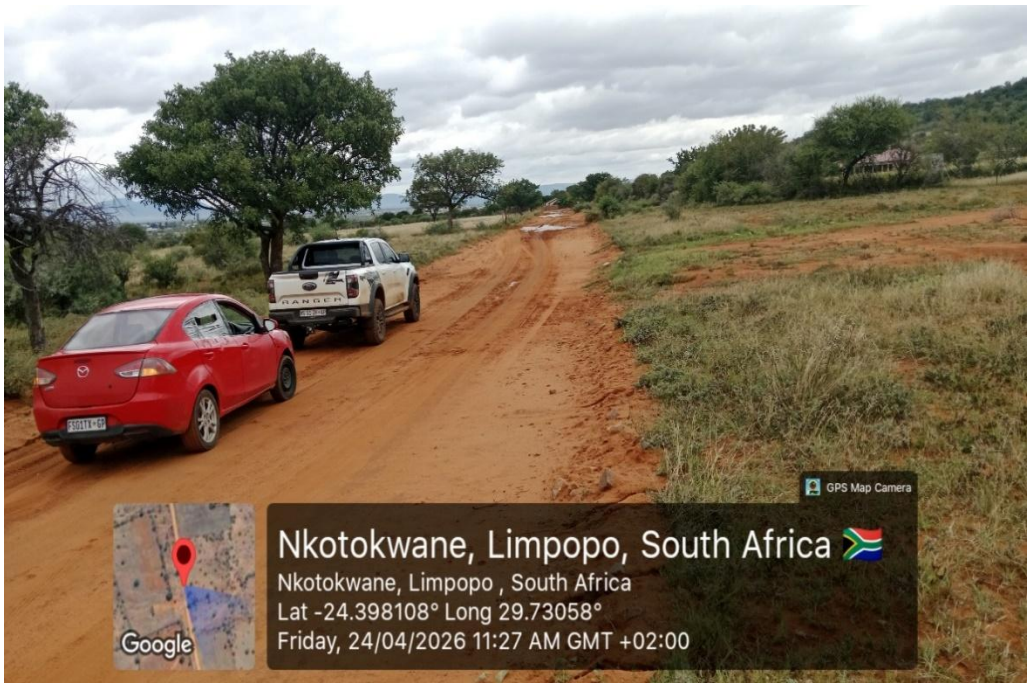


Figure 6: Existing Road D5010 on the village site (Nkotokwane)

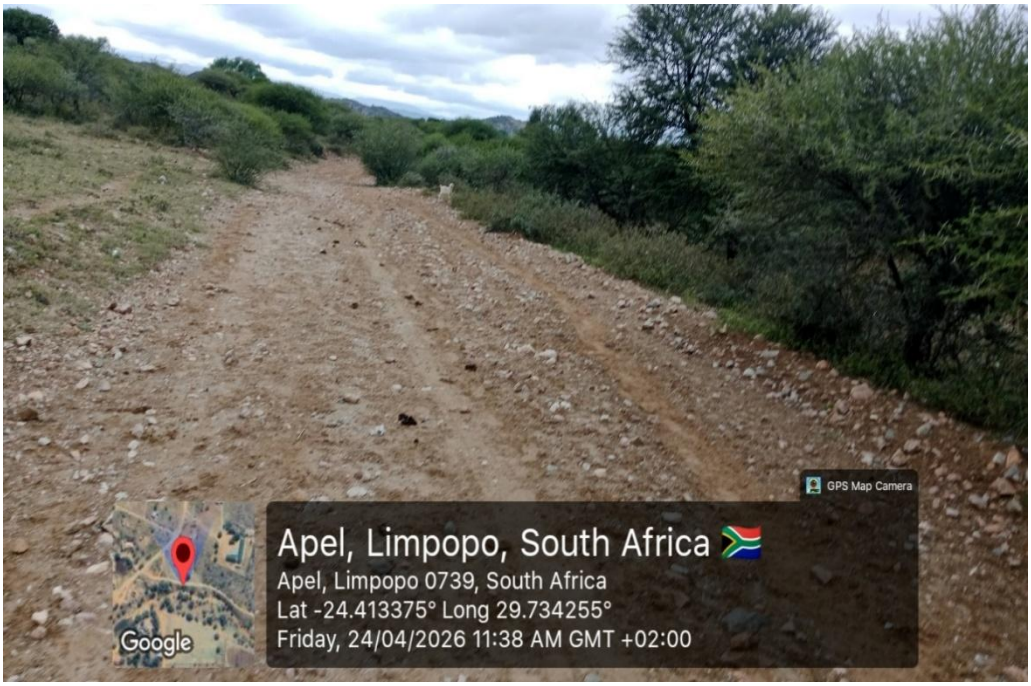


Figure 7: Proposed new Road D5021 across the Olifants River



Figure 8: Olifants River



Figure 9: Waste dumping observed on site



Figure 10: Showing the community crossing the river

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

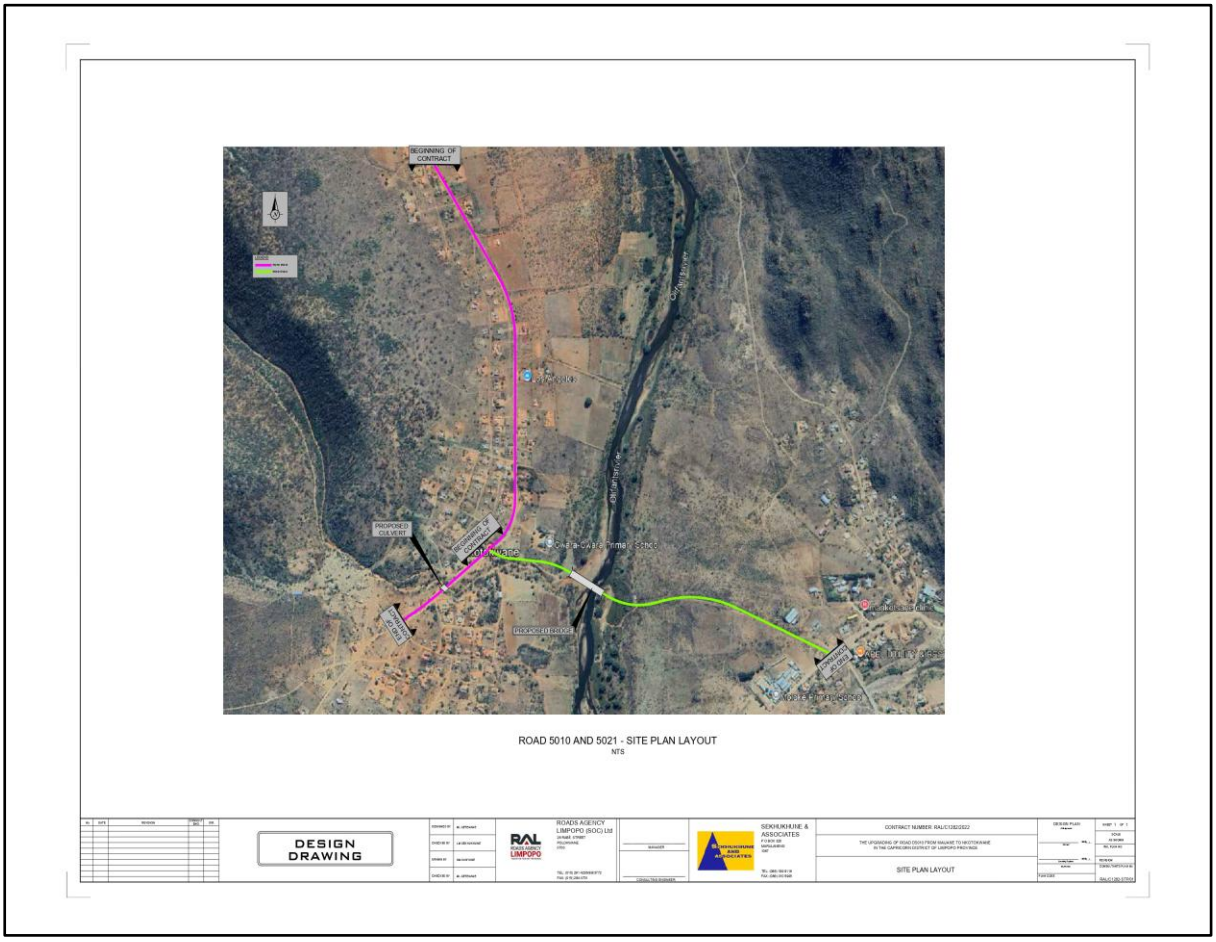


Figure 11: Layout plan

14. ACTIVITY MOTIVATION

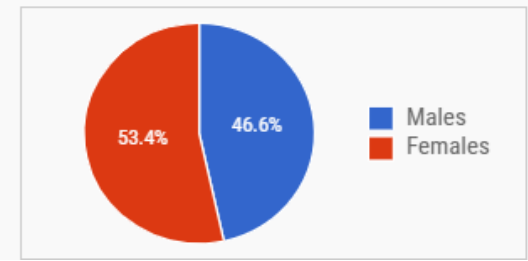
Socio-economic

Lepelle-Nkumpi Local Municipality

The proposed site falls within the jurisdiction of Lepelle-Nkumpi Local Municipality, Capricorn District, Limpopo Province. The Municipality is a Category B municipality situated within the Capricorn District in the Limpopo Province. The municipality is located 55km south of the district municipality and Polokwane (previously Pietersburg) City. It is the smallest of four municipalities in the district, making up 16% of its geographical area. The municipality is predominantly rural. It is divided into 30 wards, four of them being a township called Lebowakgomo and one of the Capricorn District's growth points.

Population

According to Statistics South Africa Census 2022 and the Lepelle-Nkumpi Local Municipality Integrated Development Plan (IDP), the municipality has a total population of 284,404 people, residing in approximately 78,217 households, with an average household size of 3.6 persons. The municipality is predominantly rural and consists of 30 wards and 94 settlements. Census 2022 further indicates that the population is dominated by females, who account for 151,958 people (53.4%), while males account for 132,447 people (46.6%). The predominance of females may be associated with labour migration patterns, where a proportion of the male population migrates to urban areas in search of employment opportunities. The municipality experienced significant population growth between 2011 and 2022, highlighting an increasing demand for municipal services, infrastructure and socio-economic development initiatives.



Gender (C 2022)	
Males	132,447
Females	151,958

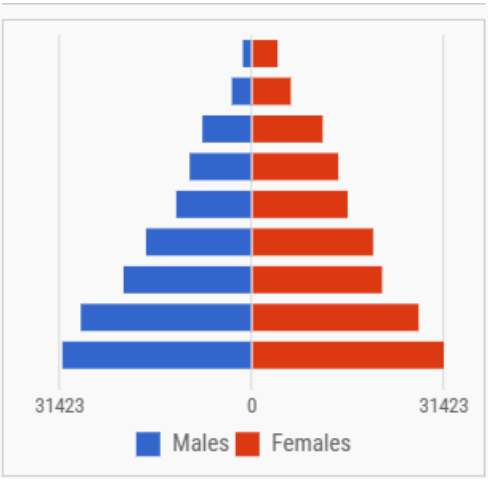
Figure 10: Population Distribution by Gender.
Source: Statistics South Africa (Stats SA). 2022 and Census 2022

Age

Based on the Statistics South Africa Census 2022 age distribution for Lepelle-Nkumpi Local Municipality, the population is predominantly young, with the largest proportion in the 0–29 age group. The population pyramid indicates a broad base that gradually narrows with increasing age, reflecting a youthful population structure and a declining proportion of older age groups. Children aged 0–9 years constitute the largest age cohort, accounting for 62,387 people, followed by the 10–19 years age group with 55,251 people, and the 20–29 years age group with 42,280 people. Collectively, these age groups comprise over half of the municipality's population, indicating a high proportion of children, adolescents and young adults. The economically active population is primarily individuals aged 20–59 years, with 37,145 aged 30–39 years, 28,051 aged 40–49 years, and 24,298 aged 50–59 years. The elderly population is comparatively smaller, with 19,679 people aged 60–69 years, 9,626 people aged 70–79 years, and 5,673 people aged 80 years and above.

The population pyramid also shows that females slightly outnumber males across most age categories, particularly in the older age groups, which is consistent with the overall gender distribution within the municipality. The youthful age structure has important implications for planning and development. It

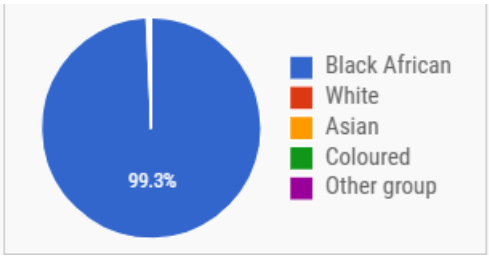
suggests a continued demand for educational facilities, healthcare services, employment opportunities, housing and social infrastructure. For environmental impact assessments and development planning, this demographic profile indicates that future developments should consider the growing needs of young and economically active populations while ensuring adequate provision of community services and sustainable infrastructure.



Age Distribution (C 2022)	
80+ years	5,673
70-79 years	9,626
60-69 years	19,679
50-59 years	24,298
40-49 years	28,051
30-39 years	37,145
20-29 years	42,280
10-19 years	55,251
0-9 years	62,387

Figure 11: Population Distribution by Age
Source: Stats SA 2022

Language distribution



Population Group (C 2022)	
Black African	282,315
White	521
Asian	741
Coloured	416
Other group	286

Figure 12: Language Distribution.
Source: Stats SA 2022

Fetakgomo Tubatse Local Municipality

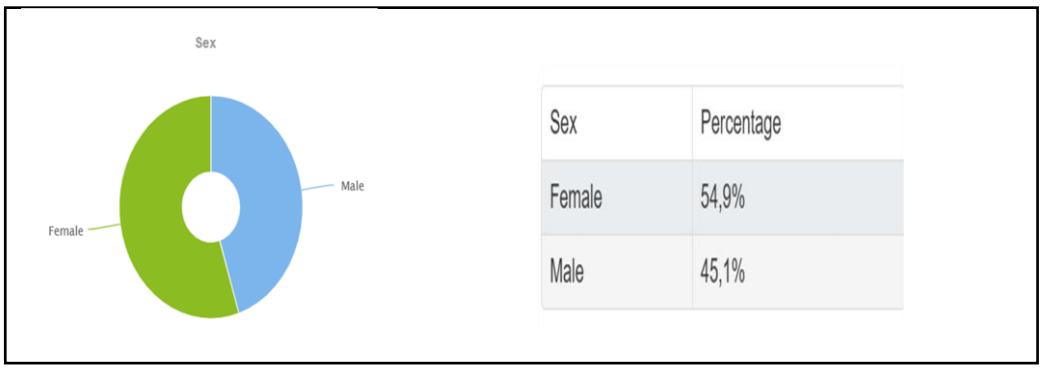
The proposed site also falls within the jurisdiction of Fetakgomo Local Municipality, Sekhukhune District, Limpopo Province. Fetakgomo is a local municipality (category B4) within the Sekhukhune District Municipality in Limpopo. The name is derived from a Sepedi idiom: “Fetakgomo o sware motho, mafetakgomo ke moriri o a hloga”, which implies “putting people first”. It borders Makuduthamaga Local Municipality in the south, Greater Tubatse Local Municipality in the east and Lepelle-Nkumpi Local Municipality (Capricorn District Municipality) in the north and west. It is situated about 90 km from

Polokwane. Geographically, it is the smallest of the five local municipalities in the district, constituting 8,3% (1 104,75) square kilometres of the district's 13 264 square kilometres.

Population

According to Statistics South Africa Census 2022 and the Fetakgomo Tubatse Local Municipality Integrated Development Plan (IDP 2025/2026), the municipality has a total population of 93,795 people. The municipality is predominantly rural, with settlements distributed across villages and mining communities. The population is overwhelmingly Black African, accounting for 99.4% of the total population. The remaining 0.6% comprises White (0.4%), Indian/Asian (0.1%), and Other population groups (0.1%), while the Coloured population constitutes a negligible proportion.

The gender composition indicates that females constitute the majority of the population, representing 54.9%, while males account for 45.1%. This female predominance is characteristic of many rural municipalities in Limpopo and is often associated with labour migration, where a proportion of the male population relocates to urban centres and mining areas in search of employment opportunities. Understanding the municipality's population composition is important for development planning, as it assists in identifying community needs and informing the provision of infrastructure, public services and socio-economic development initiatives.



Sex	Percentage
Female	54,9%
Male	45,1%

Figure 13: Population Distribution by Gender.
Source: Statistics South Africa (Stats SA). 2022 and Census 2022

Age

Based on the Statistics South Africa Census 2022 age distribution for Fetakgomo Tubatse Local Municipality, the municipality has a predominantly young population, as reflected by the broad base of the population pyramid. The largest proportion of the population falls within the 0–19 years age groups, indicating a high number of children and adolescents. The 0–4 years age group represents the largest cohort, followed closely by the 5–9, 10–14, and 15–19 age groups. This suggests relatively high birth rates and a growing young population.

The population gradually declines with increasing age. The economically active population is mainly concentrated within the 20–39 years age groups, after which the population decreases steadily through the middle-aged and older cohorts. Individuals aged 60 years and above constitute a relatively small proportion of the total population, with the 85 years and older age group representing the smallest segment. The population pyramid also indicates that females slightly outnumber males across most age groups, particularly among the older age categories. This trend is consistent with the municipality's overall gender composition, where females account for 54.9% of the population and males 45.1%.

The youthful age structure has important implications for development planning. It indicates a continued demand for educational facilities, healthcare services, housing, recreational facilities, employment opportunities and other social infrastructure. Furthermore, the substantial proportion of the working-age population highlights the need for sustainable economic development and job creation to support future population growth.

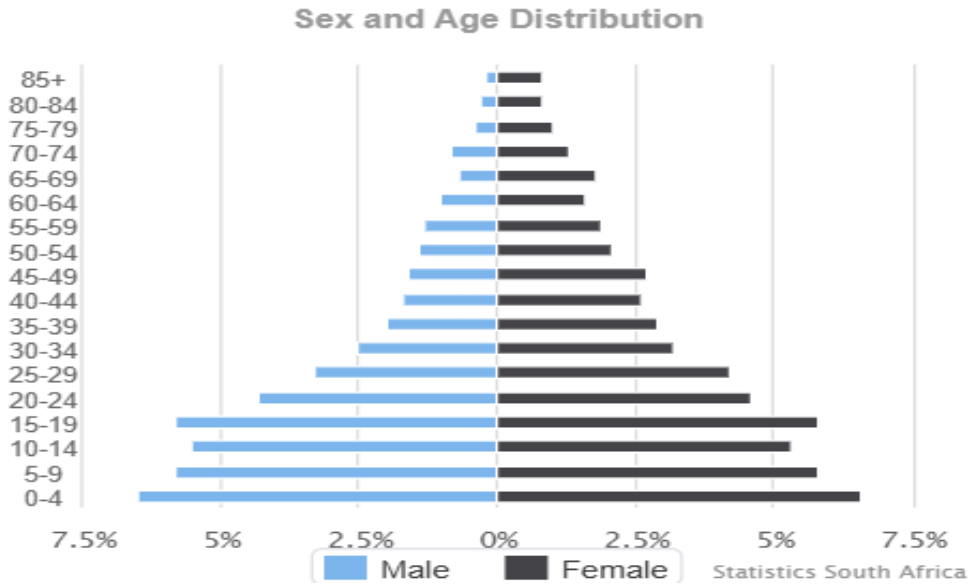


Figure 14: Population Distribution by Age
Source: Stats SA 2022

Language distribution

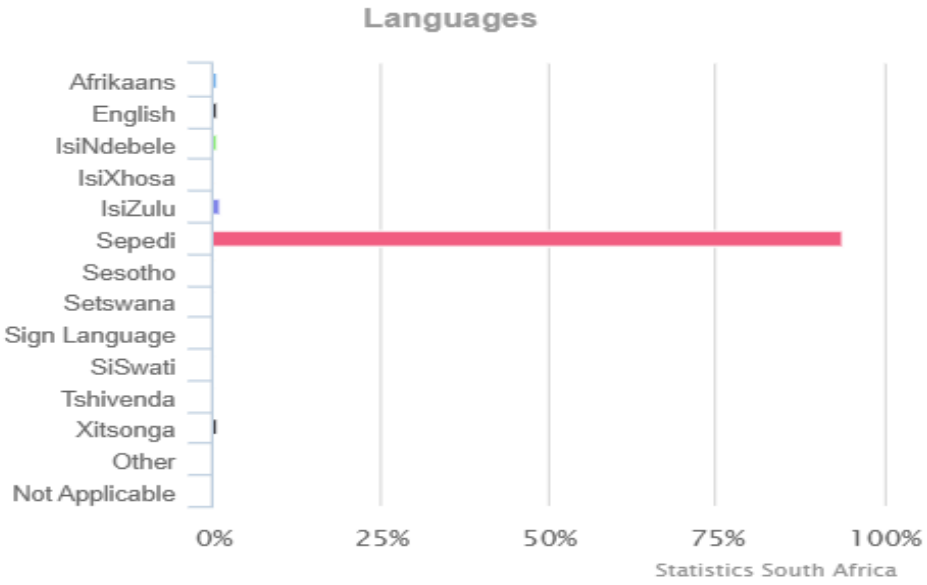


Figure 15: Language Distribution.
Source: Stats SA 2022

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R10 000 000
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	NO
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development phase of the activity?	≈20
What is the expected value of the employment opportunities during the development phase?	R1 000 000
What percentage of this will accrue to previously disadvantaged individuals?	100%
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	R10 000 000
What percentage of this will accrue to previously disadvantaged individuals?	100%

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

NEED:

The proposed construction of a bridge across the Olifants River, together with the upgrading of the associated roads, is considered necessary to address the social, economic, and accessibility challenges currently experienced by communities in and around Apel and Nkotokwane. Communities located on either side of the river currently have limited access to essential services and public facilities due to the absence of a direct, safe, and reliable river crossing. As a result, residents are often required to travel considerable distances to access nearby towns, shopping centres, healthcare facilities, schools, and employment opportunities. These challenges are further exacerbated during the rainy season, when increased river flows can make the river difficult and dangerous to cross. Consequently, communities may become isolated, while access to essential services and the movement of people and goods are disrupted.

The proposed bridge and associated road upgrades will improve mobility and connectivity between villages and surrounding areas by providing a safer, shorter, and more reliable transport route across the Olifants River. This will be particularly beneficial to school learners who currently walk long distances to access educational facilities. Reduced travel distances and improved road conditions are expected to improve access to education, support school attendance and punctuality, and reduce risks to learners travelling to and from school.

The project will also improve access to shopping centres, retail facilities, healthcare services, and other commercial and social facilities. By reducing travel distances, journey times, and associated transport costs, the upgraded road infrastructure and bridge will enable local communities to access essential goods and services more efficiently, while also improving access to employment and other economic opportunities.

In addition, the project is expected to:

- Improve access for emergency and healthcare services;
- Improve accessibility for public transport and service delivery vehicles;
- Facilitate the movement of people and goods between communities;
- Strengthen connectivity between villages and surrounding economic and social centres; and
- Enhance road safety for pedestrians, motorists, and other road users.

Overall, the proposed bridge and road upgrades will address existing connectivity constraints and contribute to improved social and economic integration of communities on either side of the Olifants River.

i.	Was the relevant municipality involved in the application?	YES	
ii.	Does the proposed land use fall within the municipal Integrated Development Plan?	YES	
iii.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		
	N/A		

DESIRABILITY:

The proposed bridge and road upgrades are considered desirable because they will contribute positively to social and economic development within the affected communities and surrounding municipalities.

The development will enhance connectivity between communities and improve the efficiency and reliability of the local transport network. Improved accessibility is expected to promote local economic development by supporting trade, increasing access to markets and services, and improving movement within the area.

The proposed project is further desirable as it will:

- Create temporary employment opportunities during the construction phase;
- Support long-term rural development within the affected municipalities;
- Improve the overall quality of life for surrounding communities; and
- Contribute to safer and more reliable transport infrastructure.

The development is therefore regarded as both socially and economically desirable, as it aims to provide safer, more efficient, and reliable transport infrastructure while supporting sustainable community development.

i.	Does the proposed land use / development fit the surrounding area?	YES	
ii.	Does the proposed land use / development conform to the relevant structure plans, Spatial development Framework, Land Use Management Scheme, and planning visions for the area?	YES	
iii.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	
iv.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
	N/A		
v.	Will the proposed land use / development impact on the sense of place?		NO
vi.	Will the proposed land use / development set a precedent?		NO
vii.	Will any person's rights be affected by the proposed land use / development?		NO
viii.	Will the proposed land use / development compromise the "urban edge"?		NO

ix.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.	
	N/A	

BENEFITS:			
i.	Will the land use/development have any benefits for society in general?	YES	
ii.	Explain:		
	The proposed bridge and road construction will provide several social and economic benefits to the surrounding communities and society in general. The project is expected to create temporary employment opportunities during the construction phase, thereby contributing to local income generation and skills development. In addition, the improved transport infrastructure will enhance connectivity between communities, schools, healthcare facilities, shopping centres, and places of employment, resulting in improved access to essential services and economic opportunities. The development will also improve road safety, reduce travel distances and transport costs, and enhance access for emergency and public service vehicles. Furthermore, the project is expected to promote local economic development, support rural development initiatives, and improve the overall quality of life for affected communities. By improving mobility and access within the region, the proposed development will contribute positively towards social upliftment, service delivery, and long-term socio-economic development within the affected municipalities.		
iii.	Will the land use/development have any benefits for the local communities where it will be located?	YES	
iv.	Explain:		
	The proposed bridge and road construction will provide significant benefits to the local communities where the development will be located. The project will improve access and connectivity between villages situated on either side of the Olifants River, making it easier for residents to access schools, healthcare facilities, shopping centres, workplaces, and other essential services. The development will provide a safer and more reliable river crossing, particularly during rainy seasons when communities are often		

	isolated due to flooding and unsafe crossing conditions. Improved road infrastructure is also expected to reduce travel time and transport costs, enhance road safety for both pedestrians and motorists, and improve access for public transport and emergency services. In addition, the project will create temporary employment opportunities during construction and is expected to stimulate local economic activity and support long-term rural development within the surrounding communities.

Description of the Affected Environment

Land use

The proposed project area is characterised by a combination of natural and transformed land uses, consisting mainly of natural grassland, wooded areas, watercourses, and built-up residential settlements associated with Apel and Nkotokwane villages (Figure 17). Portions of the area have undergone land-use changes from natural wooded land to grasslands and eroded areas, while other sections remain largely unchanged. Existing infrastructure within the area includes local roads and settlement-related developments. The proposed bridge and road infrastructure will mostly follow existing disturbed corridors and connect established settlements; therefore, the anticipated impact on current land use is expected to be low to moderate.

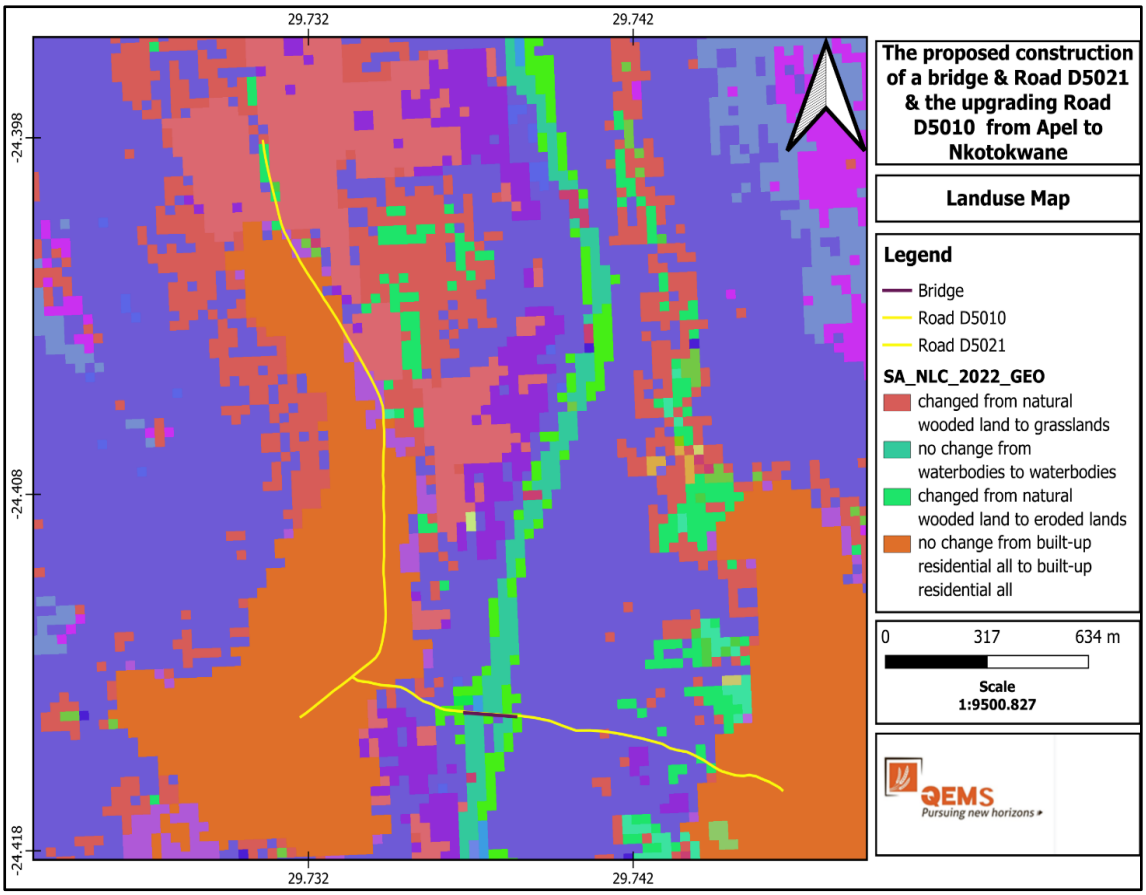


Figure 16: Land use Map

Vegetation

The vegetation type is known as Sekhukhune Plain Bushveld (Figure 18). The surrounding environment is dominated by bushveld ecosystems, part of the Sekhukhune region's diverse landscapes that support over 2,200 indigenous plant species, contributing to regional biodiversity hotspots. This vegetation type is characterized by predominantly short, open to closed thornveld with an abundance of Aloe species and other succulents. The encroachment by indigenous microphyllous trees and invasion by alien species is common throughout the area. The study area is heavily degraded in places and overexploited by man for cultivation, mining, and urbanization.

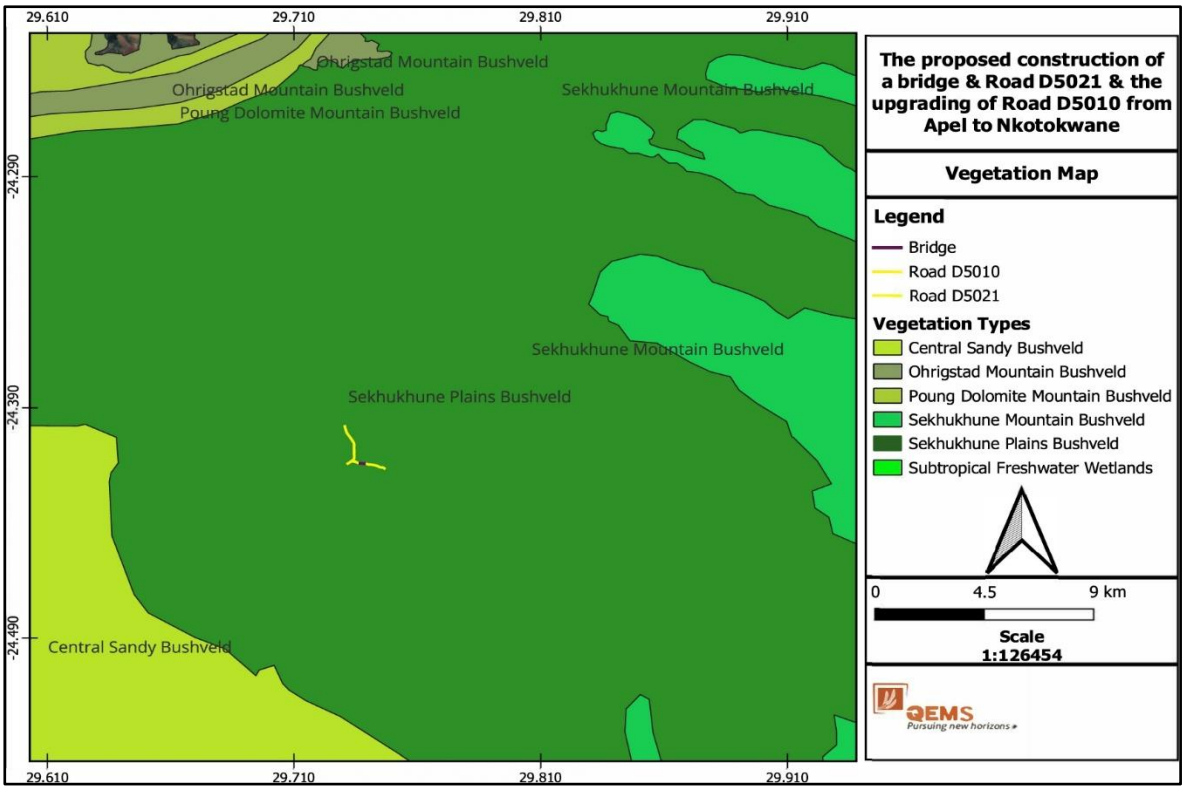


Figure 17: Vegetation Map

Climate and rainfall

The area experiences a hot semi-arid climate (BSh) characterized by warm, humid summers and cool, dry winters (Figure 19). Summers, spanning October to March, feature average daily high temperatures of 25–30°C and lows around 19°C, with the hottest month being January at a high of approximately 29°C. Winters, from May to August, are cooler and drier, with daily highs of 10–23°C and lows dipping to around 5°C in July. Annual rainfall totals 500–700 mm, predominantly occurring during summer thunderstorms between October and March, while the drier period from May to September sees minimal precipitation, often less than 10 mm per month.

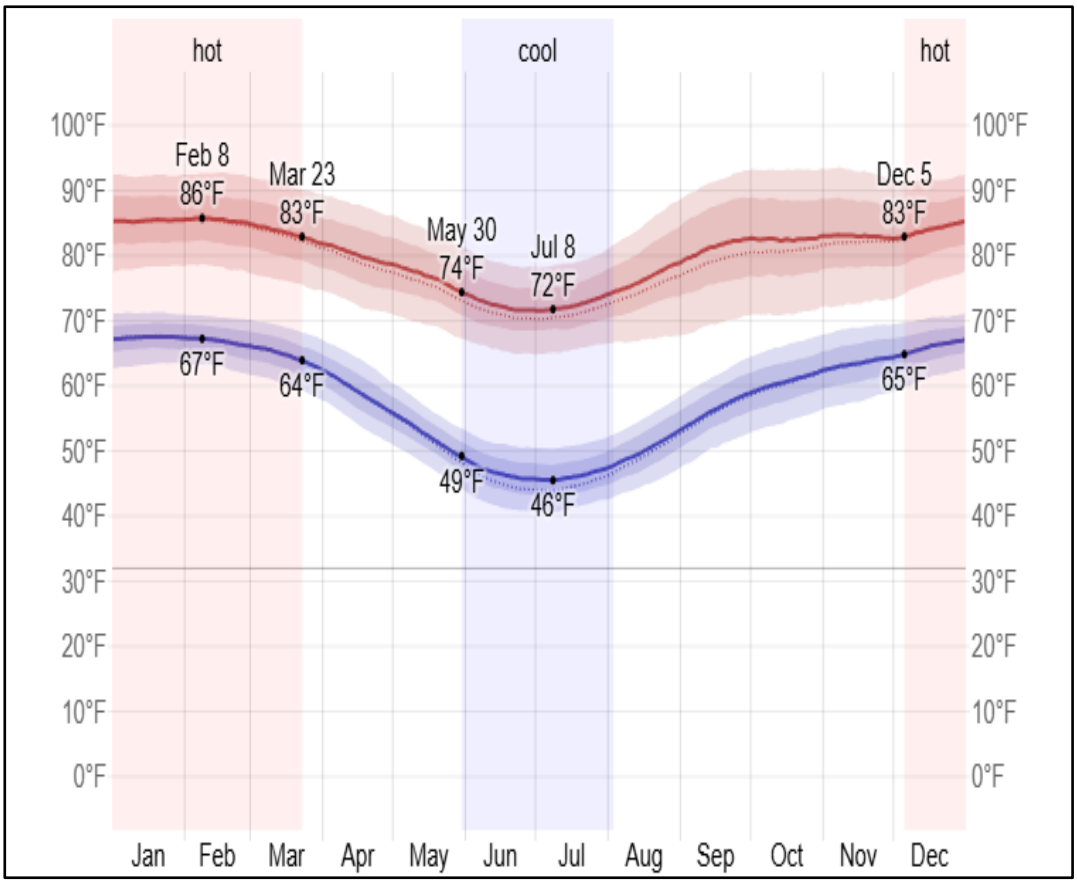


Figure 18: Average high and low temperature in Apel

Geology and Soil

The proposed study area is underlain by diverse geological formations associated with the Bushveld Igneous Complex and surrounding lithological units (Figure 20). The geology of the area is characterised by the presence of the Dsjate Subsuite, Magaliesberg Formation, Roossenekal Subsuite, and Silverton Formation. The northern and eastern portions of the study area are predominantly underlain by the Dsjate Subsuite, while the western section is characterised by the Silverton Formation. The central portion of the study area, where the proposed bridge crossing and part of Road D5021 are located, is mainly underlain by the Magaliesberg Formation. The southern portion of the study area is dominated by the Roossenekal Subsuite. These geological units comprise a mixture of sedimentary and igneous rock types, including quartzite, shale, norite, gabbro, and associated intrusive rocks typical of the Bushveld geological environment. The area is expected to consist mainly of residual soils derived from the weathering of the underlying rock formations, with shallow rocky soils likely occurring in areas associated with the Magaliesberg Formation and deeper transported soils occurring along lower-lying areas near the Olifants River.

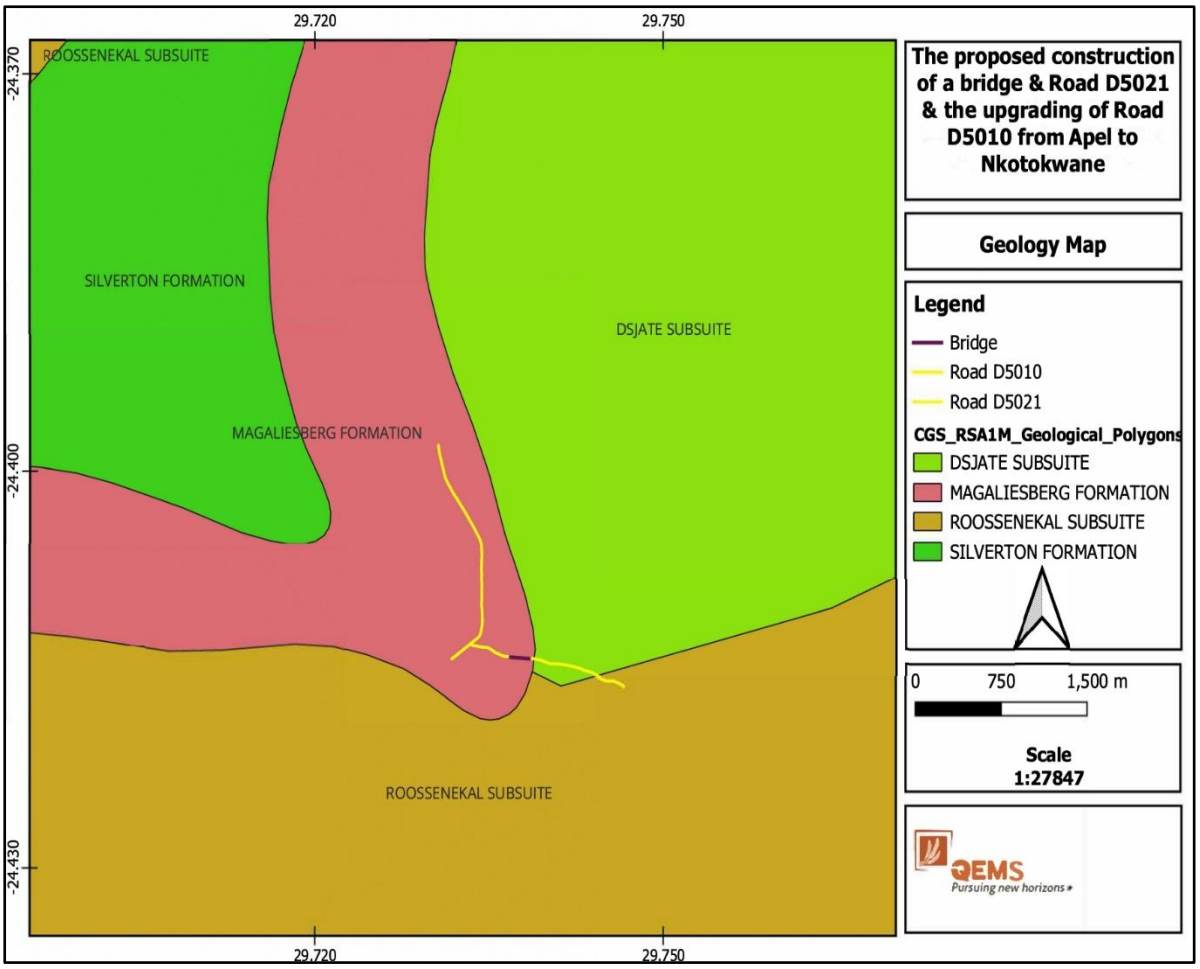


Figure 19: Geology Map

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of South Africa (Act 108 of 1996)	DFFE	1996
National Environmental Management Act, 1998 (Act 107 of 1998)	DFFE and LEDET	2004
National Heritage Resources Act (No 25 of 1999)	South African Heritage Resources Agency (SAHRA	1998
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	South African National Biodiversity Institute (SANBI) and LEDET	2004

National Water Act (Act No 36 of 1998)	Department of Water and Sanitation (DWS)	1998
National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA) i	LEDET and Local Municipality	2008
National Environmental Management: Air Quality Act (Act No 39 of 2004)	LEDET	2004
Occupational Health and Safety Act (No. 85 of 1993)	Department of Health	1993
Environmental Impact Assessment Regulations (GN R. 327, R. 325 & 324) of 7 April 2017	LEDET	2014
Environmental Conservation Act (Act 73 of 1989)		
National Forests Act (Act No. 84 of 1998)	DFFE	1998
Hazardous Substances Act (Act No. 15 of 1973)		
Integrated Environmental Management		
Sustainable Development		

Project triggered activities in terms of the National Environmental Management Act, Act 107 of 1998

Listing Notice and Activity Number	Description	Relevance
GNR. 327 Listing Notice 1 Activity 12 (ii) (a) (b) & (c)	The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or	The applicant proposes the construction of a bridge that covers a footprint of approximately 1, 687 square meters) within Olifants river.

	(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse	
GNR. 327 Listing Notice 1 Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;	The proposed bridge construction over the Olifants River will require excavation, movement, and deposition of material within the watercourse for the establishment of bridge foundations and associated infrastructure. These activities will consist of approximately 1930 cubic metres of infilling material.
GNR. 327 Listing Notice 1 Activity 24 (ii)	The development of a road (ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres;	The project involves the development of a road with a reserve wider than 13.5 metres.
GNR. 324 Listing Notice 3 Activity 12 (e) (ii)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **(e) Limpopo** (ii) Within critical biodiversity areas identified in bioregional plans; or	The project entails the clearance of an area of 300 square metres or more of indigenous vegetation and it falls within a Critical Biodiversity Area (CBA 2).

GNR. 324 Listing Notice 3 Activity 14(ii) (e) (i) (ff)	The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse; **(e) Limpopo** (i) Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Construction of a bridge with an approximate development footprint of 1,687 m². The proposed project area is located within a Critical Biodiversity Area (CBA 2).
GNR. 324 Listing Notice 3 Activity 18(e) (i)(ee) (hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. **(e) Limpopo** (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (hh) Areas within a watercourse; or within 100 metres from the edge of a watercourse; or	The project entails the lengthening of a road by more than 1 kilometre, within a watercourse; or within 100 metres from the edge of a watercourse. The project site falls within a Critical Biodiversity Area (CBA 2).

Water Use triggered activities

Water uses	Description	Relevance to the project
Section 21(a)	Taking water from a watercourse	A total volume of 9,840 m³/a of water will be abstracted from the Olifants River for the proposed development.
Section 21 (c)	Impeding or diverting the flow of water in a watercourse	The proposed construction of the bridge will permanently impede or divert the flow of water within the Olifants River.
Section 21 (i)	Altering the beds, banks, course or characteristics of a watercourse.	During the construction of the foundations and bridge supports, there will be a permanent river diversion, altering the bed and banks of the watercourse.

NATIONAL FOREST Act TRIGGERED ACTIVITIES

A tree-cutting permit is required for the proposed development in accordance with the National Forests Act, 1998 (Act No. 84 of 1998). The proposed development footprint contains Marula (Sclerocarya birrea) trees, which may be affected by vegetation clearance associated with the construction of the roads, bridge and associated infrastructure. An application for the relevant licence/permit is therefore required from the Department of Forestry, Fisheries and the Environment (DFFE) prior to the removal or disturbance of any protected trees. The identified Marula trees and the proposed tree-clearing activities associated with the project will be assessed as part of the application process.

Section 15(1) of the National Forests Act, 84 of 1998.

- No person may-: Cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	[redacted]
If yes, what estimated quantity will be produced per month?		≈12-25m³

How will the construction solid waste be disposed of (describe)?

During the construction phase, solid waste will be produced, which includes domestic waste and construction waste (i.e., rubbles, metal steals, plastics, papers etc). Such waste will be stored temporarily in labelled designated bins and later be disposed of at the nearest municipal landfill site by the appointed contractors.

Where will the construction solid waste be disposed of (describe)?

The construction solid waste will be disposed of at nearest municipality landfill site. The necessary arrangements will be done with the municipality prior to implementation of the development.

Will the activity produce solid waste during its operational phase?	[redacted] NO
If yes, what estimated quantity will be produced per month?	N/A

How will the solid waste be disposed of (describe)?

N/A

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the department to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	[redacted] NO
Is the activity that is being applied for a solid waste handling or treatment facility?	[redacted] NO

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	[redacted] NO
If yes, what estimated quantity will be produced per month?	[redacted]

Will the activity produce any effluent that will be treated and/or disposed of on-site?	NO
If yes, what estimated quantity will be produced per month?	

Will the activity produce effluent that will be treated and/or disposed of at another facility?	NO
If yes, what estimated quantity will be produced per month?	

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of wastewater, if any:

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

During the construction phase, dust will be the primary atmospheric emission generated by construction activities. Appropriate dust suppression measures will be implemented to minimise dust generation and reduce potential impacts on surrounding communities and the environment.

11(d) Generation of noise

Will the activity generate noise?	YES	[redacted]
If yes, is it controlled by any legislation of any sphere of government?	[redacted]	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

Noise is anticipated to be generated in the construction phase:

Construction phase:

Construction activities, including the movement of construction vehicles, operation of machinery, and other on-site activities, will generate noise. The noise impacts are expected to be temporary, localised, and limited to the construction phase of the project. Construction activities will be undertaken from **07:00 to 17:00 on weekdays and from 07:00 to 13:00 on weekends**. Noise levels are anticipated to remain below **50 dB(A)** in accordance with the applicable requirements of **SANS 10103**.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

[redacted]	river, stream, dam or lake	[redacted]
[redacted] water will be extracted river [redacted]		
The volume that will be extracted per month:		+- 9840 m3/a
Does the activity require a water use permit from the Department of Water Affairs?	YES	[redacted]
If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.		

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The site will use solar lights as a way of just energy transition.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):	

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:

All specialist reports must be contained in Appendix E.

Property description/physical address:	The proposed construction and upgrading of Roads D5010 and D5021 project are located within Apel and Nkotokwane villages, with the construction of a bridge over the Olifants River within Lebowakgomo Town. The proposed project is located on Portion 0 of Farm Olifantspoort 479 KS, Portions 0 and 2 of Farm Mooiplaats 516 KS, and Portion 0 of Farm Eerste Recht 502 KS. The project site spans the boundary between the Fetakgomo Tubatse Local Municipality within the Sekhukhune District Municipality and the Lepelle-Nkumpi Local Municipality within the Capricorn District Municipality, Limpopo Province.
	(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.
	Olifantspoort 479 KS-T0KS00000000047900000
	Mooiplaats 516 KS-T0KS00000000051600000 and T0KS00000000051600002

	Eerste Recht 502 KS-T0KS00000000050200000
	In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.
Current land-use zoning:	The current area is zoned as a mixed rural-residential and natural land
	In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?	[redacted]	NO
Must a building plan be submitted to the local authority?	[redacted]	NO

Locality map:

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

1. GRADIENT OF THE SITE

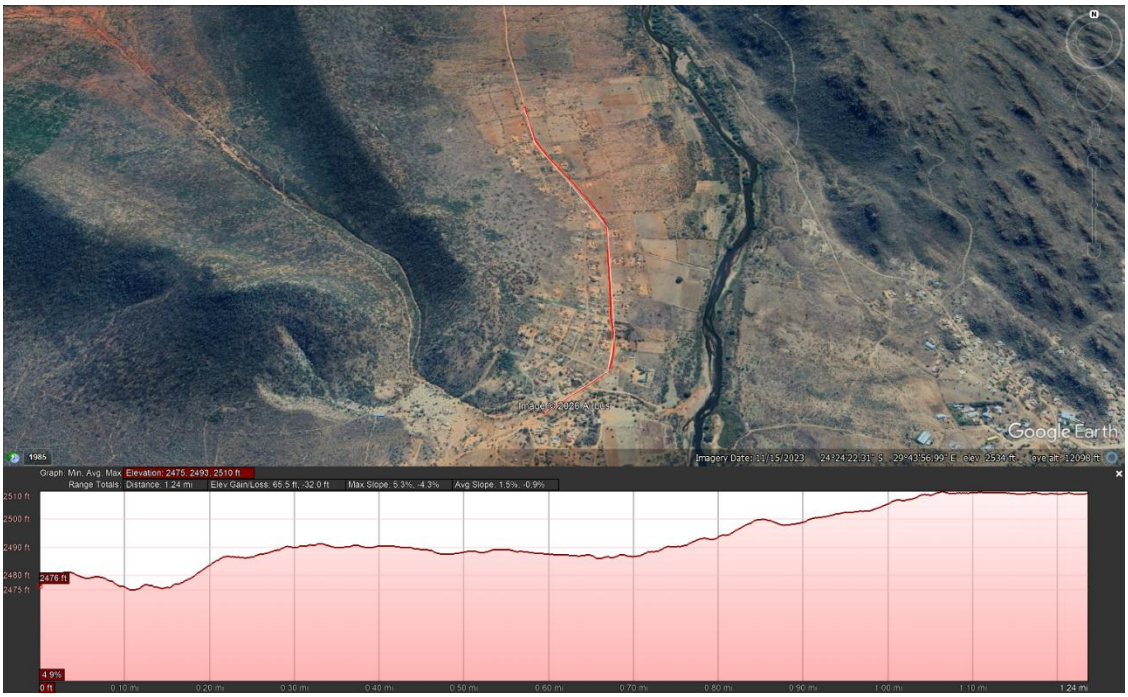
Indicate the general gradient of the site.

Alternative S1: Bridge and Road D5021

[redacted]	1:50 – 1:20	[redacted]



(b) Road D5010



~~Alternative S2 (if any):~~

[redacted]

~~Alternative S3 (if any):~~

[redacted]

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.6 Plain	
2.2 Plateau		2.7 Undulating plain / low hills	√
2.3 Side slope of hill/mountain		2.8 Dune	
2.4 Closed valley		2.9 Seafront	
2.5 Open valley			

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1		**Alternative S2 (if any)**	**Alternative S3 (if any):**
Shallow water table (less than 1.5m deep)	YES	[redacted]	[redacted]	[redacted]
Dolomite, sinkhole or doline areas	[redacted]	NO		
Seasonally wet soils (often close to water bodies)	YES	[redacted]		
Unstable rocky slopes or steep slopes with loose soil	[redacted]	NO		
Dispersive soils (soils that dissolve in water)		NO		
Soils with high clay content (clay fraction more than 40%)		NO		
Any other unstable soil or geological feature		NO		
An area sensitive to erosion		NO		

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	√ Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	√ Building or other structure	√ Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area	√	5.22 School	√
5.2 Low density residential		5.23 Tertiary education facility	
5.3 Medium density residential		5.24 Church	
5.4 High density residential	√	5.25 Old age home	
5.5 Medium industrial [AN]		5.26 Museum	

5.6 Office/consulting room		5.27 Historical building	
5.7 Military or police base/station/compound		5.28 Protected Area	
5.8 Spoil heap or slimes dam [A]		5.29 Sewage treatment plant [A]	
5.9 Light industrial		5.30 Train station or shunting yard [N]	
5.10 Heavy industrial [AN]		5.31 Railway line [N]	
5.11 Power station		5.32 Major road (4 lanes or more)	
5.12 Sport facilities		5.33 Airport [N]	
5.13 Golf course		5.34 Harbour	
5.14 Polo fields		5.35 Quarry, sand or borrow pit	
5.15 Filling station [H]		5.36 Hospital/medical centre	
5.16 Landfill or waste treatment site		5.37 River, stream or wetland	√
5.17 Plantation		5.38 Nature conservation area	
5.18 Agriculture		5.39 Mountain, koppie or ridge	
5.19 Archaeological site		5.40 Graveyard	
5.20 Quarry, sand or borrow pit		5.41 River, stream or wetland	√
5.21 Dam or Reservoir		5.42 Other land uses (describe)	

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity?

N/A

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:	N/A

If NO, specify:	N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:	N/A
If NO, specify:	N/A

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including		
Archaeological or palaeontological sites, on or close (within 20m) to the site?		No
If YES, explain:	N/A	
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.		
Briefly explain the findings of the specialist:	The findings of the Heritage Specialist Study are presented below under the appointed specialist summaries.	
Will any building or structure older than 60 years be affected in any way?		NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

APPOINTED SPECIALIST SUMMARY

1. AGRICULTURAL COMPLIANCE STATEMENT

ASSUMPTIONS, ASSUMPTIONS UNCERTAINTIES, LIMITATIONS, AND GAPS

- The following assumptions, uncertainties, limitations, and gaps were applicable for the soil, land use, and land capability assessment:
- The proposed construction and upgrading of Roads D5010 and D5021, including the proposed bridge, will remain as indicated in the layout design throughout the construction and operational phases.
- Agricultural activities may continue along the road, where practicable, provided that they are maintained at least 10 m from the edge of the road carriageway and do not interfere with road safety, drainage infrastructure, visibility, access, or road maintenance requirements.
- Landowners and farmers will comply with safety regulations and restrictions near the road.
- Erosion control measures will be implemented to prevent soil degradation during and after construction.
- The construction and maintenance of the road will not significantly affect crop yields or livestock health.

Findings

The assessment confirmed that the study area was initially classified as having High agricultural sensitivity by the National Web-Based Environmental Screening Tool; however, the specialist's site verification identified the agricultural sensitivity as Low. The study area is characterised by a semi-arid savanna landscape underlain by the Magaliesberg Formation, Dsjate Subsuite and Roossenekal Subsuite, with soils that vary from shallow, rocky profiles to moderately deep soils. The site predominantly comprises Land Capability Class IV, with smaller portions classified as Class VI, indicating limitations for intensive crop production and greater suitability for livestock grazing and limited cultivation. Existing land uses include livestock grazing, small-scale and subsistence agricultural activities, seasonally cultivated fields and residential areas. A section of approximately 0.3 km of Road D5021 runs along the edge of an old, seasonally cultivated field. The specialist concluded that the proposed road construction and upgrading, including the Olifants River bridge, are expected to have a low negative impact on agricultural resources, provided that construction remains within the approved footprint, existing road alignments are maintained, access for farmers and livestock is preserved, and temporarily disturbed areas are rehabilitated. The assessment further confirmed that disturbed land can be restored to its existing agricultural production potential within two years after construction. Therefore, the proposed development is considered acceptable from an agricultural perspective and is recommended for approval, subject to the implementation of the recommended mitigation measures.

Impacts and Mitigation Measures

The proposed construction and upgrading of Roads D5010 and D5021, including the construction of a bridge across the Olifants River, are not expected to result in significant impacts on agricultural resources or agricultural production potential. Potential impacts include localised soil compaction, soil erosion, vegetation disturbance, temporary loss of grazing availability, and disruption of livestock movement and access to agricultural land. A section of approximately 0.3 km of Road D5021 is located along the edge of an old, seasonally cultivated field, where unnecessary encroachment could result in the disturbance or loss of agricultural land. To minimise these impacts, the specialist recommends maintaining the existing road alignment, restricting construction activities, temporary access routes and laydown areas to the approved road reserve and project footprint, avoiding unnecessary encroachment into cultivated fields and surrounding grazing areas, implementing appropriate erosion-control measures, maintaining access for farmers and livestock, and rehabilitating all temporarily disturbed areas following construction. The rehabilitation measures should ensure that disturbed land is restored to its existing condition and agricultural production potential within two years after completion of construction. The implementation of these mitigation measures, together with the relevant provisions of the Environmental Management Programme (EMPr), is expected to limit negative impacts while allowing surrounding agricultural activities to continue. The proposed development is also anticipated to provide positive benefits through improved access to grazing areas, better livestock movement across the Olifants River, and more efficient transportation of agricultural products to nearby towns and markets.

Conclusion and Recommendations

The Agricultural Compliance Statement concludes that the proposed construction and upgrading of Roads D5010 and D5021, including the construction of a bridge across the Olifants River, is acceptable from an agricultural perspective. Although the study area includes Land Capability Classes IV and VI, which have limitations for intensive crop production, the surrounding land is predominantly used for livestock grazing and small-scale agricultural activities. The proposed development will largely follow the existing road alignments, limiting the permanent loss and fragmentation of agricultural land. The anticipated agricultural impacts, including localised soil compaction, erosion, vegetation disturbance and temporary disruption of grazing activities, are expected to be of low significance, provided that the recommended mitigation measures are implemented. The specialist therefore recommends that the proposed development be supported, subject to compliance with the Environmental Management Programme (EMPr), restriction of construction activities to the approved footprint, maintenance of access for farmers and livestock, protection of adjacent cultivated fields, implementation of appropriate erosion-control measures, and rehabilitation of temporarily disturbed areas to their existing condition and agricultural production potential within two years after construction.

2. TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

Findings

The Terrestrial Biodiversity Assessment identified that the National Web-Based Environmental Screening Tool initially classified the terrestrial biodiversity theme as having Very High sensitivity. However, the site assessment confirmed that the actual development footprint has Low terrestrial biodiversity sensitivity due to historical land-use activities, livestock grazing, access routes, and vegetation transformation. The footprint occurs within the Sekhukhune Plains Bushveld (SVcb 27) vegetation unit, which is classified as Vulnerable, and is mapped within a Critical Biodiversity Area 1 (CBA 1) adjacent to a CBA 2 associated with the Olifants River.

The field survey recorded low floral diversity within the development footprint, with no notable indigenous ethnobotanical species and a single individual of Catharanthus roseus observed. Protected tree species, namely Boscia albitrunca and Spirostachys africana, occur in the surrounding bushveld outside the development footprint. Invasive alien plant species, including Argemone mexicana and Solanum mauritianum, were recorded within the footprint and require targeted management.

The surrounding bushveld and riparian-associated terrestrial habitats retain moderate ecological value and support bird species and dragonflies along the Olifants River. Within the disturbed footprint, faunal observations were limited to common species, including arachnids. Grazing livestock were also observed, contributing to reduced groundcover, soil compaction and suppression of indigenous vegetation recruitment.

The assessment indicates that the proposed bridge construction and associated road upgrades may result in localised impacts on terrestrial biodiversity, primarily through vegetation clearing, soil disturbance and temporary displacement of fauna. These impacts are considered manageable through the implementation of the recommended mitigation measures.

Impacts and Mitigation Measures

The proposed construction of the bridge across the Olifants River and the associated upgrading of Roads D5010 and D5021 will result in localised disturbance to the terrestrial and riparian environments. Potential impacts include vegetation removal, soil disturbance, soil compaction, loss of groundcover, habitat disturbance and displacement of fauna within and immediately adjacent to the development footprint. Construction activities may also facilitate the establishment and spread of invasive alien plant species in disturbed areas.

The Terrestrial Biodiversity Assessment identifies the following mitigation measures:

- Minimise the area affected by construction and clear only the vegetation required for the proposed development.
- Avoid erosion and manage the establishment and spread of invasive alien plant species.
- Maintain strict adherence to the approved development footprint to avoid indirect impacts on nearby protected trees, including *Boscia albitrunca* and *Spirostachys africana*, and intact bushveld habitat.
- Implement alien plant control targeting *Argemone mexicana* and *Solanum mauritianum* during construction and rehabilitation.
- Protect riparian-associated terrestrial habitat by preventing encroachment, unnecessary vegetation clearing and the stockpiling of materials near the Olifants River corridor.
- Manage livestock access during construction to reduce soil compaction, vegetation loss and interference with rehabilitation activities.
- Rehabilitate disturbed areas using locally appropriate indigenous species to stabilise the soil and prevent post-construction weed proliferation.

Implementation of these measures, together with compliance with the Environmental Management Programme (EMPr), is expected to limit biodiversity impacts and protect the ecological functioning of the surrounding bushveld and riparian-associated habitats.

Cumulative Impacts

When considered within the broader landscape context, the proposed bridge construction contributes incrementally to existing terrestrial biodiversity pressures already present in the area. Although the development footprint itself is highly disturbed and supports low ecological sensitivity, the cumulative effects arise when the project's impacts are viewed alongside ongoing regional habitat transformation, alien plant proliferation, and progressive fragmentation of bushveld and riparian-associated terrestrial habitats. The surrounding landscape has been subjected to long-term disturbance from historical land use, informal access routes, grazing, and the spread of invasive alien plants such as Mexican Poppy (Argemone mexicana) and Bugweed (Solanum mauritianum). Construction activities vegetation clearing, earthworks, machinery movement, and increased human presence add incrementally to these pressures by contributing to localised

habitat disturbance, soil compaction, and temporary faunal displacement. These impacts, although limited in scale, reinforce existing patterns of ecological degradation and edge-effect expansion within the region.

The footprint contains no notable indigenous ethnobotanical species, with only a single individual of Catharanthus roseus recorded, reflecting the already-modified nature of the site. However, the surrounding natural bushveld and riparian-associated terrestrial habitats continue to support faunal species such as birds, small mammals, reptiles, and invertebrates (including dragonflies along the riverbank). Any additional disturbance, however minor contributes to the cumulative reduction of intact habitat patches and microhabitat diversity across the landscape. Overall, the project's cumulative impact on terrestrial biodiversity is assessed as low to moderate, primarily due to the already-transformed condition of the footprint. Nonetheless, without effective mitigation, particularly strict footprint adherence, alien plant control, and protection of adjacent natural areas the project could contribute to the incremental decline of terrestrial ecological condition within the broader Olifants River corridor.

Conclusion and Recommendations

The Terrestrial Biodiversity Assessment concludes that the proposed bridge construction and associated road upgrades will occur within a disturbed and transformed footprint that supports low ecological sensitivity. Although the broader landscape falls within the Vulnerable Sekhukhune Plains Bushveld vegetation unit and is mapped as a CBA 1 adjacent to a CBA 2, the immediate development footprint has been significantly altered by historical land-use activities, livestock grazing, access routes, and the presence of disturbance-tolerant and invasive alien plant species.

The assessment indicates that no protected trees or sensitive flora occur within the development footprint, while the surrounding bushveld and riparian-associated habitats retain greater ecological value. The anticipated impacts on terrestrial biodiversity are considered localised, short-term and manageable through the implementation of the recommended mitigation measures.

The specialist recommends strict adherence to the approved development footprint, targeted control of *Argemone mexicana* and *Solanum mauritianum*, protection of riparian-associated terrestrial habitat, management of livestock access during construction, and rehabilitation of disturbed areas using locally appropriate indigenous species. The proposed development may be supported for approval, subject to strict compliance with the Environmental Management Programme (EMPr), applicable environmental and permitting requirements, and the implementation of the prescribed mitigation and rehabilitation measures.

3. AQUATIC IMPACT ASSESSMENT

Findings

The aquatic assessment was undertaken for the proposed upgrading of Road D5010 and Road D5021 and a new bridge over the Olifants River between Nkotokwane and Apel, within the Lepelle-Nkumpi and Fetakgomo Tubatse Local Municipalities in Limpopo Province. The project includes approximately 3.6 km of roadworks, five proposed borrow pits and construction water abstraction. The assessment identified a functioning river channel and riparian corridor at the proposed crossing. The field photographs recorded flowing water, gravel and sand margins, riparian vegetation, exposed bank faces, sediment bars, litter and fish capture. No wetlands were reported at the assessed site. However, the report notes that the absence of wetlands does not remove the need to assess the Olifants River and other watercourse features associated with the project.

Water-quality measurements recorded pH values of 7.2–7.5, electrical conductivity of 323–352 µS/cm, temperatures of 23.2–24.5 °C and dissolved oxygen concentrations of 6.54–7.80 mg/L. These measurements represent conditions recorded during the survey and do not establish annual water quality, compliance with resource quality objectives or the absence of contaminants. The macroinvertebrate records contained 27 taxonomic entries across the surveyed reach. Taxonomic richness was 21 at Site A, 16 at Site B and 20 at Site C. The reconstructed South African Scoring System Version 5 (SASS5) scores were 109, 80 and 109, respectively, while the Average Score Per Taxon (ASPT) values were 5.19, 5.00 and 5.45. The report does not assign a formal Present Ecological State (PES), MIRAI, fish response index or habitat integrity class because the required assessment inputs and reference information were not supplied.

The river channel, sediment bars, banks and riparian vegetation are identified as sensitive receptors during project design and construction. The principal anticipated impacts include sediment release, local habitat loss, bank destabilisation, hydraulic constriction, scour, contamination and interference with aquatic connectivity. The report indicates that residual hydraulic and habitat risks remain moderate in the indicative assessment because a new crossing and permanent infrastructure are proposed.

Impacts and Mitigation Measures

Construction-phase impacts

Construction activities, including excavation for bridge foundations and abutments, stockpiling, bank trimming and temporary access, may mobilise sediment into the river. Sediment may cover coarse substrates and affect marginal aquatic habitats. The report indicates that the initial sediment impact is high because of the direct connection to the river. Staged isolation, clean-water diversion, contained excavations and controlled

dewatering may reduce the impact, although the residual impact remains moderate pending confirmation of the construction method and monitoring arrangements.

Temporary works and unmanaged diversions may reduce flow conveyance, redirect water velocities, trap debris and interrupt aquatic passage. The report requires a continuously connected flow path and a flood contingency plan for the safe withdrawal of temporary equipment and materials. Concrete washout, uncured concrete, fuel, lubricants and contaminated water may cause chemical contamination. These sources should be physically separated from the river, with contained washout and refuelling areas, equipment inspections and spill-response arrangements. Riparian vegetation clearance and bank access may remove root reinforcement and habitat cover. The report notes that rehabilitation cannot automatically replace mature woody vegetation or reverse the effects of a permanent footprint. Clearance should therefore be limited to the approved footprint, and retained vegetation should be protected.

Operational and cumulative impacts

Bridge piers and abutments may alter flow velocities and result in scour and sediment deposition. The report states that bridge length alone does not demonstrate hydraulic suitability; hydraulic modelling, cross-sections, pier orientation, debris allowance and scour design are required. The residual hydraulic impact remains moderate until channel and floodplain connectivity have been demonstrated. Road and bridge runoff may transport sediment, vehicle contaminants and spill residues into the river. Drainage should discharge through stable and maintainable outlets, with energy dissipation and treatment where required, while avoiding bank erosion, perched barriers and concentrated discharge. The report also identifies existing riparian pressures, including erosion, litter and surrounding land use. Potential additional effects associated with the project and possible increased access to the riverbank are considered in the cumulative assessment.

Mitigation measures

The report recommends that:

- Hydraulic modelling demonstrates flow conveyance, debris clearance and scour stability.
- The main river channel remains in its existing alignment unless a diversion is separately justified, assessed and authorised.
- The permanent support and protection works occupy the smallest practical habitat footprint.
- The seasonal drainage feature beside Road D5010, every proposed culvert and each borrow pit be checked for watercourse and drainage interactions.

- Construction earthworks be scheduled for suitable low-flow conditions using current river levels and rainfall forecasts.
- Construction proceeds in manageable stages with a continuously connected flow path, contained excavations and a practical flood withdrawal plan.
- Fuel, concrete washout, waste and stockpiles be kept physically separate from the protected river corridor.
- Riparian clearance be restricted to the approved footprint, retained vegetation be marked, and exposed temporary surfaces be protected against runoff.
- Water-quality and habitat monitoring, together with Environmental Control Officer oversight, be operational before in-channel work begins.
- Road and bridge drainage be maintained, scour be inspected after substantial flows, and temporarily disturbed areas be rehabilitated.
- The proposed water abstraction be supported by an instantaneous pumping rate, operating schedule, low-flow controls and intake protection.

Conclusion and Recommendations

The assessment provides a river-focused aquatic baseline for the proposed Olifants River crossing. The field records document the river habitat, water-quality measurements and macroinvertebrate observations. Although the available information does not establish a formal integrated ecological condition or demonstrate that the river corridor has low sensitivity, site observation and experience point towards a low sensitivity corridor. The report concludes that the proposed crossing may remain under consideration if the final design retains river continuity, minimises permanent habitat occupation and demonstrates acceptable hydraulic and scour performance. Although mitigation can reduce some construction impacts, its effectiveness must be demonstrated through implementation and monitoring. Permanent habitat and hydraulic effects remain material and should not automatically be assigned low residual significance. Before the assessment can support a final ecological acceptability decision, the report identifies outstanding matters that require completion. These include confirming the watercourse and riparian boundaries, verifying drainage crossings and borrow-pit locations, completing the current water-use risk assessment, and implementing the required construction and monitoring measures. This was done in the Hydrological study report and confirms low residual significance on mitigation.

4. HYDROLOGY IMPACT ASSESSMENT

Specialist opinion

From a hydrological perspective, the project can proceed with the construction of the bridge and access roads, provided that the engineers and contractors consider the potential for the river channel to shift towards the right bank due to channel instability. The specialist states that they must also consider the soil types, river flow, flooding, erosion, and scouring around the bridge foundations. The engineers and geotechnical specialists must ensure that these factors are adequately addressed in the existing design to maintain the safety and stability of the bridge and access roads. The bridge design must also confirm the required flood levels, bridge opening sizes, and foundation protection measures. Therefore, the hydrologist gives the go-ahead for the project to proceed, subject to these considerations being addressed by the relevant engineers and specialists and all applicable regulatory requirements being met.

Limitations and Assumptions

This report is based on the information currently available. The following limitations and assumptions should be considered:

- The site visits on 3 October 2026 took place in early spring in Limpopo. The visit provided an opportunity to observe the river channel, bank stability and signs of past flooding. However, one site visit cannot show all seasonal river conditions or how the river behaves during extreme floods.
- A bridge may meet the hydraulic design requirements but still affect river life and the natural environment. The hydrology findings should therefore be linked to the aquatic ecology assessment to identify possible impacts and suitable ways to reduce them. It is assumed that continuous monitoring of the aquatic biodiversity prior, during and post proposed bridge and access roads construction will always be conducted by designated aquatic specialist as per instruction from the project management team.
- Construction may increase flood risks, cause soil erosion and allow sediment and pollutants to enter the river, even if the completed bridge is designed to handle floods safely.
- Assessing the bridge on its own may not show its full effect on the wider river catchment. The assessment should also consider how the project may contribute to flooding, erosion and changes in the natural flow of the river.

Findings

The Hydrology Impact Assessment was undertaken by Pragmatic Scientific Services (Pty) Ltd (PSS) on behalf of QEMS Management and Business Solutions CC (QEMS) for Roads Agency Limpopo (RAL). The proposed development entails the upgrading of Roads D5010 and D5021 between Apel and Nkotokwane villages, including the construction of a bridge across the Olifants River in Limpopo Province.

The proposed project includes upgrading Road D5010 from gravel to a bituminous surface standard over approximately 2.2 km and constructing a new 1.4 km section of Road D5021. The proposed bridge is approximately 140 m long, with an area of 1,687 m². The total length of the proposed road works is approximately 3.6 km.

The Environmental Screening Report dated 28 April 2026 identifies rivers and aquatic biodiversity as very-high-sensitivity environmental features. A detailed hydrological survey was undertaken on 3 October 2026. The field inspection identified a defined river channel, active flowing water, pools, riffles, wetland and seepage features, and a tributary entering the study area. Evidence of previous elevated flows included flood deposits, flood debris and vegetation damage. Erosion, channel incision, sediment deposition, bank instability and localised scour were also observed, particularly along the right bank facing downstream. The surrounding land uses include wetlands, agriculture, livestock farming and human settlements. Solid waste, including disposable nappies, clothing and glass bottles, was observed in the river environment.

The principal hydrological and environmental risks identified include:

- Flooding and potential overtopping of the proposed bridge and approach roads.
- Changes in flood levels and floodplain conveyance due to bridge construction and road upgrading.
- Localised scour in and around proposed bridge piers, abutments and foundations.
- Riverbank erosion, channel instability and sediment mobilisation.
- Potential obstruction of flow by bridge components or flood debris.
- Temporary construction works and possible river diversions.
- Pollution and sediment release during construction.
- Potential alteration of longitudinal and lateral river connectivity, with implications for aquatic biodiversity and the River Continuum Concept (RCC).

- Potential changes in extreme rainfall and flood behaviour under future climate conditions.

The available field evidence does not independently establish the rate or direction of channel migration, the magnitude of design flood events, the location of the thalweg during extreme flows or the future likelihood of channel avulsion.

Impacts and mitigation measures

The report identifies the following potential impacts and recommended mitigation measures.

Potential impact	**Project phase**	**Recommended mitigation**
Alteration of flow conveyance	Construction and operation	Optimise bridge opening and avoid unnecessary channel constriction
Increased upstream flood levels	Operation	Model existing and proposed conditions and revise design if necessary
Localised scour	Construction and operation	Complete scour assessment and provide suitable foundation protection.
Riverbank erosion	Construction and operation	Stabilise disturbed banks and manage concentrated runoff
Sediment mobilisation	Construction	Implement erosion and sediment-control measures
Temporary flow obstruction	Construction	Design and manage temporary works to maintain safe flow conveyance
Pollution of the watercourse	Construction and operation	Implement spill prevention and waste management procedures
Wetland and riparian disturbance	Construction	Minimise the construction footprint and rehabilitate disturbed areas

Flood debris accumulation	Operation	Provide suitable hydraulic clearance and implement inspection and maintenance
Altered sediment continuity	Construction and operation	Minimise channel constriction and avoid unnecessary interruption of sediment transport

The report states that mitigation should follow the sequence of avoidance, minimisation, rehabilitation and, where applicable, compensation.

Avoidance

- Avoid unnecessary disturbance to the active channel, wetlands and riparian areas.
- Locate temporary works and access routes outside sensitive areas where practicable.
- Avoid bridge configurations that unnecessarily constrict the river or obstruct floodplain flow.

Minimisation

- Optimise the bridge opening using hydraulic modelling.
- Limit in-channel works and the duration of temporary flow restrictions.
- Prevent uncontrolled runoff and sediment release.
- Protect foundations, banks and approach embankments against identified erosion and scour mechanisms.
- Prevent fuel, concrete, waste and other contaminants from entering the watercourse.

Rehabilitation

- Reinstate disturbed riverbanks and riparian areas.
- Stabilise exposed soil and drainage outlets.
- Remove temporary obstructions and surplus construction materials.
- Restore disturbed areas using appropriate indigenous vegetation, where suitable.

Compensation

Compensatory measures should only be considered where required by the applicable authorisation process and where residual impacts cannot be avoided, minimised or adequately rehabilitated.

The report further recommends that the Environmental Management Programme (EMPr) include the following requirements:

- Carry out construction between April and September, where possible, to reduce the risk of flooding.
- Check weather forecasts and river water levels regularly.
- Stop work near the river when heavy rain or rising water levels create a safety risk.
- Keep construction materials, machinery and temporary structures away from areas that may flood.
- Keep the river channel clear so that water can flow freely.
- Ensure that the bridge opening is large enough to allow floodwater to pass safely.
- Prepare an emergency plan for floods, including safe routes for workers and machinery.
- Inspect the site after heavy rain or flooding and repair any damage.
- Clear vegetation only where construction is necessary.
- Avoid unnecessary disturbance of the riverbed, riverbanks, wetlands and nearby habitats.
- Keep machinery out of the river wherever possible.
- Prevent fuel, oil, cement and other harmful materials from entering the river.
- Do not dump soil, waste or building materials into the river.
- Use suitable measures to stop soil from washing into the river.
- Protect natural vegetation along the riverbanks wherever possible.
- Replant disturbed areas with suitable indigenous plants after construction.
- Follow the recommendations of the aquatic biodiversity specialist and obtain the required approvals before working in the river.

Conclusions and recommendation

Based on the investigation, the site visits on 3 October 2026 found that the river is flowing and has a clear channel. Water was also entering from a tributary. Signs of past high-water levels, riverbank erosion, a deep

riverbed and sediment build-up were observed. Erosion and riverbed deepening were more noticeable along the right bank when facing downstream, while sediment had built up along the left bank. These observations suggest that the river channel may be changing and could move sideways over time. This must be considered carefully in the current design of the proposed Apel–Nkotokwane bridge and access roads.

The seasonal tributary near Nkotokwane village, next to Gwara Gwara Primary School, should be considered in the design of both the proposed bridge and access roads. The tributary carries water into the main river during rainfall and may affect flood levels, drainage, erosion and sediment movement around the bridge and road approaches. From a hydrological perspective, the project can proceed with the construction of the bridge and access roads, provided that the engineers and contractors consider the potential for the river channel to shift towards the right bank due to channel instability. They must also consider the soil types, river flow, flooding, erosion, and scouring around the bridge foundations.

The engineers and geotechnical specialists must ensure that these factors are adequately addressed in the existing design to maintain the safety and stability of the bridge and access roads. The bridge design must also confirm the required flood levels, bridge opening sizes, and foundation protection measures.

Stabilising the banks of the river will help prevent or reduce any environmental degradation and water should be allowed to flow downstream to maintain the environmental water requirements (EWR). The overall impact on the hydrological cycle will be neutral and largely positive for the riverbanks and soils associated with the project.

The proposed bridge and access roads should be considered acceptable from a hydrology perspective only if the assessment findings are included in the design, appropriate mitigation measures are applied, and all required environmental and water-use approvals are in place. Therefore, the hydrologist gives the go-ahead for the project to proceed, subject to these considerations being addressed by the relevant engineers and specialists and all applicable regulatory requirements being met.

5. HERITAGE/ARCHEOLOGICAL IMPACT ASSESSMENT

Findings

Mudzunga Consulting & ICT (Pty) Ltd was appointed by QEMS Management & Business Solutions (Pty) Ltd, on behalf of Road Agency Limpopo (RAL), to conduct a Phase 1 Archaeological and Heritage Impact Assessment (AIA/HIA) for the proposed bridge construction and upgrading of Roads D5010 and D5021 between Nkotokwane and Apel, within the Lepelle-Nkumpi and Fetakgomo Tubatse Local Municipalities of Limpopo Province.

The study was conducted in terms of Section 38(8) of the National Heritage Resources Act (NHRA), Act No. 25 of 1999. Desktop studies, drive-through surveys and field walking were undertaken to identify heritage resources within the proposed bridge construction site and road servitude. The field survey was conducted on 25 September 2026 by a team of two archaeologists.

The study site is not in a pristine environment, having experienced significant transformations due to previous and current land-use activities, including road construction and agriculture. Some sections of the proposed bridge construction site are severely degraded from previous gravel extraction.

The general project area is known for the occurrence of archaeological and historical sites. However, the survey did not identify any confirmable archaeological remains within the proposed bridge construction site and road servitude.

The findings of the field study are summarised as follows:

- Archaeology: The survey did not record any archaeological sites within the proposed borrow pit site and along the road earmarked for upgrading. The receiving environment for the proposed bridge construction site has low to medium potential to yield previously unidentified archaeological sites during construction and mining.
- Burial grounds and graves: The survey did not record any graves and burial sites within the proposed bridge site and road servitude. The possibility of encountering previously unidentified and unmarked graves is very low on the proposed bridge construction site.
- Public monuments and memorials: The study did not record any public memorials and monuments along the road earmarked for upgrading and the proposed bridge construction site.
- Built environment: The study did not identify any buildings and structures which qualify for protection in terms of Section 34 of the NHRA.
- Visibility and constraints: Some sections of the proposed bridge construction site were not visible due to dense vegetation. However, the field survey was effective enough to cover significant sections of the project area.

The report further indicates that archaeological remains and unmarked graves may exist beneath the surface and may be encountered during excavations along the road servitude and bridge construction site. The potential for encountering accidental finds ranges from low to medium along the road and the proposed bridge construction and road servitude.

Impacts and mitigation measures

The report identifies the potential loss of heritage as an impact associated with the proposed development. The main cause of impacts on archaeological sites is direct physical disturbance of the archaeological remains themselves and their contexts. The primary impacts are likely to occur during clearance, while indirect impacts may occur during the movement of heavy construction vehicles. Additional excavation for foundations or temporary camp sites may result in the relocation or destruction of existing surface heritage materials, if present. Similarly, clearing of access roads may impact material buried in the topsoil.

The report states that the Sekhukhune area is known for the occurrence of shallow unmarked graves. As such, the construction teams must be inducted on how to identify heritage resources during clearing and construction and on the reporting procedure in accordance with the appended Chance Find Procedure.

A copy of the Chance Find Procedure must be kept at the site office to ensure appropriate management of any accidental finds during the operational phase. Should archaeological materials or human remains be exposed during construction activities, work must be stopped forthwith, and the finds must be reported to the South African Heritage Resources Agency (SAHRA) or the heritage practitioner for investigation and evaluation.

Cumulative impacts

Cumulative impacts are defined as impacts that result from incremental changes caused by other past, present, or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed bridge construction and road upgrade is considered the total impact associated with the proposed project when combined with other past, present, and reasonably foreseeable future development projects. The impacts of the proposed bridge construction and road upgrade were assessed by comparing the post-project situation to a pre-existing baseline. This section considers the cumulative impacts that would result from the combination of the proposed bridge construction. This proposed bridge construction and road upgrade, combined with other proposed project activities, will transform the landscape and will spoil the visual quality of the area, especially the proposed bridge construction site. The cumulative impact will negatively affect the landscape quality of the area, which is ordinarily considered to be a source. The frequency of development proposals in the area has the potential to collectively change the character of the landscape. The once-isolated landscape will see volumes of people establishing temporary camp sites during construction. However, the impact is rated low.

Conclusion and recommendations

The study identified no significant archaeological remains within the proposed development sites. Similarly, in terms of Section 36, the study did not identify any graves and burial grounds within the proposed development site. Regarding the built environment, the study did not identify any buildings or structures that qualify for protection under Section 34 of the NHRA.

The Sekhukhune area is known for the occurrence of shallow unmarked graves. The potential for encountering accidental finds ranges from low to medium along the road and the proposed bridge construction and road servitude. The procedure for reporting chance finds has clearly been laid out, and if this report is adopted by SAHRA, then there are no archaeological reasons why the proposed bridge construction site and road upgrade area cannot be approved.

The report makes the following recommendations:

- It is recommended that SAHRA endorse the report as having satisfied the requirements of Section 38(8) of the NHRA.
- It is recommended that SAHRA decide in terms of Section 38(4) of the NHRA to approve the proposed bridge construction and the upgrading of access roads D5010 and D5021.
- From a heritage perspective, supported by the findings of this study, the proposed bridge construction and the upgrading of access roads D5010 and D5021 are supported. However, the proposed bridge construction application should be approved under the condition that other activities do not extend beyond the area considered in this report, and measures must be put in place to protect the identified burial sites.
- Should chance archaeological materials or human remains be exposed during clearing and construction work on any section of the proposed bridge construction and road upgrade, work should cease on the affected area, and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA regulations.
- Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMPR, there are no significant cultural heritage resource barriers to the proposed bridge construction and road upgrade. SAHRA may approve the proposed bridge construction application and road upgrade from a heritage perspective, subject to recommendations provided in this report.

The report concludes that the impacts of the proposed bridge construction and road upgrade on the cultural environmental values are not likely to be significant on the entire site if the EMP includes the recommended safeguard and mitigation measures identified in this report.

6. HERITAGE/ARCHEOLOGICAL IMPACT ASSESSMENT

Assumptions and Limitations

All data from published sources is accurate and valid at the time of publication.

The scope of this study is limited to assessing the potential social impacts arising as a result of the establishment of an integrated agriculture project with associated infrastructure.

Findings

The Social Impact Assessment (SIA) was undertaken for the proposed construction and upgrading of Roads D5010 and D5021, including the installation of associated culverts and construction of a bridge across the Olifants River, within Apel and Nkotokwane villages, Limpopo Province.

The proposed development includes:

- Upgrading of approximately 2.2 km of Road D5010.
- Construction of approximately 1.4 km of the new section of Road D5021.
- Construction of an approximately 140 m bridge across the Olifants River, with a footprint of approximately 1,687 m².
- Total proposed road works of approximately 3.6 km.

The socio-economic profile of Apel and Nkotokwane reflects characteristics and challenges commonly associated with rural settlements in Limpopo Province. These communities experience socio-economic challenges relating to unemployment, poverty, limited economic opportunities and access to essential services.

The socio-economic profile uses data from the 2011 Census conducted by Statistics South Africa (Stats SA), as this is the latest national population census offering detailed village-level insights. The report notes that the data is more than a decade old and may not accurately reflect the current demographic and socio-economic conditions of these areas.

The following socio-economic characteristics were identified:

- Population: Apel has a total population of 2,096, while Nkotokwane has a total population of 689.

- Gender: Apel has 43% males and 57% females, while Nkotokwane has 55% males and 45% females.
- Dependency: Apel has a total dependency percentage of 47.53%, while Nkotokwane has 37.99%.
- Education: The report identifies differences in education outcomes between the two villages, with some secondary education recorded at 37.8% in Apel and 42.4% in Nkotokwane.
- Household income: No income is recorded for 28.7% of households in Apel and 15% in Nkotokwane.
- Refuse removal: Own refuse dumps account for 94% in Apel and 98.5% in Nkotokwane.
- Toilet facilities: Pit toilets without ventilation account for 67.3% in Apel and 76.7% in Nkotokwane.
- Internet access: No internet access is recorded for 84.2% of households in Apel and 95.5% in Nkotokwane.
- Water sources: River/stream accounts for 34.7% in Apel and 95.5% in Nkotokwane.

The desktop review and site observations identified the following receptor groups that may be affected by the proposed development:

- Local communities residing in Apel, Nkotokwane and surrounding settlements along the proposed road alignments.
- Road users, including pedestrians, cyclists, public transport operators and motorists.
- Local businesses, traders and service providers.
- Vulnerable groups, including women, children, youth, elderly persons, persons with disabilities and low-income households.
- Local job seekers and community members who may benefit from temporary employment opportunities during construction.
- Municipal and traditional authority structures within the study area.

The assessment indicates that the proposed development has the potential to generate positive socio-economic benefits while also resulting in certain adverse social impacts. The anticipated benefits include temporary employment creation, skills development, local procurement opportunities and improved access to social and economic facilities.

Impacts and Mitigation Measures

Positive impacts

The following potential positive impacts were identified:

- Temporary Employment Opportunities: The construction phase may create temporary employment opportunities for local residents.
- Increased Income Opportunities: Local businesses, suppliers and service providers may benefit from increased economic activity and expenditure associated with the construction workforce and project operations.
- Skills Development and Knowledge Transfer: Construction activities may provide opportunities for local community members to acquire practical skills and experience in road construction, bridge construction, civil engineering works, traffic management, occupational health and safety, and general construction activities.
- Improved Road Accessibility and Connectivity: The construction and upgrading of Roads D5021 and D5010, together with the construction of the Olifants River bridge, is expected to improve connectivity between Apel, Nkotokwane and surrounding settlements.
- Improved Road Safety and Mobility: The proposed road improvements, including associated culverts and bridge infrastructure, may improve road conditions and facilitate safer and more reliable movement for motorists, pedestrians and other road users.
- Improved Access to Social and Economic Opportunities: Improved road connectivity may enhance access to essential services and facilities, including healthcare centres, schools, commercial facilities and public transport services.
- Municipal Revenue and Regional Development: The project may contribute indirectly to local economic growth through temporary employment, procurement of local goods and services, and increased business activity.

Negative impacts

The following potential negative impacts were identified:

- Increased Pressure on Local Employment Expectations: The proposed development may raise expectations of employment among residents of Apel, Nkotokwane and surrounding communities. However, if the available construction jobs are limited or do not meet community expectations, this may result in frustration, dissatisfaction or tension among local residents.

- Influx of Job Seekers: The proposed project may attract job seekers from surrounding villages and nearby towns in search of temporary employment opportunities. If the number of job seekers exceeds the available positions, this may increase competition for employment and potentially place additional pressure on local social networks and services.
- Impacts on Land Use and Access: The construction of the roads, bridge, culverts and associated infrastructure may require land clearance and temporary occupation of certain areas. This could affect existing land uses, access routes, pedestrian pathways and activities taking place within or adjacent to the proposed road reserves.
- Traffic and Road Safety Impacts: Increased movement of construction vehicles, machinery and trucks transporting materials may affect traffic conditions along the existing roads. Potential impacts may include increased traffic volumes and congestion, temporary disruption to normal traffic flow, restricted access to properties and community facilities, increased risk of accidents involving motorists, pedestrians and cyclists, and potential safety risks associated with construction activities near public roads and the Olifants River crossing.
- Dust and Noise Disturbance: Construction activities, including vegetation clearing, excavation, earthworks, transportation of materials and operation of construction machinery, may generate dust and noise.
- Pressure on Local Infrastructure and Services: Construction activities and the presence of construction workers may result in additional demand for existing road networks and access routes, water supply facilities, waste management services and local social and community facilities.
- Social Tension and Inequality Risks: Competition for temporary employment opportunities, procurement contracts and other project-related benefits may result in disagreements among individuals or communities if opportunities are not communicated and allocated transparently and fairly.

Impacts on vulnerable groups

Certain groups within Apel, Nkotokwane and surrounding communities may be more vulnerable to project-related impacts due to their socio-economic circumstances and dependence on local infrastructure and services. These include:

- Unemployed youth and job seekers who may have expectations of temporary employment opportunities during the construction phase.

- Women, who may be disproportionately affected by temporary disruptions to access routes, public facilities and essential services.
- Elderly residents and persons with disabilities, who may experience difficulties navigating temporary road diversions, restricted access routes and construction areas.
- Children and school-going learners, who may face increased road safety risks due to construction traffic and changes in pedestrian movement.
- Low-income households, which may be more vulnerable to disruptions in mobility, access to services and local economic activities.

These groups may experience both positive and negative impacts. Positive effects may include temporary employment opportunities, improved accessibility and enhanced connectivity, while potential negative effects may include construction-related disturbances, restricted access and increased road safety risks.

Mitigation measures

The report recommends the following mitigation measures:

Employment and local economic development

- Prioritise local labour.
- Ensure fair recruitment processes.
- Provide basic skills training.
- Recruit locally and provide fair wages.
- Maintain preference for local hiring.

Stakeholder engagement and communication

- Continuous engagement should be maintained with traditional authorities, ward councillors, municipal representatives, community leaders, Interested and Affected Parties (I&APs) and surrounding communities.
- A formal grievance mechanism should be established to provide community members with an accessible and transparent process for raising concerns and obtaining feedback.
- Regular communication regarding project progress, construction activities, employment opportunities, traffic arrangements and potential disruptions should be provided to affected communities.

Skills development and capacity building

- Promote skills transfer and on-the-job training opportunities.
- Provide opportunities for local community members to gain practical experience in road construction, bridge construction, culvert installation, traffic management and occupational health and safety.
- Encourage contractors to provide relevant training and mentorship to local workers.

Management of construction-related impacts

- Implement appropriate measures to minimise dust generation, noise disturbance, traffic disruptions and safety risks.
- Carefully manage construction traffic to reduce potential impacts on existing roads, pedestrians, cyclists, motorists and community access routes.
- Provide safe pedestrian access and suitable temporary traffic accommodation measures where construction activities affect existing roads, pathways or access to properties and community facilities.
- Require contractors to comply with applicable environmental, health and safety requirements, approved management plans and good housekeeping practices.
- Install appropriate signage, barriers and traffic control measures around construction areas, particularly near the Olifants River bridge construction site.

Water resource and environmental management

- Carefully manage and monitor water use during construction to avoid unnecessary pressure on available water resources.
- Implement appropriate measures to prevent pollution of surface water and groundwater, particularly in areas near the Olifants River and associated watercourses.
- Implement erosion and sediment control measures during earthworks, excavation, culvert installation and bridge construction.
- Appropriately store, handle and dispose of construction waste, excavated material and hazardous substances.
- Rehabilitate disturbed areas following the completion of construction activities, where applicable.

Community health and safety

- Implement appropriate occupational and public safety measures to protect construction workers, residents and other road users.
- Clearly demarcate construction areas and restrict unauthorised access, particularly where excavations, heavy machinery and bridge construction activities present safety risks.
- Provide road safety awareness and communication to local communities, particularly children, pedestrians and other vulnerable road users.
- Establish emergency response procedures to address accidents, injuries, spills and other incidents that may occur during construction.

Conclusion and Recommendations

Conclusion

The socio-economic profile of Apel and Nkotokwane reflects characteristics and challenges commonly associated with rural settlements in Limpopo Province. These communities experience socio-economic challenges relating to unemployment, poverty, limited economic opportunities and access to essential services.

The Social Impact Assessment (SIA) undertaken for the proposed construction and upgrading of Roads D5010 and D5021, including the installation of associated culverts and construction of a bridge across the Olifants River, indicates that the project has the potential to generate positive socio-economic benefits while also resulting in certain adverse social impacts.

The assessment concludes that the anticipated benefits are likely to outweigh the potential negative impacts, provided that appropriate mitigation measures and social management interventions are implemented throughout the project lifecycle.

Overall, the identified social impacts are considered to be largely localised, manageable and capable of being effectively mitigated through the implementation of appropriate environmental and social management measures.

The proposed construction and upgrading of Roads D5010 and D5021, including the associated culverts and Olifants River bridge, is therefore considered socially acceptable, provided that the recommended mitigation measures are implemented.

RecommendationsIn order to maximise the positive socio-economic benefits of the proposed road construction and upgrading project and minimise potential adverse impacts, the following recommendations are made:

Employment and Local Economic Development

- Priority should be given to the employment of suitably qualified local residents from Apel, Nkotokwane and surrounding communities, particularly for low-skilled and semi-skilled positions during the construction phase.
- Transparent, fair and well-communicated recruitment procedures should be implemented to manage community expectations and minimise the risk of conflict, perceptions of favouritism or social exclusion.
- The project should seek to maximise local procurement opportunities by sourcing goods, services and materials from local businesses and suppliers wherever feasible.
- Opportunities for Small, Medium and Micro Enterprises (SMMEs), local contractors and service providers should be promoted to support local economic development and broaden the distribution of project benefits.

Stakeholder Engagement and Communication

- Continuous engagement should be maintained with traditional authorities, ward councillors, municipal representatives, community leaders, Interested and Affected Parties (I&APs) and surrounding communities throughout the planning and construction phases, as well as where relevant during operation.
- A formal grievance mechanism should be established to provide community members with an accessible and transparent process for raising concerns and obtaining feedback.
- Regular communication regarding project progress, construction activities, employment opportunities, traffic arrangements and potential disruptions should be provided to affected communities.

Skills Development and Capacity Building

- The project should promote skills transfer and on-the-job training opportunities to enhance the long-term employability and capacity of local residents.
- Where possible, opportunities should be provided for local community members to gain practical experience in road construction, bridge construction, culvert installation, traffic management and occupational health and safety.
- Contractors should be encouraged to provide relevant training and mentorship to local workers to support the development of transferable construction-related skills.

Management of Construction-Related Impacts

- Appropriate measures should be implemented to minimise dust generation, noise disturbance, traffic disruptions and safety risks during construction activities.
- Construction traffic should be carefully managed to reduce potential impacts on existing roads, pedestrians, cyclists, motorists and community access routes.
- Safe pedestrian access and suitable temporary traffic accommodation measures should be provided where construction activities affect existing roads, pathways or access to properties and community facilities.
- Contractors should be required to comply with applicable environmental, health and safety requirements, approved management plans and good housekeeping practices throughout the construction phase.
- Appropriate signage, barriers and traffic control measures should be installed around construction areas, particularly near the Olifants River bridge construction site and other areas where public safety may be affected.

Water Resource and Environmental Management

- Water use during construction should be carefully managed and monitored to avoid unnecessary pressure on available water resources and to prevent adverse effects on surrounding communities and existing water users.
- Appropriate measures should be implemented to prevent pollution of surface water and groundwater, particularly in areas near the Olifants River and associated watercourses.
- Erosion and sediment control measures should be implemented during earthworks, excavation, culvert installation and bridge construction to minimise sediment runoff into nearby water resources.
- Construction waste, excavated material and hazardous substances should be appropriately stored, handled and disposed of to prevent environmental contamination.
- Disturbed areas should be rehabilitated following the completion of construction activities, where applicable, to minimise erosion and restore affected areas.

Community Health and Safety

- Appropriate occupational and public safety measures should be implemented to protect construction workers, residents and other road users throughout the construction phase.

- Construction areas should be clearly demarcated, and unauthorised access should be restricted, particularly where excavations, heavy machinery and bridge construction activities present safety risks.
- Road safety awareness and communication should be provided to local communities, particularly children, pedestrians and other vulnerable road users.
- Emergency response procedures should be established to address accidents, injuries, spills and other incidents that may occur during construction.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

Site notices were strategically positioned in various locations within the project vicinity to notify the public about the proposed development. Proof of site notice placement will be attached as Appendix E4.

3. DETERMINATION OF APPROPRIATE MEASURES

Draft reports were circulated to the following stakeholders:

Ward councillor (Ward 25)

Ward councillor (Ward 33)

Ward councillor (Ward 35)

Nkotokwane Tribal Authority

Apel Tribal Authority

Fetakgomo Tubatse Local Municipality

Sekhukhune District Municipality

Lepelle-Nkumpi Local Municipality

Capricorn District Municipality

Department of Agriculture and Rural Development

LOCMA

Limpopo Heritage Resources Agency

Department of Forestry, Fisheries and Environment: Forestry Section

4. COMMENTS AND RESPONSE REPORT

At this stage, no comments have been received. Comments received during the public participation process will be consolidated and included as Appendix E.

5. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and/or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application, and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

Name of Authority informed:	**Comments received (Yes or No)**
Fetakgoo Tubatse Local Municipality	No comments have been received at this stage. However, the draft BAR has been submitted to the municipality.
Sekhukhune District Municipality	No comments have been received at this stage. However, the draft BAR has been submitted to the municipality.
Lepelle-Nkumpi Local Municipality	No comments have been received at this stage. However, the draft BAR has been submitted to the municipality.
Capricorn District Municipality	No comments have been received at this stage. However, the draft BAR has been submitted to the municipality.
Limpopo Department of Agriculture	No comments have been received at this stage. However, the draft BAR has been submitted to the department.
Limpopo Department of Economic Development, Environment and Tourism	No comments have been received at this stage. However, the draft BAR has been submitted to the department.
LEDET Biodiversity Section	No comments have been received at this stage. However, the draft BAR has been submitted to the department.
Limpopo Heritage Resources Authority Under Department of Sports, Art and Culture	No comments have been received at this stage. However, the draft BAR has been submitted to the department.
Office of the Regional Land Claims Commissioner Limpopo	No comments have been received at this stage. However, the draft BAR has been submitted to the department.

Limpopo Olifants Catchment Management Agency	No comments have been received at this stage. However, the draft BAR has been submitted to the department.
Department of Forestry Fisheries and Environment	No comments have been received at this stage. However, the draft BAR has been submitted to the department.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the department.

Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders? **NO**

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Comments received during the public participation process will be consolidated and included as

Appendix E to the Final BAR.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

At this stage, no comments have been received. Any issues or comments raised by Interested and Affected Parties (I&APs) during the public participation process will be consolidated and included in Appendix E.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

At this stage, no comments have been received. CRR will be attached as an Appendix E to the Final BAR.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative (preferred alternative)

1. Planning and Design Phase

- **Direct Impacts**
  - Inappropriate bridge alignment or road design could result in unnecessary disturbance and loss of sensitive terrestrial and aquatic habitats.
  - Lack of project-required documentation
- **Indirect Impacts**
  - Land use conflicts with nearby communities if grazing land is reduced.
  - Potential displacement of informal land uses (e.g., community gardens, grazing).
- **Cumulative Impacts**
  - Incremental loss and fragmentation of natural habitat within the CBA 2 when considered together with existing and future infrastructure developments in the surrounding area.
  - Increased pressure on the Olifants River and associated aquatic ecosystems when combined with other developments and activities within the catchment.
- **Mitigation**
  - Conduct site screening and sensitivity mapping.
  - Choose designs with proper waste and water management systems.
  - Consult traditional authorities and communities to align with existing land use.
  - Ensure all licenses are obtained before project implementation

2. Construction phase

- **Direct Impacts**
  - Vegetation clearance → loss of habitat.
  - Dust and noise generation → nuisance to nearby households.
  - Loss of a CBA2 zone

- Loss of protected plant species
- Habitat fragmentation
- Waste generation → risk of illegal dumping if unmanaged.
- Changes in land use and land cover
- Reduction of grazing land

- **Indirect Impacts**
  - Temporary influx of workers could place pressure on local services.
- **Cumulative Impacts**
  - Combined dust, noise, and traffic effects if multiple projects are underway nearby.
- **Mitigation**
  - Limit clearance to footprint; maintain buffer zones.
  - Implement dust suppression and restrict working hours.
  - Dispose of rubble at Fetakgomo Tubatse Landfill Site (Fetakgomo Tubatse Waste Disposal Site) and recycle materials.
  - Use local labour where possible to maximise benefits.

3. Decommissioning and Closure Phase

- **Direct Impacts**
  - Abandoned or poorly rehabilitated infrastructure may result in long-term visual and environmental impacts.
- **Indirect Impacts**
  - Decommissioning activities may temporarily affect local businesses and road users.
- **Cumulative Impacts**
  - Increased traffic, noise, dust, and habitat disturbance may combine with impacts from existing and future infrastructure within the area.
- **Mitigation**
  - Secure the site during the decommissioning period to prevent unauthorised access, illegal dumping, vandalism, or use of abandoned infrastructure as hideouts.

METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF IMPACTS

The list of identified impacts for the proposed crop farming development will be evaluated using several rating scales as listed below. These ratings include extent, duration, intensity, significance, status of

impact, and probability. The calculations of the significance of the impacts are then simplified as follows.

Significance = (Extent + Duration + Intensity) × Probability

The rating system is described below in table format.

Table 2: Assessment Methodology

Criteria: STATUS – Describes whether the impacts would have a negative, neutral or positive effect on the affected environment.		
RATING		**DESCRIPTION**
+	Positive	Benefit to the environment
=	Neutral	Standard/impartial
-	Negative	Cause damage to the environment
Criteria: PROBABILITY – Describes the likelihood of impact occurring.		
RATING		**DESCRIPTION**
0	Improbable	Where the possibility of the impact occurring is low.
1	Probable	Where there is a distinct possibility that the impact will occur.
2	Highly probable	Where it is most likely that the impact will occur.
3	Definite	Where the impact will occur regardless of any prevention measures.

Criteria: DURATION –Defines the temporal scale (For how long will the impact endure).		
RATING		**DESCRIPTION**
1	Immediate	Less than 1 year
2	Short term	1-5 years
3	Medium term	6-15 years
	Long term	Between 16-30 years

Criteria: INTENSITY NEGATIVE FOR ALL ASPECTS EXCEPT ECOLOGY Establishes whether the impact would be destructive or benign.			
STATUS	**RATING**		**DESCRIPTION**
Negative	0	Negligible	Where impacts do not really affect the environment and no mitigation is required.
	1	Low	Where the impacts will result in short-term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have a little real effect. (Marginally affected)
	2	Medium	Where impacts will result in medium-term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium-term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate.
	3	High	Where effects will be long-term on social, economic and/or bio-physical Environment. These will need to be considered as constituting usually long-term changes to the

			environment. Mitigation is considered challenging and expensive.
	4	Very High	Where impacts should be considered as constituting major and usually permanent changes to the environment, and usually result in severe to very severe effects. Mitigation would have little to no effect on irreversibility.

Criteria: INTENSITY POSITIVE FOR ALL ENVIRONMENTAL ASPECTS.			
STATUS	**RATING**		**DESCRIPTION**
Positive	0	Negligible	Where impacts affect the environment in such a way that natural, cultural and social functions and processes are not great and, in some instances, no mitigation measures will be required. (environment not really affected).
	1	Low	Minor improvement is anticipated over the short term in the social and/or natural environment.
	2	Medium	Where moderate improvements are anticipated over a medium- to long- term on the social and/or natural environment.
	3	High	Where large improvements are anticipated over a long-term period in the social, economic and/or bio-physical environment.
	4	Very high	This results in permanent improvements in the social/or natural environment.

Criteria: INTENSITY RATING FOR ECOLOGY			
STATUS	**RATING**		**DESCRIPTION**
Negative	0	Negligible	Where impacts do not really affect the environment and no mitigation is required
	2	Minor	A limited impact is foreseen which could possibly affect the environment and these impacts are not substantial and can easily be mitigated.
	4	Low	Where impacts will result in short-term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have a little real effect. (marginally affected)
	6	Medium	Where impacts will result in medium-term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium-term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate.
	8	High	Whereby effects will be long-term on the social, economic and/or bio- physical environment. These will need to be considered as constituting usually long-term changes to the environment. Mitigation is considered challenging and expensive.

	10	Very High	Where impacts should be considered as constituting major and usually permanent changes to the environment, and usually result in severe to very severe effects. Mitigation would have little to now effect on irreversibility

Table 3: Methodology of determining the significance rating of an impact

Criteria: SIGNIFICANCE		
"Significance"- attempts to evaluate the importance of a particular impact with mitigation measures included and also excluded. The significance was calculated using the following formula: **Significance = (Extent + Duration + Intensity) X Probability**		
RATING		**DESCRIPTION**
0-4	Very low	Where the impacts will not influence the development, social, cultural or natural environment.
5-12	Low	Where impacts will result in short-term effects on the social and/or natural environment. The impacts merit attention however are not deemed largely substantial and are likely to have a little real effect.
13-25	Medium	Where impacts will have a medium-term effect on the social and/or natural environment. These impacts need to be considered as constituting a fairly important and usually medium-term change to the environment, these impacts can be mitigated by implementing effective mitigation measures.
26-44	High	Whereby effects will be long-term on the social economic and or bio- physical environment. The impacts could have a major effect on the environment. This may bring forth the consideration of no-go areas/open areas on the development land regardless of mitigations implemented. Mitigation is however possible.
45	Very High	Whereby effects will be permanent on the social economic and or bio- physical environment. Such impacts cannot be mitigated.

Table 4: PRE-CONSTRUCTION PHASE POTENTIAL IMPACTS AND MITIGATION MEASURES

Activity	**Potential Impact**	**Significance Before Mitigation**	**Mitigation Measures**	**Significance after**
Site investigations (surveying, geotechnical drilling)	Disturbance of riparian vegetation and riverbanks	Medium	• Restrict investigations to designated access routes. • Use handheld equipment where possible. • Avoid unnecessary vegetation clearance. • Reinstate disturbed areas immediately after investigations. • Conduct surveys outside breeding seasons for sensitive fauna.	Low
Land acquisition and servitude establishment	Loss of land, displacement of activities, stakeholder conflict	High	• Undertake transparent stakeholder engagement. • Fair compensation according to applicable legislation. • Maintain access to affected properties. • Resolve grievances through an established grievance mechanism.	Low

Design of bridge	Poor hydraulic design resulting in flooding or erosion	High	• Complete hydraulic modelling using 1:100-year flood levels. • Design bridge soffit above flood levels. • Minimize number of piers within active channel. • Incorporate climate change projections.	Low
Environmental approvals and permitting	Delays due to non-compliance	Medium	• Obtain all environmental permits before construction. • Secure water use authorization where applicable. • Obtain heritage and biodiversity clearances.	Low
Establishment of construction camp	Vegetation removal and soil disturbance	Medium	• Locate camp outside riparian zone and floodplain. • Use previously disturbed land where possible. • Fence camp boundary. • Provide sanitation and waste facilities before occupation.	Low
Workforce recruitment	Community conflict over employment	Medium	• Prioritize local employment. • Develop transparent recruitment procedures.	Low

			• Communicate employment opportunities publicly.	
Material sourcing	Unsustainable extraction from borrows pits Environmental degradation from material extraction	High	• Obtain materials from licensed commercial suppliers. • Avoid extraction from the Olifants River unless specifically authorized. • Verify environmental compliance of suppliers. • Avoid opening new borrow pits unless authorized.	Low
Access road planning	Habitat fragmentation	Medium	• Utilize existing roads where possible. • Minimize new access routes. • Restore temporary roads after construction.	Low

Table 5: CONSTRUCTION PHASE POTENTIAL IMPACTS AND MITIGATION MEASURES

Activity	**Potential Impact**	**Significance Before**	**Mitigation**	**Significance after**
Vegetation Clearing	Loss of riparian, indigenous and habitat vegetation	High	• Delineate clearing limits. No unnecessary clearing. Rescue protected plants. Retain mature indigenous trees were safe.	Medium

			Rehabilitate immediately after construction. • Rescue protected plant species where required	
Soil Disturbance	Soil erosion, gullying, and sedimentation	High	• Install erosion control blankets, berms, silt fences, sediment traps, temporary drainage, and immediate rehabilitation. Stabilize exposed soil within 14 days. • Limit earthworks during heavy rainfall periods.	Low
Earthworks and Cut-and-Fill Operations	Slope instability and landslides	High	• Design stable cut and fill slopes. Install retaining structures where necessary. Compact fill in accordance with engineering specifications. Implement drainage measures to prevent slope saturation.	Low
Surface Water and Drainage	Sedimentation and alteration of natural drainage	High	• Maintain natural drainage pathways where practicable. Install culverts, stormwater channels, energy dissipaters, and sediment	Medium

			basins. Prevent uncontrolled runoff into watercourses.	
River Works	Increased turbidity	Very High	• Schedule in-stream work during low-flow season. Use cofferdams or temporary diversion where feasible. Install turbidity curtains. Minimize disturbance duration. Monitor turbidity upstream/downstream daily.	Medium
Water Pollution	Fuel, oil and concrete contamination	Very High	• Fuel storage >100 m from river. Bunded fuel storage (110% capacity). Refuel only in designated areas. Spill kits available. No washing of concrete equipment near watercourse. Collect concrete wash water. Emergency spill response plan implemented.	Low
Aquatic Ecosystems	Fish mortality and habitat disturbance	High	• Avoid fish breeding periods. Minimize pile driving duration. Maintain ecological flow. Prevent debris entering river. Remove	Medium

			temporary structures after construction	
Wildlife	Disturbance to birds, reptiles and mammals	Medium	• Restrict work to daylight hours. Speed limit ≤30 km/h. No hunting or trapping. Environmental awareness training. Wildlife rescue procedures.	Low
Air Quality	Dust generation	Medium	• Water haul roads. Cover trucks. Enforce speed limits. Suspend earthworks during high winds if dust becomes excessive. Maintain equipment.	Low
Noise	Construction noise	Medium	• Restrict noisy activities to daytime. Maintain silencers. Notify nearby communities before blasting or pile driving. Monitor noise if receptors are nearby.	Low
Traffic	Traffic congestion and accidents	High	• Traffic Management Plan. Flag personnel. Temporary signage. Maintain emergency access. Schedule deliveries outside peak hours where possible.	Low

Waste Management	Solid and hazardous waste	High	• Waste segregation. Licensed disposal facilities. Hazardous waste manifests. Daily housekeeping. No dumping within floodplain.	Low
Heritage Resources	Damage to archaeological resources	Medium	• Implement Chance Finds Procedure. Stop work immediately if artifacts or graves are discovered. Notify heritage authorities before resuming work.	Low
Occupational Health and Safety	Worker injuries	High	• Site-specific Health and Safety Plan. PPE. Working-at-height systems. Confined-space procedures. Daily toolbox talks. First aid and emergency response.	Low
Flood Risk	Flood damage to works	High	• Monitor weather forecasts. Emergency evacuation plan. Remove equipment before predicted floods. Design temporary works for flood events.	Low
Visual Impact	Construction visual intrusion	Medium	• Good housekeeping. Screen stockpiles where practical. Remove	Low

			redundant materials promptly. Progressive rehabilitation.	
Social Impacts	Create permanent jobs.	Very High (+)	• No mitigation measures. • Prioritize local employment where practical. Communicate construction schedules. Operate a grievance mechanism. Maintain access to community facilities.	HIGH POSITIVE IMPACT

Table 6: OPERATIONAL PHASE POTENTIAL IMPACTS AND MITIGATION MEASURES

Activity	Potential Impact	Significance Before	Mitigation	Significance after
Hydrology	Alteration of river hydraulics	Medium	• Routine inspection of piers. Remove debris after floods. Monitor scour. Maintain designed flow capacity.	Low
Scour	Pier scour	High	• Annual bathymetric inspections where appropriate. Install and maintain scour protection (e.g., riprap, gabions, articulated concrete blocks). Repair erosion immediately after flood events.	Low

Water Quality	Road runoff entering river	Medium	• Install bridge deck drainage with oil/sediment traps where appropriate. Routine cleaning of drainage systems. Emergency spill containment plan for hazardous cargo accidents.	Low
Biodiversity	Wildlife disturbance	Medium	• Maintain riparian rehabilitation. Control invasive alien plants. Minimize maintenance disturbance during breeding seasons.	Low
Invasive Species	Colonization by invasive alien plants	Medium	• Annual inspections. Mechanical or approved chemical control. Follow-up monitoring for at least three years.	low
Structural Integrity	Bridge deterioration	High	• Routine structural inspections. Preventive maintenance program. Corrosion protection. Expansion joint maintenance. Repair defects promptly.	low
Traffic Safety	Vehicle accidents	Medium	• Install guardrails, reflective signage, pavement markings,	Low

			lighting where required, and regular maintenance.	
Road safety	Increased risk of vehicle accidents	High	• Install appropriate road markings, reflective signage, guardrails, delineators, speed-control measures, and pedestrian crossings where warranted. Conduct routine road safety audits.	Low
Flood Debris	Debris accumulation against piers	Medium	• Inspect after every significant flood. Remove accumulated debris promptly. Maintain emergency response capability.	Low
Noise	Increased traffic noise	Medium	• Maintain smooth road surface. Install barriers only if monitoring indicates unacceptable noise levels at sensitive receptors.	Low
Air Quality	Vehicle emissions	Medium	• Promote efficient traffic flow through good road maintenance. Avoid unnecessary congestion caused by maintenance activities.	Low
Road operation	Increased traffic noise	Medium	• Maintain road surface to reduce tire noise. Install noise barriers where	Low

			monitoring demonstrates a need near sensitive receptors.	
Wildlife mortality	Vehicle collisions with fauna	Medium	• Install wildlife warning signs in sensitive areas. Maintain roadside vegetation to improve visibility. Consider wildlife crossings or fencing where justified by monitoring.	Medium
Road maintenance	Temporary disturbance during repairs	Low	• Schedule maintenance during dry weather where feasible. Implement temporary erosion controls and manage wastes appropriately.	Low
Climate resilience	Flood damage and infrastructure failure	High	• Inspect culverts and drainage systems before and after the rainy season. Remove debris regularly. Upgrade drainage and embankment protection where monitoring indicates increased flood risk due to climate change.	Medium
Socio-Economic Impact	Better access to other community resources.	Very High (+)	No mitigation measures.	HIGH POSITIVE IMPACT

Given the project's location within a Critical Biodiversity Area 2 (CBA 2) and the proposed construction of a bridge over the Olifants River, the following mitigation measures should be implemented to minimise impacts on the terrestrial and aquatic environment:

- Establish and maintain clearly demarcated no-go areas within environmentally sensitive habitats, including the riparian zone of the Olifants River, outside the approved construction footprint. The extent of the riparian buffer shall be determined through the findings and recommendations of the aquatic specialist and applicable regulatory requirements.
- Restrict all construction activities, including vegetation clearing, stockpiling of materials, equipment storage, refuelling, waste disposal, batching, and vehicle parking, to the approved construction footprint. No project-related activities shall be permitted within the demarcated no-go areas unless specifically authorised.
- Implement a Stormwater Management Plan to control surface runoff during construction and operation. Appropriate erosion and sediment control measures, such as silt fences, sediment traps, berms, and diversion channels, shall be installed and maintained to prevent sediment-laden runoff from entering the Olifants River.
- Minimise disturbance to the riverbed, banks, and riparian vegetation during bridge construction and undertake in-stream works during low-flow periods where practicable, in accordance with the recommendations of the aquatic specialist and the relevant water use authorisation.
- Develop and implement an Alien and Invasive Species Management Plan to prevent the introduction and spread of invasive alien plant species during construction and to rehabilitate disturbed areas with indigenous vegetation upon completion of the works.
- Clearly demarcate all CBA 2 areas, riparian habitat, drainage lines, and other environmentally sensitive features as permanent no-go areas before the commencement of construction activities.
- Appoint an independent Environmental Control Officer (ECO) to monitor compliance with the Environmental Management Programme (EMPr), environmental authorisation conditions, and specialist recommendations throughout the construction phase, and undertake regular environmental compliance inspections.
- Monitor erosion, sedimentation, water quality, and the condition of the riparian habitat during construction and, where necessary, during the operational phase. Any environmental degradation identified shall be addressed through appropriate rehabilitation and adaptive management measures.

- Ensure that all disturbed areas outside the permanent infrastructure footprint are rehabilitated as soon as practicable following construction through reshaping, stabilisation, topsoil replacement, and re-vegetation with suitable indigenous plant species.
- Conduct environmental awareness training for all contractors and site personnel before construction commences to ensure that they understand the environmental sensitivities of the site, the location of no-go areas, and the procedures required to protect the Olifants River and surrounding CBA 2.

3. Cumulative Impacts

Cumulative impacts are those impacts that result from the incremental effect of the proposed development when considered together with existing, approved, and reasonably foreseeable developments within the surrounding area. For the proposed bridge construction over the Olifants River and the upgrading of Road D5010 and construction of Road D5021, the primary cumulative impacts relate to the disturbance of aquatic and terrestrial ecosystems, habitat fragmentation, water quality, stormwater management, and increased human activity within a Critical Biodiversity Area 2 (CBA 2) and the Olifants River corridor.

Cumulative Impacts on the Olifants River and Water Resources

The proposed bridge construction has the potential to contribute cumulatively to impacts on the Olifants River, particularly when considered alongside existing road infrastructure, river crossings, and other developments within the catchment. Construction activities such as excavation, earthworks, temporary access routes, and in-stream works may increase sedimentation, alter flow characteristics, and disturb the riverbed and riparian habitat if not adequately managed.

Although these impacts may contribute to cumulative pressures on the watercourse, activities affecting the river will be undertaken in accordance with the requirements of the National Water Act, 1998 (Act No. 36 of 1998), including the applicable Water Use Authorisation for Section 21(c) and Section 21(i) water uses. Compliance with the authorisation conditions, together with the implementation of appropriate mitigation measures, will minimise the project's cumulative impact on the Olifants River.

Cumulative Impacts on Water Quality

Construction activities associated with the bridge and road works have the potential to cumulatively affect surface water quality through increased sediment runoff, accidental fuel and oil spillages, concrete wash water, and erosion of exposed soils. When combined with existing land uses and infrastructure

developments within the catchment, these activities may contribute to elevated turbidity and deterioration of water quality. The proposed development incorporates mitigation measures to minimise these impacts, including the implementation of a Stormwater Management Plan, erosion and sediment control measures, appropriate storage and handling of hazardous substances, designated refuelling areas, proper waste management, and rehabilitation of disturbed areas immediately following construction.

Cumulative Biodiversity Impacts

The project is located within a Critical Biodiversity Area 2 (CBA 2), where existing infrastructure and land-use activities have already contributed to habitat disturbance and fragmentation. Construction of the bridge and associated road infrastructure may result in the temporary loss of indigenous vegetation, disturbance to fauna, and reduced ecological connectivity if sensitive habitats are not adequately protected. However, the project has been designed to minimise biodiversity impacts by limiting disturbance to the approved construction footprint, avoiding environmentally sensitive areas where practicable, and retaining the surrounding natural habitat outside the development footprint. Rehabilitation of disturbed areas and protection of the Olifants River riparian zone will further reduce cumulative impacts on biodiversity and ecological processes.

Cumulative Soil Erosion and Land Degradation

Road construction, bridge earthworks, and vegetation clearing may collectively contribute to soil erosion, land degradation, and sediment transport, particularly when considered alongside other infrastructure developments within the area. These impacts are likely to be most significant during the construction phase if erosion control measures are not effectively implemented. The proposed project will reduce these risks through the implementation of erosion prevention measures, slope stabilisation, stormwater management infrastructure, appropriate rehabilitation of disturbed areas, and regular environmental monitoring throughout construction.

Cumulative Socio-economic Impacts

From a socio-economic perspective, the proposed bridge and road upgrading project is expected to contribute positively to cumulative regional development. Together with existing and planned infrastructure improvements within the Sekhukhune and Capricorn District Municipalities, the project will improve transportation efficiency, enhance road safety, strengthen connectivity between surrounding communities, improve access to healthcare, education, employment opportunities, and markets, and support long-term economic development within the region. Temporary employment opportunities during

construction and improved accessibility following project completion will further contribute to regional socio-economic benefits.

Mitigation Measures for Cumulative Impacts

To minimise cumulative impacts, the following measures should be implemented:

- Comply fully with the conditions of the Environmental Authorisation and any applicable Water Use Authorisation issued in terms of the National Water Act.
- Restrict all construction activities to the approved development footprint and minimise disturbance to surrounding natural vegetation and CBA 2 areas.
- Protect the Olifants River and associated riparian habitat through the implementation of erosion, sediment, and stormwater control measures.
- Schedule in-stream works, where practicable, during periods of low river flow and minimise the duration of activities within the watercourse.
- Prevent pollution of surface water through appropriate storage, handling, and disposal of fuels, oils, concrete, chemicals, and construction waste.
- Rehabilitate all disturbed areas as soon as practicable following construction using appropriate indigenous vegetation.
- Implement an Alien and Invasive Species Management Plan throughout the construction and operational phases.
- Appoint an independent Environmental Control Officer (ECO) to monitor compliance with the Environmental Management Programme (EMPr), specialist recommendations, and authorisation conditions.
- Undertake regular monitoring of erosion, sedimentation, water quality, and the condition of the riparian habitat, and implement corrective actions where required.
- Conduct environmental awareness training for all contractors and site personnel to ensure compliance with environmental management requirements and the protection of environmentally sensitive areas.

4. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

Phase	Impact Type	Duration	Likelihood	Significance (after mitigation)
Planning & Design	Land-use conflict / site sensitivity	Short-term	Low (with screening)	Low
	Poor facility design (waste/water management)	Long-term if unmanaged	Low (with proper design)	Low
Construction	Vegetation clearance / habitat disturbance	Short-term	Moderate	Low–Medium
	Soil erosion & dust generation	Short-term	Moderate	Low
	Noise & traffic disturbance	Short-term	Moderate	Low
	Construction waste generation	Short-term	High	Low (with licensed disposal)
Operational	Flood damage and infrastructure failure	Short-term	High	Low (with inspection of culverts and drainage systems)
	Positive: Improved access to other community resources	Long-term	High	High
Decommissioning	Demolition rubble / waste generation	Short-term	High	Low (with licensed disposal)
	Soil exposure & erosion	Short-term	Moderate	Low (with rehabilitation)
	Job losses / economic impact	Medium-term	Moderate	Medium (social impact)

No-go alternative (compulsory)

No-Go Alternative

The No-Go Alternative entails that the proposed construction of the new bridge over the Olifants River, the upgrading of Road D5010, and Road D5021 do not proceed, and the project area remains in its current state. Under this alternative, no bridge or road infrastructure would be constructed, no vegetation would be cleared, no earthworks would be undertaken, and no activities would occur within or adjacent to the Olifants River. Consequently, the existing ecological characteristics of the site, including the Critical Biodiversity Area 2 (CBA 2), the riparian habitat, and the aquatic ecosystem associated with the Olifants River, would remain largely unchanged.

From an environmental perspective, the No-Go Alternative would avoid the potential impacts associated with vegetation clearing, habitat disturbance, soil erosion, increased sedimentation, alteration of the riverbed and banks, disturbance to aquatic and terrestrial fauna, and temporary deterioration of water quality during construction. It would also maintain the existing biodiversity, ecological connectivity, and ecological functioning of the CBA 2 and the Olifants River corridor.

However, although the project is located within a CBA 2 and traverses the Olifants River, the proposed development has been designed to minimise environmental impacts by restricting disturbance to the minimum footprint required for the bridge, road upgrades, and associated infrastructure. The final design has sought to avoid environmentally sensitive areas where practicable, while appropriate mitigation measures, rehabilitation, and environmental monitoring will be implemented to reduce impacts on the terrestrial and aquatic environments. Compliance with the Environmental Management Programme (EMPr), specialist recommendations, Environmental Authorisation, and the applicable Water Use Authorisation will further ensure that environmental impacts are effectively managed.

Implementation of the No-Go Alternative would also result in the loss of the anticipated socio-economic benefits associated with the project. These include improved road safety, reliable all-weather access across the Olifants River, enhanced connectivity between surrounding communities, reduced travel times and vehicle operating costs, improved access to healthcare, education, emergency services, and economic opportunities, as well as temporary employment opportunities during the construction phase and long-term regional economic development.

For these reasons, although the No-Go Alternative offers the greatest level of environmental protection by avoiding direct impacts on the CBA 2 and the Olifants River, it is not considered the preferred option. The

preferred alternative is the proposed bridge construction and road upgrading, implemented in accordance with appropriate environmental mitigation measures, specialist recommendations, and legislative requirements to minimise environmental impacts while delivering significant socio-economic benefits to the surrounding communities.

Alternative B

[redacted]

Alternative C

[redacted]

For more alternatives, please continue as alternative D, E, etc.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	[redacted]

Environmental Assessment Practitioner (EAP) Recommendation

Based on the findings of the Basic Assessment process, the specialist studies undertaken, the consideration of project alternatives, and the assessment of potential environmental and socio-economic impacts, the Environmental Assessment Practitioner (EAP) is of the opinion that the proposed construction and upgrading of Road D5021 and D5010, including the associated infrastructure, can proceed, subject to the implementation of the recommended mitigation measures and compliance with all applicable environmental legislation.

The proposed development has been designed to minimise environmental impacts by limiting disturbance to the minimum footprint required for the bridge, road infrastructure, and associated construction activities. The project layout has sought to avoid environmentally sensitive areas where practicable, while incorporating measures to protect the Olifants River, its riparian habitat, and the surrounding Critical Biodiversity Area 2 (CBA 2). Rehabilitation of all temporarily disturbed areas following construction will further reduce the project's long-term environmental footprint.

Potential impacts associated with vegetation clearing, in-stream construction activities, alteration of the riverbed and banks, soil erosion, stormwater management, water quality, biodiversity, noise, dust, and construction activities have been assessed and found to be of low to moderate significance following the implementation of the mitigation measures contained in this Basic Assessment Report and the accompanying Environmental Management Programme (EMPr). No fatal flaws were identified that would preclude the proposed development from proceeding.

The proposed bridge and road infrastructure will contribute positively to regional socio-economic development by improving transportation efficiency, enhancing road safety, providing reliable all-weather access across the Olifants River, reducing travel times and vehicle operating costs, improving access to healthcare, education, emergency services, and economic opportunities, and creating temporary employment opportunities during the construction phase. The project will also strengthen connectivity between communities within the Fetakgomo Tubatse and Lepelle-Nkumpi Local Municipalities, thereby supporting long-term regional development.
The Applicant has committed to limiting disturbance to the approved construction footprint, protecting environmentally sensitive areas, implementing erosion and stormwater control measures, rehabilitating disturbed areas, controlling alien invasive species, complying with the Environmental Management Programme (EMPr), and implementing all recommendations contained in the specialist studies. In addition, the Applicant will comply with all conditions of the Environmental Authorisation issued in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and obtain the necessary Water Use Authorisation in terms of Section 21(a), Section 21(c) and Section 21(i) of the National Water Act, 1998 (Act No. 36 of 1998), prior to the commencement of construction.

It is therefore the recommendation of the Environmental Assessment Practitioner that the Competent Authority grant Environmental Authorisation for the proposed bridge construction and road upgrading project, subject to the implementation of the mitigation measures and management actions contained in this Basic Assessment

Report and the accompanying Environmental Management Programme (EMPr), as well as compliance with all applicable statutory requirements, specialist recommendations, and authorisation conditions.

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the department in respect of the application:

Recommended Conditions of Environmental Authorisation

Should the Competent Authority decide to grant Environmental Authorisation for the proposed construction and upgrading of Road D5021 and D5010, including the associated infrastructure, it is recommended that the following conditions be included in the Environmental Authorisation.

General Conditions

1. The development shall be undertaken strictly in accordance with the approved Basic Assessment Report (BAR), Environmental Management Programme (EMPr), and all specialist recommendations.
2. The Environmental Authorisation shall apply only to the approved bridge, road construction, and associated infrastructure as assessed during the Basic Assessment process. No expansion or deviation from the approved footprint shall occur without the prior approval of the Competent Authority.
3. Construction activities shall be confined to the approved development footprint, and disturbance to surrounding natural vegetation and environmentally sensitive areas shall be minimised at all times.

Biodiversity and Vegetation

4. No clearing of indigenous vegetation outside the approved construction footprint shall be permitted.
5. All environmentally sensitive areas identified during the environmental assessment, including the Critical Biodiversity Area 2 (CBA 2), riparian habitat, drainage lines, wetlands (where applicable), and protected vegetation, shall be clearly demarcated as No-Go Areas before construction commences.
6. Protected trees, should any be encountered, shall not be removed, damaged, or disturbed without the necessary permit issued in terms of the National Forests Act, 1998 (Act No. 84 of 1998).
7. Alien and invasive plant species shall be controlled throughout the construction and operational phases in accordance with the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

Water Resources

8. No construction activities within the Olifants River or associated watercourses shall commence until the Applicant has obtained the required Water Use Authorisation in terms of Section 21(a), Section 21(c) and Section 21(i) of the National Water Act, 1998 (Act No. 36 of 1998), where applicable.

9. The riparian zone and other sensitive aquatic habitats outside the approved construction footprint shall be protected and maintained as No-Go Areas. No stockpiling of materials, refuelling, waste disposal, batching of concrete, or storage of hazardous substances shall occur within regulated watercourse areas unless specifically authorised.
10. Appropriate stormwater, erosion, and sediment control measures shall be implemented throughout the construction period to prevent sediment-laden runoff and pollutants from entering the Olifants River and associated drainage lines.
11. In-stream construction activities shall be minimised and undertaken, where practicable, during periods of low river flow in accordance with specialist recommendations and the applicable Water Use Authorisation.

Soil and Construction Management

12. Topsoil removed during construction shall be stripped separately, stockpiled appropriately, protected from erosion, and reused during rehabilitation where applicable.
13. Appropriate erosion prevention and soil stabilisation measures shall be implemented throughout construction to minimise erosion, sedimentation, and land degradation.
14. Construction materials, concrete, fuels, oils, and hazardous substances shall be stored, handled, and used in accordance with applicable legislation and best environmental practice to prevent contamination of soil and water resources.

Waste Management

15. All waste generated during construction shall be managed in accordance with the waste hierarchy of avoidance, reduction, reuse, recycling, and lawful disposal.
16. No waste shall be buried, burned, or disposed of within the project area unless authorised in terms of applicable legislation.

Pollution Prevention

17. Fuel, oils, chemicals, and other hazardous substances shall be stored within impermeable, bunded areas capable of containing at least 110% of the volume of the largest container.
18. Spill kits shall be readily available on site, and all spillages shall be contained, cleaned up, and disposed of appropriately immediately after occurrence.

Heritage and Chance Finds

19. Should any archaeological material, graves, fossils, or other heritage resources be discovered during construction, all work in the immediate vicinity shall cease immediately, and the South African Heritage Resources Agency (SAHRA) or the relevant Provincial Heritage Resources Authority shall be notified for further instruction before work resumes.

Environmental Management

20. The EMPr shall be implemented throughout the construction and operational phases of the project and reviewed where necessary to ensure its continued effectiveness.
21. All contractors and personnel shall receive environmental awareness training before commencing work, with specific emphasis on the protection of the Olifants River, CBA 2, No-Go Areas, pollution prevention, and emergency response procedures.
22. Environmental records, including environmental incidents, waste disposal records, rehabilitation activities, water quality monitoring results, alien invasive species control, and corrective actions, shall be maintained and made available to the Competent Authority upon request.
23. An independent Environmental Control Officer (ECO) shall be appointed for the duration of the construction phase to monitor compliance with the Environmental Authorisation, EMPr, and specialist recommendations.

Rehabilitation

24. All areas temporarily disturbed during construction that are not required for the permanent infrastructure shall be rehabilitated as soon as reasonably practicable using appropriate indigenous vegetation where applicable.
25. Upon completion of construction, all temporary infrastructure, construction camps, stockpile areas, and access tracks no longer required shall be removed, and the affected areas shall be rehabilitated to the satisfaction of the Competent Authority.

Compliance

26. The holder of the Environmental Authorisation shall comply with all applicable environmental legislation, including the National Environmental Management Act, 1998 (Act No. 107 of 1998), the National Water Act, 1998 (Act No. 36 of 1998), the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), the National Forests Act, 1998 (Act No. 84 of 1998), and any other applicable legislation.
27. The Competent Authority shall be notified of any significant environmental incidents, non-compliance, pollution events, or emergency situations, and appropriate corrective measures shall be implemented without delay.

Is an EMPr attached?	YES

The EMPr must be attached as Appendix F.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Motivation for exclusions of specialist studies required in the Screening Tool Report

Appendix E: Specialist reports (including Engineering Services Report, if applicable)

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Comments and responses report

Appendix H: **Other information (including proof of availability of engineering services.**

SECTION G: DECLARATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, Dr. Patrick Sithole declare that I –

(i) act as the independent environmental practitioner in this application;

(b) do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

(c) do not have and will not have a vested interest in the proposed activity proceeding;

(d) have no, and will not engage in, conflicting interests in the undertaking of the activity;

(e) undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;

(f) will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;

(g) will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the Department in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the Department may be attached to the report without further amendment to the report;

(h) will keep a register of all interested and affected parties that participated in a public participation process; and

(i) will provide the Department with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

Signature of the Environmental Assessment Practitioner:

QEMS Management and Business Solutions cc

Name of company:

Date: